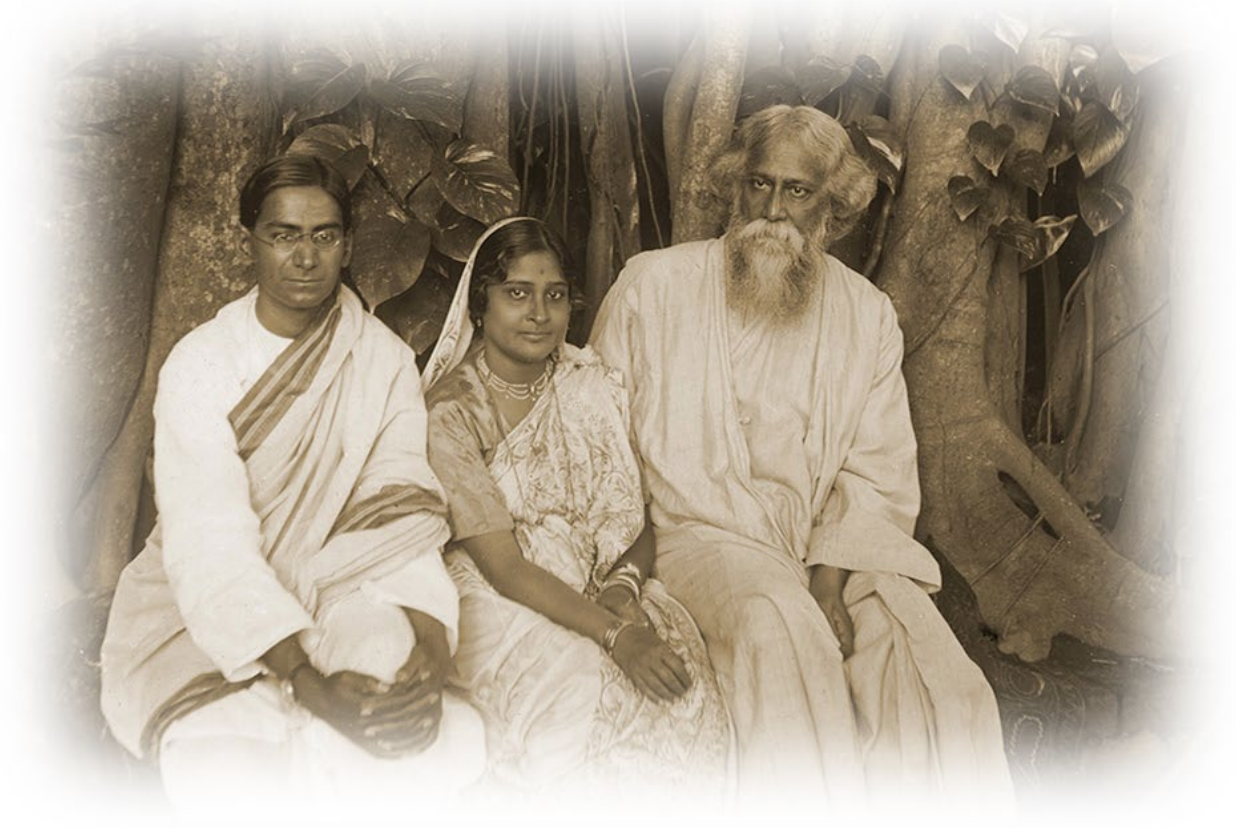
Indian Statistical Institute

Annual Report 2022-23

91st

ANNUAL REPORT 2022-23



STATISTICAL INSTITUTE INDIAN
भिन्ने चैक्यस्य दर्शनम्
UNITY IN DIVERSITY

Indian Statistical Institute

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https://www.isical.ac.in

Contents

PREFACE

After two years of pandemic-led disruptions, the year 2022-23 marked a return to normalcy in our activities. Though the world is fast becoming a global connected village, fortunately the geopolitical tensions have not had much impact on our activities. The Annual Report 2022-23 endeavours to summarize the salient research, teaching, training and consultancy activities which the ISI faculty members carried out during the period under review.

The compilation of this report requires the support and co-operation of not only the scientific workers but also of the non-scientific workers. They are gratefully acknowledged. Special thanks are due to our colleagues at the Public Relations Unit for tirelessly burning the mid-night oil for its completion. Inadvertent errors and/or omissions are regretted.

M Z Anis
Chairperson

The Editorial Board

From the Director's Desk

It is my privilege to present before you the Annual Report 2022-2023 of the Indian Statistical Institute. Founded in December 1931 by the visionary Prof Prasanta Chandra Mahalanobis, this Institute has completed more than ninety-one years of existence. The Institute became an Institution of National Importance with the ISI Act 1959. With the headquarters in Baranagar, Kolkata, the Institute has centres in various cities of India, a branch in Giridih and a few outlying Units of the Statistical Quality Control and Operations Research Division. The scientists and students of the Institute continue to make theoretical and methodological developments in statistics and allied areas, and use these in practical applications with reference to problems of planning for national development and social welfare. *Unity in Diversity* remains the guiding vision of the Institute. Responding to the demands of the current times, multidisciplinary research in data driven science is being conducted in various domains like health care, environmental science, agriculture, ecology, financial analysis, social networks, policy design, economic planning, video analytics, to name just a few.

The year 2022-23 saw the Institute continue to flourish under the able leadership and guidance of Prof. Sankar K. Pal, the President of the Institute, and Dr. Pronab Sen, the Chairman of the ISI Council. The Institute conducted its 57th Convocation on 31st January 2023. Sir David John Spiegelhalter, FRS, a Fellow of the Churchill College, Cambridge, was the Chief Guest at the event. The 91st Foundation Day of the Institute was celebrated in December 2022.

The faculty and students continue to bring recognition to the Institute through their scientific endeavors. I mention some of these here. Neena Gupta of the Theoretical Statistics & Mathematics Unit (TSMU), Kolkata received the 2nd Ganit Ratna Award 2023. She is also the recipient of the Bethune Prize for consistent Academic Performance in Mathematics. She was an invited Sectional Speaker at ICM 2022 in the sections "Algebra" as well as "Algebraic and Complex Geometry". Her biography was included in the book Vigyan Vidushi published by Vigyan Prasar, an autonomous organisation of the Department of Science and Technology (DST), Govt. of India, on the National Science Day 2023. Debashish Goswami of the Theoretical Statistics & Mathematics Unit, Kolkata has been elected Fellow of the Indian National Science Academy (INSA). B.V. Rajarama Bhat of the Theoretical Statistics & Mathematics Unit, Bangalore has been elected Fellow of the National Academy of Sciences, India (NASI). Umapada Pal of the Computer Vision and Pattern Recognition Unit (CVPRU), Kolkata has been elected Fellow of the National Academy of Engineering (INAE). Parthanil Roy of the Theoretical Statistics & Mathematics Unit, Bengaluru and Sanghamitra Bandyopadhyay have been elected Fellows of the Indian Academy of Sciences. Sanghamitra Bandyopadhyay was also honored by the media houses The Telegraph with the SHE AWARD and the New Indian Express with the Devi Award. The scientific journeys of Sanghamitra Bandyopadhyay and Sushmita Mitra are chronicled in the UNESCO publication called "A Braided River", while Bandyopadhyay, Mitra and Susmita Sur-Kolay featured in the book titled "Women Engineers in India" published by the Indian National Academy of Engineering. The volume also mentions three research fellows associated with the Institute, namely Pallabi Dutta, Sanhita Basu and Sanjukta Chakravorty. Contributions of Sanghamitra Bandyopadhyay has also been highlighted in the book Vigyan Vidushi published by the Vigyan Prasar, Govt. of India.

The Institute has started its first fully online Diploma in Applied Statistics Program. IDEAS-TIH is focussing on translational research to build a bridge between academia and industry. It has on-boarded two promising start-ups who are in the process of developing their products. The CAIML is working on developing a reinforcement learning model for the prediction of stages in Duchenne Muscular Dystrophy.

Farzana Afridi of Economics and Planning Unit (EPU), Delhi Centre won the Mahalanobis Gold Medal – 2020. She is the Non-resident Fellow, Centre for Development Economics and Sustainability, Monash University, Australia. Arunava Sen of the Economics and Planning Unit, Delhi, received the Professor A.L. Nagar Fellow award given by the Indian Econometric Society. Sushmita Mitra of the Machine Intelligence Unit (MIU), Kolkata has been elected Fellow of The World Academy of Sciences (TWAS). Arup Bose of the Theoretical Statistics and Mathematics Unit, Kolkata has been elected Council Member of INSA. He is the INSA nominated Member of the Science Education Panel of the three National Academies for 2022-2024. E. Somanathan of the Economics and Planning Unit, Delhi has been selected for the prestigious class of Fellow Scholars 2022-23 given by the Center for Advanced Study in the Behavioral Sciences (CASBS) at the Stanford University, USA. He has advised the Department of Economic Affairs, Ministry of Finance, Govt. of India, on GHG (Green House Gas) mitigation and negotiations in the G20 summit 2023 held in Delhi. He has been invited to work on monitoring and evaluation along with the Energy Management Centre, Government of Kerala, on solar rooftop and electric cooking uptake. B. S. Daya Sagar of the Systems Science and Informatics Unit (SSIU), Bangalore has been recognized as IEEE Geoscience and Remote Sensing Society (GRSS) Distinguished Lecturer (DL) by IEEE GRSS for the period between 2020-2023 for his notable research contribution in the field of Geosciences and Remote Sensing. Md. Zafar Anis of the SQC and OR Unit, Kolkata has been elected Vice-President (Membership & Outreach) of the International Society for Business & Industrial Statistics for 2021-23. Susmita Sur-Kolay of the Advanced Computing and Microelectronic Unit (ACMU), Kolkata received the VLSI Society of India Women in Technology Leadership Award, 2022. Debayan Pakrashi of the Economic Research Unit received the American Journal of Agricultural Economics (AJAE) Outstanding Article Award at the 2023 AAEA (Agricultural and Applied Economics Association) Annual Meeting. Chetan Ghate of the Economics and Planning Unit, Delhi was appointed Director, Institute of Economic Growth. He presented the Keynote Address at the Indian Economic Association. He was also the Keynote Speaker at the IIM Calcutta Workshop on Contemporary Issues in the Indian Economy. Niladri Sekhar Dash of the Linguistic Research Unit (LRU), Kolkata is selected as a Language Expert at the Bharatiya Bhasha Samiti, Ministry of Education, Govt. of India. He is also selected as a Language Expert at the Commission of the Scientific and Technical Terms (CSTT), Ministry of Education, Govt. of India. Debdulal Dutta Roy of the Psychology Research Unit, Kolkata received Anita Memorial Innovative Scientist Award, Indian Academy of Health Psychology. Dr. Rituparna Sen of the Applied Statistics Unit, Bangalore became the country coordinator of International Statistics Literacy Project of the International Statistical Institute. Biswanath Dutta of the Documentation Research and Training Centre, Bangalore has received the MTSR 2022 Best Paper Award at the 16th International Conference on Metadata and Semantic Research held at the University College London, UK. He was also awarded the Informatics Outstanding Researcher Award 2023. Swagatam Das of the Electronics and Communication Sciences Unit, Kolkata has won the 2022 Best Paper Award in the category of Editor's Selection for the Journal Applied Soft Computing by Elsevier. Ashis Kumar Chakraborty and Subrata Rath, SQC & OR received the 1st Best Paper Award in The International Symposium on "Driving Excellence Through Quality Management" organised in Bangalore by the Indian Society for Quality. Ashis Kumar Chakraborty, SQC & OR, Kolkata also received the 3rd Joint Best Paper Award in the same symposium. Kishor Chandra Satpathy of the Library, Documentation and Information Science Division has received the Best Paper Award at the International Conference on Knowledge Management in Higher Education Institutions (ICKHI 2022) held in Jaipur. Raghunath Chatterjee of Human Genetics Unit, Kolkata is elected an Executive Council Member of the Indian Society of Human Genetics. Sankar K. Pal, Emeritus Professor at the Institute and currently the President of the ISI Society became an Elected Member, European Academy of Sciences & Arts. Shanta Laishram of the Theoretical Statistics and Mathematics Unit, Delhi is the Deputy Leader, Indian Team, International Mathematical Olympiad 2022, Norway. Umapada Pal of the Computer Vision and Pattern Recognition Unit, Kolkata is the Fellow Committee Chair of the International Association for Pattern Recognition (IAPR). Charanya Ravi of the Theoretical Statistics and Mathematics Unit, Bangalore received the Ramanujan Fellowship. Madhura Swaminathan of the Economic Analysis Unit Bangalore was the Chair of the Research Advisory Committee, ICAR-Central Institute for Women in Agriculture. She is also a Member of the Council of Advisors, World Food

Prize Foundation. Jiban K. Pal of Library, Kolkata is selected as an Expert Committee Member, Re3data~CoREF Project of the German Research Foundation (DFG). Mr. Shantanab Das, Senior Research Fellow (SERB, DST), received the Best poster award at the 91st Annual Meeting of the Society of Biological Chemists (India), December 2022. Mr. Shib Sankar Roy, Project Linked Person, won the Best Poster Award at the 45th Symposium of the Optical Society of India: Conference on Optics, Photonics & Quantum Optics (COPaQ2022) held in November 2022. In the Simon Marais Mathematics Competition 2022, ISI students Souvik Roy and Amritendu Hait secured positions in the top quartile (individual participants category) and shared the Stonehage-Fleming Prize. ISI students Ishan Paul, Vaibhav Sherkar, Ritwick Pal and Soupayan Dasgupta secured positions in the top quartile (pair participants category) and the pair Ishan Paul & Vaibhav Sherka received the Stonehage-Fleming Prize, in the pair category. We are proud of the achievements of all of them.

The Institute has hosted several conferences and workshops during this period, some of which are mentioned here. A conference on Advanced Linear Algebra (2022) was organised by TSMU, Bangalore in collaboration with Himachal Pradesh University Summer Hill. The Unit also organized the follow up of the Summer School for Women in Mathematics and Statistics 2022, the 37th Annual Conference of the RMS and the PDF-RS Annual Symposium 2023. They also organized a discussion meeting on Linear Analysis jointly with IAS and IISc. A conference on Operator Theory and Complex Geometry was organised by TSMU, Kolkata in collaboration with IISER Kolkata. TSMU Kolkata also organized a DST funded Workshop on "Affine Spaces, Algebraic Group Actions, and LNDs" as well as a workshop on Analytic Number Theory. Diophantine Day @ ISI Delhi was organised by TSMU, Delhi Centre. SRELS Lecture Series 1 on Information Search Patterns in Complex Task and Lecture Series 2 on Assessing Information Search by Task Outcome, were organised by DRTC, Bangalore in association with SRELS. An International Conference on Emerging Digital Library Platforms: Shaping Digital Transformation and National Data Exchange was organised by DRTC, Bangalore in collaboration with SRELS, Digital Information Research Foundation and the Informatics India Pvt Ltd. The seventh conference and workshop on Statistical Methods in Finance was organised by Applied Statistics Unit (ASU), Bangalore in collaboration with the Chennai Mathematical Institute. The 17th Annual Conference on Economic Growth and Development was conducted by EPU, Delhi Centre.

A Workshop on Statistical Techniques in Research Methodology was organised by SQC & OR, Mumbai. NCM Workshop on Jacobi forms was jointly organised by Theoretical and Applied Sciences Unit (TASU), North East Centre and IIT Guwahati. TASU also organized a Workshop on "Application of Statistics & Machine Learning in Environmental Research". Brainstorming on Social Audit: Sharing Experience from States was organised by Sampling and Official Statistics Unit (SOSU), Kolkata. A National Conference on Recent Trends in Microbial, Plant and Animal Research was conducted by Agricultural and Ecological Research Unit (AERU), Giridih. A conference on Ecology, Epidemiology, and beyond: A Walk on the Students' Corridor was organised by AERU, Kolkata in collaboration with Ratanlal Brahmachari Foundation. AERU, Kolkata also organized a Winter School in Geospatial Science and Technology, and a seminar on Statistical and Research Methodologies with 'R' for Social Scientists in collaboration with North Eastern Hill University. A Workshop on Rating Scale Design and Analysis Using R-Studio was organised by PRU, Kolkata. FIRE 2022: 14th meeting of the Forum for Information Retrieval Evaluation was organised by CVPRU, Kolkata. A Workshop on Bayesian Inference and Computation was organised by Interdisciplinary Statistical Research Unit (ISRU), Kolkata. A Workshop on Machine Intelligence and Applications was organised by the MIU, Kolkata. The 10th Workshop on Digital Pictorial Photography, Photo Contest and Photography Exhibition was organised by the Library, Kolkata. A Seminar on 'Restoration of Museum Buildings: Issues and Challenges' was organised by the PCMMM&A, Kolkata.

The teaching programs of the Institute have been going on smoothly at the different campuses of the Institute. The Institute has started its first fully online Diploma in Applied Statistics Program. The recently launched post graduate program on Agricultural and Rural Management with Statistical Methods and Analytics is also running successfully in Giridih. The Institute has initiated supernumerary seats for girl students. Several short-term and certificate courses were conducted throughout the year.

Institute of Data Engineering, Analytics and Science Foundation, the Technology Innovation Hub (IDEAS – TIH) set up at ISI Kolkata as a Section 8 company under the aegis of National Mission on Interdisciplinary Cyber-Physical Systems of DST (DST-NM-ICPS) in the area of Data Science, Big Data Analytics and Data Curation is focussing on translational research to build a bridge between academia and industry. Several translational research projects are already underway, a few of them with collaborators in other Indian and foreign universities. IDEAS TIH has onboarded two promising start-ups who are in the process of developing their products under the mentorship of ISI faculty. IDEAS TIH also sponsors Chanakya Fellowships for interested Undergraduate, Post graduate and PhD scholars.

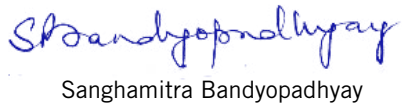
The R. C. Bose Centre for Cryptology and Security is focussing on interdisciplinary research in Mathematics, Computer Science and Statistics towards furtherance of teaching, research as well as training and development in Cryptology and Cyber Security. The centre successfully completed projects on different modules related to Cryptology funded by the National Technical Research Organisation (NTRO).

The Centre for Artificial Intelligence and Machine Learning (CAIML) is engaged in doing research in several niche areas of artificial intelligence (AI) and machine learning (ML). One of these areas addresses advanced ML techniques for cryptanalysis for the defence research and development organisation (DRDO).

In another project, the centre is working on developing a reinforcement learning model for the prediction of stages in Duchenne Muscular Dystrophy under the support from Google. In addition, researchers are involved in healthcare analytics and improving energy efficiency of electric vehicles.

The Cell for Collaboration with Academia, Industry and R&D labs has been active in handling the externally funded projects and consultancy activities in the Institute. MoUs have been signed/ extended/continued between ISI and several other organizations from the government, industry and academia. Some of the collaborating organizations are Daimler Chennai, Jamshedpur Management Association, SERB, Ministry of Electronics and Information Technology (MeitY), Tata Consultancy Services, Pfizer Healthcare India Pvt. Ltd., Eugenie.AI Inc., National Science Foundation, King's College London, Coromandel International Limited, QULABZ, UltraTech Cements, Gujarat, The Regents of the University of California, NSSTA, MOSPI, ClinChoice Private Limited, The Institute of Cost Accountants of India, JAMIPOL Limited, Jamshedpur, Schott Poonawalla, Gujarat, Thales India, Bangalore, Servify Mumbai, HAL Management Academy, Ministry of Earth Sciences, DST, Larsen & Toubro Infotech (LTI), Wipro Limited, Quality Council of India, Bharat Electronics Limited, Bangalore, Defence Institute of Advanced Technology (DIAT), Pune, J Harry Six Sigma Management Institute Asia, Deepak Fertilizer and Petrochemical Corporation Limited, The West Bengal Power Development Corporation Limited, Sequoia Climate Foundation, DRDO, NAI, Gun & Shell Factory, Cossipore, Semiconductor Research Corporation USA, State Finance Commission, Government of West Bengal, Indian Association of Dermatologist, Venerologist and Leprologists (IADVL), Rashtriya Chemicals & Fertilizers Limited, IIM Sambalpur, Trident India, Budhani, M.P., Indian Council of Medical Research, UPL Limited, ITC Limited, Paper Boards and Speciality Papers Division (PSPD), Kovai, Ashoka University, Godrej Consumer Products Limited, DES Tripura, TATA Steel, MSP Steel and Power Limited, Reliance Industries Limited, Vadodara, MOL Information Technology India Private Limited (MOL-IT), Serum Institute, Pune, Ramakrishna Mission Residential College, Narendrapur, Bill and Melinda Gates Foundation.

I remain grateful to the former President of the Institute, Shri Bibek Debroy, Chairman, Economic Advisory Council to the Prime Minister and to Dr. Ashok Kumar Lahiri, former Chairman of ISI Council as also to the current President Prof. Sankar K. Pal and the current Chairman of the ISI Council, Dr. Pronab Sen for their able leadership and guidance which has helped ISI in all its activities in 2022-2023. I am thankful to the Secretary, Ministry of Statistics and Programme Implementation and all other officials of the Ministry of Statistics and Programme Implementation, Government of India for their strong support. I thank all the scientific and non-scientific workers, students and all well-wishers of the Institute for extending their cooperation for the all-round development of the Institute.



March 31, 2023

Sanghamitra Bandyopadhyay

Chapter

1

The Institute

ABOUT THE INSTITUTE

The Indian Statistical Institute, an Institution of National Importance, is a premier and internationally acclaimed research, teaching and training institute.

Founder
Professor Prasanta Chandra Mahalanobis

Vision:

To nurture Statistics as a unifying force across disciplines; encompass emerging areas of research in all our scientific divisions and strive towards advancing data driven strategies for national development and social welfare.

Mission:

- To promote the study and dissemination of knowledge of Statistics, to develop statistical theory and methods, and their use in research and practical applications at large, with special reference to problems of planning for national development and social welfare;
- To undertake research in various fields of natural and social sciences with a view to the mutual development of Statistics and these sciences;
- To provide for, and undertake, the collection of information, investigations, projects, and operational research for purposes of planning and the improvement of efficiency of management and production; and
- To undertake any other ancillary activities in fulfillment of the objectives stated above.

1.1 LOCATIONS

Campus Locations and SQC&OR Units

The Indian Statistical Institute was formally established in 1932. The Institute has its headquarters in Baranagar, Kolkata. It has four other subsidiary centres at Delhi, Bangalore, Chennai and Tezpur, and a branch at Giridih. The R.C. Bose Centre for Cryptology and Security was created in 2014 and is also located in Kolkata. The various locations are shown on a map of India along with a separate list of units at each campus.

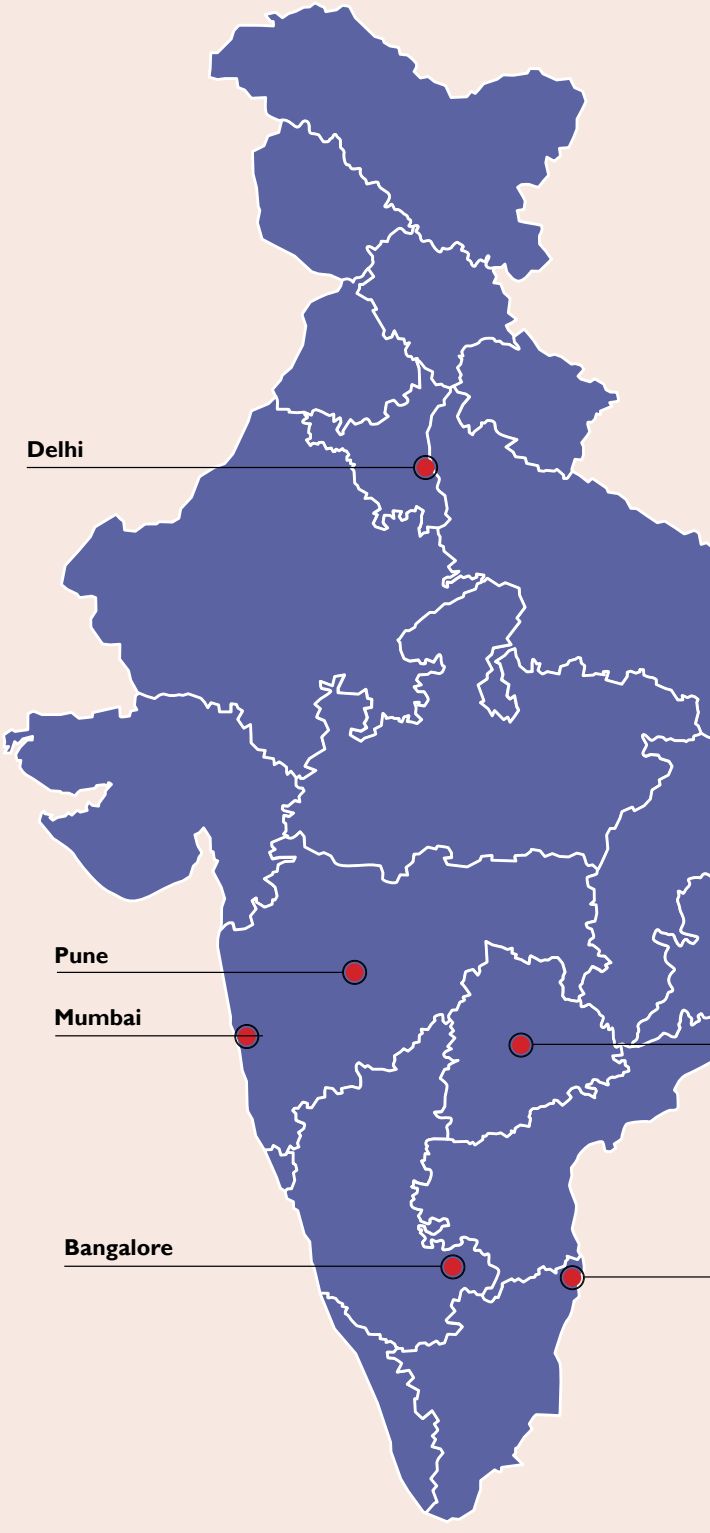
At Kolkata, West Bengal

(I) The Head Quarters of ISI

The main headquarters of the Institute, which shifted to its present campus in 1953, has a lush green sprawling campus in the northern fringe of the Kolkata metropolis. It has 19 academic units, a large and vibrant library, a computer and statistical services centre, two museums, two centres of excellence and a Technology Hub, namely

1. Advanced Computing and Microelectronics Unit (ACMU)
2. Agricultural and Ecological Research Unit (AERU)
3. Applied Statistics Unit (ASU)
4. Biological Anthropology Unit (BAU)
5. Computer Vision and Pattern Recognition Unit (CVPRU)
6. Economic Research Unit (ERU)
7. Electronics and Communication Sciences Unit (ECSU)
8. Geological Studies Unit (GSU) and the Geology Museum
9. Human Genetics Unit (HGU)
10. Interdisciplinary Statistical Research Unit (ISRU)
11. Linguistic Research Unit (LRU)
12. Machine Intelligence Unit (MIU)
13. Physics and Applied Mathematics Unit (PAMU)
14. Population Studies Unit (PSU)
15. Psychology Research Unit (PRU)
16. Sampling and Official Statistics Unit (SOSU)
17. Sociological Research Unit (SRU)
18. Statistical Quality Control & Operations Research Unit (SQC&ORU)
19. Stat-Math Unit (SMU)
20. Library and the PCM Memorial Museum and Archives (PCMMMA)
21. Center for Soft Computing Research (CSCR): A National Facility
22. Centre for Artificial Intelligence and Machine Learning (CAIML)
23. Computer and Statistical Services Centre (CSSC)
24. Technology Innovation Hub (TIH)

The TIH centre was established on March 16, 2021 pursuant to the decision of the ISI Council in its meeting held on December 22, 2020



(II) The RC Bose Centre

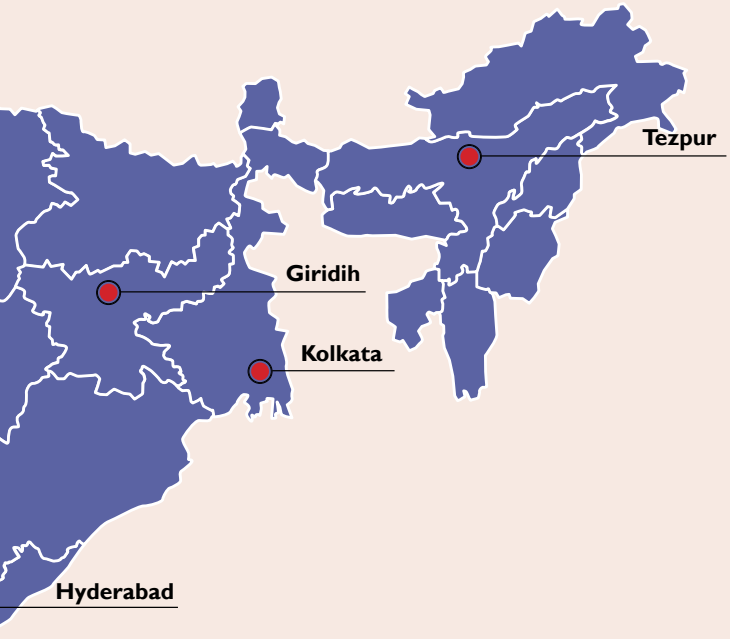
The R.C. Bose Centre for Cryptology and Security at Kolkata was created in 2014 as a national hub for cryptographic requirements. This Centre has only one Unit at present.

- Cryptology and Security Research Unit (CSRU)

The Bangalore Centre, Karnataka

The Bangalore Centre was conceived by Professor P.C. Mahalanobis during the 1960s. The Statistical Quality Control Unit had been functioning in Bangalore since 1956 and the Documentation Research and Training Centre was set up in 1962. The activities of the Bangalore Centre started in September 1978 in a rented building and the various units moved to the present campus in May 1985. The Bangalore Centre was formally declared as a Centre of ISI in September 1996. The present campus, full of eucalyptus trees, is located on Mysore Road on the outskirts of the city and is close to the Bangalore University campus. Presently the Centre has six units and a library, namely –

- Applied Statistics Unit (ASU)
- Documentation Research and Training Centre (DRTC)
- Economic Analysis Unit (EAU)
- Statistical Quality Control & Operations Research Unit (SQC&ORU)
- Stat-Math Unit (SMU)
- Systems Science and Informatics Unit (SSIU)
- Library



The Statistical Quality Control & Operations Research (SQC & OR) Units

The Institute has a network of seven Statistical Quality Control & Operations Research (SQC&OR) units spread across the country. In addition to the units functioning from its headquarters at Kolkata and from other centres in Delhi, Bengaluru and Chennai, the other three units are located in-

- Hyderabad, Telangana
- Mumbai, Maharashtra
- Pune, Maharashtra

The Delhi Centre, Delhi

The Delhi Centre was established in 1974 within the Planning Commission premises. It shifted to its present campus in 1975. It is located in a part of South Delhi known as the Qutub Institutional Area. The Centre is composed of the following:

- Economics and Planning Unit (EPU)
- Stat-Math Unit (SMU)
- Statistical Quality Control & Operations Research Unit (SQC&ORU)
- Library
- Centre for research on the Economics of Climate, Food, Energy and Environment (CECFEE)

The CECFEE centre was established on July 24, 2020 pursuant to the decision of the ISI Council in its meeting held on June 09, 2020.

The Chennai Centre, Tamil Nadu

The Chennai Centre came into existence in 2008 and is presently located at 37, Nelson Manickam Road (First Floor), Aminjikarai, Chennai. The Centre has three units and a library, namely -

- Applied Statistics Unit (ASU)
- Computer Science Unit (CSU)
- Statistical Quality Control & Operations Research Unit (SQC&ORU)
- Library

The North-East Centre at Tezpur, Assam

The North-East Centre at Tezpur was established in 2011 and is presently located at Punioni, Solmara which is north of Tezpur and is close to Tezpur University, the Defence Research Laboratory (DRL) and the Defence Research & Development Organization (DRDO). The Centre has the following three units and a library-

- Applied and Official Statistics Unit (AOSU)
- Socio-Economic Research Unit (SERU)
- Theoretical and Applied Sciences Unit (TASU)
- Library

The Giridih Branch, Jharkhand

The Giridih branch was started in 1931 and is situated at the heart of Giridih town. The sprawling campus of the Giridih branch includes three land parcels. Besides the office buildings, Giridih has two large agricultural farms adjacent to the river Ushri. The farms with different land situations (high, mid and low) are ideal for conducting agricultural experiments and have well-equipped laboratories as well. The Giridih branch has two operational units functioning under the respective units in Kolkata-

- Agricultural & Ecological Research Unit (AERU)
- Sociological Research Unit (SRU)

1.2 ORGANIZATIONAL CHART

Academic Divisions

1 Applied Statistics Division (ASD)

- Applied and Official Statistics Unit (AOSU), North-East Centre, Tezpur
- Applied Statistics Unit (ASU), Bangalore
- Applied Statistics Unit (ASU), Chennai
- Applied Statistics Unit (ASU), Kolkata
- Interdisciplinary Statistical Research Unit (ISRU), Kolkata

2 Biological Sciences Division (BSD)

- Agricultural & Ecological Research Unit (AERU), Kolkata & Giridih
- Biological Anthropology Unit (BAU), Kolkata
- Human Genetics Unit (HGU), Kolkata

3 Computer and Communications Sciences Division (CCSD)

- Advanced Computing and Microelectronics Unit (ACMU), Kolkata
- Computer Science Unit (CSU), Chennai
- Computer Vision and Pattern Recognition Unit (CVPRU), Kolkata
- Cryptology and Security Research Unit (CSRU), Kolkata
- Documentation Research and Training Centre (DRTC), Bangalore
- Electronics and Communication Sciences Unit (ECSU), Kolkata
- Machine Intelligence Unit (MIU), Kolkata
- Systems Science and Informatics Unit (SSIU), Bangalore

4 Library, Documentation and Information Sciences Division (LDISD)

- Library, Bangalore
- Library, Chennai
- Library, Delhi
- Library, Kolkata
- Prasanta Chandra Mahalanobis Memorial Museum & Archives
- Library, North-East Centre, Tezpur

5 Physics and Earth Sciences Division (PESD)

- Geological Studies Unit (GSU), Kolkata
- Geological Museum
- Physics and Applied Mathematics Unit (PAMU), Kolkata
- Theoretical and Applied Sciences Unit (TASU), North-East Centre, Tezpur

6 Social Sciences Division (SSD)

- Economic Analysis Unit (EAU), Bangalore
- Economics and Planning Unit (EPU), Delhi
- Economic Research Unit (ERU), Kolkata
- Linguistic Research Unit (LRU), Kolkata
- Population Studies Unit (PSU), Kolkata
- Psychology Research Unit (PRU), Kolkata
- Sampling and Official Statistics Unit (SOSU), Kolkata
- Socio-Economic Research Unit (SERU), North- East Centre, Tezpur
- Sociological Research Unit (SRU), Kolkata & Giridih

7 Statistical Quality Control and Operations Research Division (SQCORD)

- SQC & OR Unit, Bangalore
- SQC & OR Unit, Chennai
- SQC & OR Unit, Delhi
- SQC & OR Unit, Hyderabad
- SQC & OR Unit, Kolkata
- SQC & OR Unit, Mumbai
- SQC & OR Unit, Pune

8 Theoretical Statistics and Mathematics Division (TSMD)

- Theoretical Statistics and Mathematics Unit (SMU), Bangalore
- Theoretical Statistics and Mathematics Unit (SMU), Delhi
- Theoretical Statistics and Mathematics Unit (SMU), Kolkata

Teaching and Training

1. Dean's Office
2. Placement Cell

Associate Institutions

1. Center for Soft Computing Research (CSCR): A National Facility, Kolkata
2. International Statistical Education Centre (ISEC), Kolkata

Centres of Excellence

1. Centre for Artificial Intelligence and Machine Learning (CAIML)
2. Centre for Research on the Economics of Climate, Food, Energy and Environment (CECFEE)

Technology Innovations Hub (TIH)

Computer and Statistical Service Centre (CSSC)

Administrative Services Division

1 Director's Office

- Cell for Co-operation with Academia, Industry & Research labs (CCAIR)
- Faculty Recruitment Cell
- PhD/ DSc Cell
- ST/SC/OBC Liaison Cell

2 CE (A&F)'s Office

- Accounts Section
- Audio Visual Unit
- Canteen
- Cash Unit
- Central Despatch Unit
- Council Section
- Electrical Maintenance Unit
- Engineering Unit
- Estate Office
- Guest House
- Hostels
- House Building Advance Cell
- Human Resource Development Unit
- Import/ Travel Cell
- Internal Audit Cell
- Legal Cell
- Medical Expenses Reimbursement Unit
- Medical Welfare Unit
- Official Language Cell
- Personnel Unit
- Provident Fund Unit
- Public Relations Unit
- Printing and Publication Unit
- Retirement Benefit Cell
- RTI, Grievance, Complain Cell
- Security Unit
- Stores and Purchase Unit
- Telephone Unit
- Transport Unit

1.3 ISI: COURSE OF IMPORTANT EVENTS

Snapshots!

1931 – 1980

- PC Mahalanobis establishes ISI in 1931
- First international journal of Statistics in India, Sankhya, foreword by Rabindranath Tagore in 1933
- Path-breaking discoveries by ISI scientists:
  - Mahalanobis distance, large scale sample survey method - PC Mahalanobis
  - Cramer-Rao Bound, Rao-Blackwell Theorem - CR Rao
  - BCH Error-correcting codes - RC Bose
  - Theory of large deviations - SRS Varadhan
  - Bahadur Efficiency and Basu's Theorem in Statistics
- National Sample Survey (NSS) was conceived for the collection of socio-economic data in 1950
- UNESCO empowers ISI to train statisticians of developing countries – International Statistical Education Centre (ISEC) established in 1950
- Second Five-Year Plan drafted in 1954
- ISI designs the first analog computer in India in 1954
- ISI imports and installs the first digital computer in India, HEC-2M, in 1955
- Dinosaur fossil, Barapasaurus tagorei, discovered by ISI geologists
- ISI recognized as an Institution of National Importance, by the Indian Statistical Institute Act 1959.
- First digital computer (ISI-JU-1) built and commissioned (1961-1966)
- Delhi Centre of ISI established in 1974
- Bangalore Centre of ISI established in 1978

1981 – 2004

- M. Tech Program in Computer Science [M.Tech (CS)] started in 1981.
- Nodal Centre for a 5th Generation Knowledge-Based Computer Systems (FGCS/ KBCS) in the fields of Pattern Recognition, Computer Vision, Image Processing and Artificial Intelligence established in 1987
- M. Tech Program in Quality, Reliability & Operations Research [M.Tech (QROR)] started in 1989.
- M. S. Program in Quantitative Economics [MS (QE)] started in 1996.
- Computer-based dictionary in the Indian Language (Bangla) developed for use by blind persons in 1996
- Bachelor's Program in Mathematics [B.Math] started in 2000.
- Master's Program in Mathematics [M.Math] started in 2003.

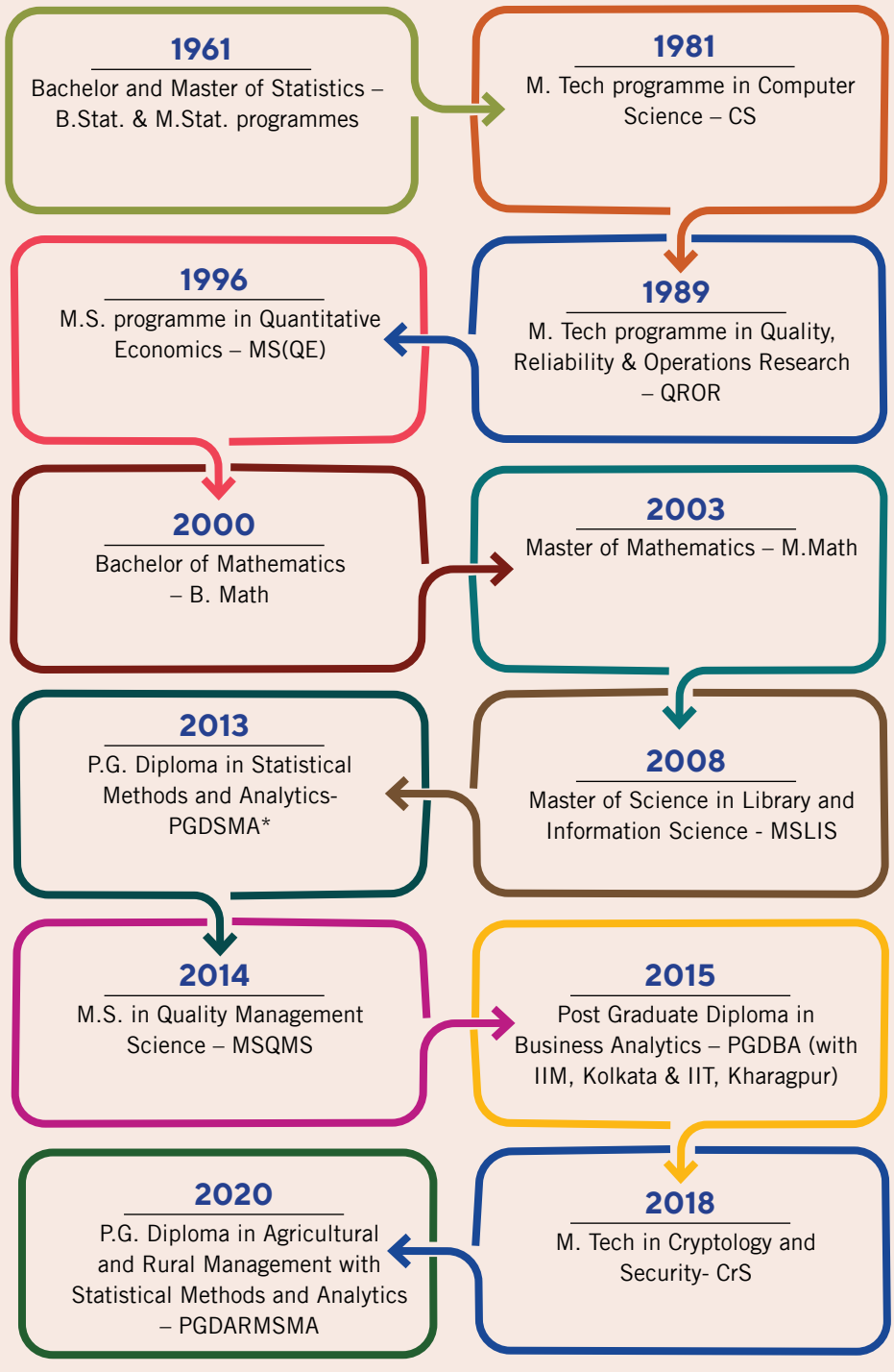
2005 – till date

- Introduction of Soft Computing in India and establishment of the first Centre for Soft Computing Research in Asia in 2005
- Outreach program: North-East in 2005
- 29th June declared as the National Statistics Day during the Platinum Jubilee celebrations at ISI by the then Prime Minister, Dr. Manmohan Singh in 2006
- Chennai Centre of ISI established in 2008
- M. S. Program in Library & Information Science [MS (LIS)] started in 2008.
- Adoption of IISc faculty pay scales replacing UGC pay scales in 2008
- Pioneering work in Artificial Intelligence and Machine Learning, Bioinformatics, Computational Genetics, Cryptology, Indian Language Technologies, Population Genomics, Soft Computing Technology
- North-East Centre of ISI established for the development of the region in 2011
- M. S. Program in Quality Management Science [MS (QMS)] started in 2014.
- RC Bose Centre for Cryptology and Security established in 2014
- Teaching and training in Official Statistics & Policy Research initiated
- Seminal contributions in Game theory, Algebraic Geometry, Poverty and Inequality measures, Disease Genetics, Granular Computing
- A tri-institute Post-Graduate Program in Business Analytics [PGDBA] started in 2015.
- Discovery of Shringasaurus indicus in 2017
- M. Tech Program in Cryptology & Security [M.Tech (CrS)] started in 2018.
- Centre for Artificial Intelligence and Machine Learning established in 2019
- Computational and experimental biology research; cancer, auto-immune and neuro-degenerative diseases
- Centre for Research on the Economics of Climate, Food, Energy and Environment established in Delhi in 2020.
- Technology Innovation Hub established Kolkata in 2020
- Coal Index developed and adopted by Coal Ministry.
- Development of an Integrated Solution for Automatic Assessment of Autism using visual attention, facial expression and vocal emotion cues.
- Development of a computer vision based vehicle type and vehicle number detection system.
- Development of National Mineral Index.

Thinking ahead of times!

Academic programmes introduced in ISI

- The Institute began offering its internationally-acclaimed UG and PG programmes in Statistics, (B.Stat. and M.Stat.) in 1961, empowered by The Indian Statistical Institute Act of 1959 to award degrees.
- This Act was amended by the Parliament of India in 1995 to empower the Institute to award Degrees/ Diplomas not only in Statistics but also in Mathematics, Quantitative Economics, Computer Science and other subjects related to Statistics as may be determined by the Institute from time to time.
- ISI also started awarding Ph.D. degrees in the areas of Mathematics, Quantitative Economics, Computer Science as well as Quality, Reliability and Operations Research, in addition to the original discipline, namely, Statistics.
- Several degree/diploma programmes have been introduced subsequently. A timeline of the innovative programmes introduced in ISI are as follows –



*The PGDSMA was initially introduced in 2011-12 as PG Diploma in Statistical Methods with Applications at the North-East Centre and later renamed in 2013. The programme has been running successfully at Tezpur, with 50% of its seats reserved for candidates domiciled in the Northeast region. Since 2019, this programme is also being offered simultaneously at the Chennai centre for candidates from all over India.

1.4 A BRIEF HISTORY OF THE INSTITUTE

In the 1920's, Prasanta Chandra Mahalanobis, then a Professor of Physics at Presidency College, Calcutta conducted several studies employing statistical methods with results that vindicated his ideas about the efficacy and possibilities of the emerging science of Statistics.

The Indian Statistical Institute (ISI) was formally established on 17 December 1931 in a meeting presided by Sir R.N. Mookerjee, the first President of the Institute, and Prasanta Chandra Mahalanobis was appointed as the Honorary Secretary.

On April 28 1932 the Indian Statistical Institute was registered as a non-government and non-profit distributing learned society under the Societies Registration Act No. XXI of 1860. The Institute is now registered under the West Bengal Societies Registration Act XXVI of 1961, as amended in 1964.

The Institute started functioning initially from a room of the then Presidency College (now Presidency University) with enduring support from several distinguished personalities and devoted scholars in Calcutta. Over the first two decades, which turned out to be a glorious chapter in the annals of Indian science and institution building, the ISI embarked upon a series of pioneering programmes involving the application of Statistics in search of solution to the urgent and live problems of the country. Such programmes included innovative projects on sample surveys of yield and land utilization of crops, socio-economic after-effects of the Bengal famine and problems of flood research. These innovations and methodological research have since become classics in Statistics. At the same time, the training of scientific personnel began to grow. This also encouraged high-level research and brought into focus the need for publication of the research results, for which *Sankhyā*, the first international journal of Statistics in the country came into being in 1933.

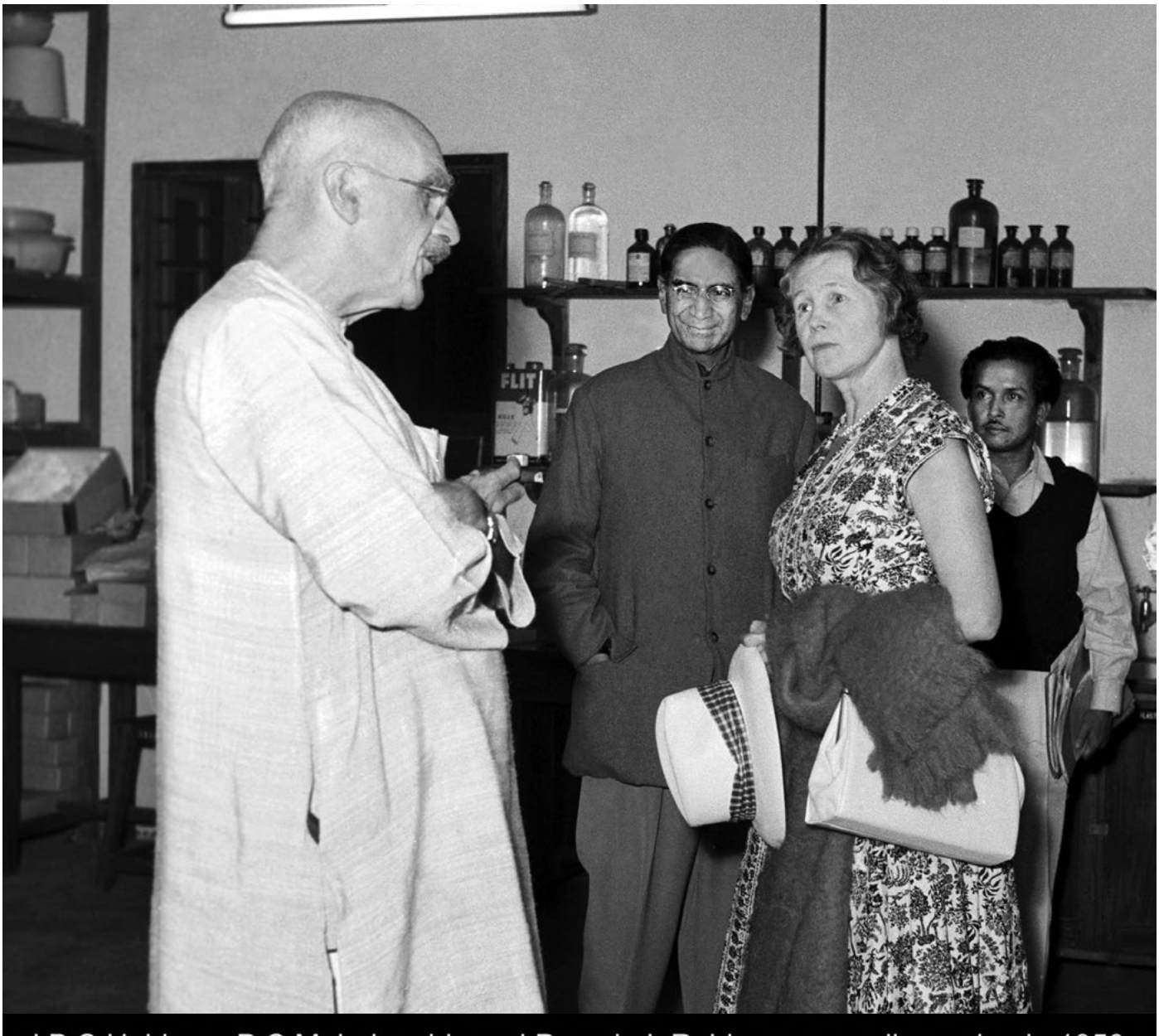
When India became independent, the Institute played a pivotal role in the task of nation-building through the brilliant choice of the area of surveys, which were socially and nationally relevant. The patronage and invaluable contribution of Sir Ronald A. Fisher played an important role. Led by Professor Mahalanobis and a very capable group of younger statisticians including R.C. Bose, S.N. Roy and C.R. Rao, the Institute was poised to take on the larger role. In 1954 Pandit Jawaharlal Nehru, the then Prime Minister of India, entrusted Professor Mahalanobis and ISI with the responsibility of preparing the draft Second Five-Year Plan for the country. The draft submitted by Professor Mahalanobis and the planning models formulated by him and his colleagues have since been regarded as major contributions to economic planning in India. The formal recognition came in December 1959, when the then Prime Minister, Pandit Jawaharlal Nehru himself piloted the enactment of the Indian Statistical Institute Act of 1959 in the Parliament. This Act designated ISI as an 'Institution of National Importance'. The activities of ISI steadily grew, existing interests became more broad-based and a number of science units were created in the interest of live interaction between Statistics and Natural and Social Sciences. Empowered by the Act to award degrees, the Institute started the B. Stat. and M. Stat. programs. An excellent library was established at Kolkata and the Documentation Research and Training Centre began functioning in Bangalore. Other developments in infrastructure also began.

The Indian Statistical Institute Act of 1959 was amended by the Parliament in 1995 to empowering the Institute to award Degrees/Diplomas not only in Statistics, but also in Mathematics, Quantitative Economics, Computer Science and such other subjects related to Statistics as may be determined by the Institute from time to time. Several degree/diploma programmes have been introduced subsequently. The detailed list is given on page 29.

On December 24, 2006, during the inauguration of the Platinum Jubilee celebrations of the Institute (2006-07), Dr. Manmohan Singh, the then Prime Minister of India declared the birth anniversary (29th June) of Prof. P.C. Mahalanobis as the National Statistics Day.

Visitors:

The Institute, since its formative period till present times, has had many eminent visitors, some of whom were Nobel Laureates. Besides Ronald A. Fisher, J.B.S. Haldane and Walter A. Shewhart, the luminaries included Frederic and Irene Curie, Neils Bohr, A.N. Kolmogorov, P.M.S. Blackett, J.D. Bernal, Joan Robinson, William Edwards Deming, Joseph M. Juran, Genichi Taguchi and George Akerlof (Nobel prize in economics, 2001). Incidentally, George Akerlof was a visiting professor at ISI during 1967-68. During recent times, the visit of Amartya K. Sen, Robert Aumann, Lotfi A. Zadeh, Roger Penrose, Joseph E. Stiglitz, Sir James A. Mirrlees, Eric Maskin, Ei-ichi Negishi, Ada Yonath, David Jonathan Gross and S.R.S. Varadhan (Abel Prize, 2007 for his contributions to probability theory and an alumnus of the institute) may be specially mentioned. The Institute is proud to have C.R. Rao, who is among the world leaders in statistical science, in its list of illustrious alumni.



J B S Haldane, P C Mahalanobis and Pamela L Robinson on a discussion in 1959

1.5 Distinguished scientists and statesmen who have served the Institute since inception

Presidents

1	Sir Rajendra Nath Mookerjee	1932-35
2	Shri E.C. Benthall	1936-37
3	Shri James Reid-Kay	1938
4	Shri Badridas Goenka	1939-41
5	Dr. Nalini Ranjan Sarkar	1942-43
6	Dr. Chintaman D. Deshmukh	1944-63
7	Shri Y.B. Chavan	1964-66
8	Prof. Satyendra Nath Bose	1967-75
9	Shri Subimal Dutt	1976-89
10	Prof. M.G.K. Menon	1990-2012
11	Dr. C. Rangarajan	2012-16
12	Dr. Vijay Kelkar	2016-18
13	Shri Bibek Debroy	2018-22
14	Prof. Sankar K. Pal	2022-till date

Chairmen

1	Shri B. Rama Rao	1954
2	Shri D.N. Mitra	1955-63
3	Shri K.P.S. Menon	1964-70
4	Shri S.C. Roy	1971
5	Dr. Atma Ram	1972
6	Shri P.N. Haksar	1973-97
7	Dr. Bimal Jalan	1998-2001
8	Dr. N.R. Madhava Menon	2002-03
9	Shri Pranab Mukherjee	2004-12
10	Shri A.K. Antony	2012-14
11	Dr. Arun Shourie	2014-16
12	Prof. Goverdhan Mehta	2016- 20
13	Dr. Ashok Kumar Lahiri	2020-22
14	Dr. Pronab Sen	2022- till date

Directors

1	Prof. P.C. Mahalanobis	Dec	1931	-	June	1972
2	Prof. C.R. Rao	July	1972	-	June	1976
3	Prof. G. Kallianpur	July	1976	-	Sept	1978
4	Prof. B.P. Adhikari	Aug	1979	-	Oct	1983
5	Prof. Ashok Maitra	Apri	1984	-	Jan	1987
6	Prof. J.K. Ghosh	Jan	1987	-	Jan	1992
7	Prof. B.L.S. Prakasa Rao	Jun	1992	-	Feb	1995
8	Prof. S.B. Rao	July	1995	-	July	2000
9	Prof. K.B. Sinha	Aug	2000	-	July	2005
10	Prof. Sankar K. Pal	Aug	2005	-	July	2010
11	Prof. Bimal K. Roy	Aug	2010	-	July	2015
12	Prof. Sanghamitra Bandyopadhyay	Aug	2015	-	till date	

D.Sc. (Honoris Causa) awardees

Feb 1962	Prof. Satyendra Nath Bose, Prof. Ronald A. Fisher, Pandit Jawaharlal Nehru, Dr. Walter A. Shewhart
Apr 1962	Prof. A.N. Kolmogorov
May 1965	Dr. Chintaman Dwarkanath Deshmukh
Dec 1974	Prof. Raj Chandra Bose, Dr. M.V. Keldysh, Prof. Jerzy Neyman
Feb 1977	Prof. Harald Cramer
Feb 1978	Shri Morarji Desai, Prof. L.V. Kantorovich
Dec 1989	Prof. C.R. Rao
Jan 2001	Prof. Gopinath Kallianpur
Feb 2004	Prof. S.R. Srinivasa Varadhan
Mar 2006	Prof. L.A. Zadeh
Dec 2006	Dr. Manmohan Singh
Feb 2011	Dr. Subhas Mukherjee (Posthumously)
Jan 2013	Prof. K.R. Parthasarathy, Prof. Jayanta Kr. Ghosh, Prof. Pranab Bardhan

1.6 The Council & Key Committees

Council

From 1st April 2021 – 17th September 2022	From 18th September 2022 – 31st March 2023
President	
Shri Bibek Debroy, Chairman, Economic Advisory Council to the Prime Minister (EAC-PM)	**Prof. Sankar K. Pal** National Science Chair, SERB-DST, Govt. of India
Chairman	
Dr. Ashok Kumar Lahiri, Member, 15th Finance Commission, Finance Commission of India	**Dr. Pronab Sen**
Director	
Prof. Sanghamitra Bandyopadhyay	
Representatives of the Government of India	
Shri Shankar Lal Menariya Director General (Statistics) Government of India Ministry of Statistics and Programme Implementation, New Delhi	**Shri Alok Shekhar** Additional Secretary Government of India, Ministry of Statistics and Programme Implementation, New Delhi
Shri Jayant Sinha Additional Secretary & Financial Advisor Government of India, Ministry of Statistics and Programme Implementation, New Delhi	
Shri Prakash Lakhchaura Dy. Director General, Staff Inspection Unit, Government of India, Ministry of Finance	**Ms. Hema Jaiswal** Dy. Director General Government of India, Ministry of Finance
Shri Sunil Kumar JS & Head, AI Division Ministry of Science and Technology, New Delhi	**Dr. Manoranjan Mohanty** Scientist – F and Head Autonomous Institute Division Ministry of Science and Technology, New Delhi
Dr. O.P. Mall Executive Director, Reserve Bank of India, Mumbai	
Shri R. Rajesh Deputy Director General Ministry of Education New Delhi	
Representative of the ICSSR	
Prof. V.K. Malhotra Member-Secretary, Indian Council of Social Science Research, New Delhi	**Prof. Satish Jain** Indian Council of Social Science Research, New Delhi
Representatives of the INSA	
Prof. Manindra Agrawal N Rama Rao Chair Professor Department of Computer Science Indian Institute of Technology, Kanpur	**Prof. Kapil H. Paranjape** Department of Mathematical Sciences Indian Institute of Science Education and Research (IISER), Mohali

From 1st April 2021 – 17th September 2022	From 18th September 2022 – 31st March 2023
Prof. Rohini M. Godbole, FNA Centre for High Energy Physics, Indian Institute of Science, Bangalore	
Prof. Shahid Jameel, Chief Executive Officer, The Wellcome Trust/DBT India, Alliance, New Delhi	**Dr. Anurag Agarwal** Former Director, CSIR –Institute of Genomics and Integrative Biology (IGIB) Dean Biosciences and Health Research Ashoka University
Prof. Rahul Mukherjee, FNA National Science Chair, Indian Institute of Management , Calcutta	
Representative of the NITI Aayog	
Ms. Anna Roy Adviser (DM&A), Government of India, NITI Aayog, New Delhi	
Representative of the University Grants Commission	
Prof. Umesh Singh Department of Statistics, Institute of Science, Banaras Hindu University, Varanasi	**Prof. Kolin Paul** Microsoft Chair Professor Department of Computer Science and Engineering Indian Institute of Technology Delhi
Scientists co-opted by the Council	
Prof. Usha Vijayraghavan Dean, Microbiology and Cell Biology, Indian Institute of Science, Bangalore	**Prof. Asis Kumar Chattopadhyay** Pro-Vice-Chancellor Academic Affairs Calcutta University
Elected representatives of the Institute members not employed in the Institute	
Shri Rabindra Narayan Das Kolkata	
Dr. Sashi Mohan Srivastava Kolkata	**Dr. Aniruddha Chakraborty** Kolkata
Dr. T.S.S.R.K. Rao Bangalore	**Prof. B. Mohan Reddy** Hyderabad
Elected representatives of the employees of the Institute	
Dr. Partha Pratim Mohanta Representative of the Scientific Workers	**Dr. Utsav Chowdhury** Representative of the Scientific Workers
Shri Swarup Ghara Representative of the Non-Scientific Workers	
Officers of the Institute	
Prof. Antar Bandyopadhyay Professor-in-Charge, Theoretical Statistics and Mathematics Division	**Prof. Pradipta Bandyopadhyay** Professor-in-Charge, Theoretical Statistics and Mathematics Division
Prof. Mridul Nandi Professor-in-Charge, Applied Statistics Division	**Prof. Smarajit Bose** Professor-in-Charge, Applied Statistics Division
Dr. Raghunath Chatterjee Professor-in-Charge, Biological Sciences Division	**Dr. Abhishek Mukherjee** Professor-in-Charge, Biological Sciences Division

From 1st April 2021 – 17th September 2022	From 18th September 2022 – 31st March 2023
Prof. Manipushpak Mitra Professor-in-Charge, Social Sciences Division	**Prof. Niladri Sekhar Dash** Professor-in-Charge, Social Sciences Division
Prof. Krishnendu Mukhopadhyaya Professor-in-Charge, Computer and Communication Sciences Division	**Prof. Rajat Kumar De** Professor-in-Charge, Computer and Communication Sciences Division
Prof. Preeti Parashar Professor-in-Charge, Physics and Earth Sciences Division	**Prof. Sarbani Patranabis Deb** Professor-in-Charge, Physics and Earth Sciences Division *(sad demise on 25.10.2022)*
	Prof. Parthasarathi Ghosh Officiating Professor-in-Charge, Physics and Earth Sciences Division *(from 26.10.2022)*
Dr. Arup Ranjan Mukhopadhyay Head, SQC & OR Division	**Prof. Biswabrata Pradhan** Head, SQC & OR Division
Prof. S.K. Neogy Head, Delhi Centre	
Prof. C.R.E. Raja Head, Bangalore Centre	
Dr. D. Sampangi Raman, Acting Head, Chennai Centre	
Prof. B. Ramakrishnan Head, North-East Centre	
Prof. Debasis Sengupta Dean of Studies	**Prof. Saurabh Ghosh** Dean of Studies *(sad demise on 03.10.2022)*
	Prof. Amita Pal Officiating Dean of Studies *(06.10.2022 – 13.03.2023)*
	Prof. Gopal Krishna Basak Dean of Studies *(From 14.03.2023)*
Non-Member Secretary	
Brigadier Jagdish Narayan Pandey (Retd) Chief Executive (Administration & Finance)	**Lieutenant Colonel Sandeep Pal** *(from 29.04.2022)* Chief Executive (Administration & Finance)

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Gopal Krishna Basak,
Dean of Studies (Convener)

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Amita Pal
Anup Dewanji
Arnab Chakraborty
Atanu Biswas
Ayanendranath Basu
Bimal Kr. Roy
Debapriya Sengupta
Debasis Sengupta
Kishan Chand Gupta
Mausumi Bose
Mridul Nandi
Palash Sarkar
Smarajit Bose
Sourabh Bhattacharya
Subhamoy Maitra
Subir Kumar Bhandari
Sumitra Purkayastha
Sushama M. Bendre
Tapas Samanta

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Arunava Goswami
Indranil Mukhopadhyay
Joydev Chattopadhyay
Pabitra Banik
Pradip Bhattacharyya
Rabi Ranjan Chattopadhyay
Sabyasachi Bhattacharya
Suparna Mandal Biswas

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Ashish Ghosh
B.S. Daya Sagar
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Nabanita Das
Nikhil Ranjan Pal
Pradipta Maji
Rajat Kumar De
Sabyasachi Karati
Sandip Das
Sanghamitra Bandyopadhyay
Sasanka Roy
Sasthi Charan Ghosh
Srimanta Pal
Shubhra Sankar Ray
Subhas Chandra Nandy
Sushmita Mitra
Susmita Sur-Kolay
Swagatam Das
Umapada Pal
Utpal Garain

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Dhurjati Prasad Sengupta
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Guruprasad Kar
Partha Sarathi Ghosh
Preeti Parashar
Subir Ghosh
Supratik Pal

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Diganta Mukherjee
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Kanishka Kacker
Madhura Swaminathan
Manipushpak Mitra
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Tarun Kabiraj
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Ashok Sarkar
Biswabrata Pradhan
Boby John
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Prasun Das
Ranjan Sett
Sagar Sikder
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Samir Kr. Neogy
Sanjit Ray
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Amartya Kumar Dutta
Anil Kumar Ghosh
Anish Sarkar
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Arup Bose
Arup Kumar Pal
Arijit Chakrabarty
B. Sury
Biswaranjan Behera
B.V. Rajarama Bhat
C. Robinson Edward Raja
Debashish Goswami
Gopal Krishna Basak
Goutam Mukherjee
Isha (Bagai) Dewan
Issan Patri
Jaydeb Sarkar
Mahuya Datta
Mohana Delampady
Mrinal Kanti Das
Neena Gupta
Partha Sarathi Chakraborty
Parthanil Roy
Pradipta Bandyopadhyay
Probal Chaudhuri
Rahul Roy
Ritabrata Munshi
Rudra Pada Sarkar
Shanta Laishram
Siva Athreya
Swagata Nandi
Swagato Kumar Ray

Computer and Statistical Service Centre

Ujjwal Bhattacharya

Library, Documentation and Information Sciences Division

Kishor Chandra Satpathy

Member-Secretary, International Statistical Education Centre

Amita Pal

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Government Representative (MOS&PI);
Government Representative
(Ministry of Finance);
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E.V. Gijo, ISI Bangalore;
Pradipta Bandyopadhyay, ISI, Kolkata;
Subir Ghosh, ISI, Kolkata;
Kuntal Ghosh, ISI, Kolkata;
Rabindra Narayan Das, Representative, General Body, ISI Council;
Utsav Choudhury, ISI, Kolkata;
Head, Delhi Centre;
Head, Bangalore Centre;
Head, Chennai Centre;
Chief Executive (A&F);
Amitava Mukherjee, (Convener)

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Head, Documentation Research and Training Centre, ISI, Bangalore or his/her nominee;
Head, SQC & OR Unit, ISI, Bangalore or his/her nominee;
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Moni Shankar Bishnu, ISI, Delhi;
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Dilip Saha;
Srikumar Bhattacharya (External Expert) (Retd. Chief Engineer& Ex. Officio Secy., PWD, GoWB);
Bhaskar Sengupta [External Expert (Civil)]; Siddhartha Datta [External Expert (Architecture)];
Asim Sinha [External Expert (Electrical)];
Chief Executive (A&F);
Swarup Ghara, ISI, Kolkata;
Amitava Mukherjee, Deputy Chief Executive (F);
In-Charge, Electric Maintenance Unit, ISI, Kolkata;
In-Charge, Engineering Unit, ISI, Kolkata (Convener)

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Pradipta Maji
Dipti P. Mukherjee
Subhamoy Maitra
B. S. Dayasagar
Mathew C. Francis
Ansuman Banerjee
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Manipushpak Mitra
Prabal Roy Chowdhury
Madhura Swaminathan
Debasis Mishra
Abhiroop Mukhopadhyay
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Susanta K. Gauri
Md. Zafar Anis

G. Ravindran

Biswabrata Pradhan

Debasis Sengupta

Arup Ranjan Mukhopadhyay (Convener)

Statistics

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Dean of Studies or his/her nominee

Arijit Chakrabarti (ASUK)

Ayanendranath Basu

Deepayan Sarkar

Indranil Mukhopadhyay

Kiranmoy Das

Parthanil RoyAnil K Ghosh

Rituparna Sen (Convener)

Policy Planning and Evaluation Committee (PPEC)

Chairman of ISI Council (Chairperson)

Director, ISI (Vice-Chairperson)

Director General, CSO

Financial Advisor, MOS & PI

Professor Amitabha Ghosh, Former Director, IIT Kharagpur, Former Professor, IIT Kanpur, Hony. Distinguished Prof. of IIEST

Professor Partha P. Majumder, National Science Chair, NIBMG

Professor Partha Pratim Chakrabarti, Professor and former Director, IIT, Kharagpur

Dr. Shekhar C. Mande, Former DG, CSIR

Professor Bharat Ramaswamy, Ashoka University, Haryana

Professor Debasis Sengupta, ISI, Kolkata

Professor Abhiroop Mukhopadhyay, ISI, Delhi

Professor B.V. Rajarama Bhat, ISI, Bangalore

Professor Dipti P. Mukherjee, Dy. Director, ISI (Member-Convener)

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Applied Statistics Division

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Professor R.L. Karandikar;

Professor Kalyan Das;

Professor Sahadeb Sarkar;

Professor Arnab Laha;

Professor-in-Charge, Applied Statistics Division (Convener)

Biological Sciences Division

Director, ISI, Chairperson;

Professor Gaurangadeb Chattopadhyay;

Dr. Santasabuj Das;

Professor Tapas Kumar Das;

Dr. Sanjay K. Ray;

Professor-in-Charge, Biological Sciences Division (Convener)

Computer and Communication Sciences Division

Director, ISI (Chairperson);

Professor P. Nagabhushan;

Professor Santanu Chaudhury;

Professor Chiranjib Bhattacharyya;

Professor Pijushkanti Panigrahi;

Professor Arobinda Gupta;

Professor N. S. Narayanswamy;

Professor-in-Charge, Computer & Communication Sciences Division (Convener)

Library, Documentation and Information Sciences Division

Director, ISI (Chairperson);

Gurdish Sandhu;

Dr. K. Rama Patnaik;

Prof. Prabir Ghosh Dastidar;

Dr. Nabi Hasan;

Dr. Venkat Srinivasan;

Chief Librarian (Convener)

Physics and Earth Sciences Division

Director, ISI (Chairperson);

Professor Archan S. Majumda;

Professor Suman Chakraborty;

Professor Joydip Mukhopadhyay;

Professor Tapas Bhattacharyya;

Professor Manju Mohan;

Professor-in-Charge, Physics & Earth Sciences Division (Convener)

Social Sciences Division

Director, ISI (Chairperson);

Professor Awadesh Kumar Mishra;

Professor Manas Kumar Mandal;

Professor Kamal Kant Misra;

Professor Saikat Sinha Roy;

Professor Tathagata Bandyopadhyay;

Professor-in-Charge Social Sciences Division (Convener)

Statistical Quality Control and Operations Research Division

Director, ISI (Chairperson);

Professor Debasis Kundu;

Professor Asok K. Nanda;

Professor Anand G.;

Mr. Rajaram Majali;

Head, SQC & OR Division (Convener)

Theoretical Statistics and Mathematics Division

Director, ISI (Chairperson);

Professor Saibal Chattopadhyay;

Professor Gourangadeb Chattopadhyay;

Professor V. S. Borkar;

Professor Mahan Maharaj;

Professor Jugal Verma;

Professor-in-Charge, Statistics & Mathematics Division (Convener)

1.8 Funding

The Ministry of Statistics & Programme Implementation, Government of India provides full funding to the Institute. Their support and constant encouragement are among the major factors that help the Institute to sustain its academic growth and excellence.

Chapter 2

Teaching and Training

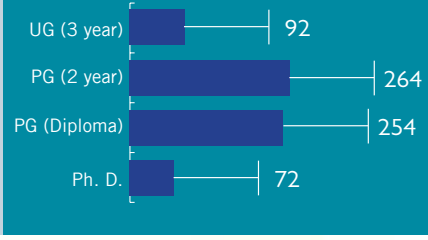
Dean of Studies : Debasis Sengupta (01.04.2022 – 17.09.2022)
Saurabh Ghosh (18.09.2022 – 03.10.2022)
Amita Pal (Officiating) (06.10.2022 – 12.03.2023)
Gopal Krishna Basak (13.03.2023 – 31.03.2023)

Office : 5th floor, S.N. Bose Bhawan, ISI, Kolkata-700 108

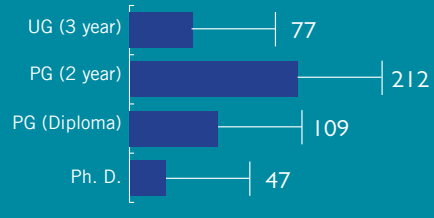
No of Scientific Staff: Three (3)

No of non-scientific staff: Eleven (11)

Admissions Across Programmes



Human Resources Generated



2.1 Programmes Offered

ISI, a premier institute in India, is renowned for its first internationally acclaimed undergraduate and postgraduate degree programmes in Statistics introduced by its founder, Prof. P.C. Mahalanobis in 1961. Over the years, more academic programmes have been added.

The following academic programmes were offered during the academic session 2022-23:

Name of Programme	Centre(s) at which offered
Undergraduate Programmes (three-year)	
Bachelor of Statistics - B. Stat. (Hons.)	Kolkata
Bachelor of Mathematics - B. Math. (Hons.)	Bengaluru
Postgraduate Programmes (two-year)	
Master of Statistics - M. Stat.	Delhi & Kolkata
Master of Mathematics - M. Math.	Kolkata
Master of Science (M.S.) in Quantitative Economics - MSQE	Delhi & Kolkata
Master of Science (M.S.) in Quality Management Science - MSQMS	Bengaluru - Hyderabad
Master of Science (M.S.) in Library and Information Science – MSLIS	Bengaluru
M. Tech. in Computer Science (CS)	Kolkata
M. Tech. in Cryptology and Security (CrS)	Kolkata
M. Tech. in Quality, Reliability and Operations Research (QROR)	Kolkata
Postgraduate Diploma Programme (two-year)	
Post Graduate Diploma in Business Analytics (PGDBA) Jointly conducted by IIM Calcutta, IIT Kharagpur and ISI Kolkata	Kolkata
Postgraduate Diploma Programmes (one-year)	
Post Graduate Diploma in Statistical Methods and Analytics (PGDSMA)	North-East Centre, Tezpur and Chennai
Post Graduate Diploma in Agricultural and Rural Management with Statistical Methods and Analytics (PGDARSMA)	Giridih
Post Graduate Diploma in Applied Statistics (PGDAS)	Online in association with Coursera
Doctoral Programmes	
Research Fellowships and degrees awarded by ISI in Statistics, Mathematics, Quantitative Economics, Computer Science, Quality, Reliability and Operations Research	Bangalore, Chennai, Delhi, Giridih, & Kolkata
Research Fellowships awarded by ISI and degrees awarded by other academic bodies in areas including Biological Sciences (Agricultural and Ecological Research & Human Genetics), Geology, Library & Information Science and Physics & Applied Mathematics.	
Research Fellowships awarded by government bodies (e.g. CSIR, DST, INSPIRE, NBHM, UGC) and degrees awarded by ISI/other academic bodies.	
Short-term Training Programmes (4 weeks-6 months)	
This training is provided to UG/PG students from other reputed Universities/Institutions as part of their curriculum requirements/ for enhancement of knowledge and application skills, under the guidance of faculty members of the Institute.	

2.2 Admissions

Degree, Diploma and Ph.D. Programmes

An all-India entrance examination is conducted annually by the Dean's Office for all programmes (except Post Graduate Diploma in Business Analytics).

The two-year Post Graduate Diploma in Business Analytics (PGDBA) programme, jointly offered with IIM Calcutta and IIT Kharagpur, aims to deliver a cutting-edge interdisciplinary educational experience to graduates aspiring to build a career in the rapidly expanding field of business analytics. The first semester of this programme is conducted every year in ISI. The selection and admission process for the programme is carried out by the three institutes on a rotation basis. ISI Kolkata conducted the Admission test in May 2022.

Date of ISI Admission test (Except PGDBA) : **08.05.2022**

Date of PGDBA Admission test : **03.04.2022**

Programmes	Number of Applications Received	Number of Applicants Taking the Admission Test	Number of Applicants Shortlisted for Interview	Number of Applicants Offered Admission
Bachelor of Statistics - B. Stat. (Hons.)	4082	3108	166	55
Bachelor of Mathematics - B. Math. (Hons.)	3393	2625	179	54
Master of Statistics - M. Stat.	1322	988	71	28
Master of Mathematics - M. Math.	948	714	54	19
Master of Science (M.S.) in Quantitative Economics - MSQE	1996	1521	83	50
Master of Science (M.S.) in Quality Management Science - MSQMS	472	378	50	22
Master of Science (M.S.) in Library and Information Science – MSLIS	107	75	29	12
M. Tech. in Computer Science (CS)	869	430	105	45
M. Tech. in Cryptology and Security (CrS)	261	178	65	25
M. Tech. in Quality, Reliability and Operations Research (QROR)	374	234	48	26
Post Graduate Diploma in Business Analytics (PGDBA)	2580	1702	423	79
Post Graduate Diploma in Statistical Methods and Analytics (PGDSMA)	157	109	92	5
Post Graduate Diploma in Agricultural and Rural Management with Statistical Methods and Analytics (PGDARSMA)	33	20	20	6
Post Graduate Diploma in Applied Statistics (PGDAS)	45	30	30	21
Junior Research Fellowship	986	637	146	63

Enrolment in Degree-Diploma Programmes

PROGRAMME		Number Enrolled
Undergraduate Programmes (three-year)		92
Postgraduate Programmes (two-year)		264
Postgraduate Diploma Programmes (two-year)		61
Postgraduate Diploma Programmes (one-year)		193
JRF Programmes		
ISI – funded	(59)	72
Externally-funded	(13)	

Short-term Training Programmes

Division	Number of Trainees
Biological Sciences Division	38
Computer & Communication Sc. Division	20
Physical & Earth Sciences Division	11
Social Sciences Division	1
SQC & OR Division	5
Theoretical Statistics & Math. Division	1
TOTAL	**76**

2.3 Graduating Students

The number of students graduating, under the different programmes, are as follows-

PROGRAMME	Number Graduating	Programme Total
Undergraduate Programmes (three-year)		77
Bachelor of Statistics - B. Stat. (Hons.)	30	
Bachelor of Mathematics - B. Math. (Hons.)	47	
Postgraduate Programmes (two-year)		212
Master of Statistics - M. Stat.	54	
Master of Mathematics - M. Math.	22	
Master of Science (M.S.) in Quantitative Economics - MSQE	39	
Master of Science (M.S.) in Quality Management Science - MSQMS	13	
Master of Science (M.S.) in Library and Information Science - MSLIS	07	
M. Tech. in Computer Science (CS)	33	
M. Tech. in Cryptology and Security (CrS)	23	
M. Tech. in Quality, Reliability and Operations Research (QROR)	21	
Postgraduate Diploma Programmes (one-year)		57
Post Graduate Diploma in Statistical Methods and Analytics (PGDSMA)	38	
Post Graduate Diploma in Agricultural and Rural Management with Statistical Methods and Analytics (PGDARSMA)	19	
Ph.D. Degrees		41
Mathematics	04	
Statistics	03	
Computer Science	16	
Quantitative Economics	06	
Physics and Applied Mathematics	05	
Geology	01	
Sociology	02	
Biological Science	04	
Externally-funded Ph.D. Degrees		06
Physics and Applied Mathematics	03	
Biological Science	03	

Recipients of Prizes

During the 57th Convocation of the Indian Statistical Institute (held on 31st January, 2023), students were felicitated with medals and prizes in recognition of their outstanding performance for the session ending 2023, under the following programmes –

UNDERGRADUATE

Ritabrata Karmakar

B.Stat.

ISIAA – Mrs. M. R. Iyer Memorial Gold Medal for outstanding overall performance

Aniket Jain

B.Stat.

D. Basu Memorial Gold Medal for outstanding performance

Dhruba Nandi

B.Stat.

Nikhilesh Bhattacharya Memorial Gold Medal for best performance in Statistics

Sevantee Basu

B.Stat.

Mukul Chaudhuri Cash Award for the best female student in the first year

Aytijhya Saha

B.Stat.

Mukul Chaudhuri Cash Award for the best female student in the second year

Snehinh Sen

B.Math.

S. H. Aravind Gold Medal for outstanding performance

POSTGRADUATE

Aditya Ghosh

M.Stat.

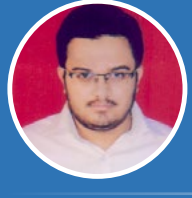
ISIAA – J. K. Ghosh Memorial Gold Medal for outstanding performance

Souhardya Sengupta

M.Stat.

P. C. Mahalanobis Memorial Gold Medal for outstanding performance

Mohammad Anees Parwez



M.Stat.

Sabyasachi Roy Memorial Gold Medals for doing the best project work in second year

Shrivathsa Pandelu

M. Math.

ISIAA – P. C. Panesar Memorial Gold Medal for outstanding overall performance

Abhigayan Adhikary

MS (QE)

Dr. N. S. Iyenger Award for best student of Econometrics

Meet Mehta

MS (QE)

Sanghamitra Das Memorial Gold Medal for outstanding overall performance

Uddalok Sarkar

M.Tech. (CS)

ISIAA – Rashi Ray Memorial Medal for outstanding overall performance

Omkar Vivek Bhalerao

M.Tech. (CS)

Sunity Kumar Pal Memorial Gold Medal for best dissertation

Pramatosh Ray

M.Tech.(QROR)

ISIAA – Mrs. M. R. Iyer Memorial Gold Medal for outstanding overall performance

PhD Degrees Awarded by ISI

The following students were conferred PhD degrees after having successfully completed their requirements for the award of PhD degree –

Sl. No.	Name of the Scholar	Name(s) of the Supervisor(s)	Title of the Thesis	Subject area
1.	Debashis Chatterjee	Dr. Sourabh Bhattacharya, ISRU, ISI, Kolkata	A Brief Treatise on Bayesian Inverse Regression	Statistics
2.	Partha Pratim Ghosh	Prof. Antar Bandyopadhyay, TSMU, ISI, Delhi	A Last-Progeny Modified Branching Random Walk	Statistics
3.	Sancharee Basak	Prof. Ayanendranath Basu, ISRU, ISI, Kolkata	Robust Inference Using the Extended Bregman Divergence and Optimal Tuning Parameter Selection	Statistics
4.	Ramlal Debnath	Prof. Joydeb Sarkar, SMU, ISI, Bangalore	Commuting tuples of operators and functions in the Schur-Agler class	Mathematics
5.	Aritra Bhowmick	Prof. Mahuya Datta, SMU, ISI, Kolkata	Horizontal, Contact and Partially Horizontal Immersions in Fat Distributions	Mathematics
6.	Gopal Maiti	Dr. Satadal Ganguly, SMU, ISI, Kolkata	On moments of certain families of L-functions	Mathematics
7.	Sumit Kumar	Prof. Ritabrata Munshi, SMU, ISI, Kolkata	Spectral aspect subconvex bounds for some L-functions	Mathematics
8.	Aditya Vikram	Prof. Arunava Sen, EPU, ISI, Delhi	Essays in Mechanism Design	Quantitative Economics
9.	Abhinandan Sinha	Prof. Abhirup Sarkar, ERU, ISI, Kolkata	Protest, violence and investment: essays in the political economy of less developed countries	Quantitative Economics
10.	Rolly Kukreja	Prof. Abhiroop Mukhopadhyay, EPU, ISI, Delhi	Essays on Political Economy and Institutions	Quantitative Economics
11.	Sreoshi Banerjee	Prof. Manipushpak Mitra, ERU, ISI, Kolkata	Essays on sequencing problems with welfare bounds	Quantitative Economics
12.	Madhuparna Karmakar	Dr. Souvik Roy, ASU, ISI, Kolkata	Essays on Evaluation Aggregation, Strategy-proof Social Choice, and Myopic-Farsighted Stable Matching	Quantitative Economics
13.	Ujjwal Kumar	Dr. Souvik Roy, ASU, ISI, Kolkata	Local vs Global Incentive Compatibility in Mechanism Design	Quantitative Economics
14.	Nayana Das	Dr. Goutam Paul, CSRU, ISI, Kolkata	Analysis and Design of Quantum Secure Communication System	Computer Science
15.	Debapriya Roy	Prof. Bhabatosh Chanda, ECSU, ISI, Kolkata	From Model to Person Virtual Try-On of Clothes	Computer Science

Sl. No.	Name of the Scholar	Name(s) of the Supervisor(s)	Title of the Thesis	Subject area
16.	Dalu Jacob	Dr. Mathew C. Francis, CSU, ISI, Chennai	Study of some graph theoretic problems via vertex orderings	Computer Science
17.	Subhra Mazumdar	Prof. Bimal Kumar Roy, ASU, ISI, Kolkata and Dr. Sushmita Ruj, University of New South Wales, Sydney	Secure Off-chain Transactions in Blockchain-based Payment Channel Networks	Computer Science
18.	Sanjana Dey	Prof. Subhas C. Nandy, ACMU, ISI, Kolkata	On Finding Optimal Sub-structures in Graphs	Computer Science
19.	Diptendu Chatterjee	Prof. Bimal Kumar Roy, ASU, ISI, Kolkata and Dr. Rishiraj Bhattacharyya, University of Birmingham, UK	Hardness and Approximation of Some Graph Theoretic Problems	Computer Science
20.	Anwesha Law	Prof. Ashish Ghosh, MIU, ISI, Kolkata	Adaptation-Based Classifiers for Handling Some Problems with Multi-Label Data	Computer Science
21.	Samriddha Sanyal	Prof. Dipti Prasad Mukherjee, ECSU, ISI, Kolkata	A Pass Prediction System Derived from the Broadcasting Soccer Video	Computer Science
22.	Soumya Das	Dr. Goutam Paul, CSRU, ISI, Kolkata	Aspects of Quantum Entanglement and Indistinguishability	Computer Science
23.	Ekta Shah	Prof. Pradipta Maji, MIU, ISI, Kolkata	Prioritization of Disease-Causing Genes: Feature Selection, Clustering and Multi-View Kernel Learning	Computer Science
24.	Ankita Mandal	Prof. Pradipta Maji, MIU, ISI, Kolkata	Multi-View Discriminant Canonical Correlation Analysis: Regularization, Scalability to Adaptability	Computer Science
25.	Suvra Jyoti Choudhury	Prof. Nikhil Ranjan Pal, ECSU, ISI, Kolkata	Handling Incomplete Data with Computational Intelligence Frameworks	Computer Science
26.	Sampriti Soor	Prof. B. S. Daya Sagar, SSIU, ISI, Bangalore	Some Extensions of Watershed-based Clustering Methods for Connected Data	Computer Science
27.	Snehalika Lall	Prof. Sanghamitra Bandyopadhyay, MIU, ISI, Kolkata	Algorithms for Feature Selection: Structure Preservation, Scale Invariance, and Stability	Computer Science
28.	Suprita Talnikar	Prof. Mridul Nandi, ASU, ISI, Kolkata	Design, Analysis of Security and Cryptanalysis of Message Authentication Codes	Computer Science
29.	Debasrita Chakraborty	Prof. Ashish Ghosh, MIU, ISI, Kolkata	Feature Extraction using Autoencoders for Various Challenging Tasks of Pattern Recognition	Computer Science

PhD Degrees Awarded by Other Academic Bodies

A. Research Fellows (with ISI-fellowships) who have been awarded Ph. D degree by Academic Bodies other than ISI for work done in ISI.

Sl. No.	Name of the Scholar	Name(s) of the Supervisor(s)	Title of the Thesis	University
1.	Srilena Kundu	Dr. Dibakar Ghosh, PAMU, ISI, Kolkata	Collective Behaviors Of Coupled Biological Models: Dynamical System Approach	University of Calcutta
2.	Sarbendu Rakshit	Dr. Dibakar Ghosh, PAMU, ISI, Kolkata	Observation Of Emergent Behaviors In Dynamical Networks And Their Stability Analysis	University of Calcutta
3.	Arnob Ray	Dr. Dibakar Ghosh, PAMU, ISI, Kolkata	Understanding The Origin Of Extreme Events in Dynamical Systems	University of Calcutta
4.	Tamal Guha	Prof. Preeti Parashar, PAMU, ISI, Kolkata	Non-classical Features of Quantum Systems and Their Informatic Applications in Thermodynamics	University of Calcutta
5.	Abhishek Naskar	Prof. Supratik Pal, PAMU, ISI, Kolkata	Aspects Of Primordial Perturbations From Effective Field Theory Of Inflation	University of Calcutta

Sl. No.	Name of the Scholar	Name(s) of the Supervisor(s)	Title of the Thesis	University
6.	Akash Mallick	Prof. Subrata Kumar Roy, BAU, ISI, Kolkata	Health And Coping Strategy Of The Labourers Of Closed And Running Tea Gardens Of Alipurduar District Of West Bengal: A Comparative Study	University of Calcutta
7.	Anushka Ghosh	Prof. Susmita Mukhopadhyay, BAU, ISI, Kolkata	Aging in Kolkata Slums- An Anthropological Study of Women	University of Calcutta
8.	Sandip Mondal	Dr. Abhishek Mukherjee, AERU, ISI, Giridih	Phytonematode Problems of Rice in Jharkhand, India: Spatial Distribution, Host Plant Resistance and Eco-Friendly Management Approaches	Jadavpur University
9.	Shilpa Purkait	Prof. Rabi Ranjan Chattopadhyay, AERU, ISI, Kolkata	Development of novel natural food preservatives from essential oils of spices	Jadavpur University
10.	Vijayamba R.	Prof. Madhura Swaminathan, EAU, ISI, Bangalore	The Role of Women in Livestock Economy	Tata Institute of Social Sciences
11.	Subhadarshee Nayak	Prof. Madhura Swaminathan, EAU, ISI, Bangalore	Caste Discrimination in School Education: a case study in Odisha	Tata Institute of Social Sciences
12.	Sanjukta Chakravorti	Prof. Dhurjati Prasad Sengupta, GSU, ISI, Kolkata	Triassic Temnospondyl Amphibians of India: Palaeontology and Stratigraphy	University of Calcutta

B. Research Fellows (with other fellowships)/Personnel who have been awarded Ph. D degree by Academic Bodies other than ISI for work done in ISI.

Sl. No.	Name of the Scholar	Name(s) of the Supervisor(s)	Title of the Thesis	University
1.	Ipsita Basu	Prof. Susmita Mukhopadhyay, BAU, ISI, Kolkata	A Study On Mental Health And Well-Being Of Dementia Caregivers In Urban Areas Of West Bengal	University of Calcutta
2.	Sayantan Nag Chowdhury	Dr. Dibakar Ghosh, PAMU, ISI, Kolkata	Emerging Collective Phenomena In Static And Temporal Dynamical Networks	University of Calcutta
3.	Sinchan Ghosh	Prof. Sabyasachi Bhattacharya, AERU, ISI, Kolkata and Prof. Santanu Ray, Department of Zoology, Visva- Bharati	The migratory pattern and identification of habitat patches with nesting success of Merops philippinus	Visva-Bharati
4.	Joyeeta Chakraborty	Dr. Raghunath Chatterjee, HGU, ISI, Kolkata	De Novo Identification Of Statistically Significant Genomic Islands And Their Role In Bacterial Pathogenicity	University of Calcutta
5.	Arnab Paul	Prof. Supratik Pal, PAMU, ISI, Kolkata	Dark Matter and Neutrinos in Cosmology	University of Calcutta
6.	Mir Alimuddin	Prof. Preeti Parashar, PAMU, ISI, Kolkata	A Study On Some Problems Of Quantum Thermodynamics From The Perspective Of Quantum Information	University of Calcutta

2.4 PLACEMENT

During 2022-23 Indian Statistical Institute had offered various degree and diploma courses like: B. Stat, M. Stat, B. Math, M. Math, MS(QE), MSQMS, MSLIS, M. Tech (CS), M. Tech (CrS), M. Tech (QROR), PGDBA, PGDSMA, and PGDARSMA. ISI also offers PhD programs in various disciplines. All the PhD scholars are fully absorbed in various institutes, universities and other sectors. Generally, students of B. Stat and B. Math programs do not opt for immediate jobs but enrol into M. Stat and M. Math programs respectively. Given the various post-graduate programs, some students after completion of the programs, move to higher education and enrol at the PhD programs in home or abroad universities or institutes. All the other remaining students go for jobs through ISI placement cell (or otherwise). Some students during master and diploma programs work as interns in various companies for a short- or medium-term period. The following tables include course-wise information about placements and corresponding salary offered.

Degree Course-wise Recruitments and Salary

Name of Program	No. of Job Market Candidates	No. of Candidates offered Jobs	Highest Salary Offered (in LPA)	Median salary Offered (In LPA)
M Tech (CS) Kolkata	33	29	89.0	19.0
M Stat (Kolkata)	44	44	48.0	28.0
MS(QE) Kolkata	16	16	37.5	28.0
MS(QE) Delhi	18	18	37.0	23.0
M Tech (CrS) Kolkata	14	14	53.0	15.0
M Tech QROR Kolkata	21	20	53.0	20.0
MSQMS (Bangalore)	13	13		
MSLIS (Bangalore)	6	6		

Some Companies which recruited our Students

Diploma Course-wise Recruitments and Salary

Name of Program	No. of Job Market Candidates	No. of Candidates offered Jobs	Highest Salary Offered (in LPA)	Median salary Offered (In LPA)
PGDBA (Kolkata)	61	60	42.50	28.0
PGDARSMA (Giridih)	9	9		
PGDSMA (Tezpur)	10	10		
PGDSMA (Chennai)	5	5	9.0	7.5

Some Companies which recruited our Students

2.5 International Training Programme

International Statistical Education Centre (ISEC)

Member Secretary	**:**	Prof. Amita Pal, ISRU Kolkata
Assistant Member Secretary:		Dr. Md. Zafar Anis, SQC & OR Unit, Kolkata
Office	**:**	C.D. Deshmukh Bhawan, 202, B.T. Road, ISI, Kolkata
No of Scientific Staff	:	One (1)
No of non-scientific staff	:	Four (4)

The International Statistical Education Centre (ISEC) was founded in 1950 at Kolkata through the initiative of Professor P.C. Mahalanobis, based on an agreement between the International Statistical Institute and the Indian Statistical Institute (ISI). It is an Associate Institution of ISI as per *Regulation no. 14 of the Institute*. It functions under a Board of Directors, which has members from ISI, MoSPI and the Ministry of External Affairs (MEA), and whose current Chairman is Professor S. P. Mukherjee. The centre aims to provide training in theoretical and applied statistics at various levels to selected applicants from countries of the Middle East, the Far East, South and South-East Asia, as well as the Commonwealth countries of Africa. The primary training programme is a 10-month regular course in Statistics (titled **Statistical Theory and Applications**) leading to a Diploma. In addition, special courses on different topics of varying duration are also organized for international participants.

Regular Course

The 74th term of the residential ten-month regular Course on **Statistical Theory and Applications** commenced from November 01, 2022, after a two-year hiatus imposed by the COVID-19 pandemic and the associated restrictions in international travel, etc. Of the fifteen applicants selected, fourteen arrived in Kolkata to participate in the course. Of these, 9 are from Myanmar, 2 from Mongolia and one each from Liberia, Russia and Tajikistan. Twelve of these participants are female, which is quite remarkable. The lone participant from Russia had to discontinue in February 2023 due to personal reasons. The course will end on August 31, 2023.

ISEC Regular Course 74th Batch

Sl. no.	Name of Trainee	Country	Supported by
1	Aye Sandar Myint	Myanmar	ITEC, MEA, Govt. of India
2	Aye Thiri	Myanmar	ITEC, MEA, Govt. of India
3	Bujinlkham Choijamts	Mongolia	ITEC, MEA, Govt. of India
4	Doniyor Sattorov	Tajikistan	ITEC, MEA, Govt. of India
5	Ei Ei Mon	Myanmar	ITEC, MEA, Govt. of India
6	Erkhembayar Battumur	Mongolia	ITEC, MEA, Govt. of India
7	Hlaing Phway Thu	Myanmar	ITEC, MEA, Govt. of India
8	Kitachis Galon Tehmeh	Liberia	ITEC, MEA, Govt. of India
9	Lily Ning Ngaih Zam	Myanmar	ITEC, MEA, Govt. of India
10	May Myint Bo	Myanmar	ITEC, MEA, Govt. of India
11	MAY ZIN	Myanmar	ITEC, MEA, Govt. of India
12	PHYO MA MA KYAW	Myanmar	ITEC, MEA, Govt. of India
13	THEIN GI ZIN AUNG	Myanmar	ITEC, MEA, Govt. of India
14	THET HTET AUNG	Myanmar	ITEC, MEA, Govt. of India
15	VERA RYNDINA	Russia	ITEC, MEA, Govt. of India

Special Course

A residential **Workshop on Industrial Experimentation for Engineers & Scientists** was conducted in an in-person mode during October 10-21, 2022, to introduce the participants (scientists/engineers working in various research laboratories, R & D establishments and academia) to statistical methodologies that are useful for planning and conduct of experiments and their analysis with the ultimate objective of being able to draw scientifically valid conclusions. This workshop was conducted with faculty support from the SQC & OR Unit, Kolkata. Topics covered included Statistical Preliminaries, Design and Analysis of Experiments and Taguchi Methods. Successful case studies from Indian industries were also be presented. Thirteen applicants were selected for this workshop, of which twelve joined. Of these, three each were from Jordan and South Sudan, two from Tajikistan, and one each from Azerbaijan, Iraq, Nigeria and Sudan.

ISEC Special Courses

Sl. no.	Name of Special Course	Duration	No. of Participants
1.	Workshop on Industrial Experimentation for Engineers & Scientists	October 10-21, 2022	12

Chapter 3

Research Activities

85 No. of Internal Projects

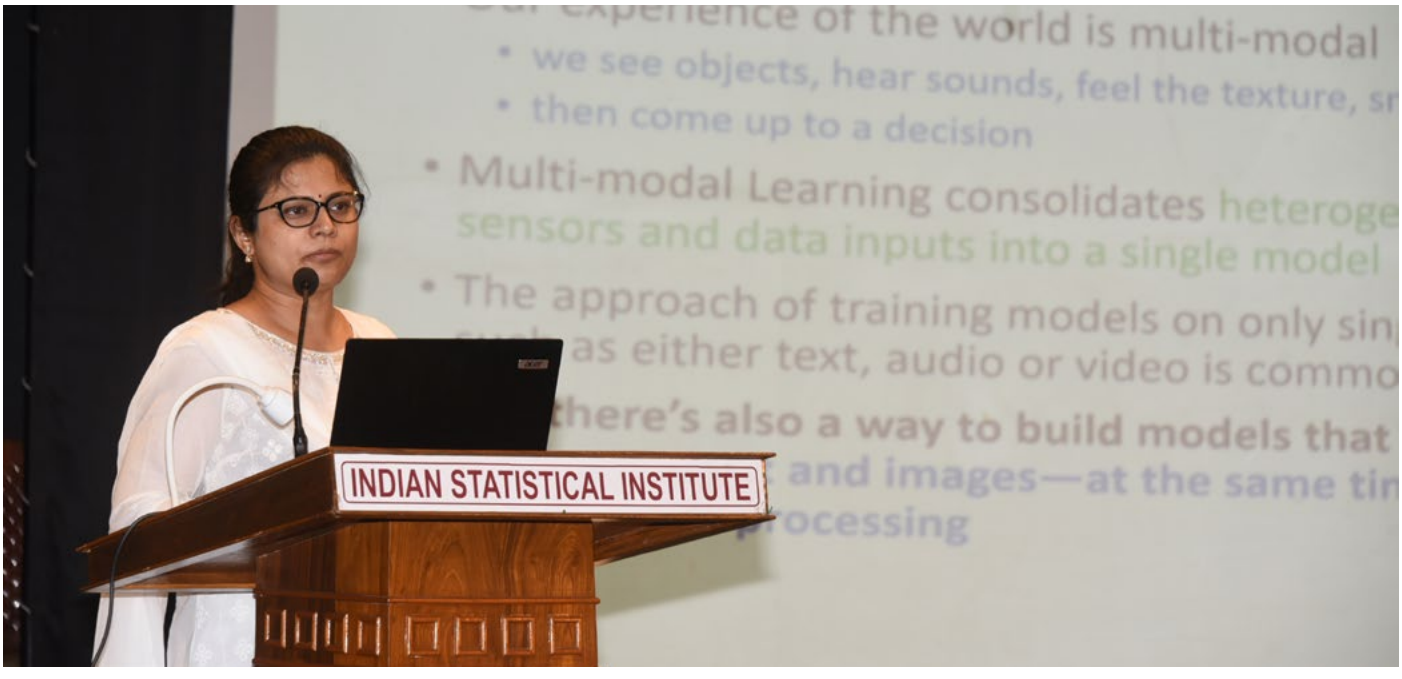
21 New	42 Ongoing	22 Completed

154 No. of External Projects

21 New	67 Ongoing	66 Completed

21 No. of Government Projects

05 New	09 Ongoing	07 Completed

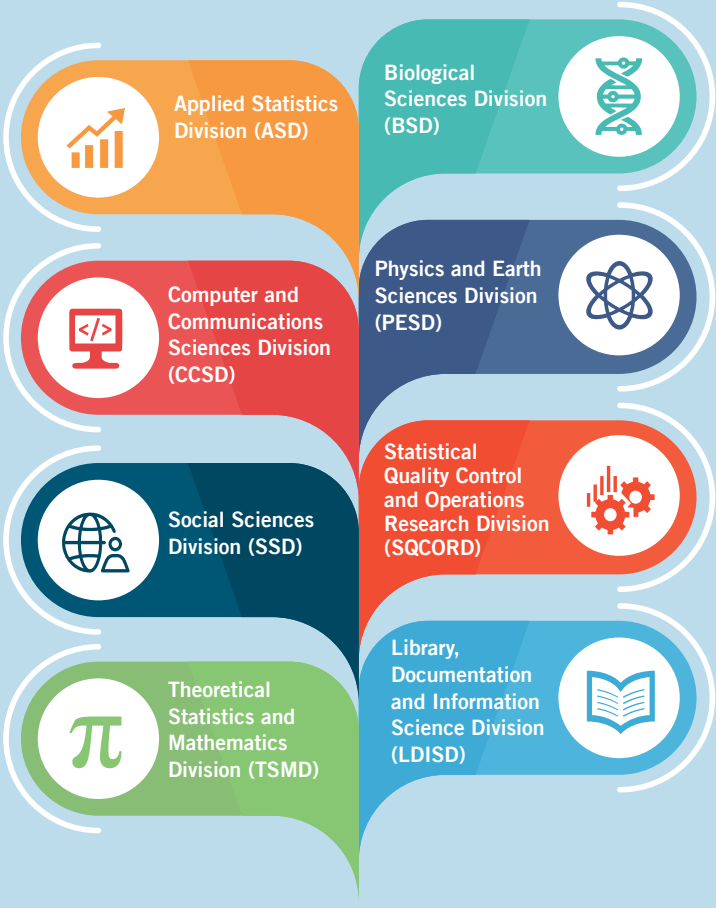


Research Activities

The major thrust of the Institute is on research in various disciplines and the activities of the Institute are organized into Divisions. These Divisions have multi-locational units (*vide* the Locations page, Chapter 1). Scientists of the Institute carry out independent research in their own basic discipline and also undertake interdisciplinary research in collaboration with other units within the Institute and also with other organizations. The Institute also takes up various internally and externally funded projects in diverse fields on challenging problems of national and international importance. As a part of research activities, the scientists of the Institute are also involved in consultancy work. The Institute has a network of units under the Statistical Quality Control and Operations Research Division which, in addition to research and training activities, also specialize in providing technical consultancy to a wide range of public and private organizations for developing quality management systems and in solving critical problems of quality, reliability and productivity.

This chapter provides the principal areas of work and the projects undertaken by the faculty, of the different Divisions, during 2022-2023.

The eight Divisions for research, development and consultancy activities are:



One Centre providing services –

Computer and Statistical Services Centre (CSSC), Kolkata

Additionally, there are five national facilities –

- The Centre for Artificial Intelligence and Machine Learning (CAIML), Kolkata
- The Centre for research on the Economics of Climate, Food, Energy and Environment (CECFEE), Delhi
- The Center for Soft Computing Research (CSCR), Kolkata
- The R. C. Bose Centre for Cryptology and Security (RCBCCS), Kolkata
- Technology Innovations Hub (TIH), Kolkata

3.1 APPLIED STATISTICS DIVISION (ASD)

Professor In-Charge: MRIDUL NANDI, ASU Kolkata (1st April 2022 – 17th September 2022)
SMARAJIT BOSE (18th September 2022 – 31st March 2023)

Office: 8th floor, S.N. Bose Bhawan, ISI, Kolkata-700 108
4th floor, R.A. Fisher Bhavan, ISI, Kolkata 700108

1 Applied and Official Statistics Unit (AOSU), North-East Centre, Tezpur

- Head of Unit: BALAKRISHNAN RAMAKRISHNAN
- Office: Punioni, Solmara, Tezpur, Assam – 784501

2 Applied Statistics Unit (ASU), Bangalore

- **Head of Unit:** C.R.E. RAJA
- **Number of Faculties:** One (1)
- **Number of Scientific Workers:** One (1)
- **Number of Visiting Scientists:** One (1)
- **Office:** 8th Mile, Mysore Road, ISI, Bengaluru – 560059

3 Applied Statistics Unit (ASU), Chennai

- **Head of Unit:** D. SAMPANGI RAMAN
- **Number of Faculties:** Two (2)
- **Office:** 37, Nelson Manickam Road, Aminjikarai, Chennai - 600029

4 Applied Statistics Unit (ASU), Kolkata

- **Head of Unit:** SUBHAMOY MAITRA
- **Number of Faculties:** Sixteen (16)
- **Number of Scientific Workers:** Three (3)
- **Number of Non-Scientific Workers:** Four (4)
- **Number of Research Scholars:** Thirty (30)
- **Number of Visiting Scientists:** Three (3)
- **Office:** 203, B.T. Road, 8th Floor, S.N. Bose Bhavan, Kolkata-700108

5 Interdisciplinary Statistical Research Unit (ISRU), Kolkata

- **Head of Unit:** AMITA PAL
- **Number of Faculties:** Nine (9)
- **Number of Scientific Workers:** One (1)
- **Number of Non-Scientific Workers:** Two (2)
- **Number of Research Scholars:** Nine (9)
- **Number of Visiting Scientists:** Three (3)
- **Office:** 4th floor, R.A. Fisher Bhavan, ISI, Kolkata 700108

1. APPLIED AND OFFICIAL STATISTICS UNIT (AOSU), NORTH-EAST CENTRE, TEZPUR

Research

Psychosocial work characteristics and health, Applications of advanced statistical methods

2. APPLIED STATISTICS UNIT (ASU), BANGALORE

Research

The Applied Statistics Unit at ISI Bangalore was created in 2019 with one faculty member. The unit participates in teaching for the B. Math and M. Math programs of the centre in addition to research activities.

Current Areas of Research

Name of the DCSW Member	Research topic(s)	Collaborator(s)
Rituparna Sen	Hedging Climate Risk, Network of System-wide Contagion, Financial Risk Management, Time Series of Functional Data	S. Basu (Cornell University), S. Biswas, S. Deb (IIM Bangalore).

Projects

Externally-funded Projects

ONGOING PROJECTS

Sl. No	Name of the project	A/c No.	Starting Date	Duration	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1	Functional Time Series	E-517	February 23, 2021	3 years	Rituparna Sen	SERB	6,60,000/-
2	Estimation of Risk Measures	E-515	December 22, 2020	3 years	Suparna Biswas	DST	28,24,416/-

3. APPLIED STATISTICS UNIT (ASU), CHENNAI

Research

Actively participating in research in the area of Survival Analysis, Reliability Analysis and Regression Analysis. Active participation in national and international conferences.

Current Areas of Research

Name of the DCSW Member	Research topic(s)	Collaborator(s)
Sudheesh K Kattumannil	Empirical likelihood, Cure rate model, U statics for LTRC data, and inference on entropy and extopy.	Isha Dewan, Anajana, S (University of Hyderabad, Hyderbad), Sreedevi EP (Cochin University of Science and Technology, Kochi), Min Xie (City University of Hong Kong) and Balakrishnan, N (McMaster University, Canada)
Sushma Bendre	Regression Analysis	

4. APPLIED STATISTICS UNIT (ASU), KOLKATA

Research

Cryptology, and Security, Digital Watermarking, Sensor Networks, Quantum Information, Combinatorics, Theoretical Computer Science, Discrete Logarithm Problem, Computation using Kummer Line, Lattice Based Cryptography, Symmetric Key Cryptography. Problems related to Discrete-Valued Time Series, Sequential Analysis and Clinical Trials, among others Multivariate Analysis, Inference, Bio-Statistics, Signal Processing, Big Data Analysis, Regression and Data Science. Copula based Methods and Inference with focus on Multivariate Longitudinal Models. High-Dimensional Statistics, Model Selection, Multiple Hypothesis Testing. Applied Statistics, Pattern Recognition, E M Algorithm, Game Theory, High dimensional Inference, Change-point Detection in Random Networks, Large-Scale Multiple Testing for Sequential Data.

Current Areas of Research

Name of the DCSW Member	Research topic(s)	Collaborator(s)
Anup Dewanji	Reliability	T.S. Vignesh, Dhrubasish Bhattacharya
	Survival Analysis	Biswadeep Ghosh, Sudipta Das, G. Asha, C.S. Soorya
Arijit Chakrabarti	High-Dimensional Statistics, Model selection, Multiple hypothesis testing.	Soumendu Sundar Mukherjee, Sayantan Pal, Tapas Samanta
Arnab Chakraborty	Applied Statistics, Pattern Recognition, E M Algorithm	Atanu Ghosh (Presidency College)
Atanu Biswas	Problems related to discrete-valued time series, sequential analysis and clinical trials, among others	
Bimal Kumar Roy	Combinatorics, Design of Experiments, Optimization, Cryptology, Data obfuscation, Design of secure Electronic voting machine	
Debapriya Sengupta	Multivariate Analysis, Inference, Bio-Statistics, Signal Processing, Big Data Analysis, Regression and Data Science	
Debasis Sengupta	Developing statistical models and methods for various types of real data, Reliability, Survival Analysis	
Kishan Chand Gupta	Cryptology, Boolean Functions, Maximum Distance Separable (MDS) Matrix	
Mausumi Bose	Combinatorial Designs (for obtaining efficient designs for determining the best treatment for total effects)	
	Operations Research (for obtaining shorter prediction intervals for anonymous individual assessments in group decision making)	
	Sampling	
Mridul Nandi	Symmetric Key Design, Provable Security, Cryptanalysis and Implementation, Hash Function, Authenticated Encryption and its Applications, Quantum Symmetric Key	
Palash Sarkar	Cryptology, Combinatorics, Theoretical Computer Science, Discrete Logarithm Problem, Computation using Kummer Line, Lattice based cryptography, Symmetric Key cryptography	
Shyamal Krishna De	High dimensional Inference	Biplab Paul, Anil K. Ghosh
	Change-point detection in random networks	Soumendu Sundar Mukherjee, Sharmodeep Bhattacharya, Shirshendu Chatterjee
	Large-scale multiple testing for sequential data	Rahul Roy
Souvik Roy	Game Theory	Ratul Lahkar (Ashoka University), Andrés Perea (Maastricht University, Netherlands), Anish Sarkar, Arunava Sen, Debasis Mishra, Hans Peters (Maastricht University, Netherlands), Ravindra B. Bapat, Y. Narahari (Indian Institute of Science)

Name of the DCSW Member	Research topic(s)	Collaborator(s)
Subhamoy Maitra	Cryptology and Security, Digital Watermarking, Sensor Networks, Quantum Information	
Sumitra Purkayastha	Copula based methods and inference, with focus on Multivariate longitudinal models	
Tapas Samanta	Asymptotic Theory, Bayesian Analysis, Model Selection	

Projects

Internally-funded Projects

NEW PROJECTS

Sl. No	Name of the project	Starting Date	Duration	Principal Investigator(s)
1	Social Choice under Ambiguity	April, 2021	3 years	Souvik Roy

ONGOING PROJECTS

Sl. No	Name of the project	Starting Date	Duration	Principal Investigator(s)
1	Mechanism Design with Interdependent Preferences	April, 2020	3 years	Souvik Roy

Projects done for Govt. of India/State Govts

ONGOING PROJECTS

Sl. No.	Name of the project	A/c No.	Starting Date	Duration	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1	Research & Development of stream encryption Algorithm	E-176	March 17, 2021	3 Years	M. Nandi	DST, GoI	15,21,816/-

COMPLETED PROJECTS

Sl. No.	Name of the project	A/c No.	Starting Date	End date	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1	Design of a PQC Algorithm Solution	I-065	July 29, 2020	October 18, 2021	S. Maitra	NAVY, GoI	14,20,170/-

5. INTERDISCIPLINARY STATISTICAL RESEARCH UNIT (ISRU), KOLKATA

Research

Scientists of the Interdisciplinary Statistical Research Unit (ISRU) are actively involved in research related to diverse areas of Applied and Interdisciplinary Statistics. The primary research areas are Robust Statistical Inference, Statistical Machine Learning, Image Processing, Bayesian Modeling and Inference, Spatiotemporal Data Analysis, Multivariate Analysis, Biostatistics, Statistical Process Control, Applications of Nonparametric Regression, Design of Experiments, Probability Inequalities, Multiple Hypothesis Testing, Statistical Inference, to name a few. They are regularly involved in interdisciplinary projects, internally or externally funded, sometimes in collaboration with scientists of other units of ISI and/or other organisations. They are also involved in teaching and training activities. Apart from participating actively in the teaching of courses under the regular academic programmes of the Institute, they also conduct and/or teach in winter/summer schools, refresher courses and workshops.

Current Areas of Research

Name of the DCSW Member	Research topic(s)	Collaborator(s)
Abhik Ghosh	Robust Statistical Inference for various Applications	Ayanendranath Basu, Leandro Pardo (UCM, Madrid, Spain)
	Robust Inference for High and Ultra-high dimensional Data	Leandro Pardo (UCM, Madrid, Spain), Magne Thoresen (UiO, Oslo, Norway)
	Entropy, divergences, their generalization and applications in Statistical infernece	Ayanendranath Basu
	Applications of Statistics within Econophysics & Socio-economic Applications	Banasri Basu
	Rainfall Modelling	Arnab Hazra (IIT Kanpur, India)
	Robust Inference for Stochastic Processes	
	Robust Methods in Bioinformatics	
Amita Pal	Robust Support Vector Machines	
Ayanendranath Basu	Robust singular value decomposition with applications	Subhrajyoty Roy and Abhik Ghosh
	Robust principal component analysis	
	Robust clustering in mixture normal models	Soumya Chakraborty and Abhik Ghosh
	Sequential and robust estimation of a multivariate scatter matrix	
	Robust estimation based on the extended Bregman divergence	Sancharee Basak
	Robust estimation under linear mixed models	Giovanni Saraceno and Claudio Agostinelli (University of Trento, Italy) and Abhik Ghosh
	Robust and efficient estimation based on ordinal response models	Arijit Pyne and Abhik Ghosh
	Robust inference based on the exponentially weighted divergence	Soumik Purkayastha (University of Michigan)
	Characterizing the functional density power divergence	Souvik Roy (Stanford University), Subrata Pal (Iowa State University), Sumit Kumar Kar (University of North Carolina, Chapel Hill)
Kiranmoy Das	Bayesian Joint Modeling of Longitudinal and Survival Data	Damitri Kundu
	Bayesian Model Selection for Interval Data	Shubhajit Sen
	Variable Selection for Categorical Outcomes	Sweata Sen
	Dose-Response Modeling for Leukemia Patients in India	Vaskar Saha, Shekhar Krishnan
	Multivariate Quantile Regression	Jayabrata Biswas
	Automated Patient Monitoring using Sensor Networks	Aditi Chatterjee
Partha Sarathi Mukherjee	Image denoising using jump regression analysis and machine learning techniques	Subhasis Basak, Somenath Mandal
	Image deblurring using jump regression analysis and machine learning techniques	Yicheng Kang
	Image registration	Sujay Das
	Statistical Process Control	
	Control Charts for Image monitoring	Anik Roy
	Applications of statistical tools in various scientific research	Dr. Lilian Calderon-Garciduenas
Rita SahaRay	Robust Generalised Quadratic Discriminant Analysis	Abhik Ghosh, Sayan Chakraborty (University of Illinois at Urbana-Champaign, USA), Sayan Bhadra (Florida State University, USA)
	Classification under the Generalised Additive Model	Anil Ghosh, Manit Paul, Nirmalya Mandal, Abir Sarkar

Name of the DCSW Member	Research topic(s)	Collaborator(s)
Smarajit Bose	Content Based Image Retrieval	Subhadip Maji
	Ensemble methods for learning	
Sourabh Bhattacharya	Bayesian Statistics	
	Bayesian Computation	
	Stochastic Processes	
Subir Kumar Bhandari	Multiple Hypotheses Testing	Shyamal Krishna De, Nabaneet Das, Rahul Roy, Monitirtha Dey

Projects

Internally-funded Project

ONGOING PROJECTS

Sl. No	Name of the project	Starting Date	Duration	Principal Investigator(s)
1	Outlier-Robust Methods in Biostatistics and Bioinformatics using Density Power Divergence	April 1, 2020	3 years	Abhik Ghosh

Externally-funded Projects

ONGOING PROJECTS

Sl. No	Name of the project	A/c No.	Starting Date	Duration	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1	Robust minimum divergence inferences for Non-Standard data problems: Emphasis on Censored, Longitudinal & High-dimensional data and Machine Learning & Multisample set-ups	E054	November 2, 2016	6 years	Abhik Ghosh	DST, Govt. of India	35,00,000/-
2	Robust Statistical Learning for High-dimensional Biomedical and Omics data	E152	December4, 2020	2 years	Abhik Ghosh	SERB, Govt. of India	15,32,916/-
3	Applied Statistical Problems for Dependent Incomplete Multivariate Data (Indo-Uzbek joint project)	E159	February 15, 2021	3 years	Ayanendranath Basu	IBCD,DST, Govt. of India	15,85,800/-

3.2 BIOLOGICAL SCIENCES DIVISION (BSD)

Professor In-Charge: RAGHUNATH CHATTERJEE, HGU, Kolkata (1st Apr 2022 to 17th Sep 2022)
ABHISHEK MUKHERJEE, AERU, Giridih (18th Sep 2022 to 31st Mar 2023)

Office: 1st floor, A.N. Kolmogorov Bhavan, ISI, Kolkata-700 108

Office: Rose Villa, New Barganda, ISI, Giridih, Jharkhand - 815301

1 Agricultural & Ecological Research Unit (AERU), Giridih & Kolkata

- **Head of Unit:** RABI RANJAN CHATTOPADHYAY
- **Number of Faculties:** Eight (8)
- **Number of Scientific Workers: Six(6)**
- **Number of Non-Scientific Workers:** Five (5)
- **Number of Research Scholars:** Forty-two (42)
- **Giridih Office:** Rose Villa, New Barganda, ISI, Giridih, Jharkhand - 815301
- **Kolkata Office:** 2nd floor, R. A. Fisher Bhavan, ISI, Kolkata – 700108

2 Human Genetics Unit (HGU), Kolkata

- **Head of Unit:** SAURABH GHOSH
- **Number of Faculties:** Three (3)
- **Number of Scientific Workers:** One (1)
- **Number of Non-Scientific Workers:** Two (2)
- **Number of Research Scholars:** Fifteen (15)
- **Office:** 1st floor, A.N. Kolmogorov Bhavan, ISI, Kolkata-700 108

1. AGRICULTURAL & ECOLOGICAL RESEARCH UNIT (AERU), GIRIDIH & KOLKATA

Research

The Agricultural and Ecological Research Unit (AERU) is based in Kolkata and have its branch at Giridih. The unit is comprised of nine faculty members. The Scientific workers of the Unit are engaged in various research and academic activities on Agriculture and Ecology. During the period under consideration, the scientific workers of the Unit have undertaken research on various ecological aspects as invasive plants, zoopankton-phytoplankton interaction, plant - nematode interaction etc. and also in Agriculture and social aspects as technology adoption by farmers, use of nanotechnology in Agriculture and other various topics. In addition to these, the faculty members of the Unit are also engaged in regular teaching in B. Stat. and M. Stat. courses in ISI and also in various departments of other Universities. AERU faculties have launched a Post Graduate Diploma in Agricultural & Rural Management with Statistical Methods and Analytics in the Giridih Branch.

Current Areas of Research

Name of the DCSW Member	Research topic(s)	Collaborator(s)
Abhishek Mukherjee	Plant – Nematode interaction	Prof. Matiyar R. Khan (Principal Scientist, Division of Nematology, ICAR- Indian Agricultural Research Unit, New Delhi), Dr. Dipankar Chakraborti, (Head, Department of Genetics, University of Calcutta)
	Applications of nanotechnology in agriculture	Dr. Chandan Ghosh, (Department of Material Science and Technology, School of Materials Science & Nanotechnology, Jadavpur University)
	Biocontrol of pest and diseases	Prof. Birendra Nath Panja, (Prof. and HoD, Dept. of Plant Pathology, Bidhan Chandra Krishi Viswavidyalaya)
	Invasive weed ecology and management	Dr. Achyut Banerjee (School of Life Sciences, Sun Yat-sen University, China), Dr. Raghu Sathyamurthy (Biosecurity Flagship, CSIRO, Brisbane, Australia)
Arunava Goswami	Nanoscience, Nanotechnology, Nano-Biotechnology, Geology on sediments, Immunology, Plant Science, Biofilm and Cell Culture studies, Agriculture, Pharmaceutics, Nano Medicine, Zoology, Plant products, Molecular Biology, Plant products, Statistics, Mathematical Genomics, Nano-formulation, Nano-physics	Dr. Amlan Banerjee, Prof. Arindam Bhattacharya (CU), Prof. Christian Ulrichs (Humboldt University, Berlin), Prof. Dibyajit Lahiri (UEM), Prof. Dilip Mishra (BCKVV),Dr. Kenneth Lundstrom (PanTherapeutics,Switzerland), Dr. Ketousetuo Kuotsu (Jadavpur University), Prof. Marc Escriba (University of Lleida, Spain), Dr. Nilay Kanti Das (Sagar Datta Medical College), Dr. Nithar Madhu (APC College), Prof. Pallab Basu (University of Wits, Johannesburg, SA), Prof. Pallab Haldar (Jadavpur University), Prof. Parimal Karmakar (Jadavpur University), Prof. Rabi Ranjan Chattopadhyay (AERU), Prof. Sabyasachi Bhattacharya (AERU), Dr. Sarif Hassan (Pingla College), Serene Adak (Baranagar Municipality), Prof. Volker Hessel (University of Adelaide), Prof. Vladimir N Uversky (University of South Florida)
Joydev Chattopadhyay	1. Disease modelling including COVID-19 2.Ecological predator prey based model with fear and vigilance impact	Prof. Maia Martcheva (University of Florida, USA)
Pabitra Banik	Ecological aspect of the Sundarban area	Dr. K. C. Rath (Dept. of Geography, Utkal University)
	Technology adoption by the farmers	Prof. Christipher Edmonds (Tokyo International University, Japan)
Pradip Bhattacharyya	Waste Management, Phytoremediation, Metal-microbe relationship, Soil and water pollution and remediation	

Name of the DCSW Member	Research topic(s)	Collaborator(s)
Rabi Ranjan Chattopadhyay	1. Natural preservatives 2. Bioactive natural products	Prof. S. Bhattacharya, Prof. N.K. Pal (Head, Dept. of Microbiology, Jagannath Gupta Institute of Medical Sciences, Kolkata)
Sabyasachi Bhattacharya	Migratory pattern and cooperative breeding of Blue-tailed bee-eater	Prof. Santanu Ray, (Ex-Professor, Department of Zoology, Visva-Bharati, Santiniketan), Dr. Fahad Al Basir (Assiastant Professor, Assansole Girls College, Assansol)
	Growth dynamics of zooplankton- phytoplankton system	Prof. Santanu Ray, (Ex-Professor, Department of Zoology, Visva-Bharati, Santiniketan), Dr. Bratati Chakraborty, (Assistant Professor, Lady Brabourne College, Kolkata)
	Cell proliferation and growth dynamics in bio assays and in vitro culture under noisy environment	Dr. Bapi Saha (Assistant Professor, Government College of Engineering & Textile Technology, Berhampore)
	Extinction risk assessment and growth dynamics of Herring fish population	Dr. Bapi Saha (Assistant Professor, Department of Mathematics, Government College of Engineering & Textile Technology, Berhampore)
	Conservation status assessment of species under noisy environment	Dr. Nabakumar Ghosh (Assistant Professor, Department of Mathematics, Acharya Jagadish Chandra Bose College, Kolkata)
Suparna Mandal Biswas	Potent nutraceuticals having antioxidant, DNA damage protecting potential and anti-cancer properties from the leaves of some tropical plant species.	Prof. Thomas A Hughes and Dr. Arindam Pramanik (School of Medicine, Wellcome Trust Brenner Building, St James's University Hospital, University of Leeds, UK)
	Mitigating waste lands by phytoremediation potentialities of some weed species.	Prof. Prasanta C. Bhowmik, (University of Massachusetts Amherst, Department of Plant and Soil Sciences, Stockbrige Hall, Amherst, USA)
	Exploring the vegan sources of squalene and its implication in pharmacological sciences	Prof. Panchanan Pramanik, (Former Professor of Indian Institute of Technology, Kharagpur)
	Evaluating the potential role of plant derived natural products in urease inhibition and nitrogen utilization for enhancing soil health - A rhizosphere manipulation strategy	Prof. Panchanan Pramanik, (Former Professor of Indian Institute of Technology, Kharagpur)
	Plant polyphenols and assessing their role as nutraceuticals, food additives and for health care	Prof. Parimal Karmakar (Department of Life Science and Biotechnology, Jadavpur University)
	Characterization of fungal metabolites and bioactivity screening to assess its potentialities as raw material for development of dying agents and pharmaceutical products.	Dr. Lalit Kumar (ICAR- Indian Institute of Farming Systems Research, Modipuram Meerut)

Projects

Internally-funded Projects

NEW PROJECTS

Sl. No	Name of the project	Starting Date	Duration	Principal Investigator(s)
1	Investigation of novel natural preservatives from anthocyanins of Syzygium cumini fruit pulp for the development of omega-3 fatty acids fortified stable functional foods	April 2022	March 2024	Rabi Ranjan Chattopadhyay

ONGOING PROJECTS

Sl. No	Name of the project	Starting Date	Duration	Principal Investigator(s)
1	Vetiver based phytoremediation of metal contaminated chromium asbestos mines of Jharkhand: A cradle to grave approach through vermitechnology	April 2021	March 2024	Pradip Bhattacharyya

Sl. No	Name of the project	Starting Date	Duration	Principal Investigator(s)
2	Designing strategies for the enhanced production of cosmetic antiaging "squalene" from the shredded leaves of Moraceae and exploring its novel sources based on molecular cues.	April 2021	March 2024	Suparna Mandal Biswas
3	Strategies for improvement of livelihood security of the farming community in the Indian Sundarbans under present scenario of climate change	April 2021	March 2024	Pabitra Banik
4	Green synthesis of nanoparticle in plant ethanol extracts and application in various experimental and field model systems	April 2021	March 2024	Arunava Goswami
5	Fungal endophytic communities associated with root gall Meloidogyne graminicola : Exloitation of their role in biocontrol	April 2021	March 2024	Abhishek Mukherjee

Externally-funded Projects

ONGOING PROJECTS

Sl. No	Name of the project	A/c No.	Starting Date	Duration	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1	Conducting surveys in India to identify biocontrol agent for *Nymphoides cristata*	F591	July 2021	July 2024	Abhishek Mukherjee	CSIRO, Australia	14,62,000/-
2	A study on chemical constituents of rice root modulating herbivory by the rice root knot nematode *Meloidogyne graminicola*: a chemical ecology perspective	E158	April 2021	3 yrs	Abhishek Mukherjee	SERB, DST	21,52,683/-

COMPLETED PROJECTS

Sl. No	Name of the project	A/c No.	Starting Date	End date	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1	Characterization and hazard prediction of tannery waste sludge in West Bengal and resource recovery through vermiremediation	E115	August 2019	July 2022	Pradip Bhattacharya (PI) Sabyasachi Bhattacharya (Co-PI)	Department of Science and Technology & Biotechnology, Govt. of West Bengal	15,00,000/-
2	Climate change and livelihoods in disaster-prone coastal areas of Bay of Bengal	F010	2019	2022	Pabitra Banik	Tokyo International University	2,47,280/-

Projects done for Govt. of India/State Govts.

ONGOING PROJECTS

Sl. No.	Name of the project	A/c No.	Starting Date	Duration	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1	Delaying programmed cell death of beneficial gut bacteria in micro-gravity using oxide and complex nanoparticles	E126	17 January 2020	5 years	Arunava Goswami	ISRO, GoI	34,63,000/-
2	Antidotes against dsDNA adenovirus induced kerato-conjunctivitis: ex vivo platform for nanoformulations development	E130	13 September 2019	5 years	Arunava Goswami	DST, GoI	34,29,000/-

2. HUMAN GENETICS UNIT (HGU), KOLKATA

Research

1. Genetic and epigenetic association in Human Health and Diseases
2. To identify the role of genetic and epigenetic alterations in epidermal keratinocytes in the pathogenesis of Psoriasis
3. Genomic data integration
4. Development of single-cell data analysis methods
5. Genetic Association Mapping Of Comorbid Phenotypes
6. Combining Family-based Controls with Unrelated Cases In Genetic Mapping

Current Areas of Research

Name of the DCSW Member	Research topic(s)	Collaborator(s)
Saurabh Ghosh	Genetic Association Mapping of Comorbid Phenotypes, Combining Population level and Family Level Tests for Association, Integrating Genomic Data For Predicting Disease Risk	Sanjeev Jain (NIMHANS), Radha V (MDRF), Deepayan Sarkar, Sanjit Dey (CU)
Indranil Mukhopadhyay	Applied Statistics, Statistical Modeling, Data Analysis, Statistical Inference and Multivariate Statistics	
Raghunath Chatterjee	Genetics, genomics and epigenetics basis of Human health and diseases	Dr. Shiv Grewal (NIH, USA) Dr. Gobinda Chatterjee (IPGMER/SSKM Hospital Kolkata) Prof. Soma Banerjee (IPGMER/SSKM Hospital Kolkata) Dr. Roopa Biswas (USUHS, USA) Dr. Soumen K Manna (SINP Kolkata) Dr. Sujoy Ghosh (IPGMER/SSKM Hospital Kolkata)

Projects

Internally-funded Projects

ONGOING PROJECTS

Sl. No	Name of the project	Starting Date	Duration	Principal Investigator(s)
1	Some Statistical Issues In Simultaneous Genetic Analyses Of Multiple Phenotypes	1 April 2020	3 years	Saurabh Ghosh
2	The synergistic effect of microRNAs on target genes in Oral Squamous Cell Carcinoma	1 April 2020	3 years	Raghunath Chatterjee

Externally-funded Projects

ONGOING PROJECTS

Sl. No	Name of the project	A/c No.	Starting Date	Duration	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1	To identify the role of genetic and epigenetic alterations in epidermal keratinocytes in the pathogenesis of Psoriasis	E157	18 March 2021	3 yrs	Raghunath Chatterjee	SERB, Govt. of India	66,75,400/-

3.3 Computer and Communication Sciences Division (CCSD)

Professor In-Charge: KRISHNENDU MUKHOPADHYAYA, ACMU, Kolkata (1st Apr 2022 – 17th Sep 2022)
RAJAT KUMAR DE, MIU, Kolkata (18th Sep 2022- 31st Mar 2023)

Office: 5th floor, Platinum Jubilee Building, ISI, Kolkata-700 108

Office: 4th floor, Platinum Jubilee Building, ISI, Kolkata-700 108

1 Advanced Computing and Microelectronics Unit (ACMU), Kolkata

- **Head of Unit:** SANDIP DAS
- **Number of Faculties:** Eleven (11)
- **Number of Scientific Workers:** Two (2)
- **Number of Non-Scientific Workers:** Four (4)
- **Number of Research Scholars:** Twenty-Eight (28)
- **Number of Visiting Scientist:** Three (3)
- **Office:** 5th floor, Platinum Jubilee Building, ISI, Kolkata-700 108

2 Computer Science Unit (CSU), Chennai

- **Head of Unit:** SUJATA GHOSH & T. KARTHICK
- **Number of Faculties:** Four (4)
- **Number of Research Scholars:** Three (3)
- **Number of Visiting Scientist:** One (1)
- **Office:** 37 Nelson Manickam Road, Aminjikarai, ISI, Chennai-600 029

3 Computer Vision and Pattern Recognition Unit (CVPRU), Kolkata

- **Head of Unit:** SARBANI PALIT
- **Number of Faculties:** Six (6)
- **Number of Scientific Workers:** One (1)
- **Number of Non-Scientific Workers:** Two (2)
- **Number of Research Scholars:** Fourteen (14)
- **Office:**8th floor, S.N. Bose Bhavan, ISI, Kolkata-700 108

4 Cryptology and Security Research Unit (CSRU), Kolkata

- **Head of Unit:** GOUTAM PAUL
- **Number of Faculties:** Four (4)
- **Number of Scientific Workers:** One (1)
- **Number of Non-scientific Workers:** One (1)
- **Number of Research Scholars:** Six (6)
- **Office:** 3rd floor, C.D. Deshmukh Bhavan, ISI, Kolkata-700 108

5 Documentation Research and Training Centre (DRTC), Bangalore

- **Head of Unit:** M KRISHNAMURTHY
- **Number of Faculties:** Three (3)
- **Number of Non-Scientific Workers:** One (1)
- **Number of Research Scholars:** Five (5)
- **Number of Visiting Scientist:** Three (3)
- **Office:** 8th Mile, Mysore Road, ISI, Bengaluru- 560 059

6 Electronics and Communication Sciences Unit (ECSU), Kolkata

- **Head of Unit:** PINAKPANI PAL
- **Number of Faculties:** Six (6)
- **Number of Scientific Workers:** One (1)
- **Number of Non-Scientific Workers:** Six (6)
- **Number of Research Scholars:** Twelve (12)
- **Number of Visiting Scientist:** Four (4)
- **Office:** 9th floor, S.N. Bose Bhavan, ISI, Kolkata-700 108

7 Machine Intelligence Unit (MIU), Kolkata

- **Head of Unit:** PRADIPTA MAJI
- **Number of Faculties:** 10 (Ten)
- **Number of Scientific Workers:** One (1)
- **Number of Non-Scientific Workers:** Three (3)
- **Number of Research Scholars:** Fifteen (15)
- **Number of Visiting Scientist:** Six (6)
- **Office:** 4th floor, Platinum Jubilee Building, ISI, Kolkata-700 108

8 Systems Science and Informatics Unit (SSIU), Bangalore

- **Head of Unit:** PRABUDDHA CHAKRABORTY
- **Number of Faculties:** Four (4)
- **Number of Non-Scientific Workers:** One (1)
- **Number of Research Scholars:** One (1)
- **Office:** 8th Mile, Mysore Road, ISI, Bengaluru- 560 059

1. ADVANCED COMPUTING AND MICROELECTRONICS UNIT (ACMU), KOLKATA

Research

The focus of the faculty members of the ACM Unit (ACMU) is in the core areas of Computer Science and Engineering, broadly spanning topics in Theoretical Computer Science and High Performance Computing Systems.

Current Areas of Research

Name of the DCSW Member	Research topic(s)	Collaborator(s)
Ansuman Banerjee	Formal Methods	Dr. Swarup K. Mohalik, (Ericsson Research)
	Edge Computing	Dr. Arani Bhattacharya (IIIT Delhi) Dr. Kaustabha Ray (IBM Research)
Nabanita Das	Cognitive Radio Networks	Dr. Abhirup Das Barman (CU)
	Parallel Computing	Dr. Ananth Kalyanraman, (Washington State Univ. Pullman, US)
	Wireless Sensor and UAV Networks	Dr. Dibakar Saha (NIT, Raipur)
	Social Networks	Dr. Subhankar Dhar, (San Jose State Univ., USA).
Sandip Das	Graph Theory and Graph Algorithms	Binay Bhattacharya (SFU, Canada Sergio Cabello, University of Ljubljana, Slovenia)
	Discrete and Computational Geometry	Anil Maheshwari (Carleton University, Canada) Swami Sarvattomananda (RKM University Yan Gerard, Université d' Auvergne, France)
	Optimization	Sagnik Sen (IITDh, Aritra Banik, NISER)
Susmita Sur-Kolay	Algorithm for Physical Design Automation	Dr. Pritha Banerjee (CSE, CU)
	Hardware IP Security	Dr. Debasri Saha (AKCSIT, CU)
	Quantum Computing	Dr. S. Raghunathan and Dr. D. Vinayagamurthy (IBM), Prof. Amlan Chakrabarti (AKCSIT, CU)
	In-memory Computation	Prof. Bhargab B. Bhattacharya, Dr. Debajyoti Bhattacharjee (IMEC Belgium)
	3D Image Processing	Prof. Aditi Majumder (UC Irvine)
Sasthi C. Ghosh	Wireless Networks Mobile Computing Device to device communications 5G cellular networks Wireless local area networks Network Planning and Optimization Hand-off management in heterogeneous networks	Arpan Chhattopadhyay (IIT Delhi), Shankar K. Ghosh (Shiv Nadar University, Delhi NCR), Durgesh Singh (Thapar Institute of Engineering and Technology, Patiala, Punjab)
Sourav Chakraborty	Property Testing Probabilistic Verification Complexity Theory Streaming Algorithms Fourier Analysis Quantum Computation	Kuldeep Meel (NUS, Singapore); N.V. Vinodchandran (University of Nebraska); Ronald d'Wolf (CWI, Amsterdam); Arkadev Chattopadhyay (TIFR); Peter Hoyer (University of Calgary); Nikhil Mande (CWI); Rajat Mittal (IIT Kanpur); Swagato Sanyal (IIT Kgp); Manaswi Paraashar, Arijit Ghosh, Sayantan Sen, MIkhal Kouchy (Charles University, Prague); Gopinath Mishra (Warwick); Nitin Saurabh (IIT Hyd); Srinivasan Arunachalam (MIT); Troy Lee (University of Technology, Sydney)
Arijit Ghosh	Theoretical Computer Science	Manaswi Paraashar; Sayantan Sen; Gopinath Mishra (Warwick); Sourav Chakraborty; Arijit Bishnu; Kunal Dutta (Univ. Warsaw); Nabil Hasan Mustafa (EISEE Paris); Jean-Daniel Boissonnat (INRIA); Siddharth Pritam (Shiv Nader Univ);

Name of the DCSW Member	Research topic(s)	Collaborator(s)
Arijit Bishnu	Theoretical Computer Science	Manaswi Paraashar; Sayantan Sen; Gopinath Mishra (Warwick); Arijit Ghosh; Kunal Dutta (Univ. Warsaw); Subhas C. Nandy
Sasanka Roy	Computational Geometry and Data Structures	Satyabrata Jana (IMScO; Binayak Dutta (Tezpur University); Sanjib Sadhu (NIT, Durgapur); Jammigumpula Ajay (Google); Subhas C. Nandy; Anil Maheshwari (Carleton University, Canada); Michiel Smid (Carleton University, Canada); JSB Mitchell (Stony Brook University, USA), Minati De (IIT, Delhi); Binay Bhattacharya (SFU, Canada); Sayan Bandyapadhyay, (Portland State University); Haim Kaplan (Tel Aviv University); Micha Sharir (Tel Aviv University); Matya Katz, (Ben-Gurion University of the Negev); Kasturi R. Varadarajan (University of Iowa)

Projects

Internally-funded Projects

NEW PROJECTS

Sl. No	Name of the project	Starting Date	Duration	Principal Investigator(s)
1	Minimum Discriminating Codes in Geometric Setup - Further Extensions	2023	2024	Subhas C. Nandy
2	Machine Learning based Physical Design Automation for Next Generation ICs Phase - II	2023	2024	Susmita Sur-Kolay
3	Multipacking on Graphs	2023	2026	Sandip Das
4	Distributed Algorithms for Programmable Matter	2023	2026	Krishnendu Mukhopadhyaya
5	Optimization problems in Geometric Intersection Graphs	2023	2026	Sasanka Roy
6	Beyond Local Queries on Graphs	2023	2026	Arijit Ghosh

ONGOING PROJECTS

Sl. No	Name of the project	Starting Date	Duration	Principal Investigator(s)
1	Co-operative Channel Sharing in Cognitive Radio Ad Hoc Networks- Phase II (CRAN2)	2021	2023	Nabanita Das
2	Minimum Discriminating Codes in Geometric Setup	2020	2023	Subhas C. Nandy
3	Machine Learning Based Physical Design Automation for Next Generation ICs	2020	2023	Susmita Sur-Kolay
4	Center Location Problems on Graphs and Plane	2020	2023	Sandip Das
5	Distributed Algorithms for Fat Robots	2020	2023	Krishnendu Mukhopadhyaya
6	Geometric Shortest Path Problems with Violations	2020	2023	Sasanka Roy
7	Computational Topology and its Applications in Topological Data Analysis	2020	2023	Arijit Ghosh
8	Modeling, Verification and Synthesis for Multi-Access Edge Computing (MVSMEC)	2021	2024	Ansuman Banerjee
9	On the Interplay of Machine Models and Algorithms	2022	2025	Arijit Bishnu
10	Network selection in 5G and beyond: an AI perspective	2022	2025	Sasthi C. Ghosh
11	Verifying the Equivalence of Probabilistic Programs	2022	2025	Sourav Chakraborty

COMPLETED PROJECTS

Sl. No	Name of the project	Starting Date	Duration	Principal Investigator(s)
1	Model Centric Algorithms for Graph Theoretic, Clustering and Geometric Problems	2019	2022	Arijit Bishnu
2	Relay Selection in 5G Device to Device Communications under Uncontrolled Interference	2019	2022	Sasthi C. Ghosh
3	Testers for Checking Correctness of Samplers	2019	2022	Sourav Chakraborty

Externally-funded Projects

NEW PROJECTS

Sl. No	Name of the project	A/c No.	Starting Date	Duration	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1	Formal Verification Methods of Cache coherence protocols	E195	1st. Feb. 2023	1 year	Ansuman Banerjee	Thales India Pvt. Ltd., Bangalore	13,57,000/-
2	Machine Learning and Formal Verification joining hands	E196	1st Dec, 2022	3 years	Ansuman Banerjee (coPI)	Semiconductor Research Corporation (SRC) India	33,42,000/-

ONGOING PROJECTS

Sl. No	Name of the project	A/c No.	Starting Date	Duration	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1	Design for Manufacturability aware Global Routing	251A	2010	Ongoing	Susmita Sur-Kolay	IBM, USA	5,96,649/-
2	United Software Defined Architecture for Industrial Internet-of-Things	E133	2019	Sep. 2022	Susmita Sur-Kolay	SERB	26,68,820/-
3	An Efficient Framework for Ensuring Security of FPGA-Based Environment	E122	June 13, 2019	Jun. 2022	Susmita Sur-Kolay	SERB New Delhi	26,36,205/-
4	Towards Fourier Entropy Influence	E182	2022	2025	Sourav Chakraborty	SERB	6,60,000/-

2. COMPUTER SCIENCE UNIT (CSU), CHENNAI

Research

Faculty of CSU are part of several conferences/workshops, and other academic activities, and served as invited speakers, program committee members, thesis examiners, and doctoral committee members. They are also actively involved in externally funded projects to support themselves and the institute. Faculty of CSU have published high quality research papers in reputed Journals and Conference proceedings in their area of research, and striving to do more in the near future.

Current Areas of Research

Name of the DCSW Member	Research topic(s)	Collaborator(s)
Ayineedi Venkateswarlu	Construction of efficient MDS matrices	Sumanta Sarkar, IHUB NTIHAC Foundation, IIT Kanpur; Abhishek Kesarwani, University of Warwick, UK.
Mathew C. Francis	Independent set reconfiguration on block graphs	Veena Prabhakaran
	Variants of the Gyarfas-Sumner Conjecture	L. Sunil Chandran, IISc, Bangalore; Manu Basavaraju, NIT Suratkal.
	Weak total coloring conjecture	L. Sunil Chandran, IISc, Bangalore; Manu Basavaraju, NIT Suratkal.
	p-centered coloring of grids	Drimit Pattanayak
	Threshold dimension of graphs	Rogers Mathew, IIT Hyderabad; Atrayee Majumder, IIT Kharagpur.

Name of the DCSW Member	Research topic(s)	Collaborator(s)
Sujata Ghosh	Distributed Game Logic	Lei Li, Tsnghua University, China; Fenrong Liu, Tsnghua University, China; R. Ramanujam, Azim Premji University.
	Reasoning by individuals with ASD	Torben Braüner, Roskilde University, Denmark; Aishwarya Ghosh, University of Utah, USA.
T. Karthick	Colouring via perfect divisibility for some graph classes	Jenny K. Kaufmann, Harvard University, Cambridge, USA; Vaidy Sivaraman, Mississippi State University, Mississippi State, U.S.A.
	Colouring of some special class of graphs	Arnab Char

Projects

Externally-funded Projects

ONGOING PROJECTS

Sl. No	Name of the project	A/c No.	Starting Date	Duration	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1	Strategizing with partial information – From game theory, logic and automata theory to experiments and computational models	E801	26 February 2021	3 years	Sujata Ghosh	DST-CSRI	35,75,460/-

COMPLETED PROJECTS

Sl. No	Name of the project	A/c No.	Starting Date	End date	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1	Coloring of some special classes of graphs	N809	8 March 2019	Mar11, 2022	T. Karthick	DST-SERB-MATRICS	6,60,000/-

3. COMPUTER VISION AND PATTERN RECOGNITION UNIT (CVPRU), KOLKATA

Current Areas of Research

Name of the DCSW Member	Research topic(s)	Collaborator(s)
Mandar Mitra	Information Retrieval	Suchana Datta, University College Dublin; Debasis Ganguly, University of Glasgow; Derek Greene, University College Dublin; Debapriyo Majumdar; Dwaipayan Roy, IISER Kolkata; Sourav Saha
Sarbani Palit	Signal and Image Analysis, Power line communication	Arindam Mal, Space Applications Centre, ISRO, Ahmedabad; Tanmoy Maiti, ISM(IIT) Dhanbad; Sisir K. Roy, National Institute of Advanced Studies, Bangalore; Payel Sadhukhan, TCG Crest
Utpal Garain	Natural Language Processing (NLP), Medical Image and Signal Analysis, Domain-aware deep learning, Causal Analysis	Joy Mahapatra; Soumadeep Saha; Saptarshi Saha; Aditya Shankar Pal; Neeraj Singh; Koyel Ghosh; Arijit Ukil, TCS; Arpan Pal, TCS; Sandeep Khandelwal, TCS; Debasis Banerjee; Drs Tribedi & Roy Diagnostic Laboratory, Kolkata; Prantar Chakrabarti, AMRI Hospital, Kolkat; Apurbalal Senapati, CIT, Assam; Anabik Pal, SRM University; Sameer Antoni, NIH, USA
Ujjwal Bhattacharya	Applications of Machine Learning / Deep Learning algorithms, Degraded Document Analysis, Analysis of Medical Images / Diagnostic Data, Pedestrian Detection, Sign Language Processing, Privacy Preserving Machine Learning	Chandan Biswas; Shubham Basak, Sudip Das, Kinjal Dasgupta, Arindam Das, Valeo India; Debasis Ganguly, University of Glasgow, UK; P. S. Mukherjee,Tatras Data, Delhi; Y. Hou, IBM Research Europe, Dublin; A. Chaudhury, IIT Kharagpur; A. Kundu, N. Hussain, S. Yogamani, Valeo Visions Systems, Ireland; V. Jaiswal, Vinisha

Name of the DCSW Member	Research topic(s)	Collaborator(s)
Umapada Pal	Document Analysis, Scene and video text Analysis, Document Segmentation, Pose estimation, Pose transfer, Medical image analysis, Personality traits identification, Text-guided image colorization, Signature verification, Writer identification , etc.	Michael Blumensteion, UTS, Australia; Cheng-Lin Liu, NLPR, China; Tong Lu, Nanjing University, China; Adel M. Alimi, University of Sfax, Tunisia; Palaiahnakote Shivakumara, University of Malaya, Malaysia; Saumik Bhattacharya, IIT Kharagpur; Josep Llados, CVC, University of Autonoma Barcelona, Spain; Yue Lu, Each China Normal University, China; Raghavendra Ramachandra, Norwegian University of Science and Technology, Norway; David Doermann, University of Buffalo, USA; Apostolos Antonacopoulos, University of Salford UK; Tapabrata Chakraborti, University of Oxford, UK
Debapriyo Majumdar	Information Retrieval, Natural Language Processing	Sourav Saha; Mandar Mitra

Projects

Internally-funded Projects

ONGOING PROJECTS

Sl. No	Name of the project	Starting Date	Duration	Principal Investigator(s)
1	Image based estimation of air quality	1 April 2021	3 years	Sarbani Palit

COMPLETED PROJECTS

Sl. No	Name of the project	Starting Date	End date	Principal Investigator(s)
1	Recommender System for Citations and Illustrations	1 April 2020	31 March 2023	Mandar Mitra
2	DAMP: Document Analysis for Pain Management	1 April 2020	31 March 2023	Utpal Garain
3	Air Writing Recognition	1 April 2020	31 March 2023	Umapada Pal
4.	DADDI: Deep Analysis of Degraded Document Image	1 April 2020	31 March 2023	Ujjwal Bhattacharya

Externally-funded Projects

NEW PROJECTS

Sl. No	Name of the project	A/c No.	Starting Date	Duration	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1	Image-based quality control of raw materials for steel production	E-201	2 February 2023	1 year	S. Palit	MSP Steel and Power Limited	5,86,500/-
2	SARER: Semantically-aware representations for efficient reasoning	E-208	27 February 2023	3 years	Utpal Garain	IFCPAR/ CEFIPRA, GoI	82,37,118/-

ONGOING PROJECTS

Sl. No	Name of the project	A/c No.	Starting Date	Duration	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1	TrustED: Evaluating Trustworthiness of Deep learning systems	E-161	5 April 2021	3 years	Utpal Garain	SERB, DST, GoI	58,62,142/-
2	Remote Intelligent Baby Monitoring	F-013	5 July 2021	3 years	Umapada Pal	Baby Sensor, Norway	12,00,000/-

Projects done for Govt. of India/State Govts

COMPLETED PROJECTS

Sl. No.	Name of the project	A/c No.	Starting Date	End date	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1	TARE, DST	E-131	October 2019	October, 2022	S. K. Md. Obaidulla and Umapada Pal	SERB, DST	18,30,000/-

4. CRYPTOLOGY AND SECURITY RESEARCH UNIT (CSRU), KOLKATA

Research

Cryptology and Security Research Unit (CSRU) is a part of the Computer and Communication Sciences Division (CCSD) of Indian Statistical Institute, Kolkata. It is an integral component of R C Bose Centre for Cryptology and Security, a national hub for cryptographic requirements, cutting-edge research activities and indigenous capacity building in all relevant fields of study. The Unit aims at the promotion of interdisciplinary research in Mathematics, Computer Science and Statistics towards furtherance of teaching, research as well as training and development in Cryptology and Cyber Security.

Major activities of CSRU include teaching, training and research in Cryptology and Security. The Unit promotes sustained collaboration in focused research areas, and serves as a meeting point for eminent scholars. It also conducts internship and training programs targeted to produce a critical mass of experts to cater to the national and international requirements in this niche area.

Current Areas of Research

Name of the DCSW Member	Research topic(s)	Collaborator(s)
Anisur Rahaman Molla	Security in Distributed Computing/ Byzantine Computation	Gopal Pandurangan (University of Houston, Texas, USA); John Augustine (IIT Madras); Kaushik Mondal (IIT Ropar); William K. Moses Jr. (Durham University, UK); Yadu Vasudev (IIT Madras)
	Mobile Agents/ Robotics	Ajay D. Kshemkalyani (UI, Chicago, USA); Gokarna Sharma (Kent State University, USA); Kaushik Mondal (IIT Ropar); William K. Moses Jr. (UoH, Texas, USA)
	Distributed graph algorithms	Gopal Pandurangan (University of Houston, Texas, USA); John Augustine (IIT Madras), Kaushik Mondal (IIT Ropar)
Debrup Chakraborty		
Goutam Kumar Paul	Quantum Information / Computing / Cryptography	Nirupam Basak (CSRU); Ritabrata Sengupta (IISER, Behrampur)
	Symmetric Cryptanalysis	Anup Kumar Kundu (CSRU); Amit Jana (CSRU); Dhiman Saha(IIT Bhilai)
Sabyasachi Karati	Elliptic-Curve Crypto	
	Hash-based Crypto	Prof. Rei. Safavi-Naini, University of Calgary, Canada
	Isogeny-based Crypto	

Projects

Internally-funded Projects

NEW PROJECTS

Sl. No	Name of the project	Starting Date	Duration	Principal Investigator(s)
1	Fault-Tolerant Distributed Computation: Beyond Complete Networks	1 April 2023	3 yrs	Anisur Rahaman Molla
2	Elliptic Curve Cryptography in Pre- and Post-Quantum Era	1 April, 2022	3 yrs	Sabyasachi Karati

COMPLETED PROJECTS

Sl. No	Name of the project	Starting Date	End date	Principal Investigator(s)
1	Scalable and Secure Byzantine Algorithms in Distributed Networks	1 April 2020	31 March 2023	Anisur Rahaman Molla

Externally-funded Projects

COMPLETED PROJECTS

Sl. No	Name of the project	A/c No.	Starting Date	End date	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1.	Distributed Computation in Dynamic Networks	E055	1 November 2016	31 October 2022	Anisur Rahaman Molla	DST, Govt. of India	19,00,000/-

5. DOCUMENTATION RESEARCH AND TRAINING CENTRE (DRTC), BANGALORE

Research

The Documentation Research and Training Centre (DRTC), established in 1962 by Prof. S. R. Ranganathan is an internationally recognized centre for advanced training and research in Library and Information Science. DRTC is a unit under the Computers and Communication Science Division of the Indian Statistical Institute. DRTC unit is located at the Bangalore centre of the institute. Since its foundation, the Documentation Research and Training Centre (DRTC), Bangalore, has played a major role in almost all pedagogical and research advances in the Indian LIS milieu. Additionally, The DRTC researchers have worked with UNESCO, IFLA, Library of Congress, European Union, European Commission and other apex bodies. DRTC has taken the lead in adopting, integrating, and popularising the most recent technological developments that are altering library and information services in India.

Current Areas of Research

Name of the DCSW Member	Research topic(s)	Collaborator(s)
Devika P. Madalli	Knowledge orgnaization, data management, ontology engineering	Anthonu Juenhne, NIH, USA; Ingvill Mochman, GESIS, Germany
M. Krishnamurthy	Information Seeking Behaviour, Information Communication Technology, Information services and systems	A Y Asundi , Prof. Bangalore University; Subhash Reddy, PES University
Biswanath Dutta	Knowledge Graph, Ontology, Declarative AI, Semantic techniques and applications	
	Network analysis	Dr Animesh Dutta (NIT Durgapur)
	Metadata, Semantic Artifact management and discovery, Data FAIRness	Dr. Clement Jonquet (INRAE (MISTEA), & University of Montpellier (LIRMM), France) ; Dr. Yann Le Franc (e-Science Data Factory, France)

Projects

Internally-funded Projects

ONGOING PROJECTS

Sl. No	Name of the project	Starting Date	Duration	Principal Investigator(s)
1	Ontology Information Systems for Knowledge Management	1 April 2021	3 years	M. Krishnamurthy
2	Integrated and Unified Data Model for Publication and Sharing of prolonged pandemic data as FAIR Semantic Data: COVID-19 as a case study	1 April 2021	3 years	Biswanath Dutta

Externally-funded Projects

NEW PROJECTS

Sl. No	Name of the project	A/c No.	Starting Date	Duration	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1.	Facility for transforming library data to linked library data	02970110105078	10 March 2023	2 years	Biswanath Dutta	ICSSR	8,00,000/-

6. ELECTRONICS AND COMMUNICATION SCIENCES UNIT (ECSU), KOLKATA

Research

Electronics and Communication Sciences Unit (ECSU) is the oldest unit under the Computer and Communication Sciences Division (CCSD) of Indian Statistical Institute, Kolkata. The unit actively engages in the pursuit of state-of-the-art research encompassing areas like deep learning for computer vision, statistical theory of deep learning, image and video analytics, computational intelligence, information theory, quantum information processing, Cyber-Physical Systems, and Formal Verification of AI-assisted Systems. The faculties take part in various Governmental and Industrial projects and consultancies focusing on real-life problems of national importance. The unit regularly organizes international conferences and workshops involving world-renowned researchers. Faculties of the Unit have received many national and international awards/honors in recognition of their research achievements. They also take part in dissemination knowledge in the form of teaching, training, and research guidance. Apart from the eminent faculties, the unit boasts of a vibrant team of junior and senior research fellows, project linked personnel, scientific and non-scientific workers, whose contributions greatly enrich the achievements of the unit.

Current Areas of Research

Name of the DCSW Member	Research topic(s)	Collaborator(s)
Dipti Prasad Mukherjee	• Fine-grained classification of images of retail products • From soccer video to ball possession statistics • View Prediction of Online Video Through Deep Neural Network	Angshuman Paul, IIT Jodhpur; Saikat Sarkar, Bangabasi College, Kolkata
Swagatam Das	• Deep Generative Models, • Data Clustering, • Class Imbalanced Learning, • Statistical Learning Theory, • Non-convex Optimization, • Statistical Analysis of Electronic Games	Prof. Salvador Garcia, Univ. of Granada, Spain; Dr. Jason Xu, Duke University, USA; Prof. Vaclav Snasel, TU Ostrava, Czech Republic; Dr. Rammohan Mallipeddi, KNU, Korea.
Nikhil R. Pal	• Machine Learning • Neuro-Fuzzy Control • Brain-Computer Interface	H. Zhang; J. Wang; K. Zhang; T. Huang; C. T. Lin; Y. K. Wang
Naqueeb Ahmad Warsi	• Quantum bit commitment capacity	Masahito Hayashi; Nagoya University; Japan
Sumana Ghosh	• Verification of Neural Networked-Controlled Cyber-Physical Systems • Efficient Design of Wireless Cyber-Physical Systems • Real-Time Scheduling for Heterogeneous Embedded Platfroms • Design of Secure Cyber-Physical Systems • Edge Computing for Autonomous Vehicles	Dr. Ansuman Banerjee; Dr. Samarjit Chakraborty, UNC Chappel Hill; Dr. Soumyajit Dey, IIT Kharagpur
Partha Pratim Mohanta	• Machine/Deep Learning, Neural Networks, Artificial Intelligence • Image and Video Processing • Computer Vision	Sayed Umer, Aliah University; Sanjoy Kumar Saha, Jadavpur University; Mrinmoy Ghorai, IIIT Sri City

Projects

Internally-funded Projects

ONGOING PROJECTS

Sl. No	Name of the project	Starting Date	Duration	Principal Investigator(s)
1	Investigating Multiple Kernel Approaches for Efficient and Effective Multi-View Clustering	April, 2020	3 years	Swagatam Das
2	Neural Atkinson Model for Video Captioning	1 April 2021	31 March 2024	Partha Pratim Mohanta

COMPLETED PROJECTS

Sl. No	Name of the project	Starting Date	End date	Principal Investigator(s)
1	Soccer Analytics using Computer Vision	April, 2020	March 2023	Dipti Prasad Mukherjee

Sl. No	Name of the project	Starting Date	End date	Principal Investigator(s)
2	Development of Nature-Inspired Metaheuristics for Large Scale Engineering Optimization in Dynamic Environments	April 2014	March 2017	Swagatam Das
3	Ensemble Metaheuristic Approach for Real-World Combinatorial Optimization in the Framework of Travelling Thief Problem	April 2017	March 2020	Swagatam Das
4	Investigating Multiple Kernel Approaches for Efficient and Effective Multi-View Clustering	April 2020	March 2023	Swagatam Das

Externally-funded Projects

ONGOING PROJECTS

Sl. No	Name of the project	A/c No.	Starting Date	Duration	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1.	Digital Restoration and Reconstruction of Indian Heritage Artefacts with Focus on Murals, Manuscript, and Sculptures using Big Data Technology	E - 118	May 2019	3 years	Swagatam Das	DST-SERB	48,80, 400/-

COMPLETED PROJECTS

Sl. No	Name of the project	A/c No.	Starting Date	End date	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1.	Peak demand forecasting for next 10 years with advanced machine learning models	I-076	February 2022	1 Year	Swagatam Das	CESC, Kolkata Limited	5,15,660/-

7. MACHINE INTELLIGENCE UNIT (MIU), KOLKATA

Research

The objective of the unit is to carry out fundamental research concerning certain aspects of machine intelligence. Machine intelligence signifies the work associated with attempting to make a machine behave like a human being, and conveys the core concept of pattern recognition and machine learning with the advanced technologies like fuzzy logic, artificial neural networks, evolutionary computing, granular computing and rough sets. These tools provide efficient theories of flexible information processing, can tackle real-life ambiguous situations in an efficient manner like human beings, and therefore form the basis of future generation computing systems. The faculty members of the unit have also started working in the area of deep learning, both from the perspectives of theory and applications. Applications include bioinformatics, personalized medicine, computer vision, medical image processing and network analysis, while theoretical study deals with developing novel deep models with optimized architecture and appropriate learning algorithms for solving certain problems.

Current Areas of Research

Name of the DCSW Member	Research topic(s)	Collaborator(s)
Sanghamitra Bandyopadhyay	Computational Biology, Machine Learning, Graph Neural Networks, Explainable AI, Multi objective Optimization, Evolutionary Computing	Dr. Debarka Sengupta; Dr. Sumanta Ray; Prof. Ujjwal Maulik
Sushmita Mitra	Deep learning, Data science, Medical image analytics	Dr. Sandip Chatterjee; Dr. Ashish Dhara; Dr. Tushar Bera; Dr. Sugata Banerji
Ashish Ghosh	Data science, big data analysis, internet of things and data mining, Deep learning and neural networks, Machine learning and pattern recognition, Cognitive computing, Video, colour, medical and remotely sensed image analysis, Natural computing/soft computing/ computational intelligence	Dr. Jonathan H. Chan, Associate Professor, King Mongkut's University of Technology Thonburi, Thailand; Dr. T. Veerakumar, Associate Professor, National Institute of Technology, Goa; Dr. R. Roy, Assistant Professor, GITAM School of Technology, Hyderabad; Dr. B. N. Subudhi, Assistant Professor, Indian Institute of Technology, Jammu; Dr. S. Dehuri, Professor, F. M. University, Balasore, Odisha; Dr. S. Ghosh (nee De), Professor, Jadavpur University, Calcutta; Dr. A. Datta, Assistant Professor, National Institute of Technology, Meghalaya; Dr. A. Mondal, Indian Institute of Information Technology, Hyderabad

Name of the DCSW Member	Research topic(s)	Collaborator(s)
Rajat K. De	Computational Biology, Machine Learning, Deep Neural Networks, Big Data Analytics	Sandip Samaddar, Heritage Institute of Technology, Kolkata; Rituparna Sinha, Heritage Institute of Technology, Kokata; Dr. Yevgeniy Vorobeychi, Washington University in St. Louis, Saint Louis, USA
Pradipta Maji	Machine Learning, Computer Vision and Image Understanding, Multiview Learning, Manifold Learning, Deep Learning, Medical Image Analysis, Bioinformatics	Dr. Archya Dasgupta, TMC-Mumbai; Dr. Ratan K. Saha, IIIT-Allahabad
B. Uma Shankar	Machine learning, Deep Learning, Medical image analysis, Geoinformatics	Dr. Ashish Dhara, NIT-Durgapur; Dr. Bikash R. Parida, Central University, Jharkhand-Ranchi
Shubhra Sankar Ray	Bioinformatics, Computational Biology, Neural Networks, Soft Computing	Joginder Singh; Sukriti Roy; Jayanta K. Pal (Data Scientist, Reliance Jio, Kolkata); Sampa Misra (Post Doc. Fellow, Dept. of Electrical Engineering, Pohang Univ. of Sc. And Tech., South Korea); Sudip Ghosh (Data Scientist II, DCG Data-Core Systems (India) Pvt. Ltd.)
Deba Prasad Mandal	Pattern Recognition, Web Mining, Fuzzy Sets, Remote Sensing Image Analysis	Dr. Dinabandhu Bhandari, Professor, Heritage Institute of Technology, Kolkata
Kuntal Ghosh	Cybernetics, Cognitive Science	Dr. Gautam Das, Specialist Medical Officer (Neurology). Bangur Institute of Neurosciences, Kolkata; Rajdeep Chatterjee, Associate Professor, School of Computer Engineering, KIIT Deemed to be University, Odisha; Javier M. Buldú, Center for Biomedical Technology & King Juan Carlos University, Madrid, Spain; Anjana Dewanji; Bijay Bal (Retd, Saha Institute of Nuclear Physics); Srutiparna Neogi
Malay Bhattacharyya	Computation for Social Good, Public Health	Christopher E. Mason, Weill Cornell Medicine; Chandrima Bhattacharya, Weill Cornell Medicine; Elizabeth M Henaff, New York University; Eran Elhaik, Lund University; Lu Wang, National University of Singapore; Dhruva Chaudhry, Post Graduate Institute of Medical Sciences, Rohtak; Sheela Godbole, National AIDS Research Institute

Projects

Internally-funded Projects

ONGOING PROJECTS

Sl. No	Name of the project	Starting Date	Duration	Principal Investigator(s)
1.	Hierarchical Semantics-driven Graph Representation Learning based on Micro- Macro Analysis	1 April 2022	3 years	Sanghamitra Bandyopadhyay
2	Development of Scalable Repository and Machine Learning Algorithms for Next Generation Sequence (NGS) Analysis under Big Data Framework: A Step towards Personalized Medicine	1 April 2022	3 years	Rajat K. De
3	Integrating Whole Exome Data with MiRNA Expressions for Cancer analysis	1 April 2022	3 years	Shubhra Sankar Ray
4	A study in ecological cybernetics: information processing in Alternanthera philoxeroides, the Alligator Weed	1 April 2022	21 months	Kuntal Ghosh
5	Anomaly Detection in Streaming Environment for IoT and Sensor Data	1 April 2021	3 years	Ashish Ghosh
6	Brain Network Analysis of Neurological Disorders like Stroke, Epilepsy, and Dementia	1 April 2021	3 years	Kuntal Ghosh

COMPLETED PROJECTS

Sl. No	Name of the project	Starting Date	End date	Principal Investigator(s)
1	Habitat imaging for survival prediction in radiogenomics	1 April 2020	31 March 2023	Sushmita Mitra
2	Multi-Omics Data Integration for Cancer Subtype Discovery	1 April 2020	31 March 2023	Pradipta Maji

Sl. No	Name of the project	Starting Date	End date	Principal Investigator(s)
3	Machine Learning based Global Terrestrial Gross Primary Productivity (GPP) Model Development using Satellite Driven Observation and Eddy Flux Covariance Data	1 April 2020	31 March 2023	B. Uma Shankar
4	Judgment Analysis on Multi-dimensional Crowd Opinions	1 April 2020	31 March 2023	Malay Bhattacharyya

Externally-funded Projects

ONGOING PROJECTS

Sl. No	Name of the project	A/c No.	Starting Date	Duration	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1	Exploring Graph Neural Networks (GNNs) for Data-driven Modelling of Poly-pharmacy Adverse Drug Events from drug-drug interactions, Indo-French project funded by CEFIPRA	E-191	November 2022	3 years	Sanghamitra Bandyopadhyay	Indo-French Centre for the Promotion of Advanced Research (IFCPAR) / CEFIPRA, DST	44,19,162/-
2	Integration of Multiomics Data using Deep Neural Networks: Feature Extraction, Association Mining, Big Data Realization and Privacy Preservation		August 2022	3 years	Rajat K. De	DST-NSF through TIH, ISI	40,00,000/-
3	Copula Functions in Analysis of Single Cell Gene Expression Data, JC Bose Fellowship project Phase II	E-192	February 2022	5 years	Sanghamitra Bandyopadhyay	SERB, DST	95,00,000/-
4	Artificial Intelligence for Affordable Screening and Prediction of Diabetic Retinopathy in the Framework of Big Data	E-173	February 2022	3 years	Sushmita Mitra	Department of Biotechnology	2,72,23,224/-
5	Design and Development of an AI-Based Portable Electrical Impedance Tomography (EIT) System for Respiratory Function Studies Using Machine Learning Techniques	E-189	February 2022	3 years	Sushmita Mitra	DST	97,14,862/-
6	JC Bose Fellowship project	E-156	April 2021	5 years	Sushmita Mitra	SERB, DST	95,00,000/-
7	Technology Innovation Hub on Data Science, Big Data Analytics and Data Curation	E-151	August 2020	5 years	Ashish Ghosh	DST	100,00,00,000/-
8	Hardware Trojan detection in PCBs using X-ray images		December 2019	3.5 years	Ashish Ghosh	DRDO	63,38,000/-

COMPLETED PROJECTS

Sl. No	Name of the project	A/c No.	Starting Date	End date	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1	Semantics Driven Theory-Guided Analysis for Understanding the Development Pattern and Impact of COVID-19 Pandemic", Co-Pi, Department of Science and Technology	E-168	October 2021	1 year	Monidipa Das & Sanghamitra Bandyopadhyay	DST	14,49,965/-
2	Distributed Cognitive System for Healthcare	E-143	February 2020	3 years	Ashish Ghosh	MeITY	18,14,04,000/-

8. SYSTEMS SCIENCE AND INFORMATICS UNIT (SSIU), BANGALORE

Current Areas of Research

Name of the DCSW Member	Research topic(s)	Collaborator(s)
Saroj K. Meher	Semisupervised learning based classification	Ms. Neeta Kothari
	Domain Adaptation	Ms. Neeta Kothari; Sankar K. Pal
	Granular deep learning	Sankar K. Pal; D. Arun
	Adversarial Machine Learning	Self
Prabuddha Chakraborty	Many-body localization	Prof. Arnab Das, Indian Association for the Cultivation of Sciences, Kolkata
	Quantum Monte Carlo simulation of bosons in disordered lattices	Ms. Tista Banerjee; Prof. Krishnendu Sengupta, Indian Association for the Cultivation of Sciences, Kolkata
	Topological Insulators	Prof. Pallab Goswami, Northwestern University, USA
	Higher order symmetry and non-equilibrium physics	
B. S. Daya Sagar	Mathematical Morphology, Spatial Data Sciences, Geoscience and Remote Sensing, Mathematical Earth Sciences	Aditya Challa (BITS-Pilani, Goa); Frits Agterberg (Canada Geological Survey); Geetika Barman Jaya Sreevalsan-Nair (IIIT-Bangalore); Jennifer McKinley (Queens University, Belfast); Lim Sin Liang (Multimedia University-Malysia); Sravan Danda (BITS-Pilani, Goa); Qiuming Cheng

PROJECTS

Externally funded project:

ONGOING PROJECTS

Sl. No	Name of the project	A/c No.	Starting Date	Duration	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1	GRANULAR DEEP LEARNING MODELS FOR REMOTE SENSING IMAGE CLASSIFICATION	E 523	4 January 2023	3 years	Saroj K. Meher	SERB, DST, Govt of India	6,60,000/-

COMPLETED PROJECTS

Sl. No	Name of the project	A/c No.	Starting Date	End date	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1	Analysis of Optical and Radar Remote Sensing Images for Dynamic Earth Process Monitoring	E511	1 July 2019	31 March 2023	B.S. Daya Sagar; Subhasish Chaudhuri (IIT-Bombay); Arundhati Mishra-Ray (SAC-ISRO)	DST (DST-ITPAR-IV: Govt. of India)	1,36,00,000/-

3.4 PHYSICS AND EARTH SCIENCES DIVISION (PESD)

Professor In-Charge: PREETI PARASHAR, PAMU, Kolkata (1st Apr 2022 – 17th Sep 2022)
SARBANI PATRANABIS DEB, GSU, Kolkata (18th Sep 2022 – 25th Oct 2022)
PARTHASARATHI GHOSH, GSU, Kolkata (26th Oct 2022 – 31st March 2023)

Office: 7th floor, A.N. Kolmogorov Bhavan, ISI, Kolkata-700 108

Office: 2nd floor, Platinum Jubilee Building, ISI, Kolkata-700 108

1 Geological Studies Unit (GSU), Kolkata

- **Head of Unit:** SARBANI PATRANABIS DEB and DHURJATI PRASAD SENGUPTA
- **Number of Faculties:** Six (6)
- **Number of Scientific Workers:** Two (2)
- **Number of Non-Scientific Workers:** Four (4)
- **Number of Research Scholars:** Fifteen (15)
- **Number of Visiting Scientists:** Six (6)
- **Office: 2nd floor,** Platinum Jubilee Building, ISI, Kolkata-700 108

2 Physics and Applied Mathematics Unit (PAMU), Kolkata

- **Head of Unit:** SUPRATIK PAL
- **Number of Faculties:** Nine (9)
- **Number of Non-Scientific Workers:** Two (2)
- **Number of Research Scholars:** Thirty (30)
- **Number of Visiting Scientists:** Three (3)
- **Office:** 7th floor, A.N. Kolmogorov Bhavan, ISI, Kolkata-700 108

3 Theoretical and Applied Sciences Unit (TASU), North-East Centre, Tezpur

- **Head of Unit:** KUNTAL GHOSH (1st Apr 2022 – 14th Sep 2022)
  DARPA SAURAV JYETHI (15th Sep 2022 – 31st Mar 2023)
- **Number of Faculties:** Three (3)
- **Number of Visiting Scientists:** One (1)
- **Office:** Punioni, Solmara, ISI, Tezpur, Assam- 784501

1. GEOLOGICAL STUDIES UNIT (GSU), KOLKATA

Research

Geological Studies Unit (GSU), Indian Statistical Institute, Kolkata teaches basic concept of Earth System Science to the B.Stat students. Faculties of the unit supervise research students working for their Ph.D. degrees and also conduct course work for Ph.D students. Students are also trained to carry out extensive geological field work and techniques of data collection. At the same time, computational techniques are also used at present, research works in the Geological Studies Unit are focused on several different aspects of Earth Science. They are as follows-

1) Crustal Geodynamics 2) Evolution of Sedimentary Basins with their sedimentology, paleoclimate and depositional history 3) Phanerozoic Faunal Record as widows to Evolutionary and Developmental Paleobiology 4) Numerical analysis and modelling of geological data and geological systems.

GSU maintains a unique museum that housed the mounted skeleton of an herbivore dinosaur *Barapasaurus* and many rare vertebrate and invertebrate fossils.

Current Areas of Research

Name of the DCSW Member	Research topic(s)	Collaborator(s)
Dhurjati Prasad Sengupta	Taphonomy of Eocene larger benthic foraminifera and coeval macrofauna of Kutch Basin	Prof. Parthasarathi Ghosh; Ms. Sreemoyee Chakravorti
	Evolution, diversity and taphonomy of Triassic Gondwana Vertebrates, Morphometry, Gondwana stratigraphy (Triassic)	Dr. Sanjukta Chakravorti, Stalisches Museum for Nature Kunde, Sttutgart, Germany; Geologists of Paleontology Division, CHQ, Geological Survey of India; Dr. Martin EzcuraMuseo Argentino de Ciencias Naturales; Prof. Saswati Bandyopadhyay (Retired Professor), Honorary Visiting Scientist, ISI
Parthasarathi Ghosh	Sedimentological evidences for climate change across the Triassic - Jurassic boundary	Dr. Debarati Mukherjee; Prof. Dhurjati P. Sengupta; Shantanu Datta
Shiladri Shekhar Das	Naticid gastropod predation on bivalve assemblages across the K-Pg mass extinction boundary in Rajahmundry, India.	Dr. S. Bardhan (Retired Professor) Department of Geological Sciences, Jadavpur University; Dr. S. Mallick, Department of Geology, Triveni Devi Bhalotia College, Raniganj
	Miocene Stromboid gastropods (Superfamily Stromboidea Rafinesque, 1815) from the Dwarka Basin, western India and their paleobiogeographic implications.	K. Bose; S. Saha
Amlan Banerjee	Geochemical modeling & water–rock interaction; Oxygenation of the Proterozoic Ocean and atmosphere; Granite and greenstone belts	Dilip Saha, (Retired Professor), Honorary Visiting Scientist, ISI; Dr. Mirosław Słowakiewicz University of Warsaw, Poland; Sitabhra De, Geological Survey of India; Subhradip Saha, Geological Survey of India
Tridib Kumar Mondal	Structural Geology and Tectonics Fabric analysis; Paleostress analysis; Structural control on mineralization; Vein emplacement and upper crustal fluid flow; Mechanical characterization of apparently massive and foliated rocks	Dr. Amlan Banerjee; Dr. Arnab Sain, Presidency University, Kolkata; Dr. Sakhawat Hossain, Jahangirnagar University, Bangladesh; Dr. Sourav Mondal, IIT Kharagpur; Dr. Susanta Samanta, Jadavpur University, Kolkata; Dr. Soumendu S. Mukherjee; Dr. Subhadip Bhadra, Assistant Professor, Department of Earth Sciences, Pondicherry University; Dr. Thirukumaran V, Salem Govt. College, Salem; Dr. Christophe Pascal, Rhur University, Bochum, Germany
Debarati Mukherjee	Quantitative approach to understand the evolutionary trends of the Mesozoic archosauromorph claws	Dr. Nibedita Rakshit, Assistatnt Professor, IIT Bombay
	Cenozoic sirenians from the western India	Prof. Sunil Bajpai, IIT Roorkee
	Revision of Jurassic Gondwana dinosaurs from India	Dr. Debajit Datta, NPDF, IIT Roorkee
	Signature of diagenetic alteration of dicynodont bones from coeveal Permian-Triassic horizons of South Africa and India: palaeoenvironmental implications	Prof. Anusuya Chinsamy-Turan, University of Cape Town, South Africa
	Revision of the basal Archosauromorhs from South Africa	C. Browning, Curator, Karoo Palaeontology, Iziko Museum, Cape Town, South Africa

Name of the DCSW Member	Research topic(s)	Collaborator(s)
Arijit Debnath	The evolving sedimentary system of the Siwalik foreland basin in Arunachal Himalaya: implication for the sea-level changes and tectonics.	Dr. Suchana Taral, Assistant Professor, Department of Earth Sciences, Pondicherry University; Dr. Tapan Chakraborty (Retired Professor), Honorary Visiting Scientist, ISI
	Impact of the Plio-Pleistocene Transition on Provenance and Sediment Routing from the Himalaya to the Deep-Sea Bengal Fan (NSF-2026864)	Dr. Kurt E. Sundell Assistant Professor, Department of Geoscience, Idaho State University, USA
	Sedimentology and Stratigraphy of the Proterozoic Kurnool Group	Dr. Amlan Banerjee

Projects

Internally-funded Projects

NEW PROJECTS

Sl. No	Name of the project	Starting Date	Duration	Principal Investigator(s)
1.	Mineralogical and Geochemical changes across the Triassic-Jurassic Boundary	01 April 2022	3 years	Parthasarathi Ghosh
2.	Gastropods diversity and evolutionary trends in three adjacent Cenozoic basins of western India with special emphasis on interbasinal correlations.	01 April 2022	3 years	Shiladri Shekhar Das
3.	Fracture network characterization in the rocks of Chitradurga Schist Belt (Dharwar craton, India): Implication in understanding the upper crustal fluid flow	01 April 2022	3 years	Tridib Kumar Mondal
4.	A multidimensional study on the Gondwana crocodylomorphs from the continental Jurassic of India1	01 April 2022	3 years	Debarati Mukherjee

ONGOING PROJECTS

Sl. No	Name of the project	Starting Date	Duration	Principal Investigator(s)
1.	Taphonomic significance of two discrete biotic elements, a new remintonocetid whale and larger benthic foraminifera from the Eocene of Kutch basin, India.	01 April 2021	3 years	Dhurjati Prasad Sengupta
2.	To understand oxygenation of Indian Mesoproterozoic basins using geochemical proxies of sedimentary records	01 April 2021	3 years	Amlan Banerjee

COMPLETED PROJECTS

Sl. No	Name of the project	Starting Date	End date	Principal Investigator(s)
1.	Life dynamics of sympatric sauropod dinosaurs: a case study from the continental Jurassic of India	October 2021	September 2022	Debarati Mukherjee

Externally-funded Projects

NEW PROJECTS

Sl. No	Name of the project	A/c No.	Starting Date	Duration	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1.	Depositional settings and tectonic evolution of the Sonakhan greenstone belt and the Dongargarh supracrustal belt: a stratigraphic perspective	MoES/ P.O.(Geo)/ 224/ 2020	January 2023	3 years	Amlan Banerjee & Dilip Saha	Ministry of Earth Sciences	63,00,000/-
2.	Evolution of deformational fabrics in Singhbhum Shear Zone (India) and its implication for hydrothermal mineralization: insights from field investigation, AMS analysis, micro-structural study and experimental approach		October 2022	3 years	Tridib Kumar Mondal & Susanta Samanta	Ministry of Earth Sciences	56,08,000/-

COMPLETED PROJECTS

Sl. No	Name of the project	A/c No.	Starting Date	End date	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1.	Spatial Modelling of Arsenic Contamination data from West Bengal and Bangladesh	D001 (9443)	October, 2021	September 2022	Amlan Banerjee & Soumendu Sundar Mukherjee	Corporate Social Responsibility (CSR) grant received by ISI	2,75,000/-

2. PHYSICS AND APPLIED MATHEMATICS UNIT (PAMU), KOLKATA

Research

Scientific workers of the Physics and Applied Mathematics Unit are engaged in research in different leading branches of Theoretical Physics, Applied Mathematics and Experimental Fluid Dynamics. At present the thrust areas of research in PAMU are Cosmology, Astrophysics and Astroparticle Physics, Gravitation and High Energy Physics, Theoretical Condensed Matter Physics, Nonlinear Dynamics and Complex Systems, Quantum Foundation and Quantum Information, and Experimental Work in Fluvial Mechanical Laboratory. Some of the specific topics of interest are: Cosmology, Astroparticle Physics and related Data Science, Quantum Constraint Dynamics, Condensed Matter Physics, Mesoscopic Physics and Nano-electronics, Quantum Information and Foundation, Quantum Thermodynamics, Quantum Coherence as Resource Theory, Quantum Network, Quantum Channel and Quantum Cryptography, Physics of Complex Phenomena, Extreme Events in Dynamical Systems, Temporal Networks, Synchronization, Clustering and Death in Networks of Complex Systems, Sediment-Fluid Interactions, Flow Visualization and Turbulent Flow in Open Channel.

Current Areas of Research

Name of the DCSW Member	Research topic(s)	Collaborator(s)
Subir Ghosh	Cosmology, Time Crystal, Analogue Gravity, Constrained Quantization	E. Vagenas (Kuwait Univ.); A. Bera (Univ. of Texas at Dallas); S. Dalui (IIT Guwahati); A. A. Araújo Filho (UFC, Brazil); J. A. A. S. Reis (UFMA, Brazil); S. Pan (Presidency Univ.); A. K. Mitra (HRI); Raj. J. Das; Aurindam Mandal
Guruprasad Kar	Quantum Foundation and Quantum Information	Dr. Manik Banik (S.N. Bose National Centre for Basic Sciences, Kolkata); Prof. Sibasish Ghosh (IMSC, Chennai); Dr. Alok Pan (NIT, Patna)
Preeti Parashar	Quantum Entanglement, nonlocality, and thermodynamics	
Supratik Pal	Cosmology and Astroparticle Physics	Anish Ghoshal (Warsaw); Gaitano Lambiase (INFN Salerno); Shiladitya Porey(NSU Russia); Ayan Mitra (IUCAA); Soumitra Sen Gupta and Sumanta Chakraborty, Arnab Paul (IACS); Soumendra Kishore Roy (SUNY, Stony Brook); Pratyusava Baral (Wisconsin, Milwaukee); Payal Roy (UIC, Chicago)
	Data Science	
Dibakar Ghosh	Temporal complex network Eco-evolutionary game theory Extreme events and Statistics Active matter physics	Stefano Boccaletti (Italy); Matjaz Perc(Slovenia); Syamal K Dana (NIT Durgapur); Kevin O'keeffe (MIT, USA)
Santanu K. Maiti	Nanoscale thermoelectricity Spintronics Bias driven circular currents Localization phenomena Driven quantum systems Many-body theory Phononic system Spin caloritronics	S. Chakraborty, S. Roy; J. Majhi; S. Sarkar; A. Koley; D. Das Gupta; R. Bhattacharya; Dr. M. Patra (Kwansei Gakuin University, Japan); Dr. M. Dey (Adamas University); Prof. S. Sil (Visva-Bharati University); Prof. J. Silva (Universidad Pedagogica, Colombia); Prof. D. Laroze (Universidad de Tarapaca, Chile)
Sankar Sarkar	Open-channel turbulence Electrokinetic Theory	Hiroyuki Ohshima (Tokyo University of Science); Partha P. Gopmandal (NIT Durgapur),
Swapan Rana	Quantum Resource theories, coherence, quantum thermodynamics	

Name of the DCSW Member	Research topic(s)	Collaborator(s)
Ramij Rahaman	Device-independent direct secure communication	Dr. Naqueeb Ahmad Warsi
	Self test of Multipartite Entangled States	Dr. Ranendu Adhikary
	Secure protocol for Quantum Signature	
Amit Dutta Banik	1.High energy Physics 2. Particle Physics, 3. Dark Matter, 4. Neutrino Physics, 5. Cosmology, 6. Gravitational wave	Prof. Supratik Pal; Prof. Subir Ghosh; Antara Dey; Sourav Pal; Debarun Paul; Prof. D. Majumbar (SINP, Kolkata); Prof. S. L. Chen (CCNU, China); Prof. G. Pradisi (INFN, Rome)

Projects

Internally-funded Projects

NEW PROJECTS

Sl. No	Name of the project	Starting Date	Duration	Principal Investigator(s)
1.	Turbulent flow fields near rigid and flexible vegetations in rough-bed streams under wave-current interaction	April, 2022	3 Years	Sankar Sarkar

COMPLETED PROJECTS

Sl. No	Name of the project	Starting Date	End date	Principal Investigator(s)
1.	Start Up Research Grant	August 18, 2021	September 30, 2022	Ramij Rahaman

Externally-funded Projects

ONGOING PROJECTS

Sl. No	Name of the project	A/c No.	Starting Date	Duration	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1.	SERB-CRG project	E-181	21 February 2022	3 years	Dibakar Ghosh	DST-SERB	21,74,546/-
2.	Footprints of multicomponent dark matter and beyond Standard Model observables	E-178	20 September 2021	5 Yrs	Amit Dutta Banik	DST INSPIRE Faculty Fellowship IFA20-PH250	7,00,000/-

COMPLETED PROJECTS

Sl. No	Name of the project	A/c No.	Starting Date	End date	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1.	Indo-Russian joint project	E-139	21 January 2022	July 2022	Dibakar Ghosh	DST	16,34,200/-

3. THEORETICAL AND APPLIED SCIENCES UNIT (TASU), NORTH-EAST CENTRE, TEZPUR

Research

The Theoretical and Applied Sciences Unit (TASU) was established in August 2018. The goal of the Unit is to pursue research in (a) basic theoretical sciences and (b) emerging interdisciplinary and multidisciplinary applied sciences. The Unit is currently involved in: i) Research problems in number theory such as finding formulas for the number of representations of integers by higher figurate numbers, explicit evaluation of triple convolution sums involving the divisor functions, Determining modular forms of half-integral weight by critical values of convolution L-functions, (ii) Bankline detection and monitoring technique near Kaziranga National Park, Crop Health Monitoring, Identification of erosion prone region in Kaziranga National Park. (iii) Air quality and Climate Change. The Unit aims to complement research and development on Sustainable Development Goals (SDGs).

Current Areas of Research

Name of the DCSW Member	Research topic(s)	Collaborator(s)
B. Ramakrishnan	Figurate numbers, forms of mixed type and their representation numbers	Lalit Vaishya (The Institute of Mathematical Sciences, Chennai)
	Explicit evaluation of triple convolution sums of the divisor functions	Brundaban Sahu (NISER Bhubaneswar)and Anup Kumar Singh (NISER, Bhubaneswar)
	Determining modular forms of half-integral weight by critical values of convolution L-functions	Sandeep E M
Sanjit Maitra	Bankline detection and monitoring technique near Kaziranga National Park	Tapan Chakraborty; Kuntal Ghosh; Aniruddha Dey (MAKAUT); Srutiparna Neogi (IIIT Kalyani); Geetanjali Aich; Suchismita Bhattacharya
	Crop Health Monitoring	Rituraj Gogoi
	Identification of erosion prone region in Kaziranga National Park	Koyel Mandal
Darpa Saurav Jyethi	Air quality, Climate Change	Tanojit Paul

Projects

Internally-funded Projects

ONGOING PROJECTS

Sl. No	Name of the project	Starting Date	Duration	Principal Investigator(s)
1	Modeling crop growth and detection of stress regions during the growing season in Sonitpur district, Assam	05June 2020	3 yr	Sanjit Maitra
2	Atmospheric Particulate Matter ($PM_{2.5}$) associated Elemental Carbon, Organic Carbon and Water-Soluble Organic Carbon at Tezpur, a site in the North Bank Plain Region of Brahmaputra Valley	01 April 2020	3+1 years	Darpa Saurav Jyethi

3.5 SOCIAL SCIENCES DIVISION (SSD)

Professor In-Charge: MANIPUSHPAK MITRA, ERU Kolkata (1st Apr 2022 to 17th Sep 2022)
NILADRI SEKHAR DASH, LRU, Kolkata (18th Sep 2022 to 31st Mar 2023)

Office: 6th floor, S.N. Bose Bhavan, ISI, Kolkata-700 108

Office: Ground floor, R. A. Fisher Bhavan, ISI, Kolkata-700 108

1 Economic Analysis Unit (EAU), Bangalore

- **Head of Unit:** MADHURA SWAMINATHAN
- **Number of Faculties:** Two (2)
- **Number of Scientific Workers:** One (1)
- **Number of Non-Scientific Workers:** One (1)
- **Number of Research Scholars:** Two (2)
- **Office:** 8th Mile, Mysore Road, ISI, Bengaluru- 560 059

2 Economics and Planning Unit (EPU), Delhi

- **Head of Unit:** ABHIROOP MUKHOPADHYAY
- **Number of Faculties:** Eleven (11)
- **Number of Scientific Workers:** One (1)
- **Number of Non-Scientific Workers:** One (1)
- **Number of Research Scholars:** Twenty-seven (27)
- **Number of Visiting Scientists:** Twenty-Two (22)
- **Office:** 7, S.J.S. Sansanwal Marg, ISI, New Delhi- 110 016

3 Economic Research Unit (ERU), Kolkata

- **Head of Unit:** TARUN KABIRAJ
- **Number of Faculties:** Ten (10)
- **Number of Scientific Workers:** Three (3)
- **Number of Non-Scientific Workers: Four and half** (4 ½)
- **Number of Research Scholars:** Twelve (12)
- **Number of Visiting Scientists:** Ten (10)
- **Office:** 6th floor, S.N. Bose Bhavan, ISI, Kolkata-700 108

4 Linguistic Research Unit (LRU), Kolkata

- **Head of Unit:** NILADRI SEKHAR DASH
- **Number of Faculties:** One (1)
- **Number of Non-Scientific Workers:** Three (3)
- **Number of Visiting Scientists:** Nine (9)
- **Office:** Ground floor, R. A. Fisher Bhavan, ISI, Kolkata-700 108

5 Population Studies Unit (PSU), Kolkata

- **Head of Unit:** MANIPUSPAK MITRA
  (1st Apr 2022 to 18th Sep 2022)
  NILADRI SEKHAR DASH
  (18th Sep 2022 to 31st Mar 2023)
- **Number of Scientific Workers:** One (1)
- **Number of Non-Scientific Workers:** Two (2)
- **Office:** 5th floor, R. A. Fisher Bhavan, ISI, Kolkata-700 108

6 Psychology Research Unit (PRU), Kolkata

- **Head of Unit:** DEBDULAL DUTTA ROY
- **Number of Faculties:** One (1)
- **Number of Non-Scientific Workers:** Two (2)
- **Number of Research Fellows:** One (1)
- **Number of Visiting Scientists:** Four (4)
- **Office:** 7th floor, Platinum Jubilee Building, ISI, Kolkata-700 108

7 Sampling and Official Statistics Unit (SOSU), Kolkata

- **Head of Unit:** NACHIKETA CHATTOPADHYAY
- **Number of Faculties:** Four (4)
- **Number of Scientific Workers:** One (1)
- **Number of Non-Scientific Workers:** 3 (Three) full time regular, 2 (Two) regular part time [Sec.Off. (serving for one and half hour) and Sr. Assistant (serving for second half)] and one contractual employee
- **Office:** 3rd floor, C.D. Deshmukh Bhavan, ISI, Kolkata-700 108

8 Socio-Economic Research Unit (SERU), North-East Centre, Tezpur

- **Head of Unit:** BALAKRISHNAN RAMAKRISHNAN
- **Number of Faculties:** Two (2)
- **Office:** Punioni, Solmara, ISI, Tezpur, Assam- 784501

9 Sociological Research Unit (SRU), Giridih & Kolkata

- **Head of Unit:** TARUN KABIRAJ
- **Number of Faculties:** Giridih: One (1)
- **Number of Scientific Workers: Kolkata:** Two (2)
- **Number of Non-Scientific Workers: Kolkata:** Two (2)
- **Number of Research Scholars: Giridih:** One (1)
- **Giridih Office:** New Barganda, ISI, Giridih, Jharkhand- 815 301
- **Kolkata Office:** 5th floor, R. A. Fisher Bhavan, ISI, Kolkata-700 108

1. ECONOMIC ANALYSIS UNIT (EAU), BANGALORE

Research

1. Rural women workers: evidence from time use surveys in Indian villages.
2. COVID-19 and Food Security
3. Rural household incomes, poverty and inequality and caste discrimination
4. Changing structure of rural credit market
5. Mechanization in Coffee Industry
6. Spatial Information Science, GIS and Remote Sensing, Digital Image Processing.

Current Areas of Research

Name of the DCSW Member	Research topic(s)	Collaborator(s)
Madhura Swaminathan	Rural women workers: evidence from time use surveys in Indian villages	
	Rural household incomes, poverty and inequality, and caste discrimination	
	Changing structure of the rural credit market	
	Women in the livestock economy	R. Vijayamba, Azim Premji University, Bengaluru
Molly Chattopadhyay	Effect of Mechanization in Coffee Industry upon Women Workers	
H M Rajashekara	Spatial Information Science, GIS and Remote Sensing, Digital Image Processing	

2. ECONOMICS AND PLANNING UNIT (EPU), DELHI

Research

Economics and Planning Unit at Delhi comes under the Social Sciences Division of ISI. We carry out research in the areas of economic theory, applied economics and econometrics, macroeconomics, growth theory, econometric methods, time series analysis and economic statistics. Some specific areas are: welfare economics, industrial economics, game theory and applications, international economics, public economics, financial economics, agricultural economics, development economics, environmental economics, issues on living standards, gender studies and labour economics. While the quantitative and applied work involves extensive application of existing statistical and mathematical tools, substantial contribution is being made in econometric and time series methods in the areas of macro-econometrics, micro-econometrics and financial econometrics.

Economics and Planning Unit has a doctoral program in Economics and a Master's program called Masters in Science in Quantitative Economics (MSQE). We offer courses in Microeconomics, Macroeconomics, Statistics and Econometrics, Mathematics for Economists, Economic Development, Game Theory, Macro Dynamics, International Economics, Finance, Industrial Organization, Dynamic Programming, Applied Econometrics, Time Series Econometrics, Social Choice and Political Economy, Public Economics, Intertemporal Economics, and Environmental Economics, and many more. Details about courses and our Masters and doctoral program can be found under the Academics link.

Current Areas of Research

Name of the DCSW Member	Research topic(s)	Collaborator(s)
Abhiroop Mukhopadhyay	Low Cost access to science experiments and Human Capital Outcomes	Nishith Prakash, North eastern University
	Elderly Care Health and access to Health care	
Arunava Sen	Mechanism design, Matching and Axiomatic allocation theory	Ankit Singh; Souvik Roy; Ujjwal Kumar; Huaxia Zeng; Sonal Yadav; Debasis Mishra; Rajiv Vohra

Name of the DCSW Member	Research topic(s)	Collaborator(s)
Chetan Ghate	Monetary Economics, Macroeconomics, Growth and Development	Piyali Das; Debdulal Mallick; Parantap Basu
Debasis Mishra	Multidimensional mechanism design	Sushil Bikhchandani, UCLA
	Stable dissolution of partnership	Arunava Sen; Rajiv Vohra, Brown University
	Reduced-form voting	Xu Lang, Southwestern University of Finance and Economics
E. Somanathan	CGE modelling of the Indian economy to understand the impacts of alternative GHG mitigation strategies on growth and the distribution of income.	Shoibal Chakravarty
	Effects of heat on the incomes of workers in the informal sector	Saudamini Das
	The effect of free power for farmers on groundwater	Praveen Kumar; Eshita Gupta
	The primary drivers of human-elephant conflict in Assam, India, and the effect of anti-depredation squads in resolving these conflicts	Nitin Sekar; Poonam Kumari; Hiten Baishya; David Smith; Athisii
Farzana Afridi	On the Design of Subsidy Programs: Access to Clean Energy and Liquidity Constraints	Prabhat Barnwal and Shreya Sarkar
	Job Search Technology, Social Networks and Gender: Experimental Evidence from Urban India	Amrita Dhillon; Sanchari Roy; Nikita Sangwan
	Beliefs, Information and Anti-corruption Activism: Experimental Evidence from India	Ahana Basistha, Amrita Dhillon and Danila Serra
	Do Crises Affect Citizen Activism? Evidence from a Pandemic	Ahana Basistha; Amrita Dhillon; Danila Serra
	Women's Work, Social Norms and the Marriage Market	Abhishek Arora, Diva Dhar; Kanika Mahajan
	Gendered Job Search	Gaurav Chiplunkar; Nikita Sangwan; Yogita Shamdasani
	Skilling for Career Progression	Tanu Gupta, Rachel Heath; Kanika Mahajan
Kanishka Kacker	Traffic Congestion and Air Pollution in Delhi	Ridhima Gupta (South Asian University); Saif Ali (Indraprastha Institute of Information Technology Delhi)
	International Comparisons: Transport and Air Pollution	Jie-Sheng Tan-Soo (National University of Singapore); Jorge A. Bonilla (Universidad de Los Andes); Ping Qin (Renmin University of China)
	Specific Investments and Firm Shutdowns	Chetna Ahuja (UBS India)
	Bidding for Electricity Provision from Solar Plants in India	
Kanishka Kacker, E. Somanathan, Monishankar Bishnu	Carbon Pricing	Shoibal Chakravarty (Indian Institute of Science); Priyavrat Bhati (Center for Study of Science, Technology and Policy)
Monisankar Bishnu	Pension, Intergenerational transfers, taxes, time inconsistencies, fertility, labor force participation, resource economics	F Afridi; A Amol; J Bhattacharya; S Garg; T Garg; CS Kumru; K Mahajan; Nakornthab; N., T Ray; M. Wang
Mudit Kapoor	Health economics (Prevalence of low birth weight in India, Seasonality in nutritional outcomes)	UNICEF
	Decomposition of neonatal mortality between the rich and poor	UNICEF
	Prediction of early neonatal sepsis	AIIMS
	The association between exposure to open biomass burning and hypertension prevalence in North India	AIIMS

Name of the DCSW Member	Research topic(s)	Collaborator(s)
Prabal Roy Chowdhury	Development Economics: Micro-finance, and Land Reforms	Shyamal Chowdhury (University of Sydney); Debdatta Saha (South Asian University); Sarmistha Pal (University of Sussex)
	Information Economics	Parimal Bag (National University of Singapore)
	Transnational Environmental Agreements	Parimal Bag (National University of Singapore); Indrani Roy Chowdhury (Jawaharlal Nehru University)
Tridip Ray	Mixed Markets, Privatization, and Consumer Welfare	Arghya Ghosh (University of New South Wales)
	Congested Markets: Public vs Private Provision, Inequality and Competition	Arghya Ghosh (University of New South Wales)
	Intergenerational Transfers: Public Education and Pensions with Endogenous Fertility	Monisankar Bishnu
	Land Market Frictions and Differential Manufacturing and Services Growth	
	Temperature and exam scores in India	Arka Roy Chaudhuri (Shiv Nadar University)
	Contract Hiring and Computer Investment: Evidence from Rainfall Shocks	Arka Roy Chaudhuri (Shiv Nadar University)
	Changing Structure of the Labour Market in India: Job Polarization and Informalization	Arka Roy Chaudhuri (Shiv Nadar University)
	Caste Peer Effects on Student Performance: Evidence from Indian Schools	Arka Roy Chaudhuri (Shiv Nadar University)
	Gendered Stream Choice in India	Arka Roy Chaudhuri (Shiv Nadar University)

Projects

Internally-funded Projects

NEW PROJECTS

Sl. No	Name of the project	Starting Date	Duration	Principal Investigator(s)
1	Digital Platforms and WEE	September 2022	3 years	Farzana Afridi

ONGOING PROJECTS

Sl. No	Name of the project	Starting Date	Duration	Principal Investigator(s)
1	The Mental Health of the Elderly: Measuring Impacts When Children Don't Co-reside	01 July 2022	1 year	Abhiroop Mukhopadhyay
2	Bidding for Electricity Provision from Solar Plants in India	01 January 2022	2 years	Kanishka Kacker
3	Project Implementation: Honesty or Talent?	2020	4 years	Prabal Roy Chowdhury, Parimal Bag (NUS), Kaniska Dam (CIDE, Mexico)
4	Caste Peer Effects on Student Performance: Evidence from Indian schools	April 2021	3 years	Tridip Ray

Externally-funded Projects

NEW PROJECTS

Sl. No	Name of the project	A/c No.	Starting Date	Duration	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1	Carbon Pricing project	TBD – on receipt of payment	01 February 2023	9 months	E. Somanathan	Sequoia Climate Foundation, USA	$ 2,00,000/-

Sl. No	Name of the project	A/c No.	Starting Date	Duration	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
2	International Comparisons: Transport and Air Pollution	F701	01 January 2023	1 year	Kanishka Kacker	Environment for Development	15,00,000/-

ONGOING PROJECTS

Sl. No	Name of the project	A/c No.	Starting Date	Duration	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1	Electricity reliability and electric cooking: What can we learn from cross-national comparisons?	F-701	01 January 2022	2 Years	E. Somanathan	Environment for Development Initiatives (EfD), Sweden	59,00,431/- (2022)
2	Optimal emissions pricing in LMICs accounting for household emissions from traditional cooking	F-701	01 January 2022	2 Years	E. Somanathan	Environment for Development Initiatives (EfD), Sweden	67,73,500/- (2022)
3	Effects of heat on the incomes of workers in the informal sector	F-701	01 January 2019	31 December 2023	E. Somanathan (Co -Investigator)	Environment for Development Initiatives (EfD), Sweden	35,49,494/-
4	Emissions Pricing for Development Program (EPfD)	F-701	01 January 2021. (*Subcontracts each year*)	4 Years	E. Somanathan	Environment for Development Initiatives (EfD), Sweden	1,95,97,488/- (2022) 1,34,19,681/- (2023)

COMPLETED PROJECTS

Sl. No	Name of the project	A/c No.	Starting Date	End date	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1	Electric Stoves as a Solution to Household Air Pollution: Evidence from India	F-701	01 January 2017	31 September 2022	E. Somanathan	Environment for Development Initiatives (EfD), Sweden	41,06,240/-
2	Human Casualties and Wildlife Conservation in India	Partnership Development Grant	22 March 2020	21 March 2023	E. Somanathan (Co-Investigator)	University of British Columbia	$1,66,000/-

Projects done for Govt. of India/State Govt.

NEW PROJECTS

Sl. No.	Name of the project	A/c No.	Starting Date	Duration	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1	RBI – DRG Study on Monetary Transmission and Labour Markets	Honorarium Based	October 17, 2022	1 year	Chetan Ghate	Reserve Bank of India	3,00,000/-
2	Optimal combinatorial auctions design	N-737	02 August 2022	3 years	Debasis Mishra	SERB	37,44,400/-

ONGOING PROJECTS

Sl. No.	Name of the project	A/c No.	Starting Date	Duration	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1	Health, Endogenous retirement and demand for annuity	6975106200	2022	3 years	Monisankar Bishnu	SERB	6,60,000/-

COMPLETED PROJECTS

Sl. No.	Name of the project	A/c No.	Starting Date	End date	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1	Controlling Extreme Content in Social Media	N-729	2020	2023	Prabal Roy Chowdhury	SERB	6,00,000/-

3. ECONOMIC RESEARCH UNIT (ERU), KOLKATA

Research

Throughout the period, ERU has been actively involved in teaching, research and other academic activities. The scientists of the Unit participate in various teaching programs like B.Stat., M.Stat., MS(QE), ISEC and Post-Graduate Diploma programs over the year. They also teach PhD courses and supervise research of the PhD scholars. They publish their research works in various internationally acclaimed journals, conference proceedings and as book chapters. Some scientists also publish books. Their brought research areas are: Applied Econometrics, Financial Econometrics, Mechanism Design, Lexicographic Preferences, Inequality Measures, R & D and Technology Licensing, Economics of Terrorism, Political Economy, Economics of Conflict, Gender Studies, Women Empowerment, Child Labor, Healthcare, Econophysics, General Equilibrium Theory, Public Economics, etc. The scientists also engage in internally and externally funded projects. Some lectures and seminars were organized during 2022-23.

Current Areas of Research

Faculty name	Research topic(s)	Collaborator(s)
Tarun Kabiraj	Joint Venture as an Entry Deterrence Strategy	Professor Sarbajit Sengupta (Visva-Bharati, Shantiniketan)
	Terrorist Resources, Proclivity for Attacks, and Counter-terrorism	Dr. Aditya Bhan, (Observer Research Foundation, Kolkata)
	R&D and Licensing	Dr Rittwik Chatterjee (Gandhi Institute of Technology and Management, Bengaluru)
Indraneel Dasgupta	Ethnic Conflict	Sarmistha Pal (University of Surrey, UK); Dripto Bakshi (IIT Kharagpur)
Manipushpak Mitra	Individual and Collective Choice, Inequality Measures, and, Queueing and Sequencing Problems	
Samarjit Das	Econometrics, Time Series Analysis	Atanu Biswas
Brati Sankar Chakraborty	International Trade and Firm Heterogeneity	Shivam Kapoor
Priyodorshi Banerjee	Peer Influence on Financial Decisions, Economic Analysis of Communication and Inference of Truth in Statements, Economic Analysis of Decision Rights	
Soumyanetra Munshi	Analysis of third party intervention in conflict	
	Analysis of conflict during a pandemic	
	Clientelism or Public Goods: Dilemma in a 'Divided' Democracy	
Anuj Bhowmik	Social Economics	Arijit Sen, IIMC
	General Equilibrium and Development	Biung-Ghi Ju; Manipushpak Mitra
	General Equilibrium Theory	Maria Gabriella Graziano; G V A Dharanan; Sandipan Saha; Japneet Kaur; S. Tikader
	Reputational Cheap Talk	Saptarshi P Ghosh;
	Games with Discontinuous Payoff	Nicholas C. Yannelis
Debayan Pakrashi	Development Economics	Asadul Islam (Monash) Marcel Fafchamps (Stanford); Sounak Thakur (IIT Kanpur)
Raju Maiti	Impact of COVID-19 Vaccinations in India – A State-wise Analysis	Palash Ghosh (IIT Guwahati); Abhigayan Adhikary; Manoranjan Pal
	Time Series of Categorical Data	Subhankar Chattopadhyay; Atanu Biswas; Samarjit Das
	Modelling and Decoding the Causes of Recent Inflation in India: Implications for Monetary Policy	Kaustav Sen
	Examination of Relationship Between Crude Oil Prices and Different Macroeconomic Variables	Aniket Sharma
	Analysis of the Household Investment in Education: Evidence from Indian States	Deepanshi Tuli; Palash Ghosh (IIT Guwahati)

Faculty name	Research topic(s)	Collaborator(s)
Saswati Das	Multidimensional Deprivation from Children's Perspectives: A Cross-National Comparative Analysis	Diganta Mukherjee
	Measuring poverty from children's perspective in Kolkata	Diganta Mukherjee
	Co-producing Well-being Policies with Children: A South Asian perspective	H. Goswami (Manchester Metropolitan University, UK)
	"Teachers at every school are not equally sincere in taking care of students' study or helping them with their study"— Coproducing policies to improve children's educational wellbeing in India.	H. Goswami (MMU, UK); H. Smithson (MMU, UK)
Chaiti Sharma Biswas	Quality of life of the elderly women Some theoretical approach towards Violence against women Empowerment of women –intra country study	Ishita Mukhopadhyay, University of Calcutta

Projects

Internally-funded Projects

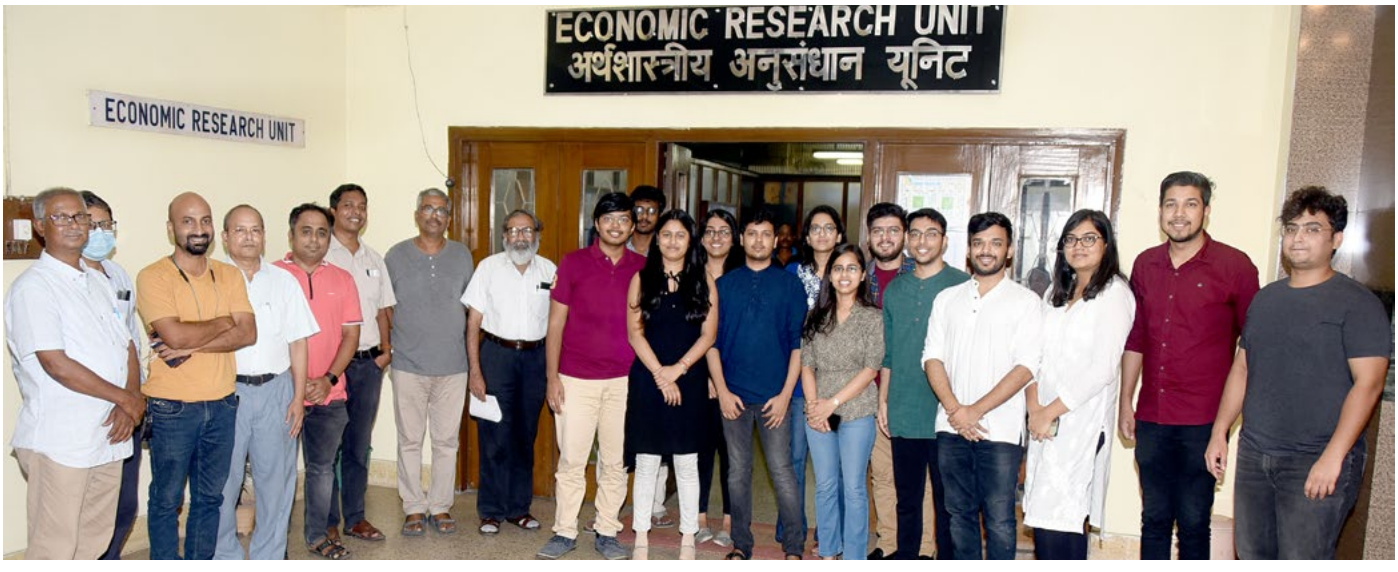
NEW PROJECTS

Sl. No	Name of the project	Starting Date	Duration	Principal Investigator(s)
1	Livelihood risk, Strategies and Resilience of Rural Communities Affected by Covid-19 in Jharkhand	01 June 2022	2022-2024	Dr Hari Charan Behera; Tarun Kabiraj (Co-PI)
2	Quality of Life of Indian Women and its Determinants	April 2022	2 years	Chaiti Sharma Biswas

Externally-funded Projects

ONGOING PROJECTS

Sl. No	Name of the project	A/c No.	Starting Date	Duration	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1	*South Asian Research Network for Childhood and Youth Studies* (SARNCYS)	F-012	March 2020	2 Years (extended up to August 2023)	Saswati Das	Manchester Metropolitan University UK	1,88,879/-
2	Impact of Amphan and Yash Cyclones that struck during the Covid-19 and its lockdown periods on life and livelihood in the Sundarban adjacent Gangetic West Bengal	D-001 (9426)	January 2022	Ongoing	Hari Charan Behera; Tarun Kabiraj (Co-PI)	CSR	3,00,000/-
3	DST SERB MATRICS	E-196	2020	3 Years	Debayan Pakrashi	DST SERB	6,60,000/-



4. LINGUISTIC RESEARCH UNIT (LRU), KOLKATA

Research

During the academic year (2022-2023), LRU has worked in Corpus Linguistics, Language Technology, Computational Lexicography, Language Documentation & Digitization, Digital Ethnography, Cognitive Linguistics, Clinical Linguistics, and Descriptive Linguistics. LRU has undertaken 1 external project funded by the MeitY, Govt. of India, and has collaborated with four institutions across the world for joint collaborative research and publication. It has trained 6 research interns in various areas of corpus linguistics, language technology, language documentation, computational lexicography, and clinical neurolinguistics. Eight (8) scholars from India and abroad visited LRU during this academic year.

Current Areas of Research

Name of the DCSW Member	Research topic(s)	Collaborator(s)
Niladri Sekhar Dash	Code-switching in bilingual aphasia-going beyond established language combinations and challenging existing assumptions.	Dr. Julia Hofweber, Psychology and Human Development, Institute of Education (IOE), University College London, UK.
	Nature of Bilingual Dementia of Patients with Broca's Aphasia.	Dr. Arpita Bose, School of Psychology & Clinical Language Sciences, University of Reading, UK.
	Sound Imitative Words in World Languages-Bengali.	Prof. Livia Kortvelyessy, Department of British and American Studies, Faculty of Arts, P.J. Šafárik University, Kosice, Slovakia.

Projects

Internally-funded Projects

NEW PROJECTS

Sl. No	Name of the project	Starting Date	Duration	Principal Investigator(s)
1	Digital Dictionary Development for the Kheria Sabar Speech Community	April 2022	3 Years	Niladri Sekhar Dash

ONGOING PROJECTS

Sl. No	Name of the project	Starting Date	Duration	Principal Investigator(s)
1	Bengali WordNet Augmentation and Upgradation	April 2021	3 Years	Niladri Sekhar Dash

Projects done for Govt. of India/State Govts

NEW PROJECTS

Sl. No.	Name of the project	A/c No.	Starting Date	Duration	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1.	VIDYAAPATI: Bidirectional Machine Translation Involving Bengali, Konkani, Maithili, Marathi, and Hindi	E-188	April 2022	3 Years	Niladri Sekhar Dash	MeitY, Govt. of India	63,92,000/-

5. POPULATION STUDIES UNIT (PSU), KOLKATA

Research

Scientific workers of this unit are involved in various teaching, training and research activities. This unit participates in teaching in ISEC Courses in regular as well as specialization in Demography. Four collaborative research projects (internally and externally funded) with other units are undertaken by the scientist of the unit during the year. The following are the list of topics of major research being carried out by the unit: fertility, mortality, migration including indirect estimation of illegal migrants, population dynamism, ageing, population projection, survival analysis in health care perspective, economic efficiency in provision of health care, inequality in health, actuarial statistics & health insurance and epidemiological studies.

Current Areas of Research

Name of the DCSW Member	Research topic(s)	Collaborator(s)
Partha De	Inequality in maternal and child health care utilization in the east and northeast states of India using National Family Health Survey data	
	Knowledge, Attitude and Practices of family members for the children developmental problems in a district of India	Prof. Nandita Chatterjee, Dept. of Paediatrics, MGM Medical College & LSK Hospital, Kishanganj, Bihar; Professor. Ranabir Pal, Dept. of Community Medicine, MGM Medical College & LSK Hospital, Kishanganj, Bihar; Dr. Amrita Ghosh, Department of Biochemistry, Midnapore Medical College, Paschim Medinipur, W.B.
	Impact of Amphan and Yaas Cyclones that Struck during the COVID-19 and its lockdown periods on life and livelihood in the Sundarban adjacent Gangetic West Bengal	Prof. Sambit Mallick (Department of HSS, IIT, Guwahati); Dr. Rupak Goswami (IRDMFC, RKMVU, Narendrapur, W.B.); Dr. Abarna Mukherjee (Ranaghat College); H. C. Behera (PI)
	Livelihood risk, strategies and resilience of rural communities affected by COVID-19 in Jharkhand.	Prof.Sambit Mallick (Department of HSS, IIT, Guwahati); Dr. Rupak Goswami (IRDMFC, RKMVU, Narendrapur, W.B.); G. Das; H. C. Behera (PI)
	Status of virulence of COVID-19 in urban population of Eastern India: An empirical study from Kolkata Municipal Corporation and its North suburb	Prof. I Saha (Scientist-E, ICMR-CNCD, Salt Lake); Prof. M. K. Gumta (CM & SDH); Dr. P K Das (DTM & H); Prof. G Das (IPGME & R); Kuntal Ghosh (PI)
	Unearthing the heterogeneity in virulence using both ICMR COVID-19 testing data and other primary data: A Data Mining approach & An Exploratory study from West Bengal	Prof. I. Saha (ICMR-CNCD, Salt Lake); Prof. M. K. Gumta (College of Medicine & Sagore Dutta Hospital, Kamarhati); Prof. G. Das (IPGMER &R); Dr. Prabir Kr. Chatterjee (Aamader Haspatal, Sarenga, Bankura); Dr. Satabdi Ghosh (SAI); Dr. Chandra Das (Netaji Subhas Engineering College, Garia); Prof Partha P Majumdar (NIBMG); Kuntal Ghosh (PI)

6. PSYCHOLOGY RESEARCH UNIT (PRU), KOLKATA

Research

Psychology Research Unit in this academic year provides doctoral dissertation writing related support, teaching statistics, psychometrics, psychological data analysis and psychology testing.

Current Areas of Research

Name of the DCSW Member	Research topic(s)	Collaborator(s)
Debdulal Dutta Roy	Rating scale design using R Studio	
	Reading Motivation as predictor of academic achievement in primary education	Dasgupta, R, Associate Professor, Siliguri B.Ed. College
	Age differences in spatial visualisation ability	Datta, S. Government General Degree College, Singur

7. SAMPLING AND OFFICIAL STATISTICS UNIT (SOSU), Kolkata

Research

Emphasis on interdisciplinary collaboration in Research Projects and Training programs: Statisticians, Economists, Computer Scientists, Official Statisticians from the Govt are involved. Research Projects and Training Programs are demand driven, intended to address real-life problems which offer statistical/methodical challenges. With a futuristic vision in development of courses in digital mode, an online Post Graduate Diploma programme in Applied Statistics has been started. Research and development being undertaken in Strengthening of State level statistical system of Tripura with the help of official statisticians which could be a model for other states. Individual research works undertaken in diverse fields with international collaborators in spite of undertaking so many projects and training programs with a small manpower.

Current Areas of Research

Name of the DCSW Member	Research topic(s)	Collaborator(s)
Diganta Mukherjee	Mathematical Finance, Network Models	Mrinal K. Ghosh, Sumanta Basu, Srijan Sengupta
Sandip Mitra	Work Life balance and decision making	Anandi Mani, Oxford
	Politicians motivations: Evidence from a lab-in-the-field experiment in India	Kunal Sen, Prasenjit Banerjee, University of Manchester, Vegard Iverson, University of Greenwich
	Psychological Empowerment and Female Entrepreneurship: Evidence from Self-Help Groups in India	Anandi Mani, Oxford, Sanchari Roy, King's College,London, Sandip Mitra,ISI, Sayantan Ghoshal, University of Glasgow
	Decentralized Targeting of Agricultural Credit Programs: Private versus Political Intermediaries	Dilip Mookherjee, Boston University, Sandip Mitra, Isi, Pushkar Maitra,Monash University, Sujata Visaria, Hong Kong University of Science and Technology
	Gender Effects of Policies Expanding Credit Access for Poor Farmers: Experimental Evidence from West Bengal, India	Dilip Mookherjee, Boston University, Sandip Mitra, Isi, Pushkar Maitra,Monash University, Sujata Visaria, Hong Kong University of Science and Technology
	Traders' behaviour in Agricultural Market	Dilip Mookherjee, Boston University, Sandip Mitra, ISI, Pushkar Maitra,Monash University, Sujata Visaria, Hong Kong University of Science and Technology
	Declining Regional Clientelism or Rising Identity Politics?	Dilip Mookherjee, Boston University, Sandip Mitra, Isi, Pushkar Maitra,Monash University, Sujata Visaria, Hong Kong University of Science and Technology
Kajal Dihidar	Projects on randomized response techniques. Supervising several Masters students (ISI and Kalyani University)	
Nachiketa Chattopadhyay	Threshold level of haemoglobin in classification of anemia; Water Quality Index, Evaluating data quality	Debasis Sengupta, Raghunath Chatterjee

Projects

Internally-funded Projects

ONGOING PROJECTS

Sl. No	Name of the project	Starting Date	Duration	Principal Investigator(s)
1	Development of an E-Learning Portal on Official Statistics and Allied Topics (A supporting project for development and launch of the ISI's online course Post Graduate Diploma in Applied Statistics (PGDAS))	01 April 2021	2 Years	Kajal Dihidar

Projects done for Govt. of India/State Govts

NEW PROJECTS

Sl. No.	Name of the project	A/c No.	Starting Date	Duration	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1	Delivery of Entrusted Services by Rural Bodies in West Bengal	E209	February 2023	1 year	Nachiketa Chattopadhyay Debasish Sengupta Samarjit Das Sandip Mitra	State Finance Commission Govt of West Bengal	20,00,000/-

ONGOING PROJECTS

Sl. No.	Name of the project	A/c No.	Starting Date	Duration	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1	Study on Social Audit using Survey Sampling and Analytics	E169	January 2022	1 year	Nachiketa Chattopadhyay Debasish Sengupta Anup Dewanji Mausumi Bose Sandip Mitra	Niti Aayog	25,00,000/-

8. SOCIO-ECONOMIC RESEARCH UNIT (SERU), NORTH-EAST CENTRE, TEZPUR

Research

Currently the research areas of the socio-economic research unit are microeconomic theory and applied macroeconomics. Faculty members of the unit participate in the teaching activities at the centre by offering various core courses to students enrolled in PGDSMA. Also the faculty members of the unit have been actively involved in organizing various training programs and workshops.

Current Areas of Research

Name of the DCSW Member	Research topic(s)	Collaborator(s)
Mridu Prabal Goswami	Moral wiggle Room and Dictator Game	Sanmitra Ghosh(Jadavpur Universoty) and Shubhro Sarkar(IGIDR, Mumbai)
	Quota Allocation Rules with Negative Externalities	Manipushpak Mitra and Soumendu Sarkar (University of Delhi)
	Intelligent Machines and Shapley Value	Surajit Borkotokey (Dibrugarh University) and Sujata Goala (Dibrugarh University)
	A Case for Rational Numbers in Economic Theory	Abinash Panda (Shiv Nadar University)
	Geometry of Strategy-proofness	Dipjyoti Majumdar (Concordia University)
Kushal Banik Chowdhury	Investor sentiment and climate risk Climate risk and stock return volatility	
	Renewable energy consumption and its impact on current account deficit	Bhavesh Garg (IIT Ropar)
	Sectoral stock return and oil price uncertainty	Ranajoy Guha Neogi (RBI)

Projects

Externally-funded Projects

NEW PROJECTS

Sl. No	Name of the project	Starting Date	Duration	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1	A Geometric Understanding of Auction Mechanisms	Approval letter received on December 19,2022	3 years	Mridu Prabal Goswami	SERB	2,00,000/- per annum

9. SOCIOLOGICAL RESEARCH UNIT (SRU), GIRIDIH & KOLKATA

Research

The faculty and scientific staff of SRU are involved, inside and outside ISI, in teaching, guiding Ph.D. students, supervising project/ dissertation at Post Graduate level students, in doing research activities on various themes, like, land and its pattern of utilization; application of Social Network Analysis approach in migration, trade, survival strategy covering resilience, Health, disaster management etc.

Current Areas of Research

Name of the DCSW Member	Research topic(s)	Collaborator(s)
H.C. Behera	Impact of Amphan and Yaas Cyclones that Struck during the COVID-19 and its lockdown periods on life and livelihood in the Sundarban adjacent Gangetic West Bengal	Prof. Sambit Mallick (Department of HSS, IIT, Guwahati); Dr. Rupak Goswami (IRDMFC, RKMVU, Narendrapur, W.B.); Dr. Abarna Mukherjee (Ranaghat College)
	Livelihood risk, strategies and resilience of rural communities affected by COVID-19 in Jharkhand.	Prof. Sambit Mallick (Department of HSS, IIT, Guwahati); Dr.Rupak Goswami (IRDMFC, RKMVU, Narendrapur, W.B.); G.Das
	Land-leasing arrangements and functions in eastern India	
R. Jana	Status of virulence of COVID-19 in urban population of Eastern India: An empirical study from Kolkata Municipal Corporation and its North suburb	Prof.. I Saha (Scientist-E, ICMR-CNCD, Salt Lake); Prof. M. K. Gumta (CM & SDH); Dr. P K Das (DTM & H); Prof. G Das (IPGME & R)
	Unearthing the heterogeneity in virulence using both ICMR COVID-19 testing data and other primary data: A Data Mining approach & An Exploratory study from West Bengal	Prof. I. Saha (ICMR-CNCD, Salt Lake); Prof. M. K. Gumta (College of Medicine & Sagore Dutta Hospital, Kamarhati); Prof. G. Das (IPGMER &R); Dr. Prabir Kr. Chatterjee (Aamader Haspatal, Sarenga, Bankura); Dr. Satabdi Ghosh (SAI); Dr. Chandra Das (Netaji Subhas Engineering College, Garia); Prof Partha P Majumdar (NIBMG)

Projects

Internally-funded Projects

NEW PROJECTS

Sl. No	Name of the project	Starting Date	Duration	Principal Investigator(s)
1	Livelihood risk, strategies and resilience of rural communities affected by COVID-19 in Jharkhand	2022	2 year	H.C. Behera

ONGOING PROJECTS

Sl. No	Name of the project	Starting Date	Duration	Principal Investigator(s)
1	Land-leasing arrangements and functions in eastern India	2020	2-3 year	H.C. Behera

Externally-funded Projects

ONGOING PROJECTS

Sl. No	Name of the project	A/c No.	Starting Date	Duration	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1	Strengthening livelihood opportunities for the forest dwellers in Jharkhand and Odisha	E-951	2018	3-4 years	H.C. Behera	MoTA	8,92,500/-
2	Impact of Amphan and Yaas Cyclones that Struck during the COVID-19 and its lockdown periods on life and livelihood in the Sundarban adjacent Gangetic West Bengal	D001	2022	1-2 years	H.C. Behera	CSR	3,00,000/-


SOCIOLOGICAL RESEARCH UNIT
NOMASK
NOENTRY

3.6 STATISTICAL QUALITY CONTROL & OPERATIONS RESEARCH DIVISION (SQC&OR)

Head : ARUP RANJAN MUKHOPADHYAY, SQC & OR Kolkata (1st April 2022 – 17th Sep 2022)
BISWABRATA PRADHAN, SQC & OR Kolkata (18th Sep 2022 – 31st Mar 2023)

Office: 7th floor, Platinum Jubilee Building, ISI, Kolkata-700 108

1

Statistical Quality Control & Operations Research Unit (SQC&OR), Bangalore

- **Head of Unit:** BOBY JOHN (1 Apr 2022 - 14 Oct 2022)
  SOMNATH RAY
  (14 Oct 2022 – 31 Mar 2023)
- **Number of Faculties:** Six (6)
- **Number of Non-scientific Workers:** One (1)
- **Number of Research Fellows:** One (1)
- **Office:** 8th Mile, Mysore Road, ISI, Bengaluru- 560 059

2

Statistical Quality Control & Operations Research Unit (SQC&OR), Chennai

- **Head of Unit:** G. RAVINDRAN
- **Number of Faculties:** Four (4)
- **Number of Non-scientific Workers:** Two (2)
- **Number of Research Fellows:** One (1)
- **Office: 111,** Nelson Manickam Road, ISI, Chennai-600 029

3

Statistical Quality Control & Operations Research Unit (SQC&OR), Delhi

- **Head of Unit:** RINA CHAKRAVORTY and S.K. NEOGY
- **Number of Faculties:** Two (2)
- **Number of Non-scientific Workers:** One (1)
- **Number of Research Fellows:** One (1)
- **Office:** 7, S.J.S. Sansanwal Marg, New Delhi -110016

4

Statistical Quality Control & Operations Research Unit (SQC&OR), Hyderabad

- **Head of Unit:** S. M. SUBHANI
- **Number of Faculties:** Five (5)
- **Number of Scientific Workers:** One (1)
- **Number of Non-scientific Workers:** Four (4)
- **Number of Visiting Scientists:** One (1)
- **Office:** Street Number 8, Habsiguda, Hyderabad, Telangana 500007

5

Statistical Quality Control & Operations Research Unit (SQC&OR), Kolkata

- **Head of Unit:** NANDINI DAS
  (01 Apr 2022 – 01 May 2022)
  M. Z. ANIS
  (02 May 2022 – 31 Mar 2023)
- **Number of Faculties:** 14 (upto 1st November 2022) & thereafter 15
- **Number of Non-scientific Workers:** 2 full time + 1 part-time (with additional responsibility at ASU in the afternoon) + 1 part-time (who signs attendance at ISEC, but is at SQC & OR Unit during the afternoon).
- **Number of Research Fellows:** Ten (10)
- **Office:** 6th floor, A.N. Kolmogorov Bhavan, ISI, Kolkata-700 108

6

Statistical Quality Control & Operations Research Unit (SQC&OR), Mumbai

- **Head of Unit:** SAGAR SIKDER
- **Number of Faculties:** Two (2)
- **Number of Non-scientific Workers:** One (1)
- **Office:** 3rd Floor, Pratistha Bhavan (Old CGO Building), 101, Maharshi Karve Road, Mumbai - 400 020

7

Statistical Quality Control & Operations Research Unit (SQC&OR), Pune

- **Head of Unit:** SUBRATA RATH
- **Number of Faculties:** One (1)
- **Number of Non-scientific Workers:** Two (2)
- **Office:** B-Wing, 3rd Floor, B-9, Anandvan Co-op. Housing Society, Near Gandhi Bhavan, 36, Kothrud, ISI, Pune - 411 038

1. STATISTICAL QUALITY CONTROL & OPERATIONS RESEARCH UNIT, BANGALORE

Current Areas of Research

Name of the DCSW Member	Research topic(s)	Collaborator(s)
Jagadish	Production & Industrial Engineering; Process Modeling & Optimization of Manufacturing Systems; Optimization Techniques (Evolutionary/Soft Computing Techniques, MCDM Methods); Statistical Modeling & Analysis (Design of Experiments; Taguchi Method; Response Surface Methodology etc.); Six Sigma; Supply Chain Management; Total Quality Management; Time Series Analysis; Green Manufacturing; Machining; 3D Printing; CAD/CAM; Green Composites; Surface Texturing.	
Boby John	Development of a fuzzy model for assessing the performance of the pharmaceutical supply chain under uncertainty	Firoz Ahmad, Indian Institute of Science, Bangalore
	Development of a control chart pattern recognition methodology for controlling information technology-enabled service process customer complaints	
	Optimization of multiobjective programming problems in neutrosophic hesitant fuzzy environment	Firoz Ahmad, Indian Institute of Science, Bangalore
E V Gijo	Integration of Industry 4.0 with Six Sigma	Dr. Shivaprasad C. G, HAL Management Academy, Bangalore
	Entropy and its applications in reliability theory	Sarat Sindhu Mukhopadhyay
	Meta-Analysis under Competing Risks Based on Censored samples from Exponential and Weibull Distribution	Dr. Kiran Prajapat
Sanjit Ray	A study of change point detection methods to identify significant process changes	
	Application of XG boosting and Gradient Boosting model for regression and classification	

Projects

Internally funded Projects

COMPLETED PROJECTS

Sl. No	Name of the project	Starting Date	End date	Principal Investigator(s)
1	Faculty Development Program on Data Science using R	27 April 2022	28 May 2022	Boby John
2	Outreach Program on Data Processing using Python	10 December 2022	7 January 2023	Boby John

Externally funded Projects

COMPLETED PROJECTS

Sl. No	Name of the project	A/c No.	Starting Date	End date	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1	Online Six Sigma Black Belt Certification Program for Jubilant Ingrevia Limited	I332	01 March 2022	30 August 2022	E V Gijo	Jubilant Ingrevia Limited	6,00,000/-
2	Six Sigma Green Belt Certification Program (GB-58_Online)	I334	02 May 2022	07 May 2022	Somnath Ray	External Participants	2,20,000/-
3	Six Sigma Green Belt Certification Program	I337	19 July 2022	27 July 2022	Somnath Ray	HAL Management Academy	2,50,000/-

Sl. No	Name of the project	A/c No.	Starting Date	End date	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
4	Six Sigma Green Belt Certification Program (GB-59 _Online)	I341	19 September 2022	24 September 2022	Somnath Ray	External Participants	3,60,000/-
5	Six Sigma Master Black Belt Certification Program (MBB-35 _Online)	I345	14 November 2022	11 December 2022	Somnath Ray & U H Acharya	External Participants	4,08,000/-
6	Six Sigma Green Belt Certification Program (GB-60 _Online)	I348	21 January 2023	4 February 2023	Somnath Ray	External Participants	2,80,000/-
7	Process diagnostics and improvement using data science applications	I 340	15 June 2022	31 March 2023	Boby John	Clinchoice India	1,20,000/-
8	Six Sigma Green Belt Certification	I 342	01 August 2022	31 March 2022	Boby John	GE Healthcare	4,00,000/-
9	Statistical Data Analysis and Modeling	I 350	15 September 2022	31 March 2023	Boby John	Airbus India	2,00,000/-
10	Online Course on Business Forecasting using Python	I 336	15 June 2022	29 June 2022	Boby John	External Participants	1,44,000/-
11	Problem-Solving using Design of Experiments	S 156	15 July 2022	30 July 2022	Boby John	External Participants	69,000/-
12	Online Course on Business Analytics using R	I 343	4 November 2022	27 November 2022	Boby John	External Participants	1,44,000/-
13	Online Course on Machine Learning using Python	I 349	10 February 2023	25 March 2023	Boby John	External Participants	2,60,000/-
14	Lean Six Sigma Green Belt Certification & Project Evaluation for RR Donnelley, Trivandrum	I351	06 February 2023	31 March 2023	E V Gijo	RR Donnelley, Trivandrum	3,25,000/-
15	Online certification program on Six Sigma Black Belt (BB-37Batch)	I338	22 August 2022	30 October 2022	E V Gijo & Sanjit Ray	External Participants	8,50,000/-
16	Online certification program on Six Sigma Black Belt (BB-38 Batch)	I347	23 January 2023	31 March 2023	E V Gijo & Sanjit Ray	External Participants	4,00,000/-
17	Six Sigma Green Belt Certification for Seek Solutions Management & Services Pvt. Ltd	I344	10 October 2022	31 December 2023	Sanjit Ray & E V Gijo	Seek Solutions Management & Services Pvt. Ltd	6,00,000/-
18	Six sigma BB DFSS GB & BADM	I 339	June 2023	March 2023	U H Acharya	BEL Bangalore	11,50,000/-
19	Six sigma GB & BB	I 335	June 2023	March 2023	U H Acharya	Daimler Chennai	9,00,000/-
20	Lean Six Sigma Green Belt Certification program for M/s. Strides Pharma Science Limited, Bangalore.	I352	20 February 2023	6 days	E V Gijo	M/s. Strides Pharma Science Limited, Bangalore	3,60,000/-

Projects done for Govt. of India/State Govts

COMPLETED PROJECTS

Sl. No.	Name of the project	A/c No.	Starting Date	End date	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1	Basic Six Sigma Green Belt & Root Cause Analysis	I 346	01 May 2022	31 Mar 2023	Boby John U H Acharya	Defence Institute of Quality Assurance	1,20,000/-

2. STATISTICAL QUALITY CONTROL & OPERATIONS RESEARCH UNIT, CHENNAI

Research

Apart from academic teaching, SQC and OR Unit Chennai is actively engaged in research in the areas of Game theory and Linear Complementarity Problems, Process capability for zero-inflated process. Members of the unit have also participated in International Conferences on Optimization and game theory during the year 2022-23. The unit also conducted training programs relating to Six sigma for industrial participants.

Current Areas of Research

Name of the DCSW Member	Research topic(s)	Collaborator(s)
G.Ravindran	Game theory, Linear Complementarity, Stochastic games,	Sunil Kumar, T. Parthasarathy (CMI)
Surajit Pal	Process Control and process capability evaluation of univariate and bivariate zero inflated Poisson Process	S.K. Gauri
Amit Biswas	Cooperative Game theory	

3. STATISTICAL QUALITY CONTROL & OPERATIONS RESEARCH UNIT, DELHI

Current Areas of Research

Name of the DCSW Member	Research topic(s)	Collaborator(s)
Samir Kumar Neogy	Mathematical Programming, Linear Complementarity Problem and its generalizations, Optimization problem in graph theory, Matrix Theory (Study of Matrix Classes useful in Complementarity, Optimization and Game Theory), Non-cooperative games, Algorithms for Stochastic Games.	T.E.S. Raghavan, Dipti Dubey, Gambheer Singh, Promila Kumar

4. STATISTICAL QUALITY CONTROL & OPERATIONS RESEARCH UNIT, HYDERABAD

Current Areas of Research

Name of the DCSW Member	Research topic(s)	Collaborator(s)
G S R Murthy	Development of a prediction model for the load on air traffic controller of a air space sector	Shri B L Penchal Rao, AGM, R & D Division, Airports Authority of India Hyderabad
A L N Murthy	Statistical Modelling, Machine Learning, Time Series, Medical Statistics, Six Sigma	
S M Subhani	Fixed Point Theorem in Fuzzy Metric Spaces	
G Murali Rao	Machine Learning, Data Science, Six Sigma	

Projects

Externally-funded Projects

NEW PROJECTS

Sl. No	Name of the project	A/c No.	Starting Date	Duration	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1	Online programme on Statistics and Machine Learning (mainly meant for faculty development programme)	I-689	July 2022	240 hours	G S R Murthy	Externally funded through fee collected from participants. 133 participants from across India participated.	3,76,127/-

ONGOING PROJECTS

Sl. No	Name of the project	A/c No.	Starting Date	Duration	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1	Six Sigma Green Belt Training and Guidance (Wave I) towards achieving Business Excellence	I - 691	November 2022	July 2023	A L N Murthy	ITC Limited, Paper Boards and Specialty Papers Division, Unit: KOVAI, Mettupalayam, Tamilnadu	12,00,000/-

COMPLETED PROJECTS

Sl. No	Name of the project	A/c No.	Starting Date	End date	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1	Six Sigma Green Belt Training and Project Guidance	I 688	14 June 2022	16 June 2022	S M Subhani	All India Institute of Ayurveda, New Delhi	1,90,000/-

Projects done for Govt. of India/State Govts

ONGOING PROJECTS

Sl. No.	Name of the project	A/c No.	Starting Date	Duration	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1	Developing Sampling Methodology	ISP(CT)/SBI/ SQCHYD/22-006	March 2022	12 months (app)	G M Rao	SBI (Public Sector)	10,00,000/-

COMPLETED PROJECTS

Sl. No.	Name of the project	A/c No.	Starting Date	End date	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1	Training Program on Quality and Reliability Engineering	ISP(T)_3006 2022_3	August 2022	3 Months	G M Rao	DIAT/DRDO	21,00,000/-

5. STATISTICAL QUALITY CONTROL & OPERATIONS RESEARCH UNIT, KOLKATA

The faculty members of SQC&OR unit , Kolkata are engaged in teaching in MTech (QROR), B.Stat and MS(QE) programs, research in various topics of quality, reliability and operations research and providing consultancy in different industries in India and overseas. During April '22-March '23 there are 19 journal publications (four of which were collaborative works with SQC & OR Unit, Chennai). Two book chapters were also published. The research topics include Statistical Process Control, process capability indices, Process Control for Ordinal Data, statistical quality control of zero-inflated processes, Small sample estimation of process variance, reliability acceptance sampling plans, Optimization of airline traffic operations, sparse solution of tensor complementarity problem, software and hardware reliability, among others.

Current Areas of Research

Name of the DCSW Member	Research topic(s)	Collaborator(s)
M Z Anis	Distributional properties of the Rayleigh distribution	M. Ahsanullah (Emeritus Prof. Rider University, USA) & I. E. Okorie (Khalifa University, Abu Dhabi, UAE)
	Some characterizations of the Rayleigh distribution based on the truncated first moment	M. Ahsanullah (Emeritus Prof. Rider University, USA)
	Investigation of the properties of the process capability index Cp when the observations are auto-correlated and also affected by measurement errors.	K Bera
	A class of non-parametric tests for DMTTF alternatives motivated by a mathematical property	P. Anisha (Manipal University) & A. Saha
	Characterization of the Unit-Gompertz distribution	
Biswabrata Pradhan	Bayesian sequential reliability acceptance sampling plans in adversarial life testing under interval censoring	Rathin Das
	Bayesian decision-theoretic sampling plan in adversarial life-testing for competing risk group data	Rathin Das
	Optimal sampling plan in adversarial life-testing under hybrid censoring with optional warranty	Rathin Das
	On the application of compound optimal design strategy in progressively type-II censored life-testing experiments	Siddhartha Chakraborty and Ritwik Bhattacharya (University of Texas, El Paso)
	On cumulative residual information generating function: properties, inference and applications	Siddhartha Chakraborty
Arup Ranjan Mukhopadhyay	Sustainable Development and Supply Chain Management	Prof. Sadhan Kumar Ghosh, Mechanical Engineering Department, Jadavpur University
	Sustainable Development and Waste Management	Prof. Sadhan Kumar Ghosh, Mechanical Engineering Department, Jadavpur University
	Statistical Process Control	
Prasun Das	Improvement of customer experience in retail banking	Professor I. Mukherjee, MAKAUT, W.B.
	Optimization of airline traffic operations	Professor J. Maiti, IITKGP, W.B.
	Optimizing a green supply chain with reverse logistics using queuing system under uncertainties	Monalisa Masanta
	An optimization model in a multi-echelon closed-loop supply chain with imperfect inspection under the impact of greening and learning	Prof. B. Giri, Jadavpur University, & Monalisa Masanta
Arup K Das	Projected fixed point iterative method for large and sparse horizontal linear complementarity problem	Bharat Kumar, Deepmala, Indian Institute of Information Technology Design and Manufacturing, Jabalpur
	More on matrix splitting modulus-based iterative methods for solving linear complementarity problem	Bharat Kumar, Deepmala Indian Institute of Information Technology, Design and Manufacturing, Jalbalpur
	Error Bound for the Linear Complementarity Problem using Plus Function	Bharat Kumar, Deepmala, Indian Institute of Information Technology, Design and Manufacturing, Jalbalpur. Aritra Dutta, Jadavpur University.
	Homotopy Continuation Method for Discounted Zero-Sum Stochastic Game with ARAT Structure	Aritra Dutta, Jadavpur University.
	On sparse solution of tensor complementarity problem	Rani Deb, Jadavpur University
Ashis Kumar Chakraborty	Software Reliability, Normalization of Marks, Supply Chain Management, Hardware Reliability	Dr. Abhijit Barman, NIT Silchar Dr. Moumita Chatterjee, Alia University Pallabi Ghosh, St. Xavier's College, Kolkata Dr. Soumen Dey, Norges miljo- og biovitenskapelige universitet Fakultet
Nandini Das	Controlling Process dispersion for Multivariate Data	
	Process Control for Ordinal Data	
Susanta Kumar Gauri	Developing tools and techniques for statistical quality control of zero-inflated processes	Surajit Pal
Pathik Mandal	Small sample estimation of process variance	

Projects

Internally-funded Projects

COMPLETED PROJECTS

Sl. No	Name of the project	Starting Date	End date	Principal Investigator(s)
1	Faculty Development Programme on Data Quality & Decision Making at Assam University, Silchar	21 November 2022	23 November 2022	Prasun Das

Externally-funded Projects

COMPLETED PROJECTS

Sl. No	Name of the project	A/c No.	Starting Date	End date	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1	Talent Development and Problem Solving	514E	2021	2022	Amitava Bandyopadhyay	Tata Steel, Jamshedpur	12,00,000/-
2	Six Sigma Green Belt Training and Project Guidance	T-154	April 2020	February 2023	Pathik Mandal	M.A.H.Y Khoory, Dubai	7,00,000/-

Projects done for Govt. of India/State Govts

ONGOING PROJECTS

Sl. No.	Name of the project	A/c No.	Starting Date	Duration	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1	Statistical Model for Reliability estimation of the flight software of Launch Vehicles of ISRO	E129	January 2019	May 2023	Ashis Kumar Chakraborty	Indian Space Research Organization, Thiruvananthapuram	21,49,000/-
2	Normalization of Board Marks for Admission to professional courses in Gujrat	I 064	1 April 2020	3 years	Ashis Kumar Chakraborty	ACPC Gujrat	31,05,000/-

COMPLETED PROJECTS

Sl. No.	Name of the project	A/c No.	Starting Date	End date	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1	Training on SPC, SQC, MSA, ST, DA & AS	I082	22 August 2022	31 August 2022	Prasun Das	Naval Armament Inspectorate, Cossipore, Ministry of Defence, GoI	4,00,000/-
2	Training on SPC, SQC, MSA, ST, DA & AS	1085	31 October 2022	16 November 2022	Prasun Das	Naval Armament Inspectorate, Cossipore, Ministry of Defence, GoI	7,50,000/-

6. STATISTICAL QUALITY CONTROL & OPERATIONS RESEARCH UNIT, MUMBAI

SQC & OR Unit, Mumbai commenced its operations from 1965. It has served a wide variety of organizations, both Manufacturing and Service, across the country through training and consultancy in the fields of Statistics and Operations Research.

The unit activities can be described in the following categories.

- Consultancy and project assignments
- Conducting in plant and general Training

Projects

Internally funded Projects

NEW PROJECTS

Sl. No	Name of the project	Starting Date	Duration	Principal Investigator(s)
1	Workshop on Statistical Techniques in Research Methodology.	13 December 2022	5 days	Ashok Sarkar

Externally-funded Projects

COMPLETED PROJECTS

Sl. No	Name of the project	A/c No.	Starting Date	Duration	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1	Lean Six Sigma Master Black Belt Training and Certification Program	I-927	11 April 2022	7 May 2022 (12 days)	Ashok Sarkar	External Participants	4,45,545/-
2	Six Sigma Green Belt Training & Certification Program	I-928	3 March 2022	11 March 2022 (5 days)	Sagar Sikder	Naval Armament Inspection, Mumbai	2,00,000/-
3	Six Sigma Green Belt Training and Certification Program	I-931	3 June 2022	19 June 2022 (6 days)	Sagar Sikder	External Participants	5,40,000/-
4	Sigma Black Belt Training and Certification Program (Evening session)	I932	6 June 2022	30 July 2022 (24 days)	Sagar Sikder	External Participants	4,00,000/-
5	Training program on Inferential Statistics	I933	21 June 2022	28 June 2022 (4 days)	Ashok Sarkar	Service Lee Technologies Private Limited	2,00,000/-
6	Six Sigma Green Belt Training & Certification Program	I934	7 September 2022	14 October 2022 (6 days)	Sagar Sikder	Deepak Fertilizer Ltd.	3,20,000/-
7	Training program at Six Sigma Management Institute Asia	I935	2 August 2022	12 August 2022 (9 days)	Ashok Sarkar	Six Sigma Management Institute Asia, Sri Lanka	3,55,050/-
8	Six Sigma Black Belt Training & Certification Program	I936	November 2022	February 2023	Sagar Sikder	Deepak Fertilizer Ltd.	7,00,000/-
9	Six Sigma Green Belt Training & Certification Program	I937	20 January 2023	5 February 2023 (6 days)	Sagar Sikder	External Participants	4,40,000/-
10	Training on Statistical Techniques for R&D	I938	12 January 2023	6 February 2023 (4 days)	Ashok Sarkar	Godrej Consumer Products Limited	2,20,000/-

7. STATISTICAL QUALITY CONTROL & OPERATIONS RESEARCH UNIT, PUNE

Industry sponsored training and Public Programs on Six Sigma Green-Belt, Six Sigma Black-Belt, DFSS Black-Belts and Master Black-Belt Program are conducted and so far, 129 students have enrolled for these programmes. Major research focus is on Six Sigma, Design for Six Sigma, Reliability, & Data Analytic.

Current Areas of Research

Name of the DCSW Member	Research topic(s)	Collaborator(s)
Subrata Rath	Development of A Dynamic Reliability Model of a Mechanized Repairable System	Dr. A. K. Chakraborty, and S. Chatterjee, Dept. Mathematics & Computing, IIT (ISM), Dhanbad

Projects

Externally-funded Projects

NEW PROJECTS

Sl. No	Name of the project	A/c No.	Starting Date	Duration	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1	Control Plan	I806	10 March 2023	3 months	S. Rath	Serum Institute	2,00,000/-
2	Six Sigma Green-Belt	I850	15 March 2023	2 months	S. Rath	Reliance Composite Solutions, Baroda	2,00,000/-
3	Six Sigma Green Belts- two batches	I801	20 March 2023	2 months	S. Rath	Varrac Polymer, Pune	4,00,000/-
4	Statistics for Sampling	I803	22 March 2023	1 Month	S. Rath	VKU Certifications	1,20,000/-

ONGOING PROJECTS

Sl. No	Name of the project	A/c No.	Starting Date	Duration	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1	Public Programs on Six Sigma & Data Analytics	I845	1 April 2022	1 Year	S. Rath	Eduplusnow, Pune	24,00,000/-

COMPLETED PROJECTS

Sl. No	Name of the project	A/c No.	Starting Date	End date	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1	Six Sigma	I-843	1 April 2022	1 year	S. Rath	3SV, Mumbai	1,00,000/-
2	Six Sigma Consulting	I-844	1 April 2022	3 months	S. Rath	Schott Glass, Gujarat	1,60,000/-
3	Six Sigma Green Belt	I-846	20 June 2022	3 months	S. Rath	Schott Poonawala, Gujarat	2,00,000/-
4	Six Sigma Green Belt	I-847	1 November 2022	1 month	S. Rath	Trident, MP	2,00,000/-
5	Six Sigma Green Belt Programme	I-848	4 November 2022	3 month	S. Rath	IIM, Sambalpur	2,40,000
6	Lecture session on SQC	I-849	1 February 2023	1 month	S. Rath	DIAT, Pune	1,10,000/-

3.7 THEORETICAL STATISTICS AND MATHEMATICS DIVISION (TSMD)

Professor In-Charge: ANTAR BANDYOPADHYAY, SMU, Delhi (1st Apr 2022 to 17th Sep 2022)
PRADIPTA BANDYOPADHYAY, SMU, Kolkata (18th Sep 2022 to 31st Mar 2023)

Office: 7, S.J.S. Sansanwal Marg, ISI, New Delhi-110 016

Office: 5th floor, A.N. Kolmogorov Bhavan, ISI, Kolkata-700 108

1

Stat-Math Unit (SMU), Bangalore

- **Head of Unit:** JAYDEB SARKAR
- **Number of Faculties:** Twenty-Two (22)
- **Number of Non-Scientific Workers:** One (1)
- **Number of Research Scholars:** Twenty (20)
- **Number of Visiting Scientists:** Fifty-Five (55)
- **Office:** 8th Mile, Mysore Road, ISI,Bengaluru - 560 059

2

Stat-Math Unit (SMU), Delhi

- **Head of Unit:** SHANTA LAISHRAM
- **Number of Faculties:** Thirteen (13)
- **Number of Non-Scientific Workers:** Two (2)
- **Number of Research Scholars:** Thirteen (13)
- **Number of Visiting Scientists:** Twenty-Seven (27)
- **Office:** 7, S.J.S. Sansanwal Marg, ISI, New Delhi- 110 016

3

Stat-Math Unit (SMU), Kolkata

- **Head of Unit:** GOPAL KRISHNA BASAK and RUDRA PADA SARKAR
- **Number of Faculties:** Twenty-Seven (27)
- **Number of Scientific Workers:** One (1)
- **Number of Non-Scientific Workers:** Six (6)
- **Number of Research Scholars:** Thirty-Nine (39)
- **Number of Visiting Scientists:** Seventy-Seven (77)
- **Office:** 2nd floor, A.N. Kolmogorov Bhavan, ISI, Kolkata-700 108

1. STAT-MATH UNIT (SMU), BANGALORE

Research

Stat-Math Unit Bangalore Center has been very active from 2022 to 2023 in conducting research in various fields of Mathematics such as Algebraic Geometry, Number Theory, Operator Theory, Operator Algebras, Quantum Probability, Probability and Statistics, Stochastic geometry, Random topology, Random graphs, Bayesian Statistical Inference, Statistical Ecology, Group actions, COVID related work, etc. During this period, the unit has been very productive in publishing papers in journals of international reputes.

The Unit was also involved in organizing conferences and conducting the Madhava mathematics competition and Simon Marais Mathematics Competition. We also hosted a good number of postdocs and visitors.

Current Areas of Research

Name of the DCSW Member	Research topic(s)	Collaborator(s)
B V Rajarama Bhat	Operator Moment dilations	Anindya Ghatak and Santosh Kumar (IISER Mohali)
	Iterative roots of functions	Chaithanya Gopalkrishna
	Peripheral Poisson boundary	Samir Kar and Bharat Talwar (Nazarbayev University, Kazakhstan)
	Products of symmetries of von Neumann algebras	Soumyashant Nayak and P. Shankar (CUSAT, Cochin)
	Almost everywhere equivalence of CP maps	Arghya Chongdar
	Quantum instruments	Arghya Chongdar and Sruthy Murali
Mathew Joseph	Stochastic Partial Differential Equations	Siva Athreya, Carl Mueller (University of Rochester), Mohammud Foondun (University of Strathclyde), Kunwoo Kim (POSTECH, Korea), Vivek Kumar
Manish Kumar	Vector bundles and fundamental groups	Indranil Biswas (TIFR) AJ Parameswaran (TIFR)
Charanya Ravi	Algebraic geometry, cohomology of algebraic stocks, algebraic K-theory	Adeel A. Khan (Academia Sinica, Taiwan) Hyeonjun Park (KIAS, Seoul, Korea)
Jaydeb Sarkar	Classifications of commutant lifting and Nevanlinna-Pick interpolation problem for bounded analytic functions on the polydisc	Deepak KD
	Classifications of automorphisms of two subalgebras H*infty. Characterized generalized tri-circular projections on H*p spaces.	Rahul Maurya and Aryaman Sensarma
	Orthogonal decompositions of tuples of isometries on Hilbert spaces.	N. Rakshit (NIT Nagpur) and M. Suryawanshi
	A Bishop-Phelps-Bollobás theorem for the disc algebra	Neeru Bala and Aryaman Sensarma
Maneesh Thakur	Self-isotopic Jordan algebras	Holger Petersson, University of Haagen, Germany
Yogeshwaran D	Stochastic geometry, random topology	Bartlomiej Blasczyszyn, Joseph Yukich, Manjunath Krishnapur, Takashi Owada, Zifu Wei, K. D. Trinh, Shu Kanazawa.

Projects

Internally-funded Projects

COMPLETED PROJECTS

Sl. No	Name of the project	Starting Date	End date	Principal Investigator(s)
1	Ashok Maitra Memorial Lectures	1 April 2022	1 year	Yogeshwaran D

Externally-funded Projects

NEW PROJECTS

Sl. No	Name of the project	A/c No.	Starting Date	Duration	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1	Teaching enrichment	E521	27 October 2022	3 years	Shankar P (CUSAT) and Jaydeb Sarkar (Mentor)	SERB	3,35,000/-

ONGOING PROJECTS

Sl. No	Name of the project	A/c No.	Starting Date	Duration	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1	JC Bose Fellowship project (Second term)	E-520	1 March 2022	February 28, 2027	B. V. Rajarama Bhat	SERB	95,00,000/-
2	MATRICS	E-516	18 February 2021	3 years	Yogeshwaran D.	SERB	6,60,000/-
3	MATRICS	E-518	19 February 2021	3 years	Mathew Joseph	SERB	6,60,000/-

COMPLETED PROJECTS

Sl. No	Name of the project	A/c No.	Starting Date	End date	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1	Factorizations of bounded analytic functions and kernels	E512	February 2020	3 years	Jaydeb Sarkar	SERB	28,90,888/-
2	IFCAM	N586	1 July 2018	March 31 2023	Yogeshwaran D. and Bartlomiej Blaszyszyczyn	IFCAM	Funds released only for travel and food expenses
3	Coupled Stochastic Partial Differential Equations (SPDE's)	E513	16 January 2020	3 years	B. Rajeev	SERB	27,68,788/-

2. STAT-MATH UNIT (SMU), DELHI

Research

Apart from regular research and teaching at ISI Delhi, SMUD hosted a number of academic visitors (both from India and abroad) for research collaborations and for our regular weekly seminars. SMUD hosted 4 Research Associates for their post-doctoral research. In addition, a number of 3 month visiting scientists (post docs) at early career levels were hosted and they were mentored by unit members. A number of students from other Institutes/Universities were also mentored academically by our members in their personal levels. Our members also contributed to the national academic activities and nation building by being involved as experts/resource persons and also as expert members of important committees at different levels in India.

Current Areas of Research

Name of the DCSW Member	Research topic(s)	Collaborator(s)
Abhay Gopal Bhatt	Martingale Problems and stochastic differential equations, Subordinated processes and inverse subordinators, Normalisation of marks	Neha Gupta
Antar Bandyopadhyay	Interacting Urn Models	Deborah Das
	Hight of a Random Recursive Tree	Dr. Debleena Thacker, Durham University, UK; and Professor Andrew Wade, Durham University, UK.
	De-preferential attachment random graphs through referential attachments	Somak Laha
	Inverse de-preferential urn schemes	Andrea Ghiglietti, Università degli Studi Milano-Bicocca, Italy; and Giacomo Aletti, University of Milan, Italy.

Name of the DCSW Member	Research topic(s)	Collaborator(s)
Deepayan Sarkar	Image deblurring	
	Estimation of aircraft collision risk	Antar Bandyopadhyay
	Word embedding and other topics related to natural language processing	Soumendu Sundar Mukherjee
	Multivariate gene-set enrichment analysis for high throughput biological experiments	
Issan Patri	Operator Algebras, Quantum Groups, Mathematical Biology	Pierre Fima (Universite Paris Cite), Francois Le Maitre (Universite Paris Cite), Malay Mandal (CMI), Kunal Mukherjee (IIT Madras), Garima Rani (University of Luxembourg)
Shanta Laishram	Arithmetic Dynamics	Prabhakar Yadav; Ritumoni Sarma, Himanshu Sharma (IIT Delhi)
	Irreducibility and Galois groups of Laguerre polynomials	Ankita Jindal
	Rational points on Erdos-Selfridge superelliptic Curve	Pranabesh Das (Xavier University, USA), N. Saradha (CEBS Mumbai), Divyum Sharma (BITS Pilani)
Soham Sarkar	Functional data analysis	Victor M. Panaretos, EPFL, Switzerland
	Feature screening for ultra-high-dimensional classification	Sarbojit Roy, KAUST, Saudi Arabia; Subhajit Dutta, IIT Kanpur; Anil K. Ghosh
	Classification of imbalanced data	Anil K. Ghosh; Anvit Garg,
Swagata Nandi	Weighted least squares estimator in autoregressive models in presence of outliers	
	Random amplitude chirp model with same frequency rate	
	Weighted least squares estimator for chirp-like models as a robust method of estimation	
Tanvi Jain	Positivity of block operators	
	Symplectic linear algebra	

Projects

Externally-funded Projects

NEW PROJECTS

Sl. No	Name of the project	A/c No.	Starting Date	Duration	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1	SERB Start-up Grant	6975106200	4 January 2023	2 years	Issan Patri	SERB	9,00,000/-

COMPLETED PROJECTS

Sl. No	Name of the project	A/c No.	Starting Date	End date	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1	DST Inspire Grant	N-732	April 3 2017	April 3 2022	Issan Patri	DST	35,00,000/-

Projects done for Govt. of India/State Govts

ONGOING PROJECTS

Sl. No.	Name of the project	A/c No.	Starting Date	Duration	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1	BOBASIO Region Airspace Safety Assessment Study	I-402	January 2011	Continuing	Antar Bandyopadhyay	Airports Authority of India	9,50,000/- per year

3. STAT-MATH UNIT (SMU), KOLKATA

Research

SMUK focuses on research in Mathematics, Probability and Theoretical Statistics. The unit currently has 27 faculty members, 5 of them are Bhatnagar awardees. In Statistics the main focus are in: Statistical Study of Agreement, Statistical Inference, Statistical Study of Surveillance, Statistical Study of Apportionment Index, Statistical Modeling of Dyadic Interactions, Parametric and non-parametric classification, and Study of Robust Estimators. Non-parametric statistics, Rates of convergence in the Central Limit Theorem (CLT), Law of iterated logarithms (LIL) and Characterization theorems, High dimensional time series. In Probability Theory, the main focus of research are: Stochastic Processes, Limit Theorems, Rates of Convergence and Expansions, Stochastic Integrals, Stochastic Differential Equations, Stability of stochastic dynamical systems, and Two-time scale. Random Walks, Martingale Theory and Stochastic Calculus, Stochastic approximation, Markov Chain Simulation, Random Continued Fractions, Bernoulli Convolutions and Iterated Function Systems, Large-dimensional Random Matrices, Record values, Extreme values, Moral hazard problems in economics, Resampling plans, Time series. and Kernel density estimates, Urn Model Asymptotics, free probability analogue of subexponential distribution, Asymptotics of Randomly weighted sum, Non-commutative probability, Diffusion approximations, Inference in panel data under cross-sectional dependence, Stochastic modelling of political business cycle Stochastic Modelling of financial crisis through trade and capital inflow, High dimensional random matrices and its applications, Free probability. In mathematics the main topics of research are: Noncommutative geometry: Levi civita connections, Hopf algebroid and their actions on noncommutative spaces, quantum symmetry, Commutative Algebra, Affine Algebraic Geometry, History of Mathematics, Analytic Number Theory, Circle method, Analytic theory of L-functions, Differential Geometry, non-holonimic distributions of co-rank greater than 1, Harmonic analysis on harmonic manifolds, Riemann surfaces, Rigidity problems for negatively curved manifolds, Motivic Homotopy Theory.

Current Areas of Research

Name of the DCSW Member	Research topic(s)	Collaborator(s)
Arup Bose	Measures of Association, Bergsma's kappa, COVID-19	Bhattacharjee, Madhuchhanda (Univ of Hyderabad); Kappara, Divya (Univ of Hyderabad)
	Random Matrices	Adhikari, Kartick (IISER, Bhopal); Bhattacharjee, Monika (IIT Bombay); Maurya, Sambhu Nath (IISER,Bhopal); Mukherjee, Soumendu Sundar; Sen, Priyanka
Amartya Kumar Dutta	History of Mathematics in Ancient India	
Debashish Goswami	Noncommutative Geometry, Quantum Groups, Operator Algebra	
Kingshook Biswas	Geometry of negatively curved metric spaces, Harmonic analysis on Riemannian manifolds, Riemann surfaces, Holomorphic dynamics	Arkajit Palchaudhuri, Utsav Dewan, Rudra P. Sarkar
Neena Gupta	Commutative Algebra and Affine Algebraic Geometry	
	Discovered 14 necessary and sufficient conditions for an affine variety $x_1^{r_1}\cdots x_m^{r_m}y=f(z, t)$, r_i's ≥ 2, to be isomorphic to $\A^{m+2}_k$ (one equivalent condition: $f(z,t)$ is a variable in $k[z,t]$). Obtained an infinite family of non-isomorphic affine varieties which are stably isomorphic to the affine $m+2$-space $\A^{m+2}_k$.	Parnashree Ghosh
	Proved that certain linear hyperplanes in $\A^n_k$, $n \ge 3$ are rectifiable. The result, a partial extension of the Sathaye-Russell Theorem on linear planes in $\ A^3_k$, gives an affirmative solution to a special case of the Embedding Conjecture of Abhyankar-Sathaye in arbitrary characteristic.	Parnashree Ghosh
Ritabrata Munshi	Analytic Number Theory	Roman Holowinsky (Ohio-State University), Joseph Leung (Bonn), Keshav Aggarwal (Renyi Institute), Saurabh Singh (IIT Kanpur), Mallesham Kummari (IIT Bombay)
Utsav Choudhury	Motivic Homotopy theory	Amit Hogadi (IISER, PUNE)

Projects

Externally-funded Projects

ONGOING PROJECTS

Sl. No	Name of the project	A/c No.	Starting Date	Duration	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
1	J C Bose Fellowship of Arup Bose	264	1 January 2019	5 years	ARUP BOSE	SERB,DST, Govt. of India	95,00,000/-
2	J C Bose Fellowship of Debashish Goswami	E043	25 July 2021	5 years	DEBASHISH GOSWAMI	SERB,DST, Govt. of India	95,00,000/-
3	J C Bose Fellowship of Ritabrata Munshi	E171	14 October 2021	5 years	RITABRATA MUNSHI	SERB,DST, Govt. of India	95,00,000/-

Projects done for Govt. of India/State Govts

NEW PROJECTS

Sl. No.	Name of the project	A/c No.	Starting Date	Duration	Principal Investigator(s)	Funding agency	Sanctioned amount (₹)
01	Studies on affine spaces and related objects through algebraic group actions and locally nilpotent derivations	E212	1 April 2022	03 Years	Neena Gupta	DST, Govt of India (INDO-RUSSIA project)	68,21,775/-

3.8 Library Documentation and Information Sciences Division (LDISD)

Head: KISHOR CHANDRA SATPATHY

Office: 1st Floor, S.N. Bose Bhawan, ISI, Kolkata 700108

1 Library, Bangalore Centre

- **Name of the Primary Contact:** Dr. M. Krishnamurthy (Library in Charge),
- **Office: 8th Mile, Mysore Road, ISI, Bengaluru - 560059**
- Year of Establishment: **1960**

2 Library, Chennai Centre

- **Name of the Primary Contact:** KALPANA. T.M.,
- **Address: 1**10, Nelson Manicakm Road, Aminjikarai, Chennai - 600049
- **Year of Establishment:** 2010

3 Library, Delhi Centre

- **Name of the Primary Contact:** UDAYA BHANU KANDHA
- **Address:** 7, S. J. S. Sansanwal Marg, ISI, New Delhi - 110 016
- **Year of Establishment:** 1974

4 Library, North-East Centre, Tezpur

- **Name of the Primary Contact:** Prof. Balakrishnan Ramakrishnan
- **Address:** Punioni, Solmara, Tezpur - 784028
- **Year of Establishment:** 2011

5 Central Library, Kolkata

- **Name of the Primary Contact:** K. C. SATPATHY
- **Address:** 1st floor, S.N. Bose Bhawan, ISI, Kolkata - 700108
- **Year of Establishment:** 1933

1. LIBRARY, BANGALORE CENTRE

Indian Statistical Institute Bangalore Centre Library is aiming to be identified as a model library in the Indian academic scenario. ISI Bangalore Centre Library has also initiated interactive applications for its users. The library has developed a very distinguished collection in different knowledge domains such as Mathematics, Statistics, Systems Science, Information Science, Economics, Quality Management & Operations Research, Library & Information Science, and Computation & Artificial Intelligence and so on. Various services are designed to meet the information needs of the faculty members, students, research scholars and visiting scientists. Walk-in users from other institutions are also permitted to use the library. Major activities of the Library are given below.

COLLECTION DEVELOPMENT:

The library procures journals, books and other reading materials for users. The library subscribes to all major reputed journals Hits via RemoteXs electronic form both foreign as well as Indian in the said fields. It has also a good collection of reference documents, govt. statistical reports and books on general interests. Currently, the total collection of the library is 31,252 books and 20,640 bound volumes.

MEMBERSHIP:

More than 228 members registered and facilities were extended to around 3342 walk-in users during this period.

CIRCULATION SERVICE:

Around 8946 books and 907 Bound Volumes journals were circulated during this period.

SERVICE ADDED:

The Bangalore Centre of the Indian Statistical Institute was conceived by Prof. P. C. Mahalanobis during the 1960s, even when the city was emerging as a centre of science. It is a tribute to his foresight that the Institute is now well-established in one of the most vibrant scientific communities in India. Library members can remotely access all the important resources subscribed by the Kolkata library (e-books, e-journals) online. Other services are lending, Inter-Library Loans, content search services, reading room services, reference services, reprography services, and electronic document delivery services etc. The library provides RemoteXs facility to its users for accessing e-resources remotely. The library is also providing plagiarism-checking services.

DETAILS ABOUT THE CURRENT STATUS OF THE LIBRARY

228
Total Members as on March 31, 2022

2 Prof + 2 Non Professional
Total Library Personnel as on March 31, 2022

31,252
Books

39
E- Books

600
CDs

2. LIBRARY, CHENNAI CENTRE

Library of Indian Statistical Institute Chennai Center (ISICC) fully automated with RFID Technology is located in Aminjikarai Campus, Chennai with SQC and OR unit (SQC & OR) started in 1956 and Chennai centre library was started in 2011.

ISICC Library website focuses to provide access to relevant information services, bibliographic and full-text digital and printed resources to support the Scholarly Community of the Institute. It also shares a platform with ISI group institutions in Resource sharing to broaden resource availability. However, it is also open for reference to academic users of other educational and scientific institutions and its neighboring regions.

Library Collection:

The library has an excellent collection of books on subjects like Mathematics, Statistics, Management, Operations Research, Finance, Quality Control Computers and Cryptography. Conference Proceedings, Bound Volumes, Online and Print journals complement this collection. Library books from SQC and OR unit from Coimbatore were shifted to Chennai library increasing its collection to around 7400.

DETAILS ABOUT THE CURRENT STATUS OF THE LIBRARY (IN NUMBERS)

30
Total Members as on March 31, 2022

1
Total Library Personnel as on March 31, 2022

6226
Books

Journals are accessed via Remote-X
Journals

DESCRIPTION OF THE FACILITIES OR SERVICES PROVIDED	
Number of Circulations held in the Year	353
Usage Statistics of Plagiarism Software	12 papers were reviewed

Collection Development in 2022-23	
Head	Details
Books	3 (bought under CPDA of Dr. Karthick)

3. LIBRARY, DELHI CENTRE

The Library Unit of ISI Delhi Centre cater to the information needs of the faculty, visiting scientists, staff members, scholars and students of the institute engaged in studies, research and training in the field of Mathematics, Statistics, Economics, Statistical Quality Control and Operation Research. However, it is also open for reference to academic and research users of other educational and scientific institutions of the city and its neighboring regions. Delhi Centre Library is one of the designated NBHM Regional Library since 1994 to serve the academic users of the northern region. Additional funds are being provided by NBHM for maintaining and developing resources in the fields of mathematics and statistics

Total number of registered users in the Delhi Centre Library: 165

Total Library Staff: 3

Library Working Hours (Mon-Fri): 9:00 AM to 5:30 PM.

Extended Library Hours: 5.30 PM to 9.00 PM on working days as per the need of students

The Library is fully automated with Koha Library Management Software. It also maintained Library website for the purpose of providing information to users.

Major Activities:

Collection development, Organization and maintenance of Library resources. The Library procures and maintains an excellent collection of books, journals, reports, government publications, theses and other documents in print and electronic format. The total collection of the library (both books and bound journals) is about 52,600 volumes.

E-Resources Access facility:

Library subscribes and gets access to all major reputed e-journals, databases, and e-books in electronic format. Special arrangement has been made for Delhi center users to access e-resource of Central Library, Kolkata via RemoteXs

Other Library Services:

- Circulation Service
- Reading Room Service
- Inter-Library Loan Service
- Reference Service
- Photocopy services
- Electronic document delivery service
- Current awareness service
- Web-OPAC Facility
- Web Enable Library Services

RemoteXs facility:

The library provides RemoteXs facility to its users for accessing e-resources remotely.

Plagiarism checking facility provided to faculty and research scholars through iThenticate plagiarism detection software and URKUND (Plagiarism Checker)

196
Total Members as on March 31, 2023

3
Total Library Personnel as on March 31, 2023

30,418
Books

2500+
relevant books are accessible via RemoteXs

18695 Bound Volumes
28 Current Journals
Journals

5000+
relevant e-journals are now available via RemoteXs from the Central Library

690
CDs/DVDs

10+
relevant online databases (MathSciNet, EconLit, etc.) are available via RemoteXs.

DESCRIPTION OF THE FACILITIES OR SERVICES PROVIDED	
Items Delivered in Electronic Format / ILL	80+
Usage Stat / Data Downloads/ Hits via RemoteXs	Total Data (MBs): 5978.38 Download Data (MBs): 2711.72 Browsing Data (MBs): 3266.66 Logins: 1349
Number of Circulations held in the Year	971+
Usage Statistics of Plagiarism Software	10
Number of Hits counted in the Lib Website	2000+
Requests Received for Repro-photo Services	30+ papers scanned and given to users. 200+ pages of photocopies provided to users.
Details about Web-based Services Provided	▶ Library collection details, ▶ E-resources A-Z list of Journals, Databases, and other publications. ▶ Library services details, ▶ Requisition E-forms for ILL, Photocopies request, Book purchase, Library membership. ▶ Library Timings, ▶ Web-OPAC.
Promotional Activities Performed in Library	Collection awareness about the e-resources available through RemoteXs. How to run Off-Campus access of ISI Library e-resources via RemoteXs facilities
New Services Undertaken by the Library	Alert Service
Other Relevant Information (please specify)	The National Board of Higher Mathematics, (NBHM) has recognized ISI Delhi Centre library as a regional library of the NBHM. Under this scheme faculties and research students from other universities/colleges in the northern region are entitled to use the facility offered by the Delhi Centre library for their research work or references of Mathematics and Statistics journals and books.

Collection Development in 2022-23

Head	Details
Books	Books have procured in response to faculty and scholar academic needs. The library accessioned 16 new books during the year under report. Thus raising the current Library stock both books and bound journals to 52,698 volumes."
Journals	During the period total 28 journal titles (14 Print + 14 Online only) have selected for the subscription in year 2023
Access to online databases	Faculty, research scholars, and students have allowed to access all subscription of e-resources procured by ISI Central Library through the RemoteXs services. User by using their personal user id and password, can access to all library e-resources through the RemoteXs site.
E-books	Faculty, research scholars, and students have been allowed to access all e-books procured by ISI Central Library through the RemoteXs services. User by using their personal user id and password, can access all e-books collection through the RemoteXs site.
Publication / Journal Exchange	2 journals (Probability and Mathematical Statistics and Statistica Sinica) received on the publication exchange program. A few government publications and reports were also received as gifts or complementary materials.
Others	More than 971 publications have been circulated among the members. More than 200+ users availed reference facilities of the library. 175+ pages have been Xeroxed and made available to users of the library and outsiders. As per the demand of students, reading and internet browsing facilities were provided on the library extended hours i.e. 5:30 pm to 8:00 pm on working days (i.e. Monday to Friday) and Saturdays from 10.00 am to 2.00 pm. Stock Verification of Library Documents for the Year 2022 has been completed. The Library's website is being redesigned, and content is being updated. Sharing of resources, Inter-Library Loan, document delivery service"

4. LIBRARY, NORTH-EAST CENTRE, TEZPUR

ISI N-E Centre Library started functioning in the year 2011 at Tezpur University Campus. The Library shifted to its present permanent location in June 2019. The main motto of the Library is to provide valuable services to its user community. The Library endeavour's to build a quality collection in different subject areas.

Koha LMS is used to perform day-to-day activities of the Library. All the subscribed e-resources can be accessed on campus as well as off-campus through RemoteXs by the Library users. The library is also providing a plagiarism checking facility through ithenticate.

Collection Development: Gradually Library is building a quality collection. Total collection of the Library is 3229 till march, 2023. In the 2022-2023 session, the Library accessioned total 124 nos. of books.

Library Service/Facility:

- Circulation Service
- Reference Service
- Current awareness service
- Reprographic facility
- Plagiarism checking facility
- Electronic Document Delivery Service

Initiatives taken by Library:

- Binding of journals, books
- Weeding out old newspapers
- Creating a Library Blog (https://libraryisine2011.blogspot.com/)

Future Plan:

- Installation of RFID technology in the Library
- To build a special collection (North East Collection)

42
Total Members as on March 31, 2022 :

1
Total Library Personnel as on March 31, 2022 :

3,229
Books

Student Project Report—Print-63, e-format-21, Summer Internship Report (5) Technical Report (4), Gift Item (Book-18, Magazine-11, Question Bank-11, CD (book-64, NRSC data-29), Question paper set-25 nos.

₹584149.00
Budget Spent by the Library :

DESCRIPTION OF THE FACILITIES OR SERVICES PROVIDED

Items Delivered in Electronic Format / ILL	10
Usage Stat / Data Downloads/ Hits via RemoteXs	404.4 mb/223
Number of Circulations Held in the Year	900 (issue+renew)
Usage Statistics of Plagiarism Software	9
Number of Hits counted in the Lib Website	384
Requests Received for Repro-photo Services	82

Collection Development in 2022-23

Head	Details
Books	124

5. CENTRAL LIBRARY, KOLKATA

The Central Library occupies a unique place in the academic and research activities of the Institute. The Central Library moved to its present location in 1978, and it occupies 5 floors (60000sq. ft) of a ten-storied building at Kolkata. The Central Library seeks to:

- Meet the informational, educational, recreational, and cultural interests and needs of the user community by providing timely access to print and non-print resources appropriate to those needs.
- Encourage and facilitate reading, literacy and lifelong learning by supplying resources in a variety of formats designed to interest, inform, and enlighten.
- Protect the public's right to know by providing equal access to information needed for informed and effective daily living, decision-making, problem-solving and thoughtful participation in civic/community affairs.
- Provide the highest quality service and organize and display the collection for easy, open access by all.
- Maintain the publication exchange program of the Institute with regional, international, national and foreign institutions and organizations.
- Continue to function as the Eastern Regional Library of the National Board of Higher Mathematics [NBHM], Department of Atomic Energy, and Government of India since 1989.

Services of the Library Division @ ISI Kolkata

Over the years, the ISI Central Library has attained the distinction of being one of the richest libraries in India in the areas of mathematics, statistics, economics, theoretical computer science and related areas. To achieve the goals of the Library, the following activities were undertaken during the year under report.

Collection Development:

The Library maintains an excellent collection of books, journals, reports, rare and special collections, government publications, data books, theses and other documents/ materials in print and electronic formats.

During the year under report, the library accessioned 533 printed books and added SAGE e-Books Collection (183), Cambridge e-Books Collection (169), approximately 441 e-books from Springer and AMS eBook subject Collection (Mathematics and Statistics) which is accessible across the centers through IP ranges. The Library has accessioned more than 72 bound volumes of journals (the total number of bound volumes of journals is 80099) and subscribed to 100 scholarly journal titles in print. Apart from this several journal titles were received as complimentary and in exchange with Sankhya. The library received and processed more than 530 loose issues of journals. Besides this, the library has added a collection of 04(Hindi), 01(English), 02(Bengali) & 12 Puja Sankhya, humanities, travel, health and recreation and 22 Daily Newspapers & Magazines, and 15 Puja Sankhya in its Workers' Circulating Library.

The library has a good collection of electronic resources on different media and has access to several online journals/ databases. The library has provided online access to about 20000+ full-text journals and renewed all major online databases like MathSciNet, AMS, IMS journals, IEL online of the IEEE/ IEE publications, Econlit with full text, Science Direct, Springer, Taylor & Francis, Wiley, OUP, CUP, Duke Mathematical Society Journals, Euclid Prime, ACM Digital Library, JSTOR, Project Muse, SAGE along with SCOPUS and ProQuest databases.

This year Wall Street Journal, EPWRF Indian Time Series,

Proceedings of the Royal Society A & B, J-Gate and J-Gate datatype, World Scientific (WSP)-Computer Sc. and Mathematics Collection, Geological Society of American & Geology journals. The Marking of the Modern World: All parts (Part I to III) with the Economist Historical Archive update 2004-2015 were added to the collection. The library has also subscribed to Census data and acquired online report databases (IP &/or Password based) for providing data services to potential users. Subscribed online databases are namely – Economic Outlook (CMIE), States of India (CMIE), IndiaStat (Socio-economic Statistical Information & facts on India), DistrictsofIndia (only West Bengal Districts), CEIC Databases (Global DB + Daily DB + Indian Premium DB).

The library has Institutional tie-ups with several professional bodies like ILA,IASLIC, BLA, DELNET, and British Council. The library renders electronic document delivery services based on online /offline databases in India and abroad. The library also provides data download services with high-end computing facilities and photo-copying, data-copying, printing, etc.

Services:

The ISI-Library, since its inception has been providing a variety of library and information services to its users. The services presently being provided include:

Web-OPAC:

Members use this facility to browse and search the database to see the status of a document including their own transactions.

Lending/Document Delivery Service:

During this period 11,939 books and other documents were issued to the user on loan and reference. Publications from the Government of India and other international organizations and data CDs, were issued to users for reference purposes. It provided email-based reminder services like 7-day advance alert, long overdue notice and check-in information.

Generation of Fund:

During the period under report the Library Division earned Rs 29547/- collected from Plagiarism checking as a service charge (90 Members), Rs.27809/- from Library membership, Rs.14777/- from Library fine, in total Rs.72,133/-.

Self-Photocopying Service:

The library provided the Self-photocopying service in its periodical section, which was available every day throughout library hours.

Electronic Document Delivery Service:

Full-text articles and/or bibliographical data were provided through email from online resources. Besides electronic document delivery, 200 pages of printouts were also supplied against demand.

Online Full-Text Access to Journals/ Database:

During the period under review, the library has provided services from more than 20000+ online journals and major databases like MathSciNet, Econlit with full text, Science Direct, Springer Link, T & F Journal online, Willy Inter-Science, Oxford University Press Journals, CUP Journals, JSTOR, IEEE/IEE publications, ACM Digital Library and Current Index to Statistics (CIS) on Web through consortia. Online access is available through a campus-wide network.

Publication Exchange Programme:

The library maintains the publication exchange programme of 'Sankhya'-the Indian Journal of Statistics' with 40 National and International Institutions/ Organizations. The 23 international agencies are from various countries of the world such as Bangladesh, Belgium, Brazil, Canada, China, Taiwan, Croatia, Czech Republic, Denmark, France, Hungary, Italy, Japan, Pakistan, Poland, Romania, Russia, Slovakia, Spain, Switzerland, Thailand, UK and USA.

Reprographic & Photographic Service:

During the period under report the Reprography & Photography Unit, Library Division has carried out its regular works of Photocopying more than 1,85,739 copies (approx.), The photograph was taken 9362 snaps, Colour Print 261, A4 size color print 2030, A3 size color print 281.

The Unit renders unique services in graphic designing, image processing, developing digital photo archives, scanning and restoration of old photographs, art photography, and scientific photographic work. It also provides services like modification of image files, poster printing, color printing, spiral binding, lamination, photographic coverage of various events like ISI Council meetings, ISI convocations, seminars, conferences, visits of dignitaries, cultural and sports activities of the institute etc. It also carries out indoor photography like scientific photography for different scientific units. A Digital Photo Archive has been developed to store photographs along with their metadata.

Generation of Fund:

During the period under report the Reprographic & Photographic Service earned Rs. 2,38,918/- collected from Account no, Rs. 6795/- without account no, in total Rs. 2,45,713/-.

Documentation Service:

A searchable bibliographic database has been prepared on scientific contributions made by the ISI scientists on all subject fields since 1934.

General Enquiry Assistance & Consultation Service:

Assistance has been extended to 250 external visitors including participants of the Winter School, NBHM Nurture Programme, Summer Research School and visiting students of different institutions.

Users have been provided off-campus E-resources access facility of Central Library via RemoteXs round the clock ***(24X7).***

New initiatives taken by the library:

1. In order to commemorate the Azadi Ka Amrit Mahotsav (AKAM) of the Government of India, on behalf of Indian Statistical Institute, Library has organised a two-day program named 'Open Day: Come, Explore, and Engage & Enjoy'. During these days, students, science and technology enthusiasts and the public had an opportunity to visit the Institute to go around the campus to explore the exciting science and technology initiatives and activities of the Institute. The open day featured several activities like popular lecture experimental demos, poster presentations, quiz competitions, book exhibitions and other exhibitions (Part 1: Mahalanobis Era and Indian Statistical Institute and Part 2: The evolution of Statistics in India since the ancient period to digital India mission) to showcase the various activities. More than 450 students from different schools have participated in the programme.

2. As a part of the outreach programme Library Division organized one month (17th May-16th June) internship programme for MLI students of Calcutta University, IFCAI University, Tripura and Netaji Subhas Open University, Kolkata. The staff of the Library delivered lectures, provided guidance and demonstrated the activities of different units. There were 30 Post-Graduate Students of Lib. & Info Sc. & other courses, participated in the internship programme as a part of their curriculum.

3. To commemorate the Azadi Ka Amrit Mahotsav (AKAM) of the Government of India and to comply with the mandate (Promotion and spreading of Rajbhasa Hindi) of the Hindi Cell, Library has organized a week-long Hindi book exhibition at Workers Circulating Library (WCL).

4. 107 records (35 dissertations, 17 question papers, 45 theses, 8 ISI Scientist's Pub., 2 Annual Reports) updated in IR in the last year consisting about 5000 Pages.

5. 15 Journal articles, 4 Book Chapters and 3196 pages of official documents were scanned and supplied to the users.

6. Like each and every year, this year also library staff prepared the biographies of the Convocation Addressee and Special Guest and uploaded both Convocation Address and bio sketch(s) of the speakers and related documents in our Institutional Repositories.

7. During this period the Stock Verification work of the Circulation Unit (book collection) has been completed. The number of Books Bar-coded: 2845, Catalogued: 74, Damaged & Withdrawn from Koha database: 1162, 231 no of books listed for Binding, Approx. 2500 Security tag (RF Tag) were fixed in the book during the process of stock verification.

8. A new policy has been initiated for the submission of doctoral dissertations (awarded by ISI) to the Institutional Repository with a mandate to make the public-funded research available through open access. In this regard, a declaration of the individual researcher is prescribed for execution.

9. A Number of online user awareness programmes were organized.

3.9 COMPUTER AND STATISTICAL SERVICE CENTRE (CSSC) KOLKATA

Head of Unit : **UJJWAL BHATTACHARYA**

Office: 4th Floor, S. N. Bose Bhavan, Indian Statistical Institute, Kolkata - 700108

Research

The Computer and Statistical Service Centre (CSSC) of the Institute is housed at the main campus of the Institute situated in the northern part of the city of Kolkata. This Centre takes care of management, maintenance and support of its entire IT infrastructures and related issues of its users comprising students of its various curriculum, faculty, scientists and administrative staff.

Also, CSSC takes care of IP Telephony and e-library of the Institute, FACT accounting server used by its accounts departments of various centres including outlying ones, Video Conferencing with the help of tools like WebEx or ZOOM. Its service staff worked to provide computational services to its entire strength of faculty and student working remotely during the pandemic period.

It manages a fleet of computational servers which include a GPU server, an Email server, a Web server and several others. The LAN (wired) connections of various Units, Centres, Offices including Hostels, Guest House, Auditoriums, lecture halls etc. as well as their wireless (Wi-Fi) connectivity are managed and maintained by CSSC support staff in a seamless manner.

CSSC manages the website of the Institute. Their staffs take care of updates of the website as when it is needed. Also, it takes care of publishing/announcing information about important events (conferences/ workshops/ schools/ lectures/ meetings etc.), public notices including tenders advertisements for jobs in temporary or permanent positions, achievements and event/ archival pictures of the Institute through display systems placed at the corridors of different buildings in ISI Kolkata campus as well as the website.

Two computing labs at CSSC equipped with a large number of computers are available for their use by the researchers and students of the Kolkata campus of ISI. Practical classes of various regular academic programmes like B. Stat., M. Stat., M. Tech. (CS), M. Tech. (QR & OR), M. S. (QE) etc. are organized in these labs throughout the year. The online teaching facility of the Institute is also being supported by CSSC staff. Regular classes conducted remotely for the students of outlying centres or by the faculties of these centres through video conferencing facilities are managed by CSSC. Additionally, its staffs provides regular assistances for conducting various online meetings including special or periodical meetings of ISI council as well as the academic council of the Institute are arranged and managed by CSSC staff. CSSC has a special examination hall suitable for conducting computer based tests.

CSSC takes the responsibility of bulk purchases of various hardware and software items, their distributions, record keeping, maintenance, supply of certain consumables etc. to meet the common computational needs of its researchers and administrative staff. CSSC often provides technical support and arranges training for the staff employed at various scientific and administrative divisions of the Institute's Kolkata campus.

Major Activities & Associated Resources

Resource	Brief Overview of Resources Available as on 31st March 2023
Servers	CSSC manages a fleet of servers which include (i) CISCO UCS 460M2, (ii) CISCO UCS B460M4 , (iii) TANDBERG MCU 4505, (iv) CISCO UCS C240 M3 S V01, (v) CISCO UCS C210 M2, (vi) CISCO UCS B5108 AC 2 V01 and (vii) SyMeC HPC Server
Virtualization	VMWare 7.0 virtualization configured in two (02) servers to host the web and email services of the Institute.
	LXC container configured in two (02) servers and one (01) gpu server for computational services
IT infrastructures	The IT infrastructures of this Institute include (i) computer labs, (ii) networking facility based on both wired and wireless network architecture, (iii) computational servers supported by several high performance devices, (iv) virtualization of servers, (v) support for super high performance computation based on GPU facilitating machine learning based research studies, (vi) internet facility and its security through firewall, (vii) Email server and Spam filter, (viii) design, updates and regular maintenance of the website, (ix) various operating systems including Microsoft Windows, Linux, (x) compilers of various computer languages including C/C++, JAVA, R, Python, FORTRAN etc., (xi) various software packages which includes R, Matlab and its various Tool Boxes, Mathematica, SPSS etc., (xii) various database packages like MYSQL, PostgreSQL, (xiii) IDRISI (Geological Information System), (xiv) online meeting support through Zoom online video conferencing tool, (xv) SyMeC High Performance Computer (HPC).
Networking	The Networking Infrastructure includes (i)Cisco 7000 series Core Switch, (ii) Cisco Catalyst 2900 series POE and Non-POE switches, (iii) Cisco Express 520 switches, (iv) Cisco 5500 series Wireless Lan Controller, (v) Cisco APs.
Software for use by students, faculty and CSSC	Mathematica, R, FORTRAN, Matlab and its various Tool Boxes, SPSS, MYSQL, PostgreSQL, IDRISI (Geological Information System), Magma, Sage, including programming facilities in Python, C and Java, online meeting support through Zoom online video conferencing tool
IP Telephony	CSSC also takes care of IP Telephony
Video-conferencing	The video conferencing facility is available for participants from different platforms like VC endpoints, personal computers and Smartphone. Its large VC room has state-of-the-art facilities equipped with one smart display and the latest 360 degrees audio capturing system for organization of meetings of various groups such as academic council meetings or administrative meetings, presentations by various individuals like aspiring candidates for its faculty positions, classes for students of its outlying centres, expert's lectures by the faculties of the Institute for attendees from outside the Institute etc. It has also an additional small VC room equipped with limited facilities to accommodate meetings having overlapping schedules Its' support staff extends all technical helps on a regular basis to various groups or individuals through arranging / managing Video Conferences as and when these are needed.
VPN Connectivity	It is maintaining the connection (using Site-to-Site Virtual Private Network, i.e., VPN) with Delhi, Chennai, Tezpur and Bangalore Centres and the Giridih Unit of the Institute. Outlying Centres / Branches of the Institute use this VPN connectivity to utilize the IT infrastructures of CSSC at Kolkata.
Computing Laboratories (No. and capacity)	Lab facilities for all the students of Kolkata Headquarter of the Institute are provided by the CSSC. Practical classes of regular courses like B. Stat., M. Stat., M. Tech. (CS), M.Tech. (Q.R. & O.R.), M.S. (Q.E.), and M. Stat. take place regularly at the computer laboratories of CSSC throughout the year. Certain courses of various streams like B. Stat. (Delhi centre), M.Tech. (CS), PGDSMA etc. are often organized online through video conferencing facility managed by CSSC. It has also facility for conducting Computer Based Tests (CBT) of a group of students of limited number
Disbursal of Desktops/Laptops	The CSSC takes responsibility periodically for making bulk purchases and their distributions, keeping records etc. of Laptop and Desktop computers to meet their requirements of the faculties and administrative workers

Resources acquired

Resource	Brief Overview
Networking	a) 1 Gbps NKN Backbone for Internet Connectivity. b) One Core switch (Cisco Nexus 7009) for L3 networking and DMZ. c) One L3 switch each in all the buildings in the campus connected to the Core switch via Fiber channel. d) Hostels are Connected to the Core Switch via Fiber channel. e) The entire Kolkata campus is covered with Wi-Fi connectivity. f) Servers and storage at CSSC are connected internally with 10Gbps Backbone.
Software for use by students, faculty and CSSC	Matlab, Mathematica, SPSS, SPSS AMOS, Magma, R, Sage including programming facilities in Python, C and Java Zoom Cloud Meeting Education Host Licenses for 20 Users, Zoom Cloud Recording 1 TB Monthly Usage for 1 Year, Zoom Conference Room Connector
IP Telephony	a) IP Telephone Router through which all telephones in Kolkata Campus are routed to BSNL. b) VoIP Telephone System for communication within Kolkata Campus and with Outlying Centres/unit/ Branches through VPN for zero cost Internal Telephone System.
Video-conferencing	a) Five (5) Video Conferencing Systems. b) One Cisco Meeting Server. c) One Zoom Admin licenses with 30 users
Internet Security	a) Firewall/ Proxy Server with packet filtering. b) MAC based Wifi Authentication. c) SSL Certificate for encryption. d) Email Security Appliance for email security
VPN Connectivity	a) Centres/Unit/Branches are Connected with VPN which enable them to utilize the computational facility, FACT server, Library resources and all software resources available in the Kolkata Campus. b) A Linux based Gateway server for users to avail the computational facility from outside the ISI network.
Computing Laboratories (No. and capacity)	a) Two Computing Laboratories in CSSC having total capacity of 54 users and projector connectivity. These rooms are also being used for Computer Laboratory Classes. b) The VC Room is also equipped with Desktop computers for 44 users with networking facility and suitable for online classes and computer based tests.
Disbursal of Desktops/Laptops	Purchased and distributed 40 desktop PCs among the Scientific workers and another set of 20 desktops among the administrative workers for their regular jobs.

3.10 ACADEMIC CENTRES

1 THE CENTRE FOR ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING (CAIML), Kolkata

- **Centre Head:** Prof. Nikhil Ranjan Pal (From 01.04.2022 to 17.10.2022)
  Dr. Prasun Das (From 17.10.2022 to 31.03.2023)
- **Number of Faculties:** Fifteen (15)
- **Number of Non-scientific Workers:** Two (2)
- **Number of Research Scholars: Four (4)**
- **Office:** 4th Floor, S.N. Bose Bhawan, 203 B. T. Road, Kolkata - 700108

2 THE CENTRE FOR RESEARCH ON THE ECONOMICS OF CLIMATE, FOOD, ENERGY AND ENVIRONMENT (CECFEE), Delhi

- **Centre Head:** E. Somanathan (From 01.04.2022 to 31.08.2022)
  Mudit Kapoor (From 01.09.2023 to 31.03.2023)
- **Number of Faculties:** Thirty-one (31); of which more than half are faculty at other institutions such as IISc, IIT-Mumbai, Delhi School of Economics, Institute of Economic Growth, Ashoka University, South Asian University etc. The other seven faculty members from ISI Delhi's Economics and Planning Unit, three Visiting Assistant Professors funded by CECFEE, and two Ph.D. students from ISI Delhi.
- **Number of Scientific Workers:** One (1)
- **Number of Research Scholars:** Three (3)
- **Office:** 7 S.J.S. Sansanwal Marg, Delhi, New Delhi - 110016

3 THE CENTER FOR SOFT COMPUTING RESEARCH (CSCR), Kolkata

- **Centre Head:** SHUBHRA SANKAR RAY
- **Number of Faculties:** Four (4)
- **Number of Non-scientific Workers:** Three (3)
- **Number of Research Scholars:** Thirteen (13); of which six are Ph.D students, five are Post-Docs, one each of Project Assistant and Junior Project Assistant
- **Office:** 1stFioor, R. A. Fisher Bhawan, 203 B. T. Road, Kolkata - 700108

4 R .C. BOSE CENTRE FOR CRYPTOLOGY & SECURITY (RCBCCS), Kolkata

- **Centre Head:** MRIDUL NANDI (Acting Head)
- **Number of Faculties:** Five (5)
- **Number of Scientific Workers:** One (1)
- **Number of Non-scientific Workers:** One (1)
- **Number of Research Scholars:** Six (6)
- **Office:** 203, B T Road, Kolkata – 700108

5 TECHNOLOGY INNOVATION HUB (TIH), Kolkata

- **Centre Head:** ASHISH GHOSH
- **Number of Faculties:** Nineteen (19)
- **Number of Scientific Workers:** Five (5)
- **Number of Non-scientific Workers:** Five (5)
- **Number of Research Scholars:** One (1)
- **Office:** 203 B. T. Road, Kolkata - 700108

1. THE CENTRE FOR ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING (CAIML), KOLKATA

Research

Prof. Nikhil R. Pal, Prof. Sanghamitra Bandyopadhyay, Prof. Utpal Garain, and Dr. Malay Bhattacharyya have developed Machine Learning Models for performing various kinds of cryptanalysis, namely Distinguishing Attack and Differential Cryptanalysis on a number of ciphers. CAIML faculties have offered an Online Weekend-mode 6 month course on "Business Analytics" in association with Jamshedpur Management Association. Prof. Utpal Garain has provided Research Advisory Services to Tata Consultancy Services. Dr. Ujjwal Bhattacharya has completed a consultancy project on "Mentoring MOL-IT towards achievement of improved results in their AI/ML based projects". Dr. Malay Bhattacharyya has developed a machine learning model for the prediction of stages in Duchenne Muscular Dystrophy as a part of the project funded by Google.

Current Areas of Research

Name of Faculty	Research topic(s)	Collaborators (s)
Malay Bhattacharyya	Computation for Social Good, Public Health	B. R. Lakshmi, Molecular Diagnostics, Counseling, Care and Research Center

Projects

Externally-funded Projects

ONGOING PROJECTS

Sl. No	Name of the project	Starting Date	Duration	Principal Investigator(s)	Sanctioned amount (₹)
1	Advanced Machine Learning Techniques for Cryptanalysis (DRDO)	December, 2021	3 Years	Nikhil R. Pal	1,92,13,700/-

COMPLETED PROJECTS

Sl. No	Name of the project	Starting Date	Completion Date	Principal Investigator(s)	Sanctioned amount (₹)
1	AI-guided systematic intervention and prediction of progression in Duchenne Muscular Dystrophy	September, 2021	February, 2023	Malay Bhattacharyya	7,27,500/-
2	A Comprehensive course in Business Analytics (JMA)	May, 2022	December, 2022	Amitava Bandyopadhyay	19,98,000/-
3	Domain knowledge-injected interpretable ECG analytics (TCS)	April, 2022	March, 2023	Utpal Garain	33,21,936/-
4	Mentoring / guiding the MOL-IT team members on issues of ML / AI towards the achievement of improved results in their AI/ML based Projects (MOL-IT)	July, 2021	September, 2022	Ujjwal Bhattacharya	14,00,000/-
5	Training Program on Improvement of Process Capability for Manufacturing of De-sulphurising Reagents Analysis of Usage Data to Understand Product Performance (JAMIPOL)	September, 2022	March, 2023	Amitava Bandyopadhyay	4,00,000/-
6	Improving energy efficiency of vehicles using Statistical/Machine Learning techniques (Altigreen)	April, 2022	November, 2022	Amitava Bandyopadhyay	8,00,000/-

Activities

Sl. no.	Lectures, Workshops, Conferences, Symposiums etc.
	An Interdisciplinary Workshop on Machine Learning for Cryptology (ML4Crypto 2022) during December 15-16, 2022

2. CENTRE FOR RESEARCH ON THE ECONOMICS OF CLIMATE, FOOD, ENERGY AND ENVIRONMENT (CECFEE), DELHI

Research

In April 2022, Dr. K. Vijay Raghavan chaired CECFEE's second Board of Management meeting, commending the center's work. Dr. Mudit Kapoor was appointed as CECFEE Head, and Kanishka Kacker as Deputy Director. E. Somanathan was selected as the 2022-23 Fellow Scholar at the Center for Advanced Study in the Behavioural Sciences (CASBS) at Stanford University. CECFEE also welcomed two visiting assistant professors, Nikita Sangwan and Tanu Gupta, funded by the EfD fund, and Soubhagya Sahoo, funded by the IFMR fund. The Centre also hosted two international researchers. CECFEE researchers presented their work at the EfD Annual Meeting in Tanzania (September 2022) which received a positive response from other researchers in the network. The Centre also received a visit from a three-member team from the EfD's Center Evaluation Expert Committee who praised CECFEE's work and recommended that it continue as an EfD Center. The evaluation report provided valuable recommendations for the Centre. CECFEE submitted multiple multi-year project proposals for external funding in 2022 and has received three new project awards. These projects will help expand CECFEE's research and policy engagements, further its mission, and sustain funding while increasing engagement with external participants. The Climate Change Finance Unit in the Department of Economic Affairs, MoF, has invited CECFEE researchers to contribute to the carbon pricing and climate finance report as India is currently chairing the G20 presidency, and climate finance is a top priority area in the discussions. CECFEE held its 6th annual three-day policy and research workshop in McLeod Ganj, Himachal Pradesh from November 10-12, 2022. Additionally, the Centre hosted Prof. Armon Rezai at the ISI's 17th Annual Conference on Economic Growth and Development, where he gave a plenary talk on "Net Zero and its Implications for Late Industrializers." The talk garnered a lot of interest, particularly from the Master's and PhD students in attendance. CECFEE considers air pollution a crucial priority area, but its researchers have also focused on several other themes, such as health, gender, food, agriculture, waste, and policy design. CECFEE organized two in-person seminars and one virtual seminar. The Centre's researchers also published numerous articles in peer-reviewed national and international journals, and contributed to the popular press, shaping conversations around climate change.

Projects

Externally-funded

NEW PROJECTS

Sl. No.	Name of the project	Starting Date	Duration	Principal Investigator (s)	Sanctioned amount (₹)
1.	Digital Labor and Women's Economic Empowerment project[2]	January, 2023	3 years	Farzana Afridi	1,63,51,850/-
2.	Carbon Pricing Research to support the Department of Economic Affairs, Ministry of Finance	February 2023	9 Months	E. Somanathan	$200,000

ONGOING PROJECTS

Sl. No.	Name of the project	Starting Date	Completion Date	Principal Investigator (s)	Sanctioned amount (₹)
1	Electricity reliability and electric cooking: What can we learn from cross-national comparisons? [1]	January, 2022	January, 2024	E. Somanathan	59,00,431/-
2	Optimal emissions pricing in LMICs accounting for household emissions from traditional cooking[1]	January, 2022	January, 2024	E. Somanathan	67,73,500/-
3	Distributional effects of the COVID-19 lockdowns in India[1]	January, 2021	Extended till December 2023	R. Somanathan (Co-PI Siva Athreya)	48,82,680/-
4	Human Casualties and Wildlife Conservation in India (Partnership Development Grant with University of British Columbia)	27 March, 2020	3 Years	E. Somanathan	$166,000
5	Effects of heat on the incomes of workers in the informal sector[1]	June, 2019	Extended till Dec 2023	Saudamini Das	35,49,494/-
6.	Emissions Pricing for Development Program (EPFD)[1]	January, 2021	3 Years	E. Somanathan	1,95,97,488/- (2022)

COMPLETED PROJECTS

Sl. No.	Name of the project	Starting Date	Duration	Principal Investigator (s)	Sanctioned amount (₹)
1	Electric Stoves as a Solution to Household Air Pollution: Evidence from India[1]	01 January, 2017	31 September, 2022	E. Somanathan	41,06,240/-

1Environment for Development (EfD), Sweden

2 Lead at Financial Management & Research (IFMR) – Supported by Bill and Melinda Gates Foundation

Activities

Sl. No.	Lectures, Workshops, Conferences, Symposiums etc.
1	Kanishka Kacker & Shivani Wadehra participated in an online teacher training course offered by the EfD Initiative in collaboration with Teton Science Schools in June 2022
2	E. Somanathan has been part of EfD's online teaching on policy instruments course and the International climate exercise
3	16th Environment for Development Initiatives (EfD) – EpfD session at the Annual Conference, 22-26th September, 2022, Tanzania
4	6th CECFEE Annual Research & Policy Workshop (10-12 November, 2022) at McLeod Ganj, Himachal Pradesh
5	Hosted Maria del Pilar Lopez, Coordinator of the EfD collaborative Women in Environmental Economics for Development, WinEED – meet with CECFEE researchers to discuss their work and issues that women in Economics are facing
6	EpfD collaborative researcher, Raavi Aggarwal from MCC- Berlin, visited the centre during winter 2022 to work on the study "Optimal emissions pricing in LMICs accounting for household emissions from traditional cooking
7	Dr. Tarun Khanna, a post-doctorate researcher working in the field of energy and climate policy at the MCC-Berlin, also spent a month and interacted with the researchers

3. CENTER FOR SOFT COMPUTING RESEARCH (CSCR), KOLKATA

Research

The Center for Soft Computing Research: A National Facility was established at the Indian Statistical Institute (ISI), Kolkata, in 2004 by the Department of Science & Technology (DST), New Delhi under its prestigious IRHPA program. The Center has been declared in 2010 an Associate Institution of ISI. Research activities are conducted in enriching as well as developing new soft computing technologies in the framework of modern AI and data science. These include granular computing, computational theory of perception, theory of cognition, cybernetics, information processing in plants and small animals, and machine-mind architecture, with fore-front application areas like granular data mining, granular deep learning, cognitive vision, soft deep architecture, video analytics, social network analysis, bioinformatics, pollution analytics, assistive technology, and computing with words.

Current Areas of Research

Name of Faculty	Research topic(s)	Collaborators (s)
Ashish Ghosh	Deep Learning; Data Science and Machine Learning, Automated Pollution Prediction and Rainfall Prediction	Jonathan H. Chan, King Mongkut's (University of Technology Thonburi, Thailand), T. Veerakumar, (NIT Goa), R. Roy, GITAM School of Technology, Hyderabad, B. N. Subudhi, (IIT Jammu) , S. Dehuri, (F. M. University, Balasore, Odisha), S. Ghosh (nee De) (Jadavpur University, Kolkata), A. Datta (LNM Institute of Information Technology, Jaipur), A. Mondal, (IIT, Hyderabad)
Kuntal Ghosh	Cognitive Science, Cybernetics, Information processing in plants and small animals, Computational Biology, Psychophysics, Graph Manipulation Algorithms, Information Technology for Accessibility and Health Care Applications	Anjan Chowdhury, Keerthi S. Chandran, Amrita Mukherjee, Sandipa Roy, Barnini Bhattacharyya, Shibsankar Roy, Bijay Bal (Retd. Saha Institute of Nuclear Physics), Chandra Das (NSEC), Shilpi Bose (NSEC), Arpan K Maiti, Swarup Chattopadhyay (XIM), Debasis Majumdar (CDAC), Soma Mitra (CDAC), Sanmoy Bandyopadhyay (ARIES)

Name of Faculty	Research topic(s)	Collaborators (s)
Sankar K. Pal	Granular Mining, Granular Deep Learning, Computational Theory of Perception, Rough Sets, Z-numbers, Safety Analytics, Pollution and Climate Analytics, Video Analytics, Human Detection and Tracking in Human-Robot Coexisting Environments: Remote Sensing, and Soft Computing.	A. Pramanik. J. Maiti (IIT KGP), P. Mitra (IIT KGP, A. Garg (IIT KGP), S. Das (IIT KGP), A. Chatterjee (JU), A. Rakshi (JU)t, Romi Banerjee (IIT Jodhpur), Debasis Das (IIT Jodhpur), Jayanta.K. Pal (Jio Platforms, Reliance Industries Ltd.), Pritam Paral, Dasari Arun Kumar, Debashree Dutta, R. Bhaduri, S. Roy, Saroj Meher Chandrani Chatterjee
Shubhra Sankar Ray	Bioinformatics, Computational Biology, Neural Networks, Soft Computing	Joginder Singh, Jayanta K. Pal (Jio Platforms, Reliance Industries Ltd.), Sukriti Roy

Projects

Externally-funded Projects

NEW PROJECTS

Sl. No	Name of the project	Starting Date	Duration	Principal Investigator(s)	Sanctioned amount (₹)
1	**(DST CSRI Funding)** Understanding the Impact of 'Invasive' and 'Non-Invasive' Stimuli on Cognitive Intelligence of Adult Zebrafish	27th March, 2023	3 Years	Kuntal Ghosh	13,60,410/-

ONGOING PROJECTS

Sl. No	Name of the project	Starting Date	Duration	Principal Investigator(s)	Sanctioned amount (₹)
1	SERB National Science Chair	1st August, 2020	3 years (extendable by 2 years)	Sankar K. Pal	1,32,00,000/-
2	Networking on Data Science and Machine Learning under DST-ICPS Programme	23rd January, 2019	3 years (extended till September, 2023)	Ashish Ghosh	83,47,400/-
3	Coordination of Cluster Projects under Data Science Research	23rd January, 2019	3 years (extended till 31st March, 2023)	Ashish Ghosh	58,90,000/-
4	(DST-WOS-B funding) Towards development of assistive technology for Indian sign language: cognitive analysis and application development	4th October, 2021	3 years	Sandipa Roy (Mentor: Kuntal Ghosh)	29,31,768/-
5	(ICMR Funding) Unearthing the heterogeneity in virulence using both ICMR COVID-19 testing data and other primary data: A Data Mining Approach & Exploratory study from West Bengal	13th April, 2022	2 Years	Kuntal Ghosh	15,35,020/-

COMPLETED PROJECTS

Sl. No	Name of the project	Starting Date	Duration	Principal Investigator(s)	Sanctioned amount (₹)
1	(CSR Funding through ISI) Status of virulence of COVID-19 in urban population of Eastern India: An empirical study from Kolkata Municipal Corporation and its North suburb	30th September, 2021	1 Year	Kuntal Ghosh	4,00,000/-
2	(Indo-US Science & Technology Forum (JUSSTF) Funding) Center for Distributed Deep Learning Framework for Classification	13th September, 2019	2 years (extended till September 2022)	Ashish Ghosh	32,87,100/-

Activities

Sl. no.	Lectures, Workshops, Conferences, Symposiums etc.
1.	Visit of Prof. Emmett J. Ientilucci, Rochester Institute of Technology, USA as part of Indo-US Virtual Networked Center Funded Project titled "Center for Distributed Deep Learning Framework for Classification" 11th-16th August, 2022

4. R C BOSE CENTRE FOR CRYPTOLOGY & SECURITY (RCBCCS), KOLKATA

Research

The Centre aims at the promotion of interdisciplinary research in Mathematics, Computer Science and Statistics towards furtherance of teaching, research as well as training and development in Cryptology and Cyber Security. It acts as a national hub for cryptographic requirements, cutting-edge research activities and indigenous capacity building in all relevant fields of study. Major activities of the Centre include teaching, training and research in Cryptology and Security. The Centre promotes sustained collaboration in focused research areas, and serves as a meeting point for eminent scholars. It also conducts training programs targeted to produce a critical mass of experts to cater to the national and international requirements in this niche area.

Current Areas of Research

Name of Faculty	Research topic(s)	Collaborators (s)
Mridul Nandi	Symmetric Cryptography	Ritam Bhaumik (French Institute for Research in Computer Science and Automation), Avik Chakraborti (TCG Centres for Research and Education in Science and Technology, Kolkata, India), Nilanjan Datta (TCG Centres for Research and Education in Science and Technology, Kolkata, India), Cuauhtemoc Mancillas-López (Computer Science Department, CINVESTAV-IPN, Mexico), Ashwin Jha (CISPA Helmholtz Center for Information Security, Saarbrücken, Germany), Jakub Breier (Silicon Austria Labs, Graz, Austria), Takanori Isobe (University of Hyogo, Kobe), Anubhab Baksi (Nanyang Technological University, Singapore), Avijit Dutta (Institute for Advancing Intelligence, TCG-CREST), Nilanjan Dutta (Institute for Advancing Intelligence, TCG-CREST), Benoît Cogliati (Thales DIS France SAS, Meudon, France), Jacques Patarin (Laboratoire de Mathématiques de Versailles, Versailles, France, Thales DIS France SAS, Meudon, France), Yu Long Chen (KU Leuven, Belgium), Yevgeniy Dodis (New York University, USA), Ashwin Jha (CISPA Helmholtz Center for Information Security, 66123 Saarbrücken, Germany), Eik List (Bauhaus-Universität Weimar, Weimar, Germany), Tapas Pandit (IIIT, Andhra Pradesh), Risiraj Bhattacharyya (School of Computer Science, University of Birmingham, Birmingham, U.K)
Goutam Paul	Quantum Information / Computing / Cryptography, Symmetric Cryptanalysis	Ritabrata Sengupta (IISER, Behrampur), Dhiman Saha (IIT Bhilai)
Debrup Chakraborty	Symmetric Encryption Schemes; Efficient Implementations (hardware and software) of Cryptographic Schemes	Cuauhtemoc Mancillas-López (Instituto Politécnico Nacional (IPN), CINVESTAV, Mexico City, Mexico)
Anisur Rahaman Molla	Security in Distributed Computing/ Byzantine Computation; Mobile Agents/ Robotics; Distributed Graph Algorithms	Gopal Pandurangan (University of Houston, Texas, USA), John Augustine (IIT Madras), Kaushik Mondal (IIT Ropar), William K. Moses Jr. (Durham University, UK), Yadu Vasudev (IIT Madras), Ajay D. Kshemkalyani (UI, Chicago, USA), Gokarna Sharma (Kent State University, USA),
Sabyasachi Karati	Elliptic-Curve Cryptography, Hash-based Cryptography, Isogeny-based Cryptography, Lattice-based Cryptography	Prof. Rei. Safavi-Naini (University of Calgary, Canada)

Projects

Externally-funded Projects

COMPLETED PROJECTS

Sl. No	Name of the project	Starting Date	Completion Date	Principal Investigator(s)	Sanctioned amount (₹)
1	NTRO Project (NTRO Funded)	November, 2019	November, 2022	Mridul Nandi	8,98,00,000/-
2	Distributed Computation in Dynamic Networks (DST Funded)	1st November, 2016	31st October, 2022	Anisur Rahaman Molla	19,00,000/-

Activities

Sl. no.	Lectures, Workshops, Conferences, Symposiums etc.
1.	Training programme (Short Course on Cryptology and Security) for WESEE and Indian Navy from November 07, 2023 to December 23, 2023).
2.	Training programme for National Technical Research Organisation (NTRO) from January 01, 2023 to February 02, 2023.

5. TECHNOLOGY INNOVATION HUB (TIH), KOLKATA

Research

The Technology Innovation Hub, IDEAS (Institute of Data Engineering, Analytics and Science Foundation), is a Section-8 not-for-profit company incorporated at the Indian Statistical Institute Kolkata under a National Mission on Interdisciplinary Cyber Physical Systems (NM-ICPS) of the Government of India. It is an Innovation Hub in the technology vertical "Data Science, Big Data Analytics, and Data Curation" supported by the Department of Science and Technology (DST), Govt. of India.

Current Areas of Research

Name of Faculty	Research topic(s)	Collaborators (s)
Umapada Pal	Project on video surveillance.	Abhinav Dwivedi
Raghunath Chatterjee	Development of a portable low-cost point of care device on a simple paper strip	
Joydev Chattopadhyay	Building integrated smart NLD prototype for human-animal conflict mitigation	

Projects

Externally-funded

NEW PROJECT

Sl. No.	Name of the project	Starting Date	Duration	Principal Investigator(s)	Sanctioned amount (₹)
1.	Building integrated smart NLD prototype for human-animal conflict mitigation	January, 2023	3 years	Joydeb Chattapadhyay	51,28,000/-

ONGOING PROJECT

Sl. No.	Name of the project	Starting Date	Duration	Principal Investigator(s)	Sanctioned amount (₹)
1	Detecting behavioural health disorders of older adults using self-supervised learnings and causal reasoning	15th September, 2022	3 years	Sandip Chakrabarty	69,90,400/-
2	Learning time varying network structure from epidemiological data	13th September, 2022	2 years	Ashish Ranjan Hota	38,00,000/-
3	Network adaptive traffic signal in IoT enabled smart cities.	14th September, 2022	1 year and 6 months	Dhish Kumar Saxena	52,92,000/-
4	Data driven learning to cache in large network.	13th September, 2022	3 years	Abhishek Sinha	30,00,000/-
5	Software reliability and security risk assessment: Modelling and Algorithm.	13th September, 2022	3 years	Sushmita Ghosh	66,00,000/-
6	Integration of multiomics data using deep neural networks: Feature extraction, Association mining, big data realization and privacy preservation.	16th September, 2022	3 years	Rajat K. De	40,00,000/-
7	Data curation for video-surveillance and precision agriculture data sets	19th July, 2022	3 years	Vahida Attar	80,00,000/-
8	Developments of Data science Methods for cyber physical system.	26th July, 2022	3 years	S.K. Ghorai	1,00,00,000/-

Sl. No.	Name of the project	Starting Date	Duration	Principal Investigator(s)	Sanctioned amount (₹)
9	Building integrated smart NLD prototype for human-animal conflict mitigation	January, 2023	3 years	Joydev Chattopadhyay	51,28,000/-
10	Development of a portable low cost point of care device on a simple paper strip	2nd November, 2022	6 months	Raghunath Chatterjee	4,60,000/-
11	Project on Video surveillance	6th June, 2022	1 years	Umapada Pal and Ashish Ghosh	25,00,000/-

Activities

Sl. no.	Lectures, Workshops, Conferences, Symposiums etc.
1	International Workshop on Machine Intelligence: Reliability Analysis and Applications
2	International Workshop on Remote Sensing and Applications
3	Workshop on 21-cm Cosmology in the Square Kilometre Array Era
4	International workshop on Machine learning and Data Science

Chapter 4

Awards and Recognitions

9

Science Academy Fellowships

National : 6
International : 3

16

Awards

Padma Shri (Science and Technology)	: 1
American Journal of Agricultural Economics (AJAE) Outstanding Article Award	: 1
Informatics Outstanding Researcher Award 2023	: 1
Ganit Ratna, Award by Professor Thakare Gaurav Sanstha and MGM University	: 1
Devi Award - New Indian Express	: 1
Anita Memorial Innovative Scientist Award, Indian Academy of Health Psychology	: 1
Editor's Selection – Best Paper Award from Applied Soft Computing Journal, Elsevier	: 1
Others	: 9

AWARDS & RECOGNITIONS

Members of the Faculty of this Institute have been recognized, both nationally and internationally, for their contributions to research and other academic activities. Like every other year, some faculty members have received prestigious awards and honours, in recognition of their excellence in their areas of expertise. Many of them have been elected members of learned societies while many others have taken up the academic responsibility of serving the editorial board of prestigious national and international peer reviewed journals. Their achievements are highlighted below.

4.1 SCIENCE ACADEMY FELLOWSHIPS

(National and International)

EUROPEAN ACADEMY OF SCIENCES & ARTS
Sankar K. Pal, Emeritus Professor, CSCR, Kolkata — 2022

INDIAN NATIONAL SCIENCE ACADEMY (INSA)
Debashish Goswami, SMU, Kolkata — 2023

INDIAN ACADEMY OF SCIENCES, BANGALORE
Sanghamitra Bandyopadhyay, MIU, Kolkata 2023

NATIONAL SCIENCE ACADEMY OF INDIA, PRYAGRAJ
B V Rajarama Bhat, SMU, Bangalore — 2022-Lifetime

CENTER FOR ADVANCED STUDY IN THE BEHAVIORAL SCIENCES, STANFORD UNIVERSITY
E. Somanathan, EPU Delhi — September 2022 – May 2023

EUROPEAN INSTITUTE OF INNOVATION & TECHNOLOGY (EIT) FOOD INNOVATOR FELLOWSHIP 2022
Hari Charan Behera, SRU, Kolkata — 2022

INDIAN SOCIETY MEDICAL STATISTICS
Saurabh Ghosh, HGU, Kolkata — 2022

INDIAN NATIONAL ACADEMY OF ENGINEERING (INAE)
Umapada Pal, CVPR, Kolkata — 2022

INDIAN SCIENCE ACADEMY (FASc), FELLOW
B. S. Daya Sagar, SSIU Bangalore — 2022

4.2 AWARDS

PADMA SHRI AWARD (SCIENCE AND ENGINEERING)

Sanghamitra Bandyopadhyay, MIU, Kolkata : 2022

THE BETHUNE PRIZE: BETHUNE COLLEGE FOR CONSISTENT ACADEMIC PERFORMANCE

Neena Gupta, SMU, Kolkata : in Mathematics 2022-2023

GANIT RATNA, AWARD By PROFESSOR THAKARE GAURAV SANSTHA AND MGM UNIVERSITY

Neena Gupta, SMU, Kolkata : 2022-2023

AMERICAN JOURNAL OF AGRICULTURAL ECONOMICS (AJAE) OUTSTANDING ARTICLE AWARD

Debayan Pakrashi, ERU, Kolkata : 2023

INFORMATICS OUTSTANDING RESEARCHER AWARD 2023

Biswanath Dutta, DRTC, Bangalore : February 2023

MTSR 2022 BEST PAPER AWARD

Biswanath Dutta, DRTC, Bangalore : November 2022

EDITOR'S SELECTION – BEST PAPER AWARD FROM APPLIED SOFT COMPUTING JOURNAL, ELSEVIER

Swagatam Das, ECSU, Kolkata : 2022

SHE AWARD - THE TELEGRAPH

Sanghamitra Bandyopadhyay, MIU, Kolkata : 2022

DEVI AWARD - NEW INDIAN EXPRESS

Sanghamitra Bandyopadhyay, MIU, Kolkata : 2022

ANITA MEMORIAL INNOVATIVE SCIENTIST AWARD, INDIAN ACADEMY OF HEALTH PSYCHOLOGY

Debdulal Dutta Roy, PRU, Kolkata : 2022

PROF. G P THAKUR BEST PAPER AWARD, 4TH A.P.S.P.A. INTERNATIONAL CONFERENCE

Debdulal Dutta Roy, PRU, Kolkata : March 2023

1ST BEST PAPER AWARD IN THE INTERNATIONAL SYMPOSIUM ON "DRIVING EXCELLENCE THROUGH QUALITY MANAGEMENT" By THE INDIAN SOCIETY FOR QUALITY (ISQ)

Ashis Kumar Chakraborty and Subrata Rath, SQC & OR: September 2022

3RD JOINT BEST PAPER AWARD IN THE INTERNATIONAL SYMPOSIUM ON "DRIVING EXCELLENCE THROUGH QUALITY MANAGEMENT" By THE INDIAN SOCIETY FOR QUALITY (ISQ)

Ashis Kumar Chakraborty, SQC & OR, Kolkata : September 2022

BEST PAPER AWARD

Kalpana. T.M., Library, Chennai Centre : SALIS 2022

BEST PAPER AWARD

K. C. Satpathy, Library, Kolkata : ICKHI 2022

REGISTRATION SCHOLARSHIP

K. C. Satpathy, Library, Kolkata : Registration Scholarship in Northwest Interlibrary Loan & Resource Sharing Conference, 2022

4.3 HONOURS & RECOGNITIONS

ANISUR RAHAMAN MOLLA, CSRU, Kolkata

Program Committee Chair, 19th International Conference on Distributed Computing and Intelligent Technology, ICDCIT 2023; Jan 18-22, 2023

ARUP BOSE, SMU, Kolkata

Adjunct Professor, School of Mathematics and Statistics, University of Hyderabad; Jul 01, 2020-Jul 31, 2022

Member, National Committee for IMU; Jan 2020 - Dec 2023

Council Member, INSA; Jan 2023-Dec 2025

INSA nominated Member, Science Education Panel of the three National Academies; 2022-2024

Board Member, National Board for Higher Mathematics; Apr 01, 2019-

Executive Committee Member, Govt. of West Bengal, State Council of Science & Technology; Jul 2021-2024

Core Member of Policy Advisory Committee (PAC), SERB-SUPRA; Aug 01, 2022-Jul 31, 2024

Member of PAC, National Science and Technology Management Information System (NSTMIS), DST; May 13, 2022-2025

Chairman of PAC for Mathematical Sciences, SERB-DST; Jul 2021-2024

Domain Expert, Scheme for Transformational and Advanced Research in Sciences (STARS)DST; Mar 2019 onwards

ASHISH GHOSH, MIU & CSCR, Kolkata

Fellow, The Asia-Pacific Artificial Intelligence Association (AAIA); 2022

B. S. DAYA SAGAR, SSIU, Bangalore

Distinguished Lecturer, IEEE Geoscience and Remote Sensing Society (GRSS), 2020-2023

Member, Honors and Recognition Committee (HRC), American Geophysical Union (AGU); 2022-2023

School Board Member, University of Hyderabad; 2022-2025

CHARANYA RAVI, SMU, Bangalore

Ramanujan Fellowship, SERB; Feb 01, 2023

CHETAN GHATE, EPU Delhi

Director, Institute of Economic Growth; 2022-2025

Keynote Address, Indian Economic Association; Dec 27, 2022

Keynote Lecture, IIM Calcutta-Ieg-Dea Akam Workshop. Contemporary Issues in The Indian Economy. IIM Calcutta, Joka; Feb 18, 2023

DEBDULAL DUTTA ROY, PRU, Kolkata

Key Note Speaker, International Conference on Future Business and Technology organised by CSIBER, Kolahapur; Dec 09, 2022

Session Chair, 27th International and 58th National Conference of the Indian Academy of Applied Psychology, Indian Academy of Applied Psychology; Feb 15-17, 2023

Key Note Speaker, National Seminar on 'IMPORTANCE OF PSYCHOLOGICAL WELL-BEING ON HEALTH, Dept. of Psychology, Manipur University; Mar 24, 2023

E. SOMANATHAN, EPU, Delhi

Advising the Department of Economic Affairs, Ministry of Finance, on GHG mitigation and negotiations in the G20, Ministry of Finance, Department of Economics Government of India, 2022-2023

Invited to work on monitoring and evaluation with the Energy Management Centre, Government of Kerala, India, on solar rooftop and electric cooking uptake, Mar 2023 onwards

FARZANA AFRIDI, EPU, Delhi

Lead Academic, International Growth Centre (India program); 2020-22

Non-resident Fellow, Centre for Development Economics and Sustainability, Monash University; 2022-

Jiban K. Pal, Library, Kolkata

Expert Committee Member, Re3data~CoREF Project (#422587133) of the German Research Foundation (DFG); Jul 2022–2024

Member, 40th Anniversary Commemorative Publication Committee, Association for Information Science and Technology (ASIS&T), USA; Oct 2022

M. Z. ANIS, SQC & OR, Kolkata

Vice-President (Membership & Outreach), International Society for Business & Industrial Statistics; 2021-23

M. KRISHANMURTHY, DRTC, Bangalore

Editorial Board Member, Journal of Information System and theory (JISTAP) South Korea, Kolar; Since 2022

MADHURA SWAMINATHAN, EAU, Bangalore

Member, Board of Trustees, International Rice Research Institute, Los Banos, the Philippines; 2022-24

Chair, Research Advisory Committee, ICAR-Central Institute for Women in Agriculture; 2022-25

Member, Council of Advisors, World Food Prize Foundation; 2022-24

MONISANKAR BISHNU, EPU, Delhi

Research Associate, The Centre for Applied Macroeconomic Analysis (CAMA), the Australian National University (ANU), Australia; Since May 2020

Affiliate, the Australian Research Council (ARC) Centre of Excellence in Population Ageing Research (CEPAR); Apr 2020 - Onwards

NILADRI SEKHAR DASH, LRU, Kolkata

Language Expert, Bharatiya Bhasha Samiti, Ministry of Education, Govt. of India; Feb 2023

Language Expert, Commission of the Scientific and Technical Terms (CSTT), Ministry of Education, Govt. of India; Jan 2023

Project Reviewer, Indian Knowledge Systems, AICTE, Govt. of India; Nov 2022

Panel Member, UGC-NET 2022: National Testing Agency (NTA), Govt. of India; Sep 2022

Expert Committee Member, CIIL, Mysore, Ministry of Education, Govt.of India; Aug 2022

Board of Studies Member, Mizoram University, Aizawl-796004, Mizoram, India; 2023-2026

External Expert, Selection Committee of the School of Languages and Linguistics, Jadavpur University, Kolkata; 2023

Board of Studies Member, MA Linguistics Programme, Dept of Linguistics, Central University of Rajasthan, Rajasthan, India; 2022-2024

External Expert of RAC for PhD program, School of Humanities, Management & Social Sciences, The Neotia University, Kolkata; 2022-2024

NIKHIL R PAL, ECSU, Kolkata

Elected Board Member, European Society for Fuzzy Logic and Technology (EUSFLAT); 2021-2023

NEENA GUPTA, SMU, Kolkata

Invited Sectional Speaker at ICM 2022 in the sections ``Algebra'' as well as ``Algebraic and Complex Geometry'; 2022

Biography included in the book Vigyan Vidushi published by Vigyan Prasar, an autonomous organisationof the Department of Science and Technology (DST), Govt. of India, Vigyan Prasar, an autonomous organisation of the Department of Science and Technology (DST), Govt. of India; On the National Science Day 2023.

PARTHA PRATIM HALDER, Reprography and Photography Unit, Kolkata

Honourary PESGSPC, PASCAL English School and Greek School Photographic Club; Sep 2022

PESGCPC Grand Progress Award - GPA.PESGSPC, PASCAL English School and Greek School Photographic Club; Sep 2022

Accepted Photograph (Circle) in the International Photography Competition, namely the 17th FIAP World Cup for Clubs, Federation Internationale de L'Art Photographique; 2022

PIYALI KARMAKAR, Library, Kolkata

Special Guest from WIE, Kharagpur Section, IEEE Meet 2.0,2022; Sep 29, 2022

RAGHUNATH CHATTERJEE, HGU, Kolkata

Executive Council Member, Indian Society of Human Genetics; Jan 2023

RABINDRANATH JANA, SRU, Kolkata

Member of the Ph.D. Advisory Committee, RKMVERI, Narendrapur; 2022

SANGHAMITRA BANDYOPADHYAY, MIU, Kolkata

Fellow, The Asia-Pacific Artificial Intelligence Association (AAIA), May 2022

SUSHMITA MITRA, MIU, Kolkata

Fellow, The World Academy of Sciences (TWAS); 2022

Fellow, The Asia-Pacific Artificial Intelligence Association (AAIA); Since Jul 01, 2021

SUSMITA SUR-KOLAY, ACMU, Kolkata

Featured in INAE Women Engineers of India, vol. 1, INAE; 2023

TAPAS BASU, Reprography and Photography Unit, Kolkata

26th National Photography Competition 2022-2023, Title of the Photograph "Kargil War Memorial", Theme "AZADI KA AMRIT MAHOTSAV " , Selected in 1st judging, Gujrat State Lalit Kala Academy; 2022-2023

UMAPADA PAL, CVPRU, Kolkata

Fellow Committee Chair, International Association for Pattern Recognition (IAPR); 2022-2024

4.4 MEMBERSHIPS

ABHAY GOPAL BHATT, SMU, Delhi

Board Member	:	National Board for Higher Education;

ABHIROOP MUKHOPADHYAY, EPU, Delhi

Member	:	The Indian Econometric Society,
		American Economic Association,

ABHIK GHOSH, ISRU, Kolkata

Regular Membership	:	International Statistical Institute (ISI);
		Institute of Mathematical Statistics (IMS);
		International Society of Clinical Biostatistics (ISCB);
Life-Membership	:	Bernoulli Society (BS);
		International Biometric Society (IBS) – Indian Region;
		Indian Science Congress Association;

ANISUR RAHAMAN MOLLA, CSRU, Kolkata

Professional Member	:	Association of Computing Machinery;

ARUP BOSE, SMU, Kolkata

Life Member	:	Bernoulli Society for Mathematical Statistics and Probability, Netherlands;
		International Indian Statistical Association, USA
		Institute of Mathematical Statistics, USA
		Calcutta Statistical Association;
		Cryptology Research Society of India;
		Indian Mathematical Society;
		Indian Society for Probability and Statistics
		Indian Statistical Association;
		Indian Econometrics Society;
Elected Member	:	International Statistical Institute;
Member	:	American Mathematics Society, USA;

ARUNAVA GOSWAMI, AERU, Kolkata

Life Membership	:	Indian Society of Plant Pathologists;
		National Academy of Biological Sciences;
		Indian Society of Plant Physiology;
		Indian Physical Society;
		Indian Society of Citriculture;
		Association of Microbiologists of India;
		Society for Biotechnologists;

ARIJIT DEBNATH, GSU, Kolkata

Member	:	Geological Society of India;

ASHISH GHOSH, CSCR, Kolkata

Assessor	:	National Assessment and Accreditation Council (NAAC);
Member	:	Governing Body of Asia Pacific Neural Network Society (APNNS);
Coordinator	:	IEEE Geoscience and Remote Sensing Society Chapters;
Member	:	Academic Council, as an Eminent Educationist, of Banasthali Vidyapith, Jaipur, India;
Research Advisor	:	Nan Yang Academy of Sciences, Singapore;

ARUP K. DAS, SQC & OR, Kolkata

Reviewer	:	MathSciNet;
Member	:	arXiv forum of Cornell University;

BISWANATH DUTTA, DRTC, Bangalore

External Member	:	Doctoral Committee, IIIT Dharwad;
Organizing and Programme Committee Member	:	IEEE International Conference on Semantic Computing;
Program Committee Member	:	International Conference on Metadata and Semantics Research;

B. S. DAYA SAGAR, SSIU, Bangalore

Life Member	:	International Association of Mathematical Geosciences (IAMG);
Senior Member	:	IEEE;
Member	:	American Geophysical Union (AGU);
		American Association of Geographers;
Fellow	:	Royal Geographical Society – London;

JAGADISH, SQC & OR Unit, Bangalore

Associate Member	:	Institute of Engineers India;

DARPA SAURAV JYETHI, TASU, North-East Centre, Tezpur

Member	:	Diversity Committee, International Society of Exposure Science;

DEBASIS MISHRA, EPU, Delhi

Elected Council Member	:	Game Theory Society,

DEBARATI MUKHERJEE, GSU, Kolkata

Life Fellow	:	Palaeontological Society of India, Lucknow;
		Geological Society of India, Bangalore;
Member	:	The Palaeontological Association, UK;
		The Society of Vertebrate Paleontology, USA;

DEVIKA P. MADALLI, DRTC, Bangalore

Governance Board Member	:	Dryad;
Technical Advisory Board	:	Research Data Alliance;

DHURJATI PRASAD SENGUPTA, GSU, Kolkata

Member	:	Board of Studies, Department of Geology, Presidency University, Kolkata;
		Undergraduate Board of Studies, Geology, University of Calcutta, Kolkata;
		Ph. D, Committee, Department of Geology, Presidency University;
		Ph. D, Committee, Department of Geology, University of Calcutta;

E. SOMANATHAN, EPU, Delhi

Member	:	Economic Advisory Board, Environmental Defence Fund, NY,
		The Lancet COVID-19 Commission Task Force on Green Recovery
		Climate Change Research and Policy Network of the CEPR (Centre for Economic Policy Research), London,
		SANDEE (South Asian Network for Development and Environmental Economics),
Invited Researcher	:	K-CAI research network for a renewable three-year term, King Climate
		Action Initiative (K-CAI),

FARZANA AFRIDI, EPU, Delhi

Member Editorial Board	:	Ideas for India (IGC-India Central blog);
		'Sarvekshana' - the official journal of the National Sample Survey Organization of India, Ministry of Statistics and Program Implementation;
		The Indian Journal of Labour Economics;
Member	:	International Union for the Scientific Study of Population's (IUSSP) Panel on Population, Poverty and Inequality (PoPovIn);
		Steering Group, International Growth Centre;

GOUTAM KUMAR PAUL, CSRU, Kolkata

Professional Member	:	Association of Computing Machinery;
Senior Member	:	Institute of Electrical and Electronics Engineers;
Life Member	:	Indian Statistical Institute Society. Life Member;
		Cryptology Research Society of India;

JIBAN K. PAL, Library, Kolkata

Life member	:	Research Data Alliance (RDA);

KANISHKA KACKER, EPU, Delhi

Executive Council Member	:	Indian Society for Ecological Economists,

KUNTAL GHOSH, MIU & CSCR, Kolkata

Project Review Committee	:	AgriEnICS Grand Challenge On Electronics and ICT Applications In Agri, Environment, Ministry of Electronics and IT (MeitY), Government of India;
Member	:	Board of Studies (Computer Application), North-eastern Hill University;

KALPANA . T.M., Library, Chennai

Life Membership	:	SALIS;
		MALA;

KISHOR CHANDRA SATPATHY, Library, Kolkata

Member	:	Open Access India;
		South Asian Librarian Advisory Board of Cambridge University Press;
Executive Council Member	:	ILA;
Library Committee Member	:	Netaji Subhas Open University;
Chief Technical Advisor	:	Journal of the Indian Anthropological Society;
Committee Member	:	Book Selection & Price Negotiation committee, National Library, Kolkata;
External Expert and Evaluator	:	Department of Library and Information Science, Calcutta University;

M. Z. ANIS, SQC & OR, Kolkata

Member	:	Basic Standard Sectional Committee PGD 01, Bureau of Indian Standards;

M. KRISHNAMURTHY, DRTC, Bangalore

President	:	Karnataka State Library Association, New Delhi;

MADHURA SWAMINATHAN, EAU Bangalore

Member	:	Statistical Commission, Government of Kerala;
		Governing Body, Gulati Institute of Finance and Taxation, Thiruvananthapuram;

MONALI MITRA PALADHI, Library, Kolkata

Life & GB Member	:	IASLIC, Indian Association of Special Libraries and Information Centres;
Life Member	:	Society for the Advancement of Library and Information Science;
		Bengal Library Association;
Member	:	The Research Data Alliance (RDA), US;

MUDIT KAPOOR, EPU, Delhi

Member	:	Technical Advisory Group at Niti Aayog of National Data Analytics Platform project,
		Technical Advisory Group at Niti Aayog of District Investment Potential project,

MALAY BHATTACHARYYA, MIU, Kolkata

Policy Development	:	The Lancet COVID-19 Commission;
Metagenomics Research	:	The MetaSUB Consortium;

PRASUN DAS, SQC & OR Unit, Kolkata

Member	:	Apex Committee, Joint Plant Committee (JPC), Ministry of Steel;

PARTHASARATHI GHOSH, GSU, Kolkata

Full Member	:	International Association of Sedimentologists;
		Indian Association of Sedimentologists;

PIYALI KARMAKAR; Library, Kolkata

Webmaster	:	IEEE WIE Kharagpur Section;

RITUPARNA SEN, ASU, Bangalore

Life Member	:	Society of Statistics, Computer and Applications (SSCA);
		International Indian Statistical Association (IISA);
		Indian Society for Probability and Statistics;
Member	:	Institute of Mathematical Statistics (IMS);
Elected Member	:	International Statistical Institute (ISI);

SARBANI PALIT, CVPRU, Kolkata

Member	:	IEEE;

SANKAR SARKAR, PAMU, Kolkata

Members	:	American Society of Civil Engineers;

SANJIT RAY, SQC & OR Unit, Bangalore

Board of Study Member	:	Department of Statistics, Christ University, Bangalore;
Mentoring Start-ups	:	PadUp;

SUPARNA MANDAL BISWAS, AERU, Kolkata

Life Membership	:	International Allelopathy Society;
		Indian Science Congress Association;
		Weed Science Society of India;
		Indian Botanical Society;

T. KARTHICK, CSU, Chennai

Member	:	MathSciNet;

TAPAN KUMAR MANDAL, Library, Kolkata

Life Member : Society for the Advancement of Library and Information Science;
Indian Statistical Institute, General Body;

TARUN KABIRAJ, ERU, Kolkata

Acting as external Expert : Academic and Administrative Policies of the Department, External Member, Board of Studies, Department of Economics, Jadavpur University;

TRIDIB KUMAR MONDAL, GSU, Kolkata

Member : Geological Society of India;
European Geosciences Union;
Member American Geophysical Union;
International Association For Structural Geology & Tectonics;
Structural Geology and Tectonic studies Group;

UJJWAL BHATTACHARYA, CVPRU, Kolkata

Senior Member : IEEE;

UMAPADA PAL, CVPRU, Kolkata

Member : IEEE;

UTPAL GARAIN, CVPRU, Kolkata

Member : IEEE; Since 2010

4.5 EDITORIAL ASSIGNMENTS

ABHIK GHOSH, ISRU, Kolkata

Technical Editor	:	Sankhya, Series A & B, the Indian Journal of Statistics; Since 2016

ANUP DEWANJI, ASU, Kolkata

Associate Editor	:	Journal of Statistical Planning and Inference; Since 2012
		Calcutta Statistical Association Bulletin, Since 2021

ABHIROOP MUKHOPADHYAY, EPU, Delhi

Academic Editor	:	PLOS ONE; 2022 Onwards

ARUNAVA SEN, EPU, Delhi

Associate Editor	:	Social Choice and Welfare, Springer; Since 2000
		Mathematical Social Sciences; Since 2002
		Economic Theory; Since 2015
Advisory Editor	:	Journal of Mathematical Economics; Since 2020

AMARTYA KUMAR DUTTA, SMU, Kolkata

Editorial Board Member	:	The Mathematics Consortium (TMC) Bulletin from. Publisher: TMC; Since July 2019
		Journal of Indian Mathematical Society, Informatics Publishing Limited
		and The Indian Mathematical Society; Since Dec 2021
Corresponding Editor	:	The Mathematics Magazine Bhavana, Bhavana Trust; Since Jan 2020

ANTAR BANDYOPADHYAY, SMU, Delhi

Associate Editor	:	Journal of Statistical Planning and Inference (JSPI), Elsevier; Since 2012
		Calcutta Statistical Association Bulletin, Calcutta Statistical Association; Since 2022
Member Editorial Board	:	Little Mathematical Treasures, Ramanujan Mathematical Society and Universities Press; Since 2012
Scientific Committee & Editorial Board Member	:	Colombian Journal of Statistics (Revista Colombiana deEstadística, RCE), Universidad Nacional de Colombia;Since 2015

ARUP BOSE, SMU, Kolkata

Member Advisory Board	:	Proceedings of Mathematical Sciences, Indian Academy of Sciences, Bengaluru; Jan 2022-Dec 2024
Editor-in Chief	:	Random Matrix Theory and Applications, World Scientific; Sep 2021 onwards

ASHIS KUMAR CHAKRABORTY, SQC & OR Unit, Kolkata

Senior Associate Editor	:	OPSEARCH; 2021 onwards

ASHISH GHOSH, MIU & CSCR, Kolkata

Action Editor	:	Neural Networks, Elsevier; Since 2018
Associate Editor	:	IET Journal of Computer Vision; Since 2018
		Journal on Banking and Financial Technology (JBFT), Springer Nature; Since 2018
		Sadhana (Computer and Data Sciences), Springer Nature; Since 2018
		Indian Statistical Institute Series, Springer Nature; Since 2018
		CAAI Transactions on Intelligence Technology (published from IET); Since 2018
		Research Reports in Computer Science, Wiser Publishing, Singapore; 2021 to date
		Springer Nature Computer Science; 2021 to date
		IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing; 2020 to date
		Neural Networks, Elsevier; 2020 to date

		Journal on Banking and Financial Technology (JBFT), Springer Nature; 2017 to date
		Indian Statistical Institute Series, Springer Nature; 2019 to date
		CAAI Transactions on Intelligence Technology (published from IET); 2017 to date
Series Editor	:	Communications in Computer and Information Science (CCIS), LNCS, Springer Nature; Since 2018
Editorial Board Member	:	International Journal of Knowledge Engineering and Soft Data Paradigms; Since 2018

ANISUR RAHAMAN MOLLA, CSRU, Kolkata

Editor	:	Proceedings of the 19th International Conference on Distributed Computing and Intelligent Technology, ICDCIT 2023, Springer; 2023

ATANU BISWAS, ASU, Kolkata

Associate Editor	:	Statistics & Probability Letters, Elsevier; Since Jul 2011
		Communications in Statistics, Theory and Methods, Elsevier, Taylor and Francis; Since Jan 2007 till date
		Communications in Statistics, Simulation and Computation, Elsevier, Taylor and Francis; Since Jan 2007
		Communications in Statistics, Case Studies, Data Analysis and Applications, Elsevier, Taylor and Francis; Since 2015 till date

AYANENDRANATH BASU, ISRU, Kolkata

Editor	:	International Statistical Review (International Statistical Institute); Since 2022

BISWANATH DUTTA, DRTC, Bangalore

Editorial Advisory Board Member:		Journal of Information and Knowledge (Formerly SRELS Journal of Information Management); Since 2023
International Editorial Board Member:		BARTOC.org; Since 2021
Secretary	:	International Society for Knowledge Organization (ISKO); since 2020
Editorial Board Member	:	International Journal of Metadata, Semantics and Ontologies; since 2018

B. S. DAYA SAGAR, SSIU, Bangalore

Editor-In-Chief	:	Encyclopedia of Mathematical Geosciences, Springer Publishers; 2019- 2023

B. V. RAJARAMA BHAT, SMU, Bangalore

Member Advisory Board	:	Proceedings of the Indian Academy of Sciences-Mathematics; Jan 2022 onwards
Member Editorial Board	:	Indian Journal of Pure and Applied Mathematics; since 2017
		Journal of the Ramanujan Mathematical Society; Since 2013
		Ramanujan Mathematical Society Newsletter; Since Jul 2019
		Annals of Functional Analysis; Since 2010
Managing Editor	:	Infinite Dimensional Analysis, Quantum Probability and Related Topics; Since Apr 2021
Editors-in-Chief (one of)	:	Springer-Indian Statistical Institute Series; Since 2018

BOBY JOHN, SQC & OR, Bangalore

Member Editorial Board	:	Journal of Reliability and Statistical Studies, River Publisher; Since 2022
Sub Editor	:	Special issue on Social, Economic and Environmental Sustainability, Frontiers in Sustainability Journal; 2023

DEBASIS MISHRA, EPU, Delhi

Associate Editor	:	Social Choice and Welfare, Springer; Since 2016
Advisory Editor	:	Games and Economic Behavior; 2019 onwards

DEEPAYAN SARKAR, SMU, Delhi

Associate Editor	:	Indian Journal of Pure and Applied Mathematics; Since 2021

DEBDULAL DUTTA ROY, PRU, Kolkata

Associate Editor	:	journal titled inSPA Journal of Applied and School Psychology, UGC care List Journal, Indian School Psychology Association; 2023

E. SOMANATHAN, EPU, Delhi

Co-Editor	:	Environment and Development Economics, Cambridge University Press Journal, 2021 onwards

FARZANA AFRIDI, EPU, Delhi

Academic Editor	:	PLoS One; 2018-21
Associate Editor	:	Oxford Open Economics; 2021 Onwards
	:	Journal of Behavioral and Experimental Economics; 2022 onwards

INDRANIL MUKHOPADHYAY, HGU, Kolkata

Editorial Board Member	:	Scientific Reports; Since 2020
Associate Editor	:	Statistics and Applications; Since 2021

JAYDEB SARKAR, SMU, Bangalore

Member Editorial Board	:	Quaestiones Mathematicae, Journal of the South African Mathematical Society; Since 2021
		Proceedings - Mathematical Sciences, Journal of the Indian Academy of Sciences; Since 2021
		Indian Journal of Pure and Applied Mathematics, Journal of the Indian National Science Academy; Since 2019

JIBAN K. PAL, Library, Kolkata

Editorial Board Member	:	Re3data.org (a global Registry of Research data Repositories); Since 2017
Review Editor	:	Frontiers in Research Metrics and Analytics (Scholarly Communication section); Since 2021

KIRANMOY DAS, ISRU, Kolkata

Associate Editor	:	Sankhya, Series B, Springer; 2019 present

KISHOR CHANDRA SATPATHY, Library, Kolkata

Editorial Board Member	:	Journal of Data Science, Informetrics and Citation Studies; Jun 06, 2022
Reviewer of a book	:	Technology and Transitions in Libraries published by Purbayon Publishers, Guwahati; 2022
Reviewer	:	Journal of Scientometric Research; 2022

KINGSHOOK BISWAS, SMU, Kolkata

Editor	:	Journal of the Ramanujan Mathematical Society; Since 2019 onwards

M. Z. ANIS, SQC & OR Unit, Kolkata

Associate Editor	:	IAQPR Transactions; Since 2021

M. KRISHANMURTHY, DRTC, Bangalore

Consulting Editor	:	Journal of Information Science Theory and Practice; 2021-2023

MADHURA SWAMINATHAN, EAU, Bengaluru

Editorial Board	:	Review of Agrarian Studies; 2011-present

MANDAR MITRA, CVPRU, Kolkata

Editor	:	Foundations and Trends in Information Retrieval, Now Publishers; 2022-2025

SANDIP DAS, ACMU, Kolkata

Guest Editor	:	Discret. Appl. Math. 319: 192-193, Preface: CALDAM 2020; 2022

MONISANKAR BISHNU, EPU, Delhi

Associate Editor	:	Journal of Asian Economics; Jun 2020 Onwards

MONALI MITRA PALADHI, Library, Kolkata

Assistant Editor	:	Indian Library Science Abstract (ILSA), Indian Association of Special Libraries and Information Centres; 2020-2022

NILADRI SEKHAR DASH, LRU, Kolkata

Editorial Board Member	:	SN Social Sciences (ISSN: 2662-9283); Since 2020
		Interdisciplinary Journal of Linguistics; Since 2022
	:	International Journal of Innovative Studies in Sociology and Humanities; Since 2015
Review Board Member	:	Register Journal: Journal of Language and Language Teaching; Since 2019

PRADIPTA MAJI, MIU, Kolkata

Associate Editor	:	Cambridge University Press, Sadhana; Since 2021

PRABAL ROY CHOWDHURY, EPU, Delhi

Editor	:	Indian Growth and Development Review; Since 2016

RAGHUNATH CHATTERJEE, HGU, Kolkata

Associate Editor	:	Frontiers in Genetics; Since 2021
Editor (Special Issue)	:	Frontiers in Bioscience; Since 2012

RITA SAHARAY, ISRU, Kolkata

Associate Editor	:	Sankhya, Series A, Springer; Apr 2016 - present

RITUPARNA SEN, ASU, Bangalore

Editor	:	Applied Stochastic Models in Business and Industry; 2021-2025
Associate Editor	:	Sankhya Series B; Since 2016
		Journal of the Indian Statistical Association; Since 2021

RITABRATA MUNSHI, SMU, Kolkata

Editor	:	Mathematische Annalen; 2022-present
		Hardy-Ramanujan Journal; 2016-present
Chief Editor	:	Journal of the Ramanujan Mathematical Society; 2017-present

SANKAR K. PAL, Emeritus Professor; CSCR, Kolkata

Associate Editor	:	Information Sciences, Elsevier: Since 2000
		Fuzzy Sets and Systems, Elsevier; Since 2003
		Int. J. Pattern Recognition and Artificial Intelligence, World Scientific; Since 2003
		Journal of Data, Information and Management, Springer; Since 2018
		Int. J. Computational Intelligence and Applications, World Scientific; Since 2021
		LNCS Trans. on Rough Sets, Springer; Since 2003
		Engineering Applications of Artificial Intelligence, Elsevier; Since 2021
Executive Advisory Editor	:	Data-Centric Engineering, Cambridge Univ. Press; Since 2020
		International Journal of Approximate Reasoning; Since 1994
		International Journal of Computational Science and Engineering; Since 2011
		International Journal of Business Intelligence and Data Mining; Since 2017

SANGHAMITRA BANDYOPADHYAY, MIU, Kolkata

Associate Editor	:	IEEE Transactions on Artificial Intelligence; Since 2020
		IEEE Transactions on Systems, Man and Cybernetics – Systems; Since 2013

SHUBHRA SANKAR RAY, CSCR and MIU Kolkata

Associate Editor	:	Editorial Board of Sadhana, Indian Academy of Sciences; Since May 2019 to December 2023

SUSHMITA MITRA, MIU, Kolkata

Associate Editor	:	IEEE, Elsevier, John Wiley; Since 2009

SASWATI DAS, ERU, Kolkata

Associate Editor	:	International Journal of Interdisciplinary Social Sciences, vol 6, no 8, Common Ground Research Networks, The International Advisory Board and Managing Editors, Common Ground Research Networks; Since 2012

SAURABH GHOSH, HGU, Kolkata

Editor	:	Sankhya (Series B), Springer; 2022-2024

SUDHEESH K KATTUMANNIL, ASU, Chennai

Associate Editor	:	Journal of Indian Society for Probability and Statistics, Indian Society for Probability and Statistics; Since 2021

SWAGATAM DAS, ECSU, Kolkata

Editor-in-Chief	:	Swarm and Evolutionary Computation (SCI Indexed), Elsevier; Since 2011
Editor	:	Engineering Applications of Artificial Intelligence, Elsevier; Since 2013
Associate Editor	:	IEEE Transactions on Evolutionary Computation; 2022 onwards IEEE Transactions on Cybernetics; Since 2020 Pattern Recognition, Elsevier; Since 2017 Information Sciences Journal, Elsevier; Since 2010 Neurocomputing, Elsevier; Since 2013 Artificial Intelligence Review, Springer; Since 2020
Editorial Board Member	:	Information Fusion; Since 2020

TARUN KABIRAJ, ERU, Kolkata

Associate Editor	:	Indian Growth and Development Review; Since 2008

KALPANA .T.M., Library, Kokata

Review Board Member	:	International Journal of Library and Information Services (IJLIS) USA; Since 2017
Review Board Member Promoted to Associate Editor	:	Journal of Information and CommunicationTechnology Education (IJICTE), IGI Global. USA, Since 2020

UMAPADA PAL, CVPR, Kolkata

Co-Editor-in-Chief	:	Springer Nature Computer Science (SNCS); Since 2019
Associate Editor	:	Pattern Recognition; Since 2014 Pattern Recognition Letters; Since 2011 International Journal of Document Analysis and Recognition (IJDAR), Springer; Since 2009 ACM TALLIP; Since 2014 IET Biometrics; Since 2018 International Journal of Pattern Recognition and Artificial Intelligence; Since 2019

UTPAL GARAIN, CVPR Kolkata

Associate Editor	:	International Journal of Document Analysis and Recognition(IJDAR), Springer; Since 2011 Sádhanã, Springer; Since 2019

YOGESHWARAN D., SMU, Bangalore

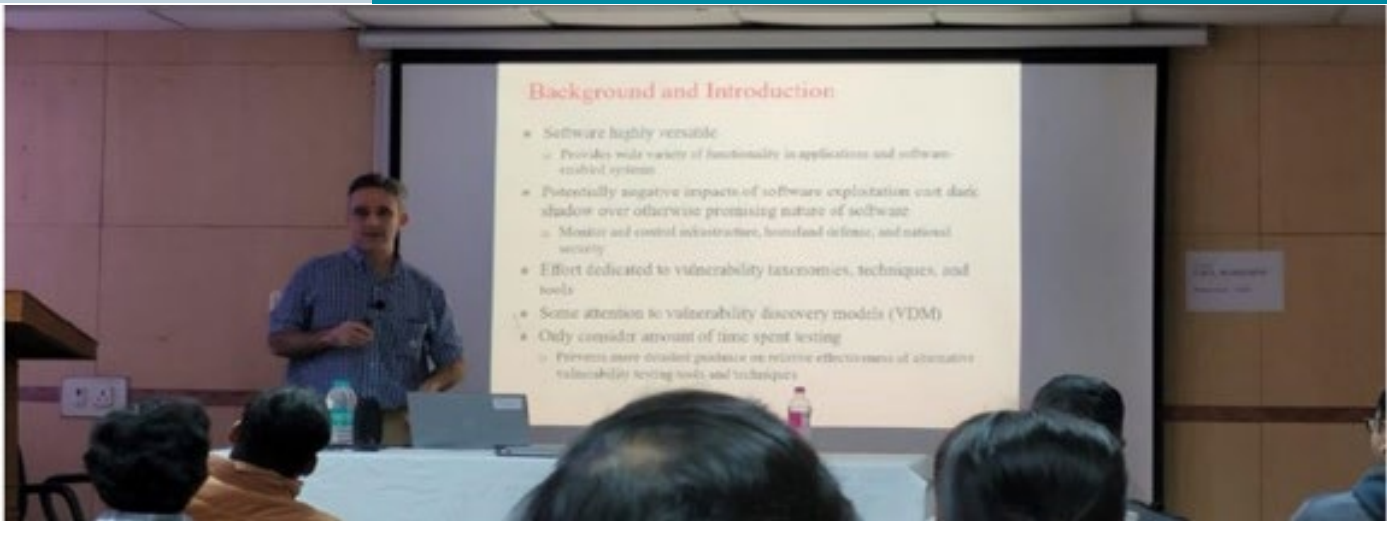
Associate Editor	:	Journal of Applied and Computational Topology; Since 2019

Chapter 5 Publications

APA Referencing Style format has been used for enlistment of the institute publications. Book references are arranged alphabetically by Author name(s) with the Division name in parenthesis. Articles published in Book Chapters, Conference Proceedings and Journal articles appear alphabetically by Author name(s) for 2022 followed by 2023 under each Division. Names in bold denote ISI faculty.

Total No. of Publications:

Books	**: 17** [16 (from Divisions) + 1 (RCBCS)]
Book Chapters	**: 35** [32 (from Divisions) + 2 (CECFEE) +1 (CSCR)]
Conference Proceedings	**: 111** [105 (from Divisions) + 1 (CSCR) + 3 (RCBCS) + 2 (TIH)]
Journal Articles	**: 386** [351 (from Divisions) + 9 (CFCFEE) + 16 (CSCR) + 8 (RCBCS) + 2 (TIH)]



5.1 BOOKS PUBLISLHED

BOOKS

1. Bapat, R. B., Prasad, K. M., Krikland, S. J., **Neogy, S. K.,** Pati, S. & Puntanen, S. (Eds.). (2023). *Applied LinearAlgebra, Probability and Statistics (A volume in honor of C R Rao and A K Lal)*. Indian Statistical Institute Series,Springer.[SQC&OR]

2. Chakravarty, S. R., **Mitra, M.**, & Mutuswami, S. (2023). *Social Aggregations and Distributional Ethics*. Cambridge University Press. https://doi.org/10.1017/9781108937634 [SSD]

3. **Dash, N. S.** (Ed.). (2023). *Bangla Yuktabyanjanbarna: Abhidhanik Bishleshan (Bengali Consonant Cluster: Lexicographic Analysis)*. Bodhshabdo. [SSD]

4. **Daya Sagar, B. S.**, Cheng, Q., McKinley, J., & Agterberg, F. (Eds.). (2023). *Encyclopedia of Mathematical Geosciences*. Springer International Publishing. [CCSD]

5. Deo, S., & **Rahaman, R.** (2023). *Classical Mechanics: An Introduction*. Narosa Publishing House. [PESD]

6. Dutta, A. K., & **Gupta, N**. (2023). *Vigyan Vidushi - 75 Women Trailblazers of Science* (K. D. Misra, Ed.). [TSMD]

7. El Yacoubi, M., Granger, E., Yuen, P. C., **Pal, U.**, & Vincent, N. (Eds.). (2022). *Pattern Recognition and Artificial Intelligence: part 1* (Vol. 13363). Springer International Publishing. https://doi.org/10.1007/978-3-031-09037-0 [CCSD]

8. El Yacoubi, M., Granger, E., Yuen, P. C., **Pal, U.**, & Vincent, N. (Eds.). (2022). *Pattern Recognition and Artificial Intelligence: part 2* (Vol. 13364). Springer International Publishing. https://doi.org/10.1007/978-3-031-09282-4 [CCSD]

9. Ganguly, D., Gangopadhyay, S., **Mitra, M.**, & Majumder, P. (Eds.). (2022). *FIRE 2022: Proceedings of the 14th Annual Meeting of the Forum for Information Retrieval Evaluation*. Association for Computing Machinery. https://dl.acm.org/doi/proceedings/10.1145/3574318 [CCSD]

10. **Ghate, C.**, Gopalakrishnan, P., & Grover, S. (2022). *The Mahalanobis Growth Model*. Springer Nature Singapore. https://doi.org/10.1007/978-981-16-8980-2 [SSD]

11. **Karati, S.**, Binary Kummer Line. In M. Tibouchi & X. Wang (Eds.). (2023). *Proceedingsof the 21st International Conference on Applied Cryptography and Network Security)* (pp. 363–393). Springer, Cham. https://doi.org/10.1007/978-3-031-33488-7_14 [CCSD]

12. **Krishanmurthy, M.,** Ramesha, B., Pichappan, & Subhash Reddy, B. (Eds.). (2022). *Progress in Digital Transformation*. Digital Research Foundation. [SSD]

13. Mehta, P., Mandl, T., Majumder, P., & **Mitra, M.** (Eds.). (2022). *Working Notes of FIRE 2021: Forum for Information Retrieval Evaluation*. Conference FIRE: Forum for Information Retrieval Evaluation. [CCSD]

14. Nayak, J., Das, A. K., Naik, B., **Meher, S. K.**, & Brahnam, S. (Eds.). (2023). *Nature-Inspired Optimization Methodologies in Biomedical and Healthcare* (Vol. 233). Springer International Publishing. https://doi.org/10.1007/978-3-031-17544-2 [CCSD]

15. Santosh, K., Hegadi, R., & **Pal, U.** (Eds.). (2022). *Recent Trends in Image Processing and Pattern Recognition* (Vol. 1576). Springer International Publishing. https://doi.org/10.1007/978-3-031-07005-1[CCSD]

16. **Satpathy, K. C.** (Ed.) (2022). *Biographical Museum: Anexpression of National Identity*. Indian Statistical Institute. ISBN:978-81-927468-3-8 [LDISD]

R. C. Bose Centre for Cryptology and Security (RCBCCS)

17. **Molla, A. R.**, Sharma, G., Kumar, P., & Rawat, S. (Eds.). (2023). *Distributed Computing and Intelligent Technology* (Vol. 13776). Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-24848-1 [RCBCCS]

5.2 PUBLICATION IN BOOK CHAPTERS

Applied Statistics Division (ASD)

1. **Ghosh, A.** (2022). Robustness Concerns in High-dimensional Data Analysis and Potential Solutions. In S. C. Basak & M. Vracko (Eds.), *Big Data Analytics in Chemoinformatics and Bioinformatics (with applications to computer-aided drug design, cancer biology, emerging pathogens and computational toxicology)* (pp. 37–60). Elsevier.

2. **Ghosh, A.**, & **Basu, A.** (2023). On Entropy Based Diversity Measures: Statistical Efficiency and Robustness Considerations. In Maria Angeles Gil, N. Martin, D. Morales, & Maria del Carmen Pardo (Eds.), *Trends in Mathematical Information and Data Sciences: A Tribute to Leandro Pardo* (Vol. 445, pp. 199–211). https://doi.org/10.1007/978-3-031-04137-2_18

Biological Sciences Division (BSD)

3. Bera, K., Bandyopadhyay, J., & **Banik, P.** (2023). Analytic Hierarchy Process (AHP) Applications in Watershed Management Plan, A Case Study of Sub-Watershed. In F. de Felice & A. Petrillo (Eds.), *Analytic Hierarchy Process - Models, Methods, Concepts, and Applications*. IntechOpen. https://doi.org/10.5772/intechopen.1001456

4. **Sil, M.**, **Mitra, S.**, & **Goswami, A.** (2023). Probiotics and immunity: An overview. In Bagchi Debasis, das Amitava, & Downs Bernard William (Eds.), *Viral, Parasitic, Bacterial, and Fungal Infections* (pp. 847–861). Elsevier. https://doi.org/10.1016/B978-0-323-85730-7.00007-2

Computer and Communication Sciences Division (CCSD)

5. Challa, A., Danda, S., & **Daya Sagar, B. S.** (2022). Morphological Closing. In B. S. Daya Sagar, Q. Cheng, J. McKinley, & F. Agterberg (Eds.), *Encyclopedia of Mathematical Geosciences*. Springer. https://doi.org/10.1007/978-3-030-26050-7_211-1

6. Danda, S., Challa, A., & **Daya Sagar, B. S.** (2022). Cumulative Probability Plot. In B. S. Daya Sagar, Q. Cheng, J. McKinley, & F. Agterberg (Eds.), *Encyclopedia of Mathematical Geosciences*. Springer. https://doi.org/10.1007/978-3-030-26050-7_71-1

7. Danda, S., Challa, A., & **Daya Sagar, B. S.** (2022). Grayscale Mathematical Morphology. In B. S. Daya Sagar, Q. Cheng, J. McKinley, & F. Agterberg (Eds.), *Encyclopedia of Mathematical Geosciences*. Springer. https://doi.org/10.1007/978-3-030-26050-7_151-2

8. **Daya Sagar, B. S.** (2022). Goodchild, Michael F. In B. S. Daya Sagar, Q. Cheng, J. McKinley, & F. Agterberg (Eds.), *Encyclopedia of Mathematical Geosciences* (pp. 1–2). Springer. https://doi.org/10.1007/978-3-030-26050-7_386-1

9. **Daya Sagar, B. S.**, & **De, A. K.** (2022). Structuring Element. In B. S. Daya Sagar, Q. Cheng, J. McKinley, & F. Agterberg (Eds.), *Encyclopedia of Mathematical Geosciences*. Springer. https://doi.org/10.1007/978-3-030-26050-7_321-1

10. **Daya Sagar, B. S.**, & **De, A. K.** (2022). Thickening. In B. S. Daya Sagar, Q. Cheng, J. McKinley, & F. Agterberg (Eds.), *Encyclopedia of Mathematical Geosciences*. Springer. https://doi.org/10.1007/978-3-030-26050-7_326-1

11. Jain, V., Guha, S., & **Daya Sagar, B. S.** (2022). Quantitative Geomorphology. In B. S. Daya Sagar, Q. Cheng, J. McKinley, & F. Agterberg (Eds.), *Encyclopedia of Mathematical Geosciences*. Springer. https://doi.org/10.1007/978-3-030-26050-7_27-1

12. Jana, P., & **Mohanta, P. P.** (2023). Recent Trends in 2D Object Detection and Applications in Video Event Recognition. In R. N. Mir, V. K. Sharma, R. K. Rout, & S. Umer (Eds.), *Advancement of Deep Learning and its Applications in Object Detection and Recognition* (pp. 173–195). River Publishers. https://doi.org/10.1201/9781003393658-9

13. **Krishnamurthy, M.**, & V. M., M. (2023). An Approach to Content Delivery Network (CDN) System for Resource Sharing through Library Website: A Study. In Lal, D. D., Talwar, Y. & Sinha, M. K. (Eds.), *Managing Next Generation Library System in Networked and Digital Environment* (pp. 147–136). Sankalp Publications.

14. Mukherjee, S., Dutta, S., **Mitra, S.**, Pati, S. K., Ansari, F., & Baranwal, A. (2023). Ensemble Method of Feature Selection Using Filter and Wrapper Techniques with Evolutionary Learning. In et al P. Dutta (Ed.), *Lecture Notes in Networks and Systems* (Vol. 490, pp. 745–755). Springer Singapore. https://doi.org/10.1007/978-981-19-4052-1_73

15. Panda, R. M., & **Daya Sagar, B. S.** (2022). Database Management System. In B. S. Daya Sagar, Q. Cheng, J. McKinley, & F. Agterberg (Eds.), *Encyclopedia of Mathematical Geosciences*. Springer. https://doi.org/10.1007/978-3-030-26050-7_80-1

16. Samiappan, S., Panda, R. M., & **Daya Sagar, B. S.** (2022). Z-Transform. In B. S. Daya Sagar, Q. Cheng, J. McKinley, & F. Agterberg (Eds.), *Encyclopedia of Mathematical Geosciences*. Springer. https://doi.org/10.1007/978-3-030-26050-7_355-1

Library, Documentation and Information Science Division (LDISD)

17. **Satpathy, K. C.** (2022). Remembering Dr. H. Anil Kumar: A true dynamic leader. In *Remembering Late Dr. H. Anil Kumar: a distinguished librarian, scholar and a visionary* (pp. 134–140). Allied Publisher.

18. **Satpathy, K. C.**, & Das, D. (2023). Quality education and library services through different National education policies-an overview. In P. Rath, A. Kumar, & M. K. Singh (Eds.), *National Education Policy 2020: a forward-looking vision for LIS education and services* (pp. 69–76). Today and tomorrow's printers and publishers.

19. **Satpathy, K. C.**, & Das, K. (2022). Biographical Museum: Express National Identity through display of life. In Satpathy, K. C. (Ed.) *Biographical Museum: An expression of National Identity* (pp. 3–7). Indian Statistical Institute.

20. **Satpathy, K. C.**, & Rana, M. K. (2023). Libraries in the light of National Education Policy (NEP) 2020. In P. Rath, A. Kumar, & M. K. Singh (Eds.), *National Education Policy 2020: a forward-looking vision for LIS education and services* (pp. 55–68). Today and tomorrow's printers and publishers.

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COLLABORATIVE PUBLICATIONS

CONFERENCE PROCEEDINGS

1. **Bhattacharjee, A.**, Bhaumik, R., & **Nandi, M.** (2022). Offset-Based BBB-Secure Tweakable Block-ciphers with Updatable Caches. In T. Isobe & S. Sarkar (Eds.), *Progress in Cryptology – INDOCRYPT 2022: proceedings of the 23rd International Conference on Cryptology in India, Kolkata* (pp. 171–194). Springer. https://doi.org/10.1007/978-3-031-22912-1_8 [ASD & RCBCCS]

2. **Bhattacharjee, A.**, Chakraborti, A., Datta, N., Mancillas-López, C., & **Nandi, M.** (2023). ISAP+: ISAP with Fast Authentication. In T. Isobe & S. Sarkar (Eds.), *Progress in Cryptology – INDOCRYPT 2022: proceedings of the 23rd International Conference on Cryptology in India, Kolkata* (pp. 195–219). Springer. https://doi.org/10.1007/978-3-031-22912-1_9 [ASD & RCBCCS]

3. **Dhar, C.**, Dodis, Y., & **Nandi, M.** (2022). Revisiting Collision and Local Opening Analysis of ABR Hash. In D. Dachman-Soled (Ed.), *Proceedings of the 3rd Conference on Information-Theoretic Cryptography, Cambridge, United States*. Dagsthul Publishing. https://drops.dagstuhl.de/opus/volltexte/2022/16489/pdf/LIPIcs-ITC-2022-11.pdf [ASD & RCBCCS]

4. **Jana, A.**, & **Paul, G.** (2022). Differential Fault Attack on PHOTON-Beetle. *Proceedings of the 2022 Workshop on Attacks and Solutions in Hardware Security*, 25–34. https://doi.org/10.1145/3560834.3563824 [CSRU & RCBCCS]

5. **Kumar, A.**, Shivakumara, P., & **Pal, U.** (2022). RDMMLND: A New Robust Deep Model for Multiple License Plate Number Detection in Video. In M. el Yacoubi, E. Granger, P. Chi Yuen, U. Pal, & N. Vincent (Eds.), *Proceedings of the 3rd International Conference on Pattern Recognition and Artificial Intelligence (Part 1), Paris, France* (pp. 489–501). Springer. https://doi.org/10.1007/978-3-031-09037-0_40 [CCSD & TIH]

6. **Kumar, M.**, & **Molla, A. R.** (2023). On the Message Complexity of Fault-Tolerant Computation: Leader Election and Agreement. *IEEE Transactions on Parallel and*

Distributed Systems, *34*(4), 11115–11127. https://doi.org/10.1109/TPDS.2023.3239993 [TSMD & RCBCCS]

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JOURNAL ARTICLES

1. **Afridi, F.**, **Bishnu, M.**, & Mahajan, K. (2022). What determines women's labor supply? The role of home productivity and social norms. *Journal of Demographic Economics*, 1–33. https://doi.org/10.1017/dem.2022.22 [CECFEE & SSD]

2. **Afridi, F.**, **Bishnu, M.**, & Mahajan, K. (2023). Gender and mechanization: Evidence from Indian agriculture. *American Journal of Agricultural Economics*, *105*(1), 52–75. https://doi.org/10.1111/ajae.12315 [CECFEE & SSD]

3. **Afridi, F.**, Mahajan, K., & **Sangwan, N.** (2022). The Gendered effects of droughts: Production shocks and labor response in agriculture. *Labour Economics*, *78*, 102227. https://doi.org/10.1016/j.labeco.2022.102227 [CECFEE & SSD]

4. **Basu, A.**, **Ghosh, A.**, Martin, N., & Pardo, L. (2022). A Robust Generalization of the Rao Test. *Journal of Business & Economic Statistics*, *40*(2), 868–879.

5. https://doi.org/10.1080/07350015.2021.1876711 [ASD & TIH]

6. **Bhattacharjee, A.**, Dutta, A., List, E., & **Nandi, M.** (2022). CENCPP*: beyond-birthday-secure encryption from public permutations. *Designs, Codes and Cryptography*, *90*(6), 1381–1425. https://doi.org/10.1007/s10623-022-01045-z [ASD & RCBCCS]

7. Bhattacharyya, R., **Nandi, M.**, & **Raychaudhuri, A.** (2023). Subversion Resilient Hashing: Efficient Constructions and Modular Proofs for Crooked Indifferentiability. *IEEE Transactions on Information Theory*, *69*(5), 3302–3315. https://doi.org/10.1109/TIT.2023.3238115 [ASD & RCBCCS]

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10. **Chattopadhyay, S.**, **Ghosh, D.**, **Maiti, R.**, **Das, S.**, **Biswas, A.**, & Chakraborty, B. (2023). A study of the impact of policy interventions on daily COVID scenario in India using interrupted time series analysis. *Epidemiologic Methods*, *12*(1). https://doi.org/10.1515/em-2022-0113 [ASD &SSD]

11. **Chowdhury, K. B.**, **Maitra, S.**, & **Jyethi, D. S.** (2023). Relationship between Ambient Particulate Matter and Leaf Area Index: A Panel Data Study in Delhi, India. *Environmental Modeling & Assessment*, *28*(1), 29–37. https://doi.org/10.1007/s10666-022-09872-z [PESD& SSD]

12. **Chowdhury, P. N.**, Shivakumara, P., Nandanwar, L., Samiron, F., **Pal, U.**, & Lu, T. (2022). Oil palm tree counting in drone images. *Pattern Recognition Letters*, *153*, 1–9. https://doi.org/10.1016/j.patrec.2021.11.016 [CCSD & TIH]

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14. Datta, N., Dutta, A., **Nandi, M.**, & **Talnikar, S.** (2023). Tight Multi-User Security Bound of DbHtS. *IACR Transactions on Symmetric Cryptology*, 192–223. https://doi.org/10.46586/tosc.v2023.i1.192-223 [ASD & RCBCCS]

15. Dutta, A., **Nandi, M.**, & **Saha, A.** (2022). Proof of Mirror Theory for ξmax = 2. *IEEE Transactions on Information Theory*, *68*(9), 6218–6232. https://doi.org/10.1109/TIT.2022.3171178 [ASD & RCBCCS]

16. Nandy, A., **Basu, A.**, & **Ghosh, A.** (2022). Robust inference for skewed data in health sciences. *Journal of Applied Statistics*, *49*(8), 2093–2123. https://doi.org/10.1080/02664763.2021.1891527 [ASD & TIH]

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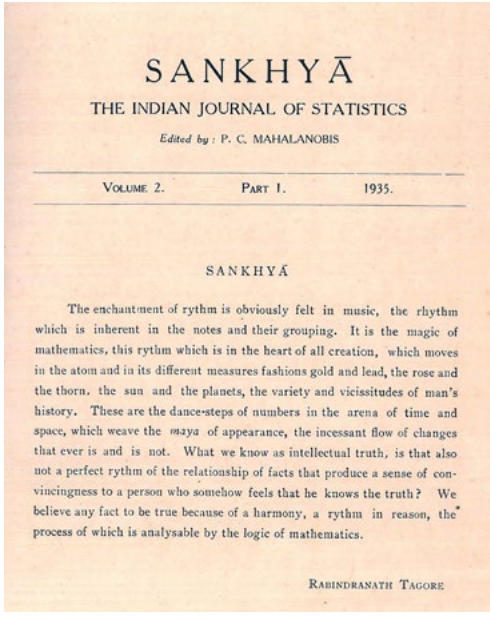
5.5 The Official Publication of ISI, *Sankhyā*

1. A Brief Overview


SANKHYĀ

THE INDIAN JOURNAL OF STATISTICS

Edited by : P. C. MAHALANOBIS

VOLUME 2. PART 1. 1935.

SANKHYĀ

The enchantment of rythm is obviously felt in music, the rhythm which is inherent in the notes and their grouping. It is the magic of mathematics, this rythm which is in the heart of all creation, which moves in the atom and in its different measures fashions gold and lead, the rose and the thorn, the sun and the planets, the variety and vicissitudes of man's history. These are the dance-steps of numbers in the arena of time and space, which weave the *maya* of appearance, the incessant flow of changes that ever is and is not. What we know as intellectual truth, is that also not a perfect rythm of the relationship of facts that produce a sense of convincingness to a person who somehow feels that he knows the truth? We believe any fact to be true because of a harmony, a rythm in reason, the process of which is analysable by the logic of mathematics.

RABINDRANATH TAGORE

The internationally renowned journal *Sankhyā* was founded by Professor P. C. Mahalanobis in 1932. This quarterly journal, with ISSN 0976-8378, is devoted to original research articles in Applied Statistics, Mathematical Statistics and Probability. Reviews and discussion articles on current research activity in the above areas are also published. A rigorous peer review process is followed for acceptance of articles submitted for publication in *Sankhyā*. Many seminal articles in Probability, Theoretical Statistics and Applied Statistics have appeared in *Sankhyā*.

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3. Issues Published

Regular Issues	Series A: February 2023 (Volume 85 Issue 1) August 2022 (Volume 84 Issue 2)
	Series B: November (Volume 84 Issue 2) May (Volume 84 Issue 1)
Special Issues (if any) with short descriptions	Series A: June 2022 (Volume 84 Issue 1. Special issue on Network Analysis edited by Eric D. Kolaczyk, Soumendra Nath Lahiri and Marianna Pensky.

Chapter 6

Other Academic Activities

No. of Patents : 5

Filed : 3 (National – 2, International – 1)
Granted : 2 (International)

No. of MoUs : 40

New : 10 (National – 9, International – 1)
Existing : 31 (National – 21, International – 10)

No. of Visiting Scientists : 240

National : 184
International : 56

6.1 Patents

IPRs Filed

Sl. no.	Title of Patent	Application No. & Date of filing	Name of the Inventor(s)*	Status	Country name where filed
1	Method and System for Evaluating Clinical Efficiency of Multi-label Multi-class Computational Diagnostic Models	202221052587 dated 14-Sep-2022	**Utpal Garain (CVPRU)**, Soumadeep Saha, Arijit Ukil, Trisrota Deb, Sai Chander Richa, Sandeep Khandelwal, Arpan Pal,	Filed	India
2	Method and System for contradiction Avoided Learning for Multi-class Multi-label Classification	202221062230 dated 01-Nov-2022	Soumadeep Saha, **Utpal Garain (CVPRU)**, Arijit Ukil, Arpan Pal	Filed	India
3	Action Detection System for Dark Videos using Spatio-Temporal Features and Bidirectional Encoder Representations from Transformers	18122269 dated 17-Mar-2023	**A. Ghosh (MIU)**, H. Singh, S. Suman, Badri N Subudhi, Vinit Jakhetiya, T. Veerakumar	Examination Requested	USA

* Name in bold denotes ISI faculty

IPRs Granted

Sr. no.	Title of Patent	IPR No.	Grant Date	Name of the Inventor(s)*	Country name where filed
1.	Method And System For Automatic Selection Of One Or More Image Processing Algorithm	2806374	10-Jun-2022	Tanushyam Chattopadhyay, Ramu Vempada, **Utpal Garain (CVPRU)**	European Patent Office
2.	System and method for object recognition based estimation of planogram compliance	424242, 2017342154, 10,748,030	07-Mar-2023, 07-Nov-2019, 18-Aug-2020	HARI, Pranoy, RAO, Shilpa Yadukumar, RAMAKRISHNAN, Rajashree, SHAW, Avishek Kumar, RAY, Archan, KUMAR, Nishant, **Mukherjee, Dipti Prasad (ECSU)**	India, Australia, USA

* Name in bold denotes ISI faculty

6.2 Memorandum of Understanding-MoUs

Over the last several years, the Institute has been very actively pursuing institution-level collaboration in fields of mutual interest that has led to Memoranda of Understanding (MoUs) with a number of universities/academic institutions as well as industrial organisations. These MoUs range from collaborative research to research grants for students/faculty as well as student/faculty exchange programmes. At present, the Institute has new MoUs signed and some ongoing ones (both national and international) with the following institutions/ organisations:

1. New MoU signed

Sl. no.	University/Institution/Organization	Country	Effective from	Duration
1	Ramakrishna Mission Residential College, Narendrapur	India	06-03-23	3 Years
2	Department of Biotechnology, Government of India	India	24-01-23	Till the project duration
3	MOL Information Technology India Private Limited (MOL-IT)	India	15-02-23	1 Year
4	MSP Steel and Power Limited	India	02-02-23	1 Year
5	Tata Steel Limited	India	10-02-23	2 Years
6	Directorate of Economics & Statistics, Government of Tripura	India	15-02-22	2 Years
7	Quality Council of India	India	21-06-22	1 Year
8	The Institute of Cost Accountants of India	India	01-07-22	5 Years
9	University of California	United States of America	08-08-22	5 Years
10	Detecvision Technologies Private. Ltd.	India	10-06-22	1 Year

2. Continuing MoUs

A partial list of continuing MoUs is given below:-

Sl. No.	University/Institution/Organization	Country	Valid until
1	Tata Memorial Centre	India	Mar-27
2	Ramakrishna Mission Vivekananda Educational and Research Institute	India	Feb-25
3	CESC Limited	India	Jan-25
4	Moscow State University Tashkent Branch, Tashkent, Uzbekistan	Uzbekistan	Dec-27
5	Airport Authority of India	India	May-23
6	Medclin Research Private Limited	India	Sep-26
7	Tata Consultancy Services (Extension of Master Collaboration Agreement)	India	Oct-26
8	National Research University, Higher School of Economics	Russia	Aug-26
9	Springer Nature Singapore Pte Ltd.	Singapore	Sep-26
10	Coursera	United States of America	Perpetual
11	University of Hyderabad	India	Sep-23
12	Ministry of Science & Technology and IDEAS – Institute of Data Engineering, Analytics and Science Foundation	India	Apr-26
13	Department of Biotechnology, Government of India	India	Apr-23

Sl. No.	University/Institution/Organization	Country	Valid until
14	Defence Research and Development Organisation (DRDO)	India	Oct-25
15	Space Applications Centre (SAC), Indian Space Research Organisation (ISRO) Ahmedabad	India	Jan-23
16	Agreement for ISI-IEG Research Project under EfD Agreement	India	Jun-22
17	University of Groningen	Netherlands	Feb-25
18	TCS Foundation	India	Jan-24
19	Geological Survey of India, Ministry of Mines	India	Oct-22
20	National technical Research Organisation (NTRO)	India	Aug-22
21	University of Reading	England	Jun-24
22	Ramakrishna Mission Vidyamandir	India	Apr-22
23	Springer (India) Pvt. Ltd.	India	Nov-23
24	Universita Degli Studi Di Trieste, Italy	Italy	Nov-23
25	MIT-Skills, Pune, India	India	Oct-23
26	Basque Centre for Applied Mathematics (BCAM), Spain	Spain	May-23
27	Academics - Coorporation between the of the ISI and the faculty of Engineering of the University of Auckland, New Zealand	New Zealand	May-23
28	AXISCADES Engineering Technologies limited;	India	Nov-22
29	WISeKey India Private Limited;	India	Oct-22
30	Networks Specified/University of Amsterdam, Netherlands	Netherlands	May-24
31	Tata Consultancy Services Limited	India	May-22

6.3 MUSEUMS

6.3.1 Geology Museum

GENERAL INFORMATION

Name of In-charge	Dhurjati Prasad Sengupta, Shiladri Sekhar Das, Debarati Mukherjee
Physical Address	Ground Floor, Platinum Jubilee Building, ISI, Kolkata-700 108
Founded in	1962
Founded by	Pamela L. Robinson along with Sohan Lal Jain and Tapan Roy Chowdhury
Maintained by	Geological Studies Unit

Brief Overview

The Museum of the Geological Studies Unit, Indian Statistical Institute, Kolkata, is a unique repository of terrestrial Mesozoic vertebrates as well as Cenozoic marine vertebrates and invertebrates. The museum has the holotypes of more than 50 new taxa of fossil vertebrates ranging from Permian (~255 My) to Cretaceous (65 My) Period as well as many new invertebrate taxa ranging from Eocence (~55 My) to Miocene (~5 My). Complete and partial skeletons of several vertebrate fossils including the oldest Permian reptile of India, Triassic terrestrial vertebrates, Jurassic and Cretaceous dinosaurs, dinosaur eggs and several Jurassic fishes are exhibited in this Museum. There are several holotype and paratype specimens kept in the repositoryas well. The museum also contains fossils of Eocene whales and other marine mega-invertebrate fossils, foraminifera. It also contains stromatolites and fossil plants among others.

Major Collections

Sl. No.	Name of Collection	Brief Overview of Collection
1	Mounted skeleton of *Barapasaurus tagoeri*	*Barapasaurus* is a genus of basal sauropod dinosaur from Early Jurassic rocks of India.
2	Mounted skeleton of *Isisaurus colberti*	*Isisaurus* is a genus of titanosaurid dinosaur from the Late Cretaceous period from India.
3	Skeletal elements of prosauropods and abelisaurids	Prosauropods were large herbivorous dinosaurs of the Triassic and Early Jurassic. *Abelisaurids* were carnivorous bipedal theropod dinosaurs. *Rahiolisaurus* is an abelisaurid which existed in India during the Late Cretaceous period.
4	Mounted skeleton of *Hypardepedon huxlei*	Rhynchosaurs are a group of extinct herbivorous Triassic archosauromorph reptiles with a unique dentition pattern.
5	Numerous skeletal elements of *Parasuchus hislopi*	Phytosaurs are an extinct group of large, mostly semiaquatic Late Triassic archosauriform reptiles having superficial similarity with the crocodiles.
6	Numerous skeletal elements of *Wadiasaurus indicus* and *Reschnisaurus cristarhynchus*	kannemeyeriid dicynodont (non-mammalian synapsid) from the Middle Triassic (Yerrapalli Formation of India.
7	*Endothiodon mahalanobisi* and related fauna	Various medium and small dicynodonts are known from Late Permian Kundaram Formation of India that includes *Endothiodon*.
8	*Pamelaria dolichotrachela* and *Yerrasuchus deccanensis*	*Pamelaria* is an extinct allokotosaurian archosauromorph reptile and *Yarasuchus* is an extinct genus of avemetatarsalian archosaur known from Middle Triassic of India.
9	Numerous skeletal elements of *Shringasaurus indicus*	*Shringasaurus* (meaning «horned lizard») is an extinct genus of allokotosaurian archosauromorph from the Middle Triassic (Anisian) of India.
10	Numerous skeletal elements of *Cherninia denwai, Paracyclotosaurs crookshanki, Eryosuchus rajareddyi, Compsocerops cosgriffi* and *Panthasaurus maleriensis*	All temnospondyl amphibians known from various Triassic Formations of India.
11	Many new taxa of Cenozoic gastropods	
12	Other Cenozoic invertebrate taxa	

Mounted skeleton of Barapaaurus tagorei, a Jurassic dinosaur

New Initiatives

- The outreach initiative has been taken by Dr. Sanjukta Chakravorti, former Research Fellow and Visiting Professor of ISI/ GSU in 2021-2022, through an engagement grant from the Palaeontological Association of London. Many awareness programmes of that outreach grant have been extended in 2022 – 2023. You Tube video of the said programs are also uploaded. The links are as follows- 1. https://youtu.be/zG2iv2owV-w and 2. https://youtu.be/h0ES0phF83Q
- 3D Printing of the entire skeleton of Panthasaurus maleriensis has been done.
- The visitor's book has been digitized.

Visitors

Many national experts as well as students of vertebrate palaeontology visited the Museum in 2022-23 to study the rare collections.

List of visitors

Sl. No.	Name	Affiliation	Period of Visit
1	Sulagna Sen,	PhDScholar, IIT Kharagpur	May 27, 2022
2	Sulagna Sen,	PhD Scholar, IIT Kharagpur	May 30 – June 17, 2022
3	Lukasz Czepinski	Post doc, Institute of Paleobiology, Polish Academy	March 20-29, 2023

Mrs. Pamela. L. Robinson, A. N. Kolmogorov and P. C. Mahalanobis at Geological Studies Unit, 14th April, 1962

6.3.2 Prasanta Chandra Mahalanobis Memorial Museum and Archives

GENERAL INFORMATION

Name of In-charge	:	Dr. Kishor Chandra Satpathy
Physical Address	:	Amrapali, ISI, 204 B T Road, Kolkata-700 108
Founded in	:	29th June 1993
Founded by	:	Indian Statistical Institute

Brief Overview of the Museum and Archives

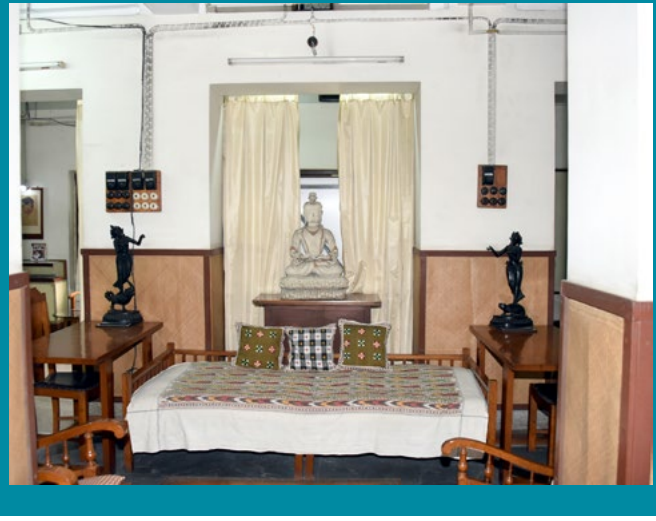
The Prasanta Chandra Mahalanobis Memorial Museum & Archives (PCMMM&A) was founded in 1993 to commemorate the birth centenary of pioneer statistician and the founder of Indian Statistical Institute, Professor Prasanta Chandra Mahalanobis (PCM). The museum and archives highlight PCM's life and works, including his contributions to the fields of statistics, economics, and planning in India. In addition, it contains his private collection of books and an assortment of rare photographs and documents. Primary objectives of the Prasanta Chandra Mahalanobis Memorial Museum & Archives are to collect, preserve, restore, display, disseminate, document of personal, administrative, and rare source materials associated with the life and legacy of Prof. Mahalanobis and the establishment of the Indian Statistical Institute, as well as the development of the Institute and statistical science in India.

The Museum & Archives

PCMMM&A is housed in Amrapali, the erstwhile residence of Prof. Mahalanobis which is situated on the institute's campus in Kolkata. A permanent exhibition featuring photographic displays about the life and work of PCM is located on the eastern side of the house's ground floor. A total of five galleries makes up the museum's exhibit. These galleries feature 921 exhibits spread across 101 panels. The first floor of the house has been preserved for the audience which includes an open lounge (the *Chatal*), PCM's study, and private areas of the residence. On the first floor, a new gallery opened in 2016 depicting Prasanta Chandra Mahalanobis and his wife Nirmal Kumari Mahalanobis's special relationship with Rabindranath Tagore.

The archival materials of PCMMM&A traces back the evolution of statistics in the Indian subcontinent during and after PCM's lifetime, paying particular attention to his outstanding contributions in this field. The archival materials include official and personal documents, files, correspondence, scientific and literary papers, photographs, newspaper cuttings, diaries, and manuscripts related to Prasanta Chandra Mahalanobis and Nirmal Kumari Mahalanobis. These collections also includes audio-visual materials such as sound recordings, film footage, negatives, and slides. There are approximately 3 lakh documents, with approximately 1.9 lakh having already undergone preservation treatments, depending on their condition. The digitization of documents began in 2007. To date, approximately 25,000 documents have been digitized, with metadata for approximately 20,000 documents saved on a customized server and approximately 2000 documents uploaded to the D-Space server.

Note: Presently the Museum & Archives has been shifted to the third floor of the library building temporarily for the renovation work of the existing museum building (*Amrapali*). The physical museum space is closed for the time being for the general visitors. With prior permission serious visitors can access the museum and archives. Also, PCMMM&A has a presence on virtual platforms (Instagram, Facebook & Twitter). General visitors can be reached through these digital mediums.



PCM Museum and Archives: Major Collections

Name of Collection	Brief Overview of Collection
Manuscripts	3,00,000 Manuscripts (Typescript/ Handwritten)
Books	850
Audio-video [Spool, Record, Cassettes]	93 nos., 89 nos.,101 nos.
Photographs	4000 approx.
Negatives	5000 approx.
Slides	1236 slides approx.
Artifacts	1330 approx.

Researchers Visited/ Consulted PCMMM&A

Name of Activity	Affiliation
Reference Services for Researchers and Scholars	▶ Sunish Kumar Deb, Assistant Secretary, Bangiya Bijnan Parishad. ▶ Amrita Chattopadhyay, Jawaharlal Nehru University. ▶ Ranjit Mondal, Jadavpur University. ▶ Aman Roy, Graduate Centre CUNY, New York, USA. ▶ Anooj Kansara, University of California, Berkeley. ▶ Yaseer Nasser, University of Chicago. ▶ Neel Thakkar, Princeton University, New Jersey. ▶ Gautam Bagchi, Writer ▶ Michel Rayner, University of Sussex, UK ▶ Sutapa Malakar, Gokhale Institute of Politics & Economics, Pune ▶ Jithin K Jacob, Central Glass & Ceramic Research Institute

Special Visitors of PCMMM&A

Name of Activity	Name & Affiliation
Special Visitors of PCMMM&A	▶ Pankaj K P Shreyaskar (Deputy DG, MoSPI) ▶ Nikhil Agarwal (Dy Director, MoSPI) ▶ M. M. Hasija (DG, NSO, MoSPI) ▶ Sudeep Sarkar (Professor & Dept. Chair, Comp. Sc. & Engineering, University of South Florida) ▶ Reena Dewan (Director of Kolkata Centre for Creativity, Kolkata) ▶ N. Dasgupta (Director, Central Research & Training Laboratory, NCSM) ▶ Sanjoy Bhattacharyya (Chief Investment Advisor HDFC, Investment Planner, IIM Ahmedabad) ▶ Dr. Debasish Bandyopadhyay (Director of CSIR-CGCRI) ▶ Sir David John Spiegelhalter (OBE FRS, Chair, Winton Centre for Risk and Evidence Communication, Dept. of Pure Mathematics & Mathematical Statistics, University of Cambridge, UK) ▶ Aleida Guevara March (Doctor of medicine, Che Guevara's daughter) ▶ Prof. Sabyasachi Bhattacharya (Distinguished Professor Dept. of Condensed Matter Physics and Materials Science, Tata Institute of Fundamental Research)

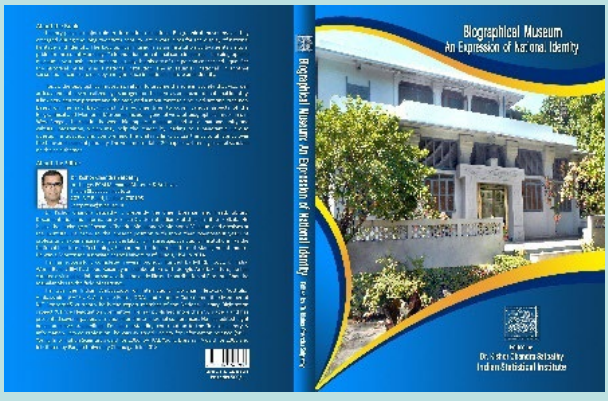
Major Activities

Museum Visit

Guided tours were provided to the visitors by the PCMMM&A Trainees. During 2022-2023 PCMMM&A received a total no. of 496 visitors.

Publication

'Biographical Museum: An Expression of National Identity' edited by Dr. Kishor Chandra Satpathy



Book Cover

Book opening ceremony at KCC, Kolkata

Preservation Treatment

Conservation and Documentation for the preservation of the collection to ensure availability to present and future researchers. During this financial year, approximately **2394** nos. of archival documents were provided preservation treatment after assessing their condition.

Demonstration of Preservation techniques to the trainees

Current Project

Social Media Volunteer Programme for PCMMM&A

Poster of social media volunteer Program

New Joining

- Avik Kumar Das Joined PCMMM&A as Associate Scientist 'A' on 5th September,2022

Participation in events

Participation in Seminars/ Conferences:

1 **Offline**:

Dr. Kishor Chandra Satpathy delivered an invited Talk on "The Role of Archivist of Prasanta Chandra Memorial Museum & Archives" during the celebration of 'World Heritage Week – Durga Festival' at Kolkata Centre for Creativity.

Online:

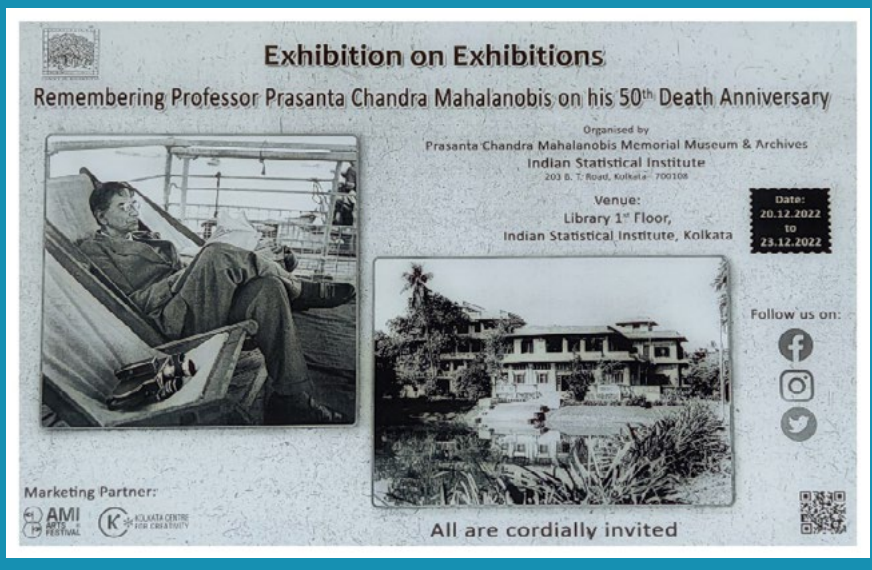
The Role of Archivist of Prasanta Chandra Mahalnobis Memorial Museum & Archives in Commemoration of P. C. Mahalanobis: a Case Study from India by Kishor Chandra Satpathy and Keya Das on 7th September 2022 at Section on University and Research Institution Archives (ICA-SUV), Université de Montréal. **(The theme of the conference was "Commemoration and Archives in Universities and Research Institutions.")**

2 **Online:**

Virtual Exhibition on "Father of Indian Statistics: Prof. Prasanta Chandra Mahalanobis during 19th-25th November 2022 to celebrate Heritage Week 2022.

3 To celebrate 92nd Foundation Day and commemorate the 50th death anniversary PCMMM&A has organized an exhibition on Professor's participation and contribution in various exhibitions over the years, this exhibition is entitled "Exhibition on Exhibitions".

Inauguration of the exhibition by Prof. Bandyopadhyay



Poster of the Exhibition

4 Prasanta Chandra Mahalanobis Memorial Museum & Archives have jointly participated in ***Acharya Satyendra Nath Bose Bijnan 'O' Prajukti Mela*** (Science & Technology Fair) with Research Scholars from **Agricultural and Ecological Research Unit (AERU)**, **ISI** and **Laboratory for Cognitive systems and Cybernetics Research, ISI** from **19th Jan 2023** to **23rd Jan 2023** at Hedua Park.

Special acknowledgement by Paschimbanga Bijnan Mancha

5 Prasanta Chandra Mahalanobis Memorial Museum & Archives has organised a daylong seminar on 'Restoration of Museum Buildings: Issues & Challenges' on 16th March 2023 at the Indian Statistical Institute.

Photographs of the Seminar

6.4 Scientific Assignments

A. K. DAS, SQC & OR Unit, Kolkata

1. Delivered a plenary talk, National Seminar on Applications of Statistics and Artificial Intelligence in Emerging Scenarios, Statistics Department, Sambalpur University (Mar 03, 2023).

A.L. N. MURTHY, SQC & OR Unit, Hyderabad

1. Guest Faculty, Statistical Quality Control (SQC) for QA, TSO Programme – Quality Assurance Engineering, BARC Training School, Nuclear Fuel Complex (NFC), Hyderabad (Apr 18 – May 06, 2022).

A. R. MOLLA, CSRU, Kolkata

1. Tutorial Speaker, Dispersion of Mobile Robots, Tutorial at PODC 2022, ACM Symposium on Principles of Distributed Computing (PoDC) (Jul 25-29, 2022).
2. Co-author, Byzantine Connectivity Testing in the Congested Clique, 36th International Symposium on Distributed Computing (DISC 2022), Augusta, Georgia, USA (Oct 24-28, 2022).
3. Co-author, Fault-Tolerant Graph Realizations in the Congested Clique, 18th International Symposium on Algorithmic of Wireless Networks, ALGOSENSORS 2022, Postdam, Germany (Sep 08-09, 2022).
4. Co-author, On the Message Complexity of Fault-Tolerant Computation: Leader Election and Agreement, 24th International Conference on Distributed Computing and Networking (ICDCN 2023), IIT Kharagpur, India (Jan 04-07, 2023).
5. Co-author, Fault-Tolerant Dispersion of Mobile Robots, 9th Annual International Conference on Algorithms and Discrete Applied Mathematics (CALDAM 2023), Dhirubhai Ambani Institute of Information and Communication Technology, Gandhinagar, India (Feb 09-11, 2023).

ABHIROOP MUKHOOADHYAY, EPU, Delhi

1. Plenary Speaker, 1st BD Sharma Memorial Lecture, University of Kashmir (Mar 09-10, 2023).
2. Internal Peer Review Member, School of Liberal Arts, IIT, Jodhpur (Oct 13-14, 2022).
3. Invited Lead Speaker, Jadavpur University (Dec 27-29, 2022).
4. Invited Speaker, IIPS workshop, International Institute of Population Sciences (Jan 23, 2023).
5. Plenary Speaker, IIT Kanpur (Feb 08-09, 2023).
6. Plenary Speaker, Dr. K.E. Vaidyanathan Memorial Lecture, Sharada Unviersity/ Indian Association for Social Sciences and Health (Mar 17, 2023).

AMITA PAL, ISRU, Kolkata

1. Invited lecture, Statistical machine learning: Classification and clustering, National Conference on Research in Health & Biomedical Sciences (SYMRESEARCH 2022), Symbiosis International University, Pune (Nov 03, 2022).

ANUJ BHOWMIK, ERU, Kolkata

1. Invited talk, Segmented Assimilation: A Minority's Dilemma, XXXth, XXXIst, XXXIInd Annual General Conference on Contemporary Issues in Development Economic, Jadavpur University (Dec 27-29, 2022).
2. Invited talk, Present at the paper Segmented Assimilation: A Minority's Dilemma, AMES 2013, IIT Bombay (Jan 10 -12, 2023).
3. Invited talk, Present at the paper on the core of an economy with arbitrary consumption sets and asymmetric information, IIT Jodhpur (Dec 01-03, 2022).
4. Invited talk, Mathematics in the disguise of Economics, International Conference on Frontiers of Mathematical Sciences with Applications, Calcutta Mathematical Society (Dec 08-10, 2022).
5. Invited talk, Segmented Assimilation: A Minority's Dilemma, International workshop on Political Economy of Green Transition and Distributive Justice, Center for Distributive Justice, Institute of Economic Research at Seoul National University (Feb 24, 2023).
6. Invited talk, Segmented Assimilation: A Minority's Dilemma, Indira Gandhi Institute of Development Research (Mar 03, 2023).

ANUP DEWANJI, ASU, Kolkata

1. Collaborative Research, Visit, Rutgers University Camden (Sep 20 – Oct 26, 2022).

ANTAR BANDYOPADHYAY, Stat-Math Unit, Delhi

1. Invited Speaker and Lead Member of the ISI, Team, Statistics and Probability Meeting, Three Institute Joint Meeting of ISI-ISM-ISSAS Academia Sinica, Taipei, Taiwan (Feb 15 - 17, 2023).

ARUP BOSE, Stat-Math Unit, Kolkata

1. Invited talk, Frontier Symposium in Mathematics, IISER Trivandrum, School of Math (Apr 08-10, 2022).
2. Invited talk, National Statistics Day Celebration, Dept. of Statistics, University of Mysore (Virtual) (Jun 29, 2022).
3. Research collaboration/lecture, Dept. of Math., IIT, Bombay (Jul 14-15 and May 07-08, 2022).
4. Research collaboration/lecture Invited talk, Workshop in Probability, Dept. of Math., IISER Bhopal (Nov 18, 2022).

5. Invited talk, International Indian Statistical Association Conference 2022, IISc, Bengaluru (Virtual) (Dec 26- 30, 2022).
6. Research collaboration/lecture, Dept. of Math., IIT, Palakkad (Feb 02-03, 2023).
7. Research collaboration/lecture, Dept. of Math., University of Hyderabad (Dec 06-09; Sep 24-27, May 10-11, 2022 and Feb 03-05, 2023).
8. Research collaboration/lecture, Dept. of Math., Panjab University, Chandigarh (Feb 08, 2023).
9. Research collaboration/lecture, Dept. of Math., IIISER, Mohali (Feb 08, 2023).
10. Invited talk, High-end Workshop on Stochastic Modeling Technique, IIT (ISM), Dhanbad (Virtual) (Feb 20, 2023).
11. Invited talk (four), Bombay seminars on Probability and Statistics, Dept. of Math., IIT, Bombay (Feb 22-27, 2023).

AMARTYA KUMAR DUTTA, Stat-Math Unit, Kolkata

1. Invited Lecture on Science in Modern India, Ramakrishna Mission Institute of Culture, Kolkata (Aug 12-13, 2022).
2. Delivered Lectures on Mathematics in Ancient India, Ramakrishna Mission Institute of Culture, Kolkata (Aug 20 & 23, 2022).
3. Delivered a talk, Galois Theory: Historical Perspectives, Indian Association for the Cultivation of Science (IACS), Kolkata (Nov 25, 2022).
4. Delivered a talk at the conference, On the accuracy of Sulba constructions, International Conference on History of Mathematics (ICHM 2022) organized by Centre for IKS jointly with the Indian Society for History of Mathematics (ISHM), the Centre for Indian Knowledge Systems, IIT Madras, Chennai (Nov 25-27, 2022).
5. Visited and delivered a talk, On a residual coordinate which is a nontrivial line, Chennai Mathematical Institute (CMI), Chennai (Nov 28, 2022).
6. Visited and delivered a talk, Acharya Prafulla Chandra Ray, Sri Aurobindo International Centre of Education (SAICE), Pondicherry (Jan 06, 2023).
7. Visited and delivered two talks, "Kuttaka method" and "Cakravala method" Bhaskaracharya Pratishthana, Pune (Jan 30 – Feb 12 and Feb 10-11, 2023).
8. Visited and delivered a talk, The Magnificence of Brahmagupta's Bhavana, Bhandarkar Oriental Research Institute, Pune (Feb 01, 2023).
9. Visited and delivered a talk, residual coordinate which is a nontrivial line, IISER Pune (Feb 02, 2023).
10. Visited and delivered talks, Transition from High-School Algebra to College Algebra and Galois Theory respectively, Savitribai Phule Pune University (Feb 06-07, 2023).
11. Visited and delivered a talk, Antiquity of the Arithmetic Mean', Gokhale Institute of Politics and Economics (Feb 09, 2023).
12. Visited as Invitee, The National Science Day programme. Vigyan Bhavan, New Delhi (Feb 08, 2023).
13. Visited, delivered a Talk, judged the performance of students, Divide and Conquer Strategy: Examples from Ancient Indian Mathematics, Students Presentation Competition, Department of Mathematics, Ramakrishna Mission Vidyamandira, Belur Math (Mar 20, 2023).
14. Invited Talk, Transition from High-School Algebra to College Algebra, IISER Tirupati (Virtual) (May 21, 2023).
15. Invited Talk, residual coordinate which is a nontrivial line, an International webinar, Dept. of Mathematics, West Bengal State University, Kolkata (Virtual) (Mar 31, 2023).

ARUNAVA SEN, EPU, Delhi

1. Keynote Speaker, Deakin Theory Workshop, Deakin University, Melbourne, Australia (Nov 15-23, 2022).

ASHIS KUMAR CHAKRABORTY, SQC & OR Unit, Kolkata

1. Invited speaker, Essentials of Machine Learning, Webinar, Christ University (Deemed to be university) and Research Foundation of India (May 17-02, 2022).
2. Invited speaker, Application of some problem solving tools, Faculty development programme on Application of Mathematical Tools in Research, jointly organized by HRDC, Devi Ahilya Vishwavidyalaya (DAVV), Indore & Vinayakrao Patil Mahavidyalaya, Vaijapur (Jun 17, 2022).
3. Invited speaker, Statistics with Machine Learning - what it can do, Webinar on National Statistics Day, Jointly by the school of Mathematics and Statistics and the school of Mechanical Engineering of MIT World Peace University, Pune (Jun 29, 2022).
4. Invited speaker, Some Real Life Data Modelling Experience, International workshop on Integrated Approaches of Stochastic Modeling and Data Science for Sustainable Development in conjunction with Diamond Jubilee celebrations of the Department of Statistics, S V University, Tirupati, Jointly by S. V. University and ISPS during 7-11 September 2022 (Sep 08, 2022).
5. Invited speaker, Path to be taken by Indian MSMEs, Opportunities for Technology upgradation for MSMEs in the Engineering sector, Organized by the Engineering Export Promotion council of India as a part of a three-day International Engineering Sourcing show (IESS) held at Chennai Trade Center during 16-18 March 2023 (Mar 17, 2023).

ASHISH GHOSH, CSCR, Kolkata

1. Collaborative research work, University of Massachusetts, Dartmouth, USA (May 20- Jun 09, 2022).
2. Collaborative research work, University of Massachusetts, Dartmouth, USA (Mar 20- Apr 15, 2023).
3. Collaborative research work, King Mongkut's University of Technology, Thonburi (KMUTT), Thailand (Oct 01-17, 2022).

B. S. DAYA SAGAR, SSIU, Bangalore

1. Tutorial Speaker at IEEE IGARSS 2022, Delivered Full-Day Tutorial on "Mathematical Morphology in Digital Elevation Models", IGARSS – 2022, Kualalampur Convention Center, Kualalampur, Malayasia (Mar 12 – 17, 2022).

B.V. RAJARAMA BHAT, Stat-Math Unit, Kolkata

1. Colloquium talk, C*-extreme points of positive operator valued measures, TIFR-CAM, Bangalore (Virtual) (Apr 19, 2022).
2. Invited lecture, C*-extreme points of entanglement breaking maps, International Workshop on Matrix Analysis and its Applications, Quy Nhon, Vietnam (Jun 04, 2022)
3. Short course, The Summer School on Quantum Information Theory and related topics, IISc, Bangalore (Jun 01-12, 2022).
4. Invited talk, C*-extreme points of positive operator valued measures, Workshop on Quantum Probability and Quantum Information Alpensia Resort, South Korea (Virtual) (Jul 12 – 15, 2022).
5. CSIR pre-examination meeting (Virtual) (Jul 12-13, 2022).
6. External Expert, Assessment of an SRF, IISER Bhopal (Virtual) (Jul 27, 2022).
7. External Expert, Faculty selection (online), IIT Hyderabad (Virtual) (Aug 03, 2022).
8. External Expert, Assessment of an SRF, IIT Ropar (Virtual) (Sep 06, 2022).
9. Invited talk, Conference on Complex Geometry and Operator Theory', IISER Kolkata (Nov 24-26, 2022).
10. External Expert, PhD viva, IIT Bombay (Virtual) (Nov 28, 2022).
11. Invited talk, National Mathematics day, why square has no square root, NIT Surathkal (Virtual) (Dec 22, 2022).
12. INSPIRE Faculty selection (Virtual) (Dec 22-23, 2022).
13. Visited and gave invited talk, Chungbuk National University, South Korea, 43rd International Conference on Quantum Probability, and Infinite Dimensional Analysis (QP-43), Utop Marina, Yeosu, Korea (Jan 08-14, 2023).
14. External Expert, Assessment of an SRF, CUSAT, Cochin (Virtual) (Feb 28, 2023).
15. Series of lectures, Positive definite kernels, NCM Workshop-Operator theory and Operator Algebras IIT Gandhinagar (Mar 06-07, 2023).

BOBY JOHN, SQC & OR Unit, Bangalore

1. Resource Person, Data Science using R, Summer School in Applied Econometrics, Cochin University of Science and Technology (CUSAT), Cochin (Jun 13-14, 2022).
2. Invited Lecture, Data Analytics, Webinar on Data Analytics, UGC - Human Resource Development Centre, Kannur University (Nov 03, 2022).
3. Resource Person, Data Science using R, Faculty Development Program on Data Science, Dayananda Sagar College, Bangalore (Nov 09-10, 2022).
4. Invited Lecture, Supervised Learning, Supervised Learning using Python, Jain University, Bangalore (Dec 10, 2022).
5. Invited Lecture, Ensemble Learning using Python, Online Workshop on High Dimensional Data Analytics using Python & Julia, Vellore Institute of Technology (VIT) (Feb 09, 2023).
6. Invited Lecture, Introduction to Statistical Data Analysis, Workshop on Statistical Data Analysis using R Software, Karnataka Science and Technology Academy (KSTA) (Feb 22, 2023).

BISWANATH DUTTA, DRTC, Bangalore

1. Paper Presentation, Finding Closeness between EHRMDS and Open Source Electronic Health Record System: Analytical Approach, 16th International Conference on metadata and Semantic Research(MTSR 2022,Nov 7-11,2022), UK (Dec 08, 2022)
2. Conduct a Half Day Seminar, Knowledge Graphs and Ontologies used in Library Technical Service, Seminar, Indian Institute of Management Bangalore (Aug 12, 2022)
3. Webinar Invited Talk, Foundation of Semantic Web And Technologies, Refresher Course on Digital Transformation of Library Science Education and Services, UGC-Human Resource Development Centre Dr. Sagar Gour Vishwavidyalaya (May 26 to June 8, 2022) (May 31, 2023).
4. Panellist, Data Governance Data Sharing and Reuse, Library Technology Conclave (LT-2022 April 28-30 2022), Somaiya Vidyavihar University, Mumbai. Jointly organized by Informatics India Ltd. (Bangalore) and Somaiya Vidyavihar University (Mumbai) (Apr 29, 2022).

CHETAN GHATE, EPU, Delhi

1. Talk, Ateneo De Manila University Talk, Ateneo De Manila University, Manila, Philippines (Virtual) (Mar 29, 2023).
2. Talk, Seminar, IEG Brown Bag Seminar Series (Feb, 2023).
3. Invited Speaker, IMF Conference, IMF Conference on South Asia's Path to Resilient Growth, New Delhi (Jan, 2023).
4. Talk, CII Global Economic Policy Summit CII Global Economic Policy Summit, New Delhi (Dec, 2022).
5. Talk, Philippines Economic Society Annual Conference, Philippines Economic Society Annual Conference, Manila (Nov, 2022).
6. Talk, Shiv Nadar University, Talk, Shiv Nadar University (Nov, 2022).

7. Talk, IEG-DEA-AKAM Conference on "Economic Resilience and Public Policy", IEG-DEA-AKAM Conference on "Economic Resilience and Public Policy", Goa Business School (Oct, 2022).
8. Talk, 100 Years of Economic Development. Cornell University, Cornell University (Sep, 2022).
9. Panelist, Webinar on "Increasing Role of BRICS in responding to Global Economic Uncertainties", China Development Institute, Webinar on "Increasing Role of BRICS in responding to Global Economic Uncertainties", China Development Institute, Beijing (Virtual) (May, 2022).
10. Panelist for "Russia-Ukraine Conflict: A South Asian Economic Crisis?" Institute of South Asian Studies, Panelist for "Russia-Ukraine Conflict: A South Asian Economic Crisis?" Institute of South Asian Studies, NUS Singapore (Virtual) (Apr, 2022).
11. Talk, Talk at Institute of Economic Growth, Institute of Economic Growth, Delhi (Apr, 2022).
12. Talk, Talk at Asoka University, Ashoka University, Sonipat (Virtual) (Apr, 2022).

D. MAJUMDAR, CVPRU, Kolkata

1. Invited Talk, Attention, Transformer and BERT, Second Winter School on Deep Learning, online programme, Indian Statistical Institute, Kolkata (Jan 14, 2023).

DEBDULAL DUTTA ROY, PRU, Kolkata

1. Research paper Presentation Quantum consciousness in Language acquisition: Asia-Pacific perspective, 4th APSPA International Confrence Central University of Haryana (Mar 15, 2023).
2. Research paper Presentation, Importance of Psychological well being on Health One-day National Seminar, Deptt. of Psychology, Manipur Univ, Imphal (Mar 03, 2023).
3. Research paper Presentation, Machine Learning in personnel selection: shaping Psychology and Technology, Indian Academy of Applied Psychology, Bigyan Bhavan New Delhi (Feb 15-17, 2023).
4. Research paper Presentation, Quantum consciousness on psycho therapy, International conference of the Indian Academy of Health Psychology, Goutam Buddha Univ. Greater Noida, UP (Dec 22, 2022).

DEBASIS MISHRA, EPU, Delhi

1. Research Collaboration, Research Work, University of California, Los Angeles, USA (Jun 12-20, 2022).
2. Research Collaboration, Research Work, Brown University, USA (Jun 20-22, 2022).
3. Research Collaboration, Conference of Society for Social Choice and Welfare: Mexico City, Mexico (Jun 23-26, 2022).

DEVIKA P. MADALLI, DRTC, Bangalore

1. Resource Person, Research data Management and Data Repositories, UNESCO workshop on institutional repositories for researchers in Samoa, UNESCO, Paris (Dec 07-08, 2022).
2. Resource Person, Open Educational Resources Repositories, Online Education and Learning, Dr. B.R. Ambedkar Open University Hyderabad (Feb 27- Mar 01, 2023).
3. Resource Person, RDM Project (Strategic Planning for data Service), Prelude to International Conference on Future of Libraries, Indian Statistical Institute Kolkata (Jan 13, 2023).
4. Resource Person and Panelist, Library and Information Science world: Issues and Challenges, Indian Library Congress, Kannur University Kerala (Jan 01-03, 2023).
5. Resource Person, Research Data Management and Curation, Research Data Management Workshop, Management Development Institute Gurgaon (Dec 06-08, 2022).

DIPTI PRASAD MUKHERJEE, ECSU, Kolkata

1. Scientific discussion and Seminar Presentation, Estimation of Ball Possession Statistics from Soccer Video: Network Flow versus Reinforcement Learning, Telecom-sudParis, France (Oct 20-21, 2022).
2. Scientific discussion and Seminar Presentation, Cell Motility Analysis, Bio image Analysis Group, Pasteur Institute, Paris, France (Nov 28 – Dec 02, 2022).

E.V. GIJO, SQC & OR Unit, Bangalore

1. Invited speaker, Fractional Factorial Designs, High-End Workshop on "Design of Experiments: A statistical tool for systematic data collection, analysis and optimization", Visvesvaraya National Institute of Technology, Nagpur (Virtual) (Jul 28, 2022).

E. SOMANATHAN, EPU, Delhi

1. External Speaker, Macroeconomic risk of climate change and mitigation policies 2nd G20 Framework Working Group (FWG) Meeting Jakarta (May 25, 2022).
2. Invitation by the research group in Quantitative Political, Economy, Kings College, London, Talk on some of the pressing climate change problems in developing, countries with special focus on India, Seminar, Kings College, London (Jul 04, 2022).
3. Discussant, Session on "Growing faster by polluting less" - This paper presented estimates for the pollution-adjusted GDP growth rate in India., World Bank India Country Economic Memorandum, World Bank, India (Jul 08, 2022).
4. Invitation to meet with Chief Economic Advisor, Dr. V. Anantha Nageswaran, Proposed study on carbon pricing, Meeting CEA office (Jul 21, 2022).
5. Conference on Human Casualties from Wildlife Conflict, Effectiveness of Anti-Depredation Squads in reducing mortality from HEC in Assam First Partnership, Development Grant Meeting University of British Columbia (Oct 08, 2022).

FARZANA AFRIDI, EPU, Delhi

1. Seminar, Yale Gender Brown Bag, National University, Singapore (Virtual) (Jun, 2022).
2. Conference, 100 Years of Economic Development, Cornell University, USA (Sep, 2022).
3. Workshop, STEG-CEPR Theme Workshop, Structural Transformation and Economic growth (Sep, 2022).
4. Conference and Workshop, Matching Workers and Jobs Online, IZA Workshop (Sep, 2022).
5. Conference, The North East Universities Development Consortium (NEUDC) 2022, Yale University, USA (Nov, 2022).
6. Seminar, IFPRI Applied Micro Economics and Development Seminar (Washington DC), IFPRI Applied Micro Economics and Development Seminar (Washington DC) (Nov, 2022).
7. Panel, Social Protection, Georgetown University, Washington DC (Sep, 2022).
8. Panel, Discussion on Covid-19 and Women, Yale Inclusion Economics (Jul, 2022).
9. Panel, Neemrana Conference, ICRIER, Neemrana Conference, Neemrana Fort-Palace, Rajasthan (Dec, 2022).
10. Panel, State of the Economy Discussion, IIC, New Delhi (Dec 30, 2022).
11. Keynote, Royal Economic Society Annual Conference Keynote, Ashoka University Hub Event, Sonipat (Apr 21, 2022).
12. Lecture, ICSSR Agriculture Workshop Lecture, Centre for Development Studies, Kerala (May, 2022).
13. Keynote, 4th Applied Dev Econ Conference Keynote, Lahore University of Management Studies, Lahore (Sep, 2022).
14. Keynote, Inspiring Change Conference Keynote, Great Lakes University (Dec, 2022).
15. Keynotes/Lecture, Thurgau Experimental Economics Meeting Keynote, University of Konstanz, Germany, University of Konstanz, Germany (Mar 28, 2023).
16. Panel, 2023 India Energy Week (Panel on Clean Cooking), Bengaluru, India (Feb, 2023).
17. Seminar, FASS Brown Bag Seminar Series, National University, Singapore (Mar 24, 2023).

G. PAUL, CSRU, Kolkata

1. Keynote Talk, Quantum Cryptography and Beyond, International Conference on Cryptology and Network Security with Machine Learning (ICCNSML) (Dec 16, 2022).
2. Speaker, Webinar, From Classical to Quantum Security, Department of Information Technology, Sikkim Manipal Institute of Technology (Nov 02, 2022).
3. CQT-talk, Monogamy of Entanglement and Its Violation in Indistinguishable Particles, Centre for Quantum Technologies (CQT), National University of Singapore (May 11, 2022).
4. Co-author, Improving the Security of "Measurement-Device Independent Quantum Communication without Encryption" (Poster), 12th International Conference on Quantum Cryptography (QCrypt, 2022), Virtual (Zoom) (Aug 29 – Sep 02, 2022).
5. Co-author, Differential Fault Attack on PHOTON-Beetle, Proceedings of the 2022 Workshop on Attacks and Solutions in Hardware Security (ASHES' 22), 2022 Workshop on Attacks and Solutions in Hardware Security (ASHES' 22), Copenhagen, Denmark (Nov 11, 2022).

G.S.R. MURTHY, SQC & OR Unit, Hyderabad

1. Guest Faculty, Stochastic Processes and Time Series Analysis, Indian Institute of Technology, Tirupati (A full semester course for M. Sc. Students) (Jan 24 – Apr 21, 2023.

HARI CHARAN BEHERA, SRU, Giridih

1. Key Note Speaker, Participatory Livelihood Vulnerability Assessment (PLVA) of 15 Forest Dwelling Communities in Jharkhand and Odisha, II National Seminar on Sustainability: tribes, Health and Migration, Department of Anthropology and Centre of Excellence Regional Development and Tribal Studies, Sambalpur University, Odisha (Mar 20-21, 2023).
2. Resource Person, Empowering small-marginal and tenant farmers through FPOs at GP level, Training of Master Trainers Programme on Socially Secured and Socially Just Panchayats Sponsored by Department of Panchayati Raj, Patna, Government of Bihar, NIRDPR (Virtual) (Sep 26–28, 2022) in Patna.
3. Address Ethnicity, identity and agrarian movement during colonial period in Jharkhand "The Historical Marginalization of tribal Philosophies and tribal History, Organized by Dr. Ramdayal Munda Tribal Welfare Research Institute, Ranchi (Aug 09-10, 2022).
4. Invited talk (Resource person), Land Use-Land Cover (LU-LC) Changes between Pre and Post Economic Reform Periods in India: Policy Perspective and Analytics, Webinar on World Environment Day, by the United India Anthropology Forum (UIAF)-CRD 7 (Jun 05, 2022).

ISSAN PATRI, Stat-Math Unit, Delhi

1. Research collaboration, Spaces of von-Neumann Algebras, Universite Paris Cite (May 18-Jul 27, 2022)
2. Research Collaboration, Mildly Mixing Masas, IIT Madras (Nov 14-18, 2022 and Feb 06-15, 2023)

JAYDEB SARKAR, Stat-Math Unit, Bangalore

1. Conference, Noncommutative Analysis at the Technion, Technion, Israel (Jun 26 – Jul 01, 2022).
2. Research visit, University of Athens (Sep 11-16, 2022).
3. Conference, "Operators, Functions, Systems: Classical and

Modern", in honor of the 80th anniversary of N.K. Nikolski, Mathematical Conference Center in Bedlewo, Poland (Jun 12-18, 2022).

4. Conference, IWOTA, Krakow, Poland (Sep 05-11, 2022).

JIBAN K. PAL, Library, Kolkata

1. Board Meeting (in-person) of the International Editors, International Meet on the occasion of Tenth Birth Anniversary of the Re3data, (For evaluating progress of Re3data~CoREF Project), Karlsruhe Institute of Technology (KIT), Baden-Württemberg, (Germany) (Jul 20–22, 2022).
2. Guest Speaker, Annual Conference, International Conference on Transformation of Knowledge, Repository into Knowledge Economy, Pakistan Librarian Welfare Organization (PLWO) (Sep 15-16, 2022).
3. Resource person, MARC Cataloguing in Koha and Resource Discovery Tools & Service, Capacity Building Training Program for Public Library Personnel, National Mission on Libraries (NML) under the entrustment of Raja Rammohun Roy Library Foundation (RRRLF), Ministry of Culture, Government of India (Jan 16–20, 2023).
4. Invited Speaker Research Data Management, ICSSR Sponsored International Conference on Information Infrastructure of Social Science Research in India (IISSRI-2023), Institute of Development Studies Kolkata (IDSK), Salt Lake, Kolkata (Mar 02-03, 2023).

K. SATPATHY, Library, Kolkata

1. Invited Speaker, Seminar, "Ethical and legal issues in Plagiarism tips for researchers", Joya Gogoi College, Khumtai (Mar 27, 2023).
2. Chaired a session, International Conference, ICIDLHV, Poornima Institute of Engineering & Technology (Feb 10, 2023).
3. Chaired a session, 13th International CALIBER, "Automation on libraries in education and research institutions", INFLIBNET (Nov, 2022).
4. Resource person, Online refresher course, "Emerging trends and technologies in library and information services", the UGC-Human Resource Development Centre (HRDC) (Mar 15-28, 2023).
5. Paper presentation and Chief guest, National Seminar, "Changing role of libraries in Indian culture and modern society", Prewanath Vidyapeeth, Varanssi (Feb 04-05, 2023).
6. Resource person, Workshop, "Career Counseling", Radhamadhab College, Silchar (Dec 21, 2022).
7. Invited Speaker, Seminar, "Plagiarism and impact metrics:The concerns and provisions for novice researchers", A.M. School of Educational Sciences (Dec 23, 2022).
8. Invited Speaker OLA Annual Day, National Librarian's Day celebration, "User Engagement in New Normal" (Aug 07, 2022).
9. Invited Speaker, "National Reading Day", Reserve Bank of India, Kolkata (Jun 20, 2022)
10. Resource Person, Two-week Refresher Course, "Digital Transformation of LIS Education and Services", Hari Singh Gour Vishwavidyalaya (Jun 03, 2022).
11. Invited Speaker, National Level Webinar, "Scope of Library Science as a Career after Graduation and Post-graduation" Prabhu Jagatbandhu College (May 18, 2022).
12. Resource person, National Level Seminar, "World Intellectual Property Day", Srikishan Sarda College in collaboration with Assam College Librarian's Association (ACLA) (Apr 26, 2022).

KALPANA T.M., Library, Chennai Centre

1. Invited Speaker, Integrated Digital Security in Academic Libraries, Regional Conference on "The Landscape of Academic Libraries in Digital Era", Stella Maris College for Women, Chennai (Oct 08, 2022 2.00pm to 4.00p.m.).
2. Invited Speaker, Technical Session I Free Access Resources for Learning and Teaching, One-day Seminar on "Free Access Resources for Learning, Teaching and Research", Periyar University, Salem (Mar 30, 2023).
3. Invited Speaker, Technical Session II "Free Access Resources for Research" (Mar 30, 2023).

KINGSHOOK BISWAS, Stat-Math Unit, Kolkata

1. Invited speaker, Geometry of Spaces with Curvature bounds, Workshop on Geometry of Spaces with Upper and Lower Curvature bounds, Fields Institute for Research in Mathematical Sciences, Toronto, Canada (Sep 12, 2022).

KUNTAL GHOSH, MIU & CSCR, Kolkata

1. Session Chair, Session on Neurobiology and Neurodegeneration, National Conference on Physiology to Pathology: Finding the therapeutic roadmap, Amity University, Kolkata (Feb 16-17, 2023).
2. Invited Lecturer, A full Course on Computer Vision, MSc in Computer Science and Machine Intelligence, Ramkrishna Mission Vidyamandira, Belur (Jul – Dec, 2022).
3. Program Chair: The 5th International Conference on Computational Intelligence and Networks (CINE) (Dec 01-03, 2022).
4. Invited Lecture: Faculty Development Programme on "Recent Trends in AI and Machine Learning Techniques – Applications Perspectives", NIT Nagaland (Mar 16-17, 2023).

MATHEW C. FRANCIS, CSU, Chennai

1. Invited talk, Graph colouring, 37th Annual Conference of the Ramanujan Mathematical Society, SSN College of Engineering, Chennai- 603110 (Dec 06-08, 2022).
2. Seminar talk, Graph colouring, Theory seminar at Department of Computer Science and Engineering, IIT Madras (Feb 28, 2023).

MADHURA SWAMINATHAN, EAU, Bangalore

1. Panelist, Climate change and food security, Open Ag Symposium on Food Futures in a Changing Climate: How do we have an equal and inclusive path to Net Zero Agriculture?, Oxford India Centre for Sustainable Development, Somerville College, Oxford (Jun 27, 2022).
2. Chair and Moderator, Climate Equity: Adaptation for Small Farmers in India, Breakout Session at International Dialogue on Feeding a Fragile World, World Food Prize Foundation, Des Moines, USA (Oct 19, 2022).
3. Guest lecture, UGC Refresher Course Summer School in Social Science, Kannur University (Mar 06, 2023).
4. Guest lecture, Financial Inclusion and the Role of Microfinance, International workshop on Credit Markets and Policies in South Asia, IIT Tirupati and Institute for New Economic Thinking (Dec 07-09, 2022).

M. KRISHNAMURTHY, DRTC, Bangalore

1. Resource Person, Digital Humanities: A passage, UGC refresher Course, Department of Library and Information Science, Calicut University, Kerala (Nov 25, 2022).
2. Resource Person, Knowledge management in academic Libraries, UGC refresher Course, Department of Library and Information Science , Calicut University, Kerala (Nov 25, 2022).
3. Resource Person, Publication ethics, Ten day workshop o Research Methodology, Department of Economics, Tumkur University, Tumkur (Feb 24, 2023).
4. Resource Person, Evaluation Internet Access, Ten day workshop o Research Methodology, Department of Economics, Tumkur University, Tumkur (Feb 24, 2023).

MOLLY CHATTOPADHYAY, EAU, Bangalore

1. Invited speaker, Gender Discrimination in Plantation Industry, National Women Commission sponsored Webinar on Unequal Pay: Gender discrimination at workplace, School of Education, North Eastern Hill University, Shillong (Dec 15, 2021).

MONALI MITRA PALADHI, Library, Kolkata

1. Presented a paper in Two-Day International Seminar, Library beyond Campus: Resurrecting Public Library Services for the Generation Next", TEQUIP Building Auditorium, Jadavpur University (Feb 04-05, 2023).
2. Three-Day International Seminar, Paper Presented, Indian Knowledge System for LIS and allied Disciplines (IKS-LISAD-2023), NSOU, Kolkata (Mar 24–26, 2023).

NEENA GUPTA, Stat-Math Unit, Kolkata

1. Invited Talk, ICM 2022 in the sections ``Algebra" as well as ``Algebraic and Complex Geometry" (Virtual) (Jul 10, 2022).
2. Invited Talk, Conference: ``To constitute a Network of Women Mathematicians in South Asian and Middle Eastern Region", University of Technology and Applied Sciences, Suhar, Oman (Virtual) (Oct 05, 2022).
3. Invited Talk, J. Conway Spirited Seminar Series organized by the department of Mathematics, the department of Mathematics at Lahore University of Management Sciences, Lahore, Pakistan (Virtual) (Oct 17, 2022).
4. Invited Talk, Purdue University Math Colloquium, Purdue University (Virtual) (Mar 28, 2023).
5. Invited Talk, ICM 2022 Sectional Workshop in Algebra and Number Theory, ETH Zurich (Jul 14, 2023).
6. Invited Talk, Vidyasagar University (Dec 19, 2022).
7. Invited Talk, Harish-Chandra Research Institute Math Colloquium, Harish-Chandra Research Institute (Dec 30, 2022).
8. Invited Talk, Ramanujan Institute of Advanced Studies in Mathematics (Mar 06, 2023).
9. Invited Talk, Bhaskaracharya Pratishthan (Mar 26, 2023).

NILADRI SEKHAR DASH, LRU, Kolkata

1. Guest Faculty, Advanced Course in Digital Humanities, Centre for Digital Humanities, Ravenshaw University, Cuttack, Odisha, India (Jul 18-20, 2022).
2. Guest Faculty, NLP for the Sanskrit Language, Ganganath Jha Campus, Central Sanskrit University, Prayagraj, Uttar Pradesh, India (Apr 22-23, 2022).
3. Keynote Speaker, 3rd International Conference on Electrical, Computer & Communication Engineering (ECCE-2023), Chittagong University of Engineering & Technology (CUET), Chittagong, Bangladesh (Feb 23-25, 2023).
4. Keynote Speaker, 2nd International Workshop on Computational Linguistics & Bangla Language Processing (CLBLP-2023), Chittagong University of Engineering & Technology (CUET), Chittagong, Bangladesh (Feb 21-22, 2023).
5. Keynote Speaker, International Conference on Multilingualism, Multimodality and Language Research (DUDLC 2023), Dept. of Linguistics, University of Dhaka, Bangladesh (Feb 19-20, 2023).
6. Keynote Speaker, 2-day National Seminar on Mapping Language, Ecology, and Cultural Diversity in India: An Ecolinguistic Approach Dept. of English, West Bengal State University, Barasat, West Bengal, India (Feb 09-10, 2023).
7. Keynote Speaker, 2-Day International Seminar on Globalization in India: Its impact on Society, Education and Literature Dept. of Bengali, West Bengal State University, Barasat, West Bengal, India (Nov 23-24, 2022).
8. Keynote Speaker, 1-day Seminar on Developing a Community of Practice: Supporting ESL Teachers of West Bengal, Professional Outreach for English Teachers (POET) and Roquiah Institute of Value Education and Research, Sakhawat Memorial Govt. Girl's High School, Kolkata (Jun 25, 2022).

9. Plenary Speaker, Students Placement Training Programme for Linguistics in NLP and HR industry, Department of Linguistics, Assam University, Silchar, Assam (Feb 18-19, 2023).
10. Plenary Speaker, 2-Day International Seminar on Sustainable Development: From the Perspective of Nature and Nurture, School of Sciences, Netaji Subhas Open University, Salt Lake, Kolkata (Feb 10-12, 2023).
11. Plenary Speaker, National Conference on Translation and Pedagogy, Dept. of English, Savitribai Phule Pune University, Pune, India (Feb 01-02, 2023).
12. Plenary Speaker, UGC Sponsored Refresher Course on Language and Linguistics Dept. of Linguistics, Osmania University, Hyderabad, Telangana (Jan 24-Feb 07, 2023).
13. Plenary Speaker, National Seminar on NEP 2020 and Higher Education through Indian Languages, Commission for Scientific & Technical Terminology (CSTT) and Dept. of Library and Information Science, Manipur University, Imphal, Manipur (Dec 05-06, 2022).
14. Plenary Speaker, Cognitive Science Research Group, Northeastern University, London, UK (Nov 16, 2022).
15. Plenary Speaker, International Translation Day 2022: A World without Barriers: Translation and Interpretation in Indigenous languages, Translation Commons (TC) in partnership with UNESCO (Sep 30, 2022).
16. Plenary Speaker, National Education Policy-2020 and Conservation of Endangered Languages of India, Department of English, GLA University Mathura (Jul 13-15, 2022)
17. Plenary Speaker, High-level international conference on World Treasury of Mother Tongues: Nourish and Cherish: National and International Context, Policies and Practices to Preserve Indigenous Languages, Russian Federation and UNESCO IFAP, Moscow, Russia (Jul 05-07, 2022).
18. Plenary Speaker, Pre-PhD Coursework Programme, Ganganath Jha Campus of the Central Sanskrit University, Prayagraj, Uttar Pradesh, India (Apr 22, 2022).
19. Plenary Speaker, 3-month Certificate Course in Translation, Department of English, Ramakrishna Mission Residential College, Narendrapur, West Bengal, India (Apr 02, 2022).
20. Reviewer, Award of the International Visiting Fellowships 2023 British Academy, UK (Dec, 2022-Jan, 2023).
21. Syllabus Reviewer, Finalization of Curriculum for MA English with Digital Humanities, Department of Languages, CHRIST University, Pune, Maharashtra, India (Dec 12-15, 2022).
22. Syllabus Reviewer, Review and finalization of the MA Linguistics syllabus Dept. of Linguistics, Central University of Rajasthan (Jun 20-22, 2022).
23. Visiting Scientist, Research on Language Loss, Dementia, Aphasia School of Psychology and Clinical Language Sciences, University of Reading, UK (Mar 26-31, 2023).
24. Visiting Scientist, Research on Bilingual Code Mixing Dept. of Psychology and Human Development, Institute of Education, University College London, UK (Mar 20-25, 2023).

PARTHA SARATHI MUKHERJEE, ISRU, Kolkata

1. Session Chair (Virtual), Conference on Data Science in Business, Finance and Industry, 2nd ISSAT (International Society of Science and Applied Technologies) Conference on Data Science in Business, Finance and Industry, Dong A University, Vietnam (Jan 10, 2023).

PRADIPTA MAJI, MIU, Kolkata

1. Speaker, Delivering Keynote Talk, 25th Society of Operations Management Conference, Indian Institute of Management Indore (Dec 17, 2022).
2. Speaker, Delivering Invited Talk, Workshop on Medical Image Computing, Indian Institute of Science, Bangalore (Feb 24, 2023).
3. Speaker, Delivering Invited Talk, National Seminar on Applied Mathematics in Science and Technology, University of Calcutta, Kolkata (Mar 22, 2023).

PIYALI KARMAKAR, Library, Kolkata

1. CIT Kokrajhar and NIELIT Guwahati, External Expert on Machine Learning for the Project based Industrial Training on Blockchain, IoT and Machine Learning using Python (Sep 23–24, 2022).

R. JANA, SRU, Kolkata

1. Participation and Chairing a Session, Session Chair, two days International Webinar on "Trends in Care and Support for the Elderly", jointly organized by the Dept. of Sociology, M.S. University, Tamil Nadu and Tamil Nadu State Council for Higher Education (TANSCHE), Department of Sociology, M.S. University, Tirunelveli, Tamil Nadu (Mar 18-19, 2022**).**

RAMIJ RAHAMAN, PAMU, Kolkata

1. Invited Talk, Quantum cryptography based on measurement inputs, Summer School on Quantum Information and Quantum Technology - 2022 (QIQT-2022), Conducted by IISER, Kolkata (Virtual) (Jun 20- 27, 2022).
2. Invited Talk, Quantum Cryptography, topical research school on quantum foundation and quantum information 2023 (TRSQFQI2023), Department of Physics, A B N Seal College, Cooch Behar (in collaboration with S N Bose National Centre for Basic Sciences, Kolkata (Mar 14-16, 2023).
3. Invited Talk, Device Independent Quantum Anonymous Veto, National Seminar on Applied Mathematics in Science & Technology 2023 (AMST 2023), Department of Applied Mathematics, University of Calcutta, Kolkata (Mar 21-23, 2023).

RAGHUNATH CHATTERJEE, HGU, Kolkata

1. Invited speaker, Emerging Challenges and Prospects in Biological Sciences, Sikkim University (Feb 23-24, 2023)
2. Invited speaker, Annual Conference of the Indian Society of Human Genetics and International Symposium on "New Genetics and its Contribution to Human Health and Wealth", Andhra University (Jan 23-25, 2023).

RAJAT K. DE, MIU, Kolkata

1. Visiting Professor, Collaborative work, Washington University in St. Louis, St. Louis, USA (Dec 12-24, 2022).

RITUPARNA SEN, ASU, Bangalore

1. Statistical Expert, Construction of Public Affairs Index, Public Affairs Centre, Bangalore (Mar-Oct, 2022).
2. Committee member, Reviewing grant proposals, Matrics grant, SERB (Since 2021).
3. Country Coordinator, Statistics Poster Competition, International Statistical Literacy Project (Since Sep, 2022).
4. Committee member, School Research Board, Vignan's Foundation for Science, Technology and Research University (Since Oct, 2022).
5. Instructor of Continuing Education course, Statistical Methods in Finance with R, Joint Statistical Meetings, USA, American Statistical Association (Aug 08, 2022).

RAJU MAITI, ERU, Kolkata

1. Invited Speaker, Time Series Analysis and Forecasting with Applications in R, Entrepreneurship in Data Analytics (Datapreneurship): Econometric Techniques in Practice, Department of Economics, Kalyani University (Feb 07, 2023).
2. Invited Speaker, Time Series Analysis and Forecasting with Applications in R, Research Methodology With Applications in Economics, Department of Economics, Rabindra Bharati University (Feb 10, 2023).

S.M. SUBHANI, SQC & OR Unit, Hyderabad

1. Guest Faculty, Statistical Quality Control (SQC) for QA, TSO Programme – Quality Assurance Engineering, SQC Training, BARC Training School, Nuclear Fuel Complex (NFC), Hyderabad (Nov 28 - Dec 14, 2022 (30 hours)).
2. Expert Committee Member, Normalization formula for conduct of Online Examinations in multisession, Expert Committee Meeting, TSPSC Expert committee (Mar 29, 2023 (1 hr)).

SANKAR SARKAR, PAMU, Kolkata

1. Presented a series of lectures, Experimental studies of turbulent flow in open channel, University of Tsukuba, Japan (Feb 28-Mar 08, 2023).
2. Keynote speaker in Conference, Turbulence through a degraded channel bed, ISBEC 2023 organized by University of Tsukuba, Japan (Mar 10, 2023).

SANGHAMITRA BANDYOPADHYAY, MIU Kolkata

1. Speaker, Named Lecture, IEEE JC Bose Milestone Lecture, Jadavpur University (May 02, 2022).
2. Speaker, Invited Talk, Celebrating International Women's Day, National Geophysical Research Laboratory, Hyderabad (Mar 09, 2022).

SMARAJIT BOSE, ISRU, Kolkata

1. Academic Collaboration, Collaboration with Prof. Ananda Sen for writing a book, Dept. of Biostatistics, University of Michigan, Ann Arbor, USA, Dept. of Biostatistics, University of Michigan, Ann Arbor, USA (Jul 11 – Aug 02, 2022).

SAMIR KUMAR NEOGY, SQC & OR Unit, Delhi

1. Contributed Speaker, Conference, 2022 IMS International Conference on Statistics and Data Science (ICSDS), Florence, Italy (Dec 13-16, 2022).
2. Plenary Speaker, Conference, 5th International Conference on Recent Advances in Mathematical Sciences with Applications in Engineering and Technology, Jawaharlal Nehru University, Delhi (Jun 16-18, 2022).

SANKAR K. PAL, CSCR, Kolkata, Emeritus Professor

1. Scholar-in-Residence, Mentor AI and Data Science research, IIT, Jodhpur (Since 2019).
2. Keynote talk, IEEE Int. Conf. on Intelligent Systems and Computational Intelligence (ICISCI2022), Changsha, China (May 10-13, 2022).
3. Keynote speech, 4th International Conference on Pattern Recognition and Intelligent Systems (PRIS 2022), Wuhan, China (Jul 29-31, 2022).
4. Keynote Talk, "Techniche 2022", Indian Institute of Technology, Guwahati (Sep 02, 2022).
5. Keynote speech, International Conference on Machine Intelligence and Emerging Technologies (Sep 23-25, 2022) Noakhali Science and Technology University, Noakhali, Bangladesh.
6. Keynote talk, IEEE International Conference on Intelligent Systems and Computational Intelligence (ICISCI2022), Changsha, China (Oct 14, 2022).
7. Keynote talk, Annual National Level Techno-Management Fest, Aaruush'22, SRM Institute of Science and Technology, Chennai (Oct 28, 2022).
8. AICTE, Nominated AICTE Distinguished Chair Professor (Since 2021).
9. AICTE Distinguished Chair Professor Lectures, Institute of Aeronautical Engineering, Hyderabad, India (Nov 10-12, 2022).
10. Keynote talk, ATMOS, BITS Pilani, Hyderabad Campus (Nov 25, 2022).
11. INSA Anniversary Lectures during 88th Anniversary General Meeting, Visakhapatnam (Dec 14-16, 2022).
12. Convocation Speech at the XXth Convocation of Tezpur University, Tezpur, Assam (Dec 30, 2022).
13. Invited talk in the Visva-Bharati Lecture Series, Santiniketan, West Bengal (Feb 06, 2023)
14. 30th Prasanta Chandra Mahalanobis Memorial Lecture during 30th West Bengal State Science & Technology Congress, Science City, Kolkata, February 28, 2023.

15. Convocation Speech at the Fourth Annual Convocation of Brainware University, Calcutta (Feb 24, 2023).
16. INAE-Science Day Lecture, CSIR-Indian Institute of Chemical Biology, Kolkata (Mar 01, 2023).
17. AICTE Distinguished Chair Professor Talks at the Maulana Abul Kalam Azad University of Technology, West Bengal (Mar 09-10, 2023).
18. Plenary talk, 4th International Conference on Computing and Communication Systems, NEHU, Shillong (Mar 16, 2023).
19. Think Talk Speaker, Technex'23, IIT (BHU), Varanasi (Mar 18, 2023).
20. Prof. P.C. Mahalanobis Memorial Lecture, World Meteorological Day, India Meteorological Department, Regional Meteorological Center, Calcutta (Mar 23, 2023).

SHANTA LAISHRAM, SMU Delhi

1. Invited Lecture and Visit, NIT Rourakela, (Apr 19-21, 2022).
2. Invited Lecture, Department of Mathematics Sambalpur University (Apr 22, 2022).
3. Invited academic Visit, IIT Hyderabad (May 26-30, 2022).
4. Selected, Deputy National Coordinator, Mathematical Olympiad, NBHM, Govt of India (Jul 2021 - Mar 2023)
5. Selected, Deputy Leader, Indian Team, International Mathematical Olympiad 2022, Norway (Jul 06-16, 2022)
6. Conference, Second JNT Biennial Conference, Cetraro, Italy (Jul 18-22, 2022).
7. Invited Visit, Sabanci University, Istanbul, Turkey (Jul 23-27, 2022).
8. Invited Visit and Lecture, Manipur University (Aug 23-27, 2022).
9. Invited Visit, IMSc Chennai (Sep 12-17, 2022).
10. Invited Visit and Lecture, IIT Jammu (Oct 23-27, 2022).
11. Conference, ICCGNFRT-2022, KSOM Kozhikode (Nov 21-24, 2022).
12. Invited Speaker, IST on Polynomials, Manipur University, Imphal (Nov 28 – Dec 10, 2022).
13. Invited Speaker, TEW on Groups, Rings and Number Theory, Mizoram University, Aizwal (Dec 12-17, 2022).
14. Invited Lecture, NCMAS 2022, Uttarakhand Open University, Haldwani (Dec 22-23, 2022).
15. Invited Speaker, Workshop in Analytic Number Theory, KSOM Kozhikode (Jan 16-24, 2023).
16. INMO Evaluation Committee, HBCSE, Mumbai (Feb 02-05, 2023).
17. Invited Visit and Lecture, University of Hyderabad (Feb 06-09, 2023).
18. Invited Speaker, Workshop in Number Theory, NISER Bhubaneswar (Feb 20-25, 2023)
19. Invited Talk, IIT Jodhpur (Feb 27, 2022).
20. Invited Visit and Talk, IISER Thiruvananthapuram (Mar 24-28, 2023).

SAROJ K. MEHER, SSIU, Bangalore

1. Keynote Lecture (2 nos.), An Introductory Tutorial On Machine Learning And Its Diverse Applications, FDP, Centre for Clean Environment, VIT Vellore, India (Feb 24-25, 2023).
2. Keynote Lecture, Deep Learning Techniques, FDP, Ramco Institute of Technology, Tamilnadu, India (Feb 13-17, 2023).
3. Keynote Lecture, Semisupervised Leaning with Granular Neural Networks for remote Sensing Image Classification, International Conference On Innovations in Intelligent Computing and Communications (ICIICC-2022), Utkal University, Bhubaneswar, Odisha, India (Dec 16-17, 2022).
4. External Expert, Doctoral Committee Member, Ph.D. Program, School of Advanced Science, Vellore Institute of Technology, Vellore, India (Apr 11, 2023 (4 Yrs)).
5. External Expert, Doctoral Committee Member, Ph.D. Program, Computer Science Department, Vellore Institute of Technology, Andhra Pradesh, India (Apr 11, 2021 and continuing till date (4 yrs)).
6. External Expert, Doctoral Committee Member, Ph.D. Program, Computer Science Department, Biju Pattnaik University of Technology, Rourkela, Odisha. India (Sep 05, 2021 and continuing till date (4 Yrs)).
7. External Expert, Doctoral Committee Member, Ph.D. Program, Computer Science and Engineering Department, Silicon Institute of Technology, Bhubaneswar (Mar 03, 2022 and continuing till date (4 Yrs)).
8. External Advisor, Departmental Advisory Committee, Computer Science Dept., Don Bosco Institute of Technology, Kumbalgodu, Mysuru Road, Bengaluru (Mar 07, 2022 and continuing till date).
9. General Chair, 4th International Conference on Computational Intelligence in Pattern Recognition (CIPR-2022), IIEST, Shibpur, West Bengal, India (Apr 23-24, 2022).

SOHAM SARKAR, Stat-Math Unit, Delhi

1. Lecture series on "An Introduction to Functional Data Analysis, Department of Mathematics and Statistics, Indian Institute of Technology, Kanpur (Feb 27- Mar 03, 2023).
2. Covariance networks for functional data on multidimensional domains, Workshop on Statistics and Probability, Department of Mathematics, Indian Institute of Technology, Bombay (Jan 03-06, 2023).
3. Invited speaker, Recent Advances in Functional Data Analysis, 2022 IISA Conference, Indian Institute of Science, Bengaluru (Dec 26, 2022 - Dec 30, 2023).

SUJATA GHOSH, CSU, Chennai

1. Invited Speaker, Mathematics, IWM Regional workshop on research and opportunities, VNIT, Nagpur (Dec 09 - 10, 2022).
2. Invited Speaker, Mathematics, Hypatian voices: A

Gynocentric National Seminar on Mathematical Sciences, NBU, Darjeeling (Mar 16 - 17, 2023).

3. Invited speaker, Logic, Tsinghua Logic Salon, Tsinghua University, China (Oct 13, 2022).

S. PALIT, CVPRU, Kolkata

1. Participated in Cryosphere 2023, Reykjavik, Iceland, Chairing a special session on Ocean Cryosphere Interactions, Cryosphere 2022, Icelandic Met Office, WMO, International Glaciological Society, IACS (Aug 21 - 26, 2022).

SUPRATIK PAL, PAMU, Kolkata

1. Invited talk, Conference on Beyond Standard Models in Particle Physics and Gravity, IACS, Kolkata (Dec 22 - 23, 2022).
2. Invited talk, International Workshop on Galaxy Formation and Evolution across the Cosmic Time, Visva-Bharati, Santiniketan (Dec 13 - 14, 2022).
3. Invited talk as a Resource Person, Workshop on Astronomy and Astrophysics for College Teachers, Govt. Girls' General Degree College, Kolkata (Nov 17 - 18, 2022).
4. Invited talk, International Conference on Neutrinos and Dark Matter 2022, Sharm El Sheik, Egypt (Sep 25 - 28, 2022).
5. Invited talk as a Resource Person, In-Service Training/ Orientation Programme for School Teachers, Ramakrishna Mission Sikshamandira, Belur (Sep 19 - 24, 2022).
6. Invited talk, C.K. Majumdar Memorial Workshop in Physics 2022, SNBNCBS, Kolkata (Jul 12 - 21, 2022).
7. Invited talk, Science Meet, Presidency University, Kolkata (May 10, 2022)
8. External Expert, Meeting on setting up a Centre for Astronomy and Space Technology at Ujjain, IIT Indore (Sep 15, 2022)
9. External Expert, Postdoctoral Fellow Selection Committee, Aryabhatta Research Institute of Observational Sciences (ARIES), Nainital (Sep 07, 2022).
10. External Expert, Postdoctoral Fellow Selection Committee, S.N Bose National Centre for Basic Sciences, Kolkata (Mar 28, 2022).
11. External Expert, Postdoctoral Fellow Selection Committee, Indian Association for the Cultivation of Science, Kolkata (Feb 23, 2023).
12. External Expert, MSc Physics project dissertations and viva-voce, IIT Kharagpur (May 04, 2022).

SUSHMITA MITRA, MIU, Kolkata

1. Speaker on behalf of INAE, Delivering talk, CAETS 2022, Versailles, France (Sep 23 - 29, 2022).
2. Collaborative research, Delivering talk and research collaboration, Johns Hopkins Institute, Virginia Tech, Lake Forest College, University Iowa (Feb 20 - Mar 24, 2022).

SUDHEESH K KATTUMANNIL, ASU Chennai

1. Guest Faculty, Nonparametric inference and Statistical Methods for Machine Learning, Courses for MSc Mathematics and Statistics, IIT Tirupati (Jul - Dec, 2023 and Jan - May, 2023).

SHILADRI SHEKHAR DAS, GSU, Kolkata

1. Invited Speaker, Mollusc Evolutionary History & The Ecology of Fossil and Extant Molluscs, World Congress of Malacology 2022 (WCM 2022), Munich, Germany (Jul 31 – Aug 05, 2022)

T. KARTHICK, CSU, Chennai

1. External Expert, Mathematics, Faculty Selection Committee, VIT Vellore, (Jul 18, 2022).
2. Invited Speaker, Graph Theory, Two-day International conference on Recent trends in Mathematics, Computer Science and Applications, Agurchand Manmull Jain College, Chennai (Sep 09 - 10, 2022).
3. Invited Speaker, Graph Theory, 37th Annual Conference of Ramanujan Mathematical Society, SSN College of Engineering, Chennai (Dec 06 - 08, 2022).
4. Participation, IMSc 60 Celebration, IMSc, Chennai (Jan 02 - 05, 2023).
5. Doctoral Committee Member, External Expert, Annual Evaluation of a Ph.D student, SRM University, Chennai (Jan 20, 2023 onwards).
6. External Expert, Mathematics, Faculty Selection Committee, VIT Vellore (Jan 22, 2023).
7. Invited Speaker, Graph Theory, International Conference on Recent Trends in Graph Theory and Allied Areas, St. Aloysius College, Thrissur, Kerala (Feb 02 - 04, 2023).
8. Invited Speaker, Mathematics, P. Subramaniam Endowment Lecture, Dept. of Mathematics, Presidency College, Chennai (Feb 14, 2023).
9. Invited Speaker, Mathematics, International Conference on Recent Trends in Applied mathematics, Loyola College, Chennai (Feb 24-25, 2023).

TAPAS BASU, RPU Unit, Kolkata

1. Guest Faculty, "Photo Correction with Photoshop", Photographic Course Dept. of Photography, Ramkrishna Mission Vidyamandira, Belur Math (Dec 10 & 17, 2022).

TARUN KABIRAJ, ERU, Kolkata

1. External Member, Screening-cum-Evaluation Committee, to screen and evaluate faculty promotion, Department of Economics and Politics, Visva-Bharati, Vidya Bhavana, Visva-Bharati (Mar 15, 2023).

TRIDIB KUMAR MONDAL, GSU, Kolkata

1. Member of the Research Advisory Committee, Evaluating Doctoral students, Department of Geological Sciences,

Jadavpur University (Mar, 2022 onwards).

2. Invited Speaker, Understanding fluid flow and vein emplacement in the Chitradurga Schist Belt, WDC, India, Pondicherry University (Nov 10, 2022)

TRIDIP RAY, EPU, Delhi

1. Invited Plenary Lecture, Public Policy – An Indian Perspective Conference, Department of Economic Science, IIT Kanpur (Mar 02, 2023)

UMAPADA PAL, CVPRU, Kolkata

1. To attend International conference, Present papers and to Chair a session, 26th International Conference on Pattern Recognition (ICPR-2022), Montreal, Canada (Aug 21-25, 2022)

UTPAL GARAIN, CVPRU, Kolkata

1. Panellist, Panel Discussion on "Using Technology to drive Impact & Innovation", AWS Initiate India, Kolkata (Jul 13, 2022).
2. Invited Talk, Machine understanding of Human Languages: the state of the art, "Present Applications of Artificial Intelligence in Robotics and Mechatronics" under the sanctioned grant for "Science Popularization Programme" sponsored by the Department of Science & Technology and Biotechnology (DSTBT), Govt. of West Bengal, Narula Institute of Technology, Kolkata (Jul 21, 2022).
3. Invited Session, Deep Learning, Instructional School for Teachers (IST), Indian Statistical Institute, Kolkata (Jul 22, 2022).
4. Invited Talk, Advances in Machine Learning and their applications in Cosmology, Workshop on 21-cm Cosmology in the Square Kilometre Array Era, Technology Innovation Hub, Indian Statistical Institute, Kolkata (Nov 02, 2022).
5. Invited Talk, Advances in Machine Learning and its applications in Cryptanalysis, Interdisciplinary Workshop on Machine Learning for Cryptology (ML4Crypto 2022), Organized by CAIML, ISI and SAG, DRDO at Indian Statistical Institute, Kolkata (Dec 16, 2022.
6. Invited Talk, Advances in Machine Learning and its applications in Cryptanalysis, Faculty Dev. Program (FDP) on Statistical and Machine Learning Techniques with Applications, IIIT Kalyani (Jan 04, 2023).
7. Invited Talk, Foundations of NLP, Second Winter School on Deep Learning, online programme, Indian Statistical Institute, Kolkata (Jan 14, 2023).
8. Member, Board of Governors (BOG), An educationist from the region, RCC Inst. of Information Technology (RCCIIT), Kolkata (May 26, 2022 Onwards).
9. Board member, Senate, Institute Nominee, IIIT, Kalyani (Nov 09, 2021 onwards).
10. Thesis Examiner, PhD Thesis in Computer Science, PhD Thesis Examination, IIT Kharagpur (Sep 23, 2022).
11. Thesis Examiner, MS (by research) Thesis in Computer Science, Master's Thesis Examination, IIT Kharagpur (Sep 14, 2022).

YOGESHWARAN D., Stat-Math Unit, Bangalore

1. Workshop, SASI Probability, NYU Abu Dhabi (May 24 – 28, 2022)
2. Collaboration, Leiden University (Jun 28 – Jul 02, 2022)
3. Collaboration, University of Luxembourg (Jul 04 - 09, 2022)
4. Workshop, interacting particle systems, NUS, Singapore (Sep, 2022)
5. Collaboration, INRIA, Paris (Mar 05 - 19, 2023)

6.5 Visiting Scientists

The following Visiting Scientists, Post-doctoral and Faculty Fellows were associated with the various Divisions in the Institute during 2022-23

Applied Statistics Division (ASD)

Sl. No.	Name of the Visiting Scientist	Affiliation	Duration	Unit Attached	Awards/Recognition/ Publications of Visiting Scientists
1	Syamala Krishnannair	Associate Professor	University of Zululand	ASU, Bangalore	
2	Subhadip Singha	ISI Kolkata	Sep 01 -30, 2022	ASU Kolkata	
3	Samir Kundu	ISI Kolkata	Sep 01 -30, 2022	ASU Kolkata	
4	Avishek Majumder	ISI Kolkata	Sep 01 -30, 2022	ASU Kolkata	
5	Moumita Das	ISI Kolkata	Jul 01 - Aug 31, 2022	ISRU, Kolkata	
6	Nilotpal Sanyal	ISI Kolkata	Oct 07 - Mar 31, 2023	ISRU, Kolkata	Sanyal, N. (2022). Iterative Variable Selection for High-dimensional Data with Binary Outcomes. Proceedings of VI International Conference "STATISTICS and its applications", Namangan, Uzbekistan, 6, 43-48. https://doi.org/10.48550/arXiv.2211.03190
7	Debjoy Thakur	ISI Kolkata	Mar 02-31, 2023	ISRU, Kolkata	

Biological Sciences Division (BSD)

Sl. No.	Name of the Visiting Scientist	Affiliation	Duration	Unit Attached
1	Asmita Pal	University of Calcutta	Apr 01 – Nov 30, 2022	HGU, Kolkata

Computer and Communications Sciences Division (CCSD)

Sl. No.	Name of the Visiting Scientist	Affiliation	Duration	Unit Attached	Awards/Recognition/ Publications of Visiting Scientists
1	Debraj Chakraborty	University Libre de Bruxelles	Feb 15 - Mar 31, 2023	ACMU, Kolkata	
2	Nilanjan Banerjee	Elucidata, New Delhi	Jan 02 - Mar 31, 2023	ACMU, Kolkata	
3	Sanchita Paul	Jadavpur University	Feb 17 – Aug 15, 2023	ACMU, Kolkata	
4	Purpita Jana	IIT Kanpur	Feb 20 – Mar 31, 2023	CSU, Chennai	
5	Prof. Satija M P	Gurunanak University, Punjab	Aug- Nov, 2022	DRTC, Bangalore	
6	Prof Pit Pichapan	Digital Lab, Chennai	Jan- Apr, 2023	DRTC, Bangalore	
7	Prof A Y Asundi	Bangalore University	Aug – Nov 2022	DRTC, Bangalore	
8	Dr Subhash Reddy	PES University	Aug- Nov 2022	DRTC, Bangalore	
9	Debashis Das Chakladar	ISI, Kolkata	Nov 18, 2022 –Mar 31, 2023	ECSU, Kolkata	A manuscript titled "Brain connectivity Analysis for ECG-based Face Perception Talk" is almost ready to be submitted
10	Subir Kumar Paul	ISI, Kolkata	Feb 01 - Mar 30, 2023	ECSU, Kolkata	
11	Devleena Ghosh	ISI, Kolkata	Feb 15 - Mar 31, 2023	ECSU, Kolkata	
12	Akash Kumar Gupta	ISI, Kolkata	Nov 01 - 30, 2022	ECSU, Kolkata	
13	Sumanta Ray	Aliah Universty	Dec 09, 2021 – Present	MIU, Kolkata	
14	Rajesh Prasad Barnwal	CSIR-CMERI, Durgapur	Oct 28 – Nov 27, 2022	MIU, Kolkata	

Sl. No.	Name of the Visiting Scientist	Affiliation	Duration	Unit Attached	Awards/Recognition/ Publications of Visiting Scientists
15	Koushik Biswas	IIIT Delhi	Nov 18, 2022 – Mar 31, 2023	MIU, Kolkata	
16	Ankita Mandal	ISI Kolkata	Dec 30, 2022 - Mar 31, 2023	MIU, Kolkata	
17	Ekta Shah	ISI Kolkata	Dec 29, 2022 – Mar 31, 2023	MIU, Kolkata	

Physics and Earth Sciences Division (PESD)

Sl. No.	Name of the Visiting Scientist	Affiliation	Duration	Unit Attached	Awards/Recognition/Publications of Visiting Scientists
1	Hab. Andrzej Kaim	Professor, IPAL PAS, Institute of Paleobiology PAS, Head of the Department of Evolutionary Paleobiology, ul. Twarda 51/55, 00-818 Warszawa, POLAND	Feb 15 -16, 2023	GSU, Kolkata	
2	Lukasz Czepinsk	Post-Doctoral Fellow IPAL Polish Acadeny of Science, Institute of Paleobiology PAS, Warszawa, POLAND	Apr 29 – Mar 04, 2023	GSU, Kolkata	
3	Somnath Dasgupta	Visiting Scientist, Indian Statistical Institute	Apr 2022 – Mar 2023	GSU, Kolkata	1. Padmaja,J., Sarkar, T., Sorcar,N., Mukherjee,S., Das,N & **Dasgupta, S.** (2022) Petrochronological evolution of Mg-Al granulites and associated metapelites from the contact zone of the Archean Bastar craton and Proterozoic Eastern Ghats Province, and its implications. Geosystems and Geoenvironment (Elsevier), https://doi.org/10.1016/j.geogeo.2022.100041 2. Dasgupta, A., Bhowmik, S.K. & **Dasgupta, S.** (2022) Transition in Thermal History and Recurring Burial-Exhumation Cycles along Colder Thermal Gradients at the Archaean-Proterozoic Boundary: New Insights from the Western Dharwar Craton, South India. Journal of Petrology, 63, 1-34
4	Dilip Saha	Visiting Scientist, Indian Statistical Institute Co PI of the project Depositional setting of the Sonakhan greenstone belt and the Dongargarh supracrustal belt: a stratigraphic perspective	Jul 2022 to Jun 2023 Jul 2020 – Jun 2023	GSU, Kolkata	1. Sain, A. & **Saha, D.** (2022). Overlapping A-type and S-type characters in late- to post-tectonic granites – petro-tectonic evolution of late Mesoproterozoic Andhra Konda granite, Nellore Schist Belt, southern India. Journal of Earth System Science, https://doi.org/10.1007/s12040-022-01889-y 2. Banerjee, A., Patranabis-Deb, S., **Saha, D.**, De, S. & Saha, S. (2022) Mahakut Chert Breccia in Kaladgi basin, India: Unsolved Issues. Journal of the Palaeontological Society of India, 67(1), 12-21.

Sl. No.	Name of the Visiting Scientist	Affiliation	Duration	Unit Attached	Awards/Recognition/Publications of Visiting Scientists
5	Saswati Bandyopadhyay	Visiting Scientist, Indian Statistical Institute	Apr 2022 – Mar 2023	GSU, Kolkata	1. Nesbitt, S. J., Stocker, M., Ezcurra, M. D., Fraser, N. C., Heckert, A. B., Parker, W. G., Mueller, B., Sengupta, S., **Bandyopadhyay, S**., Pritchard, A. C. and Marsh, A. Widespread Azendohsaurids (Archosauromorpha, Allokotosauria) from the Late Triassic of western USA and India, Papers in Palaeontology, 8 (1), p. 1-29; (2022) doi: 10.1002/spp2.1413. 2. Sengupta, S. and **Bandyopadhyay, S**. The osteology of Shringasaurus indicus, an archosauromorph from the Middle Triassic Denwa Formation, Satpura Gondwana Basin, Central India, Journal of Vertebrate Paleontology, (2022), e2010740 DOI:10.1080/02724634.2021.2010740
6	Tapan Chakraborty	Visiting Scientist, Indian Statistical Institute	Apr 2022 – Mar 2023	GSU, Kolkata	1. S. Kundu, T. Hazra, **T. Chakraborty**, S. Bera, M. A. Khan (2023) Evidence of the oldest extant vascular plants (Horsetails) from the Indian Cenozoic. Plant Diversity, DOI: 10.1016/j.pld.2023.01.004 2. S. Kundu, T. Hazra, S. Bera, **T. Chakraborty**, M. A. Khan (2022) First fossil evidence of samaras of Ventilago Gaertn. (Rhamnaceae) from India and its implications, Journal of Systematics and Evolution. DOI: doi: 10.1111/jse.12936. 3. E. Large, P. Huyghe, J-L. Mugnier, B. Guillier, S. Taral, B.R. Gyawali, **T. Chabraborty** (2022) Distribution of active tectonics in the Himalayan piedmont (Darjeeling, eastern India) inferred from Horizontal-to-Vertical spectral ratio analysis of passive seismic records. Terra Nova, DOI: 10.1111/ter.12619 4. J-L Mugnier, P. Huyghe, E. Large, F. Jouanne, B. Guillier, **T. Chakraborty** (2022) An embryonic fold and thrust belt south of the Himalayan morphological front: Examples from the Central Nepal and Darjeeling piedmonts. Earth Science Reviews. DOI:https://doi.org/10.1016/j.earscirev.2022.104061 5. K. Ghosh, **T. Chakraborty** (2022) Impact of human intervention structures on the rivers: An investigation of the spatiotemporal variation of grain size in the Tista River, eastern Himalayas. Earth Surface Processes and Landforms. https://doi.org/10.1002/esp.5374
7	Suparna Sarkar	Indian Statistical Institute	Aug 08 - Sep 08, 2022	PAMU, Kolkata	
8	Upala Mukhopadhyay	Saha Institute of Nuclear Physics	Dec 29, 2022 – Feb 23,2023	PAMU, Kolkata	

Sl. No.	Name of the Visiting Scientist	Affiliation	Duration	Unit Attached	Awards/Recognition/Publications of Visiting Scientists
9	Surojit Dalui	IIT, Guwahati	Dec 26, 2022 - Mar 25, 2023	PAMU, Kolkata	
10	Manickam Murugesan	IISER Bhopal	Dec 01 - 05	TASU, Tezpur	

Social Sciences Division (SSD)

Sl. No.	Name of the Visiting Scientist	Affiliation	Duration	Unit Attached	Awards/Recognition/ Publications of Visiting Scientists
1	Gurbachan Singh	Independent Researcher	Apr 16 - May 16, 2022	EPU, Delhi	
2	Kunal Dasgupta	Indian Institute of Management Bangalore	Apr 16 - May 16, 2022	EPU, Delhi	
3	Sabyasachi Das	Ahoka University, Sonipat	Apr 16 - May 16, 2022	EPU, Delhi	
4	Srinivasan Murli	Indian Institute of Management, Bangalore	May 04 – 25 and Nov 24 - 25, 2022	EPU, Delhi	
5	Sonal Yadav	Umea University, Sweden	Jun 10 - Aug 10 and Aug 11 - 27, 2022	EPU, Delhi	
6	Albin Erlanson	University of Essex, United Kingdom	Jul 11 - Aug 11, 2022	EPU, Delhi	
7	Willima Wadhwa	ASER Centre, New Delhi	Aug 01 - Oct 31 and Nov 15 - Dec 15, 2022	EPU, Delhi	
8	Piyali Das	Indian Institute of Management Indore	Aug 01 – Oct 31 and Nov 15 - Dec 15, 2022	EPU, Delhi	
9	Abhinash Borah	Ashoka University, Sonipat	Aug 01 - Oct 31 and Nov 15 - Dec 15, 2022	EPU, Delhi	
10	Traun Khana	Mercator Research Institute on Global Commons and Climate Change (MCC), Berlin	Aug 01 - Sep 20, 2022	EPU, Delhi	
11	Nishith Prakash	University of Connecticut, USA	Aug 04 - 25, 2022	EPU, Delhi	
12	Ritam Chaurey	Johns Hopkins University, USA	Aug 04 - 26, 2022	EPU, Delhi	
13	Kaushal Kishore	Indian Institute of Science Education and Research, Bhopal	Dec 05 - Jan 05, 2023	EPU, Delhi	
14	Sofie Heintz	University of Zurich, Switzerland	Jan 16 – Sep 17, 2023	EPU, Delhi	
15	Ritwik Banerjee	Indian Institute of Management, Bangalore	Jan 20 - Feb 20, 2023	EPU, Delhi	
16	Manshu Khanna	Mercator Research Institute on Global Commons and Climate Change (MCC), Berlin	Jan 23, 2022 - Feb 08, 2023	EPU, Delhi	
17	Arpita Chatterjee	UNSW Business School, Sydney Australia	Feb 06 - 12, 2023	EPU, Delhi	
18	Sourav Bhattacharya	Indian Institute of Management, Calcutta	Feb 20 - Mar 05, 2023	EPU, Delhi	
19	Anand Chopra	Indian Institute of Technology, Kanpur	Mar 03 - 15, 2023	EPU, Delhi	
20	Tarun Jain	Indian Institute of Management, Ahmedabad	Mar 06 - 18, 2023	EPU, Delhi	
21	Dweepobotee Brahma	Indian Institute of Technology, Jodhpur	Mar 06 - 15, 2023	EPU, Delhi	
22	Hargungeet Singh	Indian Institute of Technology, Kanpur	Mar 13 - 20, 2023	EPU, Delhi	

Sl. No.	Name of the Visiting Scientist	Affiliation	Duration	Unit Attached	Awards/Recognition/ Publications of Visiting Scientists
23	Bikas K. Chakraborty	Centre for Applied Mathematics & Computational Science, Saha Institute of Nuclear Physics, Kolkata	Aug 01, 2022 – Jul 31, 2023	ERU, Kolkata	Collaborative research with Professor Manipushpak Mitra
24	Satya Ranjan Chakravarty	SUN CITY, 105/1, Bidhan Nagar Road, Flat – 202, Block- D, Kolkata – 700067	Jun 01, 2022 – May 31, 2023	ERU, Kolkata	Collaborative research with Professor Manipushpak Mitra
25	Prasenjit Banerjee	Economics, School of Social Sciences Economics, The University of Manchester, Netherlands	Jul 01, 2022 – Jan 15, 2023	ERU, Kolkata	Teaching courses in the MSQE Programme & Collaborative research with Dr. Priyadarshi Banerjee
26	Chaitali Sinha	Flat No. F523, 4 Sight Model Town, 437 Madhya Balia, Kolkata – 700 084	Feb 01, 2021 till date	ERU, Kolkata	Post-Doctoral Fellow (funded by ICSSR)
27	Sabbuj Kumar Mandal	Department of Humanities and Social Sciences, Indian Institute of Technology, Madras	Jul 18 - Sep 20, 2022	ERU, Kolkata	Collaborative Research and Seminar talk
28	Anil K. Bera	Department of Economics, University of Illinois, 225E David Kenley hall, 1407 W. Gregory Dr. Urbana, IL 61801, USA	Aug 07 - 17, 2022	ERU, Kolkata	To interact with the faculty and give a seminar talk
29	Arghya Ghosh	School of Economics, UNSW Business School, University of New South Wales, Sydney, NSW 2052, Australia	Aug 22 - Sep 09, 2022	ERU, Kolkata	To do collaborative works
30	Sreelakshmi, R.	Department of Humanities and Social Sciences, Indian Institute of Technology, Madras	Aug 22 - Sep 20, 2022	ERU, Kolkata	Interaction with the ERU faculty and Give a seminar talk
31	Indrajit Ray	Department of Economics, Cardiff Business School, Cardiff University, Cardiff CF 10 3 EU, UK	Aug 29 – Sep 02, 2022	ERU, Kolkata	To interact with the faculty & collaborative in research
32	Debapriya Sen	Department of Economics, Toronto Metropolitan University, Toronto, Canada	Jan 02 - 13, 2023	ERU, Kolkata	To interact with the faculty
33	Satchidananda Dehuri	Fakir Mohan University	Dec 13, 2021 – Mar 31, 2022	LRU, ISI Kolkata	
34	Debasmita Mukherjee,	University of British Columbia, Canada	Apr 28-29, 2022	LRU, ISI Kolkata	
35	Julia Hofweber,	University College London, UK.	May 02 - 06, 2022	LRU, ISI Kolkata	
36	Arpita Bose	University of Reading, UK	May 24-25, 2022	LRU, ISI Kolkata	
37	Atul Aman	VIT University, Bhopal, MP, India	Jun 6 - Jul 5, 2022	LRU, ISI Kolkata	
38	Alok Ranjan Pal	College of Engineering and Management, Kolaghat, WB	Oct 19, 2022	LRU, ISI Kolkata	
39	Amrita Bhattacharyya	Amity University, Kolkata, India	Nov 11, 2022	LRU, ISI Kolkata	
40	Anik Nandi	University of the Basque Country, Spain	Dec 19, 2022	LRU, ISI Kolkata	
41	Sweta Sinha	Indian Institute of Technology, Patna	Feb 10, 2023	LRU, ISI Kolkata	
42	Anurupa Kundu	St. Xavier University	Nov 21-22, 2022	PRU, Kolkata	

Sl. No.	Name of the Visiting Scientist	Affiliation	Duration	Unit Attached	Awards/Recognition/ Publications of Visiting Scientists
43	Sumana Dutta	Government General Degree College, Singur	Nov 21-22, 2022	PRU, Kolkata	
44	Murshida Khatoon	Geetam University,	Nov 21-22, 2022	PRU, Kolkata	
45	Shivani Santosh	Neotia University	Nov 21-22, 2022	PRU, Kolkata	

SQC & OR

Sl. No.	Name of the Visiting Scientist	Affiliation	Duration	Unit Attached
1	Katta G. Murthy	The University of Michigan, Ann Arbor	Feb 17, 2023	SQC & OR Unit, Hyderabad

Theoretical Statistics and Mathematics Division (TSMD)

Sl. No.	Name of the Visiting Scientist	Affiliation	Duration	Unit Attached	Awards/Recognition/Publications of Visiting Scientists
1	P. Akhilesh	Kerala School of Mathematics, Kozikode	Aug 01 - 07, 2022	SMU, Bangalore	
2	V.P. Anoop	NISER, Bhubaneswar Research Associate, ISI Bangalore	Sep 01 – Nov 30, 2022 and Dec 01, 2022 for 2 years	SMU, Bangalore	
3	Anbu Arjunan	IMSc., Chennai	Jul 01 – Nov 30, 2022	SMU, Bangalore	
4	Karthick Babu	Research Associate, ISI Bangalore	Sep 05, 2022 for one year	SMU, Bangalore	C. G. Karthick Babu, Sehra Sahu, Non-primitive roots with a prescribed residue pattern, Proc Math Sci 133, 9 (2023). https://doi.org/10.1007/s12044-023-00728-4
5	Neeru Bala	Research Associate, ISI Bangalore	Nov 03, 2021 for two years	SMU, Bangalore	Bala, Neeru, Nirupam Ghosh, and Jaydeb Sarkar. “Invariant subspaces of idempotents on Hilbert spaces.” Integral Equations and Operator Theory 95.1 (2023): 1-16 Bala, Neeru, Kousik Dhara, Jaydeb Sarkar, and Aryaman Sensarma. “A Bishop-Phelps-Bollobás theorem for bounded analytic functions.” Journal of Functional Analysis 284, no. 6 (2023): 109834
6	Ranjan Bera	NBHM Post-doctoral Fellow	Aug 01, 2021 for 2 years	SMU, Bangalore	
7	Suprio Bhar	IIT Kanpur	May 15-22, 2022	SMU, Bangalore	
8	U.N. Bhosle	INSA Senior Scientist	Jan 01, 2019 - for five years	SMU, Bangalore	1. Usha N. Bhosle, Representations of the fundamental group and Higgs bundles on a singular integral curve, Proc Math Sci 132, 33 (2022). https://doi.org/10.1007/s12044-022-00676-5 2. Usha N. Bhosle and Parameswaran A.J., Some results on the compactified Jacobian of a nodal curve, IJPA , (2022). DOI : 10.1007/s13226-022-0349-z

Sl. No.	Name of the Visiting Scientist	Affiliation	Duration	Unit Attached	Awards/Recognition/Publications of Visiting Scientists
9	Sudip Ranjan Bhuia	IIT Hyderabad NBHM Post-doctoral Fellow	Feb 01 – Jul 31, 2022 and Nov 01, 2022 for 2 years	SMU, Bangalore	Publication: Sudip Ranjan Bhuia, A note on C-normal weighted composition operators on the Fock space in several variables, Monatshefte für Mathematik (2022), https://doi.org/10.1007/s00605-022-01729-7 Sudip Ranjan Bhuia, Deepak Pradhan, and Jaydeb Sarkar, Characterizations of complex symmetric Toeplitz operators, arXiv:2207.06192 **Awards**: 1. Selected for National Board of Higher Mathematics (NBHM) of the Department of Atomic Energy (DAE) Post-Doctoral Fellowship. 2. Research Excellence Award for outstanding research performance in Ph.D. in Mathematics, Department of Mathematics, IIT Hyderabad.
10	Indranil Biswas	TIFR, Mumbai	Oct 31 – Nov 04, 2022 and Jan 01 – Feb 28, 2023	SMU, Bangalore	
11	G.K. Chaitanya	NBHM Post-doctoral Fellow	Jul 01, 2021 – Apr 10, 2023	SMU, Bangalore	Publication: Chaitanya Gopalakrishna, Differentiable solutions of an equation with product of iterates, Aequationes Math. (2023), pp. 1-18, https://doi.org/10.1007/s00010-023-00952-3 **Awards/Recognition:** INSPIRE Faculty Fellowship 2022
12	Sangita Das	Ghent University, Belgium	Apr 01 – Jul 31, 2022	SMU, Bangalore	Publication: Das, Sangita, Kayal, Suchandan & Torrado, Nuria. (2022). Ordering results between extreme order statistics in models with dependence defined by Archimedean [survival] copulas, Ricerche di Matematica. DOI: 10.1007/s11587-022-00715-3. Das, Sangita & Kayal, Suchandan. (2022). Stochastic comparison of the second-order statistics arising from exponentiated location-scale model, Communications in Statistics - Theory and Methods. DOI: 10.1080/03610926.2022.2134974.
13	Soumyadip Das	TIFR Mumbai	May 30 – Jun 03, 2022	SMU, Bangalore	
14	Sandipan De	IIT Goa	Jul 11-19, 2022	SMU, Bangalore	
15	Prabhanka Deka	University of North Carolina	Jul 30 – Aug 03, 2022	SMU, Bangalore	
16	Pankaj Dey	Visiting Scientist under J.C. Bose Fellowship	Mar 01, 2023 for 3 months	SMU, Bangalore	
17	Abhik Digar	IIT Ropar	Jun 27 – Oct 25, 2022	SMU, Bangalore	
18	Ankush Kumar Garg	IISER, Thiruvananthapuram	Jan 20 for 6 months	SMU, Bangalore	
19	Anindya Ghatak	NBHM Post-doctoral Fellow	Mar 01, 2022 for 2 years	SMU, Bangalore	

Sl. No.	Name of the Visiting Scientist	Affiliation	Duration	Unit Attached	Awards/Recognition/Publications of Visiting Scientists
20	Nirupam Ghosh	NBHM Post-doctoral Fellow	Mar 01, 2021 for 3 years	SMU, Bangalore	
21	Sekhar Ghosh	Research Associate, ISI Bangalore	Oct 28, 2021-Aug 11, 2022	SMU, Bangalore	Publication: Ghosh, Sekhar & Motreanu, Dumitru. (2022). Infinitely many large solutions to a variable order nonlocal singular equation, Fractional Calculus and Applied Analysis, 25(2):822-839. DOI: 10.1007/s13540-022-00039-x.
22	Ankita Jindal	NBHM Post-doctoral Fellow	Nov 01, 2022 for 2 years	SMU, Bangalore	
23	Abhishek Juyal	NBHM Post-doctoral Fellow	Sep 01, 2021 – Jun 24, 2022	SMU, Bangalore	
24	Samir Kar	NBHM Post-doctoral Fellow	Jul 01, 2021 for 2 years	SMU, Bangalore	
25	Nanda S. Kishore Reddy	INSPIRE Faculty Fellow	Apr 02, 2018 – Mar 31, 2023	SMU, Bangalore	
26	Lavy Koilpitchai	NBHM Post-doctoral Fellow	Jul 01, 2019 – Jun 30, 2022	SMU, Bangalore	
27	Mahesh K. Krishna	Visiting Scientist under J.C. Bose Fellowship	Oct 01, 2021 – Mar 31, 2023	SMU, Bangalore	
28	Arjun Krishnan	University of Rochester	May 01 – Jun 30, 2022	SMU, Bangalore	
29	Vivek Kumar	NBHM Post-doctoral Fellow	Mar 01, 2022 for 2 years	SMU, Bangalore	Publication: Stochastic fractional heat equation perturbed by general Gaussian and non-Gaussian noise, *Statistics and Probability Letters*, Volume 184, May 2022, 109381. 2. Regularity and numerical approximation of fractional elliptic differential equations on compact metric graphs, with D. Bolin, Alexandre B. Simas, and M. Kov\'acs, Arxiv Version: https://arxiv.org/abs/2302.03995. 3. Well-posedness and uniform large deviation principle for stochastic Burgers-Huxley equation perturbed by a multiplicative noise, with Ankit Kumar and Manil T.Mohan, Arxiv Version: https://arxiv.org/pdf/2302.06162.pdf.
30	Bikramjit Kundu	Ramakrishna Mission Vivekananda Educational and Research Institute, Howrah	Jan 16 – July15, 2023 for 6 months	SMU, Bangalore	
31	Arup Maity	HRI, Allahabad	Jan 23 – Apr 22, 2023	SMU, Bangalore	
32	Souradeep Majumdar	IISER Tirupathi	May 30 – Jun 03, 2022	SMU, Bangalore	
33	Rahul Maurya	Visiting Scientist under J.C. Bose Fellowship	Dec 27, 2021 – Mar 31, 2023	SMU, Bangalore	
34	Gadadhar Misra	J.C. Bose Fellow	Aug 01, 2021 – Aug 31, 2023	SMU, Bangalore	
35	Oorna Mitra	NPDF Post-doctoral Fellow	Feb 01, 2023 for 2 years	SMU, Bangalore	
36	Debopriya Mukherjee	Montanuniversitat Leoben, Austria	Sep 15 – Dec 14, 2022	SMU, Bangalore	
37	Souvik Pal	Research Associate, ISI Bangalore	Nov 01, 2021 for 2 years	SMU, Bangalore	Received the **Outstanding Doctoral Thesis Award** from **HBNI (Homi Bhabha National Institute)** in Mathematics in June, 2022

Sl. No.	Name of the Visiting Scientist	Affiliation	Duration	Unit Attached	Awards/Recognition/Publications of Visiting Scientists
38	Badri Vishal Pandey	University of Virginia	Jan 18 – 23, 2023	SMU, Bangalore	
39	Saikat Panja	IISER Pune	Aug 16 – Oct 21, 2022	SMU, Bangalore	A part of the work on "powers in finite unitary groups" had been completed
40	A.J. Parameswaran	TIFR, Mumbai	Jul 03 – 09 and Oct 31 – Nov 04, 2022	SMU, Bangalore	
41	Sushant Pokhriyal	Shiv Nadar University, Dadri, Uttar Pradesh	Mar 01, 2023 for 3 months	SMU, Bangalore	
42	Deepak Kumar Pradhan	NBHM Post-doctoral Fellow	Jul 01, 2019 – Jun 30, 2022	SMU, Bangalore	
43	Samarpita Ray	INSPIRE Faculty Fellow	Jan 30, 2023 for 5 years	SMU, Bangalore	
44	Jeet Sampat	Washington University in St. Louis	Aug 02 - 07, 2022	SMU, Bangalore	
45	Aniruddha Samanta	IIT Kharagpur	May 20 – Aug 18, 2022	SMU, Bangalore	Aniruddha Samanta, on bounds of Aα-eigenvalue multiplicity and the rank of a complex unit gain graph. (communicated)
46	Abhishek Sarkar	IIT Kanpur	Feb 01, 2023 for 6 months	SMU, Bangalore	
47	Barun Sarkar	IIT Madras	May 15 - 22 and Dec 06-10, 2022	SMU, Bangalore	
48	Subham Sarkar	Kerala School of Mathematics, Kozikode	Jan 03 – Mar 13, 2023	SMU, Bangalore	
49	Aryaman Sensarma	NBHM Post-doctoral Fellow	Jul 01, 2020 for 3 years	SMU, Bangalore	
50	P. Shankar	CUSAT, Kerala	Jul 30 – Aug 07, 2022; Oct 27 – Nov 02, 2022 and Jan 20 – 29, 2023	SMU, Bangalore	
51	Sreejith Siju	IIT Palakkad	Sep 19, 2022 – Mar 17, 2023	SMU, Bangalore	
52	Manpreet Singh	IIT Delhi	Mar 01 – Aug 31, 2022	SMU, Bangalore	
53	Sruthymurali	CMI, Chennai NBHM Post-doctoral Fellow	Apr 07 – Jul 06 and Jul 25 – Oct 24, 2022 Nov 01, 2022 for 2 years	SMU, Bangalore	Publication: 1. KMS states on jointly with Anbu Arjunan and S. Sundar, published online in Glasg. Math. J., https://doi.org/10.1017/S0017089523000071. 2. Fourier-theoretic inequalities for inclusions of simple -algebras, Jointly with Keshab Chandra Bakshi and Satyajit Guin, published in New York J. Math., http://nyjm.albany.edu/j/2023/29-15.html.
54	Syamkrishnan	Visiting Scientist under J.C. Bose Fellowship	Feb 10, for 3 months	SMU, Bangalore	
55	Veerabathiran, Shankar	Ramanujan Institute for Advanced Study in Mathematics, Chennai	Sep 14 – Mar 13, 2023	SMU, Bangalore	
56	Francois Le Maitre	Universite de Paris	Apr 04 – 18, 2022	SMU, Delhi	
57	Kunal Mukherjee	IIT Madras	Apr 10 – 21, 2022	SMU, Delhi	
58	Mohit Pal	IIT Jammu	Apr 18 – May 30, 2022	SMU, Delhi	
59	K. Srinivas	IMSc. Chennai	May 11 – 20, 2022	SMU, Delhi	

Sl. No.	Name of the Visiting Scientist	Affiliation	Duration	Unit Attached	Awards/Recognition/Publications of Visiting Scientists
60	Jalaj Upadhyay	Rutgers University	May 19-26, 2022	SMU, Delhi	
61	Debangana Mukherjee	IIT Dharwad	Jun 01 – Aug 31, 2022	SMU, Delhi	
62	Ryan Kinnear	University of Waterloo	Jun 13 -18, 2022	SMU, Delhi	
63	Vlad Margarint	NYU Shanghai	Jun 14 -18, 2022	SMU, Delhi	
64	Soutir Bandyopadhyay	Colorado School of Mines	Jun 26 – 29, 2022	SMU, Delhi	
65	Leena Kulkarni	Narsee Moonjee University	Jun 27 – Jul 08, 2022	SMU, Delhi	
66	Abhijit Pal	IIT Kanpur	Jul 01 – Dec 31, 2022	SMU, Delhi	
67	Subhra Sankar Dhar	IIT Kanpur	Aug 01 – Dec 31, 2022	SMU, Delhi	
68	Anuj Jakhar	IIT Bhilai	Aug 08 – 10, 2022	SMU, Delhi	
69	Richa Sharma	KSCSTE Kerala School of Mathematics	Aug 16 –Nov 15, 2022	SMU, Delhi	
70	Sarbojit Roy	IIT Bombay	Nov 14, 2022 – Feb 13, 2023	SMU, Delhi	
71	Chinmay Ajay Tamahankar	IIT Madras	Nov 21 – Dec 03, 2022	SMU, Delhi	
72	Olivier Ramare	University of Marseilles	Dec 18 – 24, 2022	SMU, Delhi	
73	Sushil Singla	IISc. Bangalore	Jan 01-30, 2023	SMU, Delhi	
74	Gaurav Agarwal	Lancaster University, UK	Jan 09 - May 31, 2023	SMU, Delhi	
75	Abhijit Pal	IIT Kanpur	Feb 09 – Jun 30, 2023	SMU, Delhi	
76	Panchugopal Bikram	NISER, Bhubaneswar	Feb 26 – Mar 05, 2023	SMU, Delhi	
77	Farkhondeh Sajadi	University of Isfahan, Iran	Mar 01 – 31, 2023	SMU, Delhi	
78	Jean-Marc Deshouillers	University of Bordeaux, France	Mar 02 – 06, 2023	SMU, Delhi	
79	Debasish Karmakar	HRI, Allahabad	Mar 06 – 31, 2023	SMU, Delhi	
80	Shakir Ali	AMU, Aligarh	Mar 09-13, 2023	SMU, Delhi	
81	Fitriani	Universitas Lampung, Indonesia	Mar 10 – 13, 2023	SMU, Delhi	
82	Indah Emilia Wijayanti	Universitas Gadjah Mada, Indonesia	Mar 10 – 13, 2023	SMU, Delhi	
83	Joydip Saha	IIT-Gandhinagar	Feb 01, 2021- Jan 31, 2024	SMU, Kolkata	
84	Kummari Mallesham	HRI Allahabad	Feb 01, 2021 – May 31, 2022	SMU, Kolkata	
85	Pinka Dey	IISER Mohali	Feb 01, 2021- Jan 31, 2024	SMU, Kolkata	
86	Arindam Dey	HRI Allahabad	Aug 01, 2021 – Jul 31, 2024	SMU, Kolkata	
87	Dibyendu Mondal	IIT Bombay	Aug 01, 2021 – Jul 31, 2024	SMU, Kolkata	

Sl. No.	Name of the Visiting Scientist	Affiliation	Duration	Unit Attached	Awards/Recognition/Publications of Visiting Scientists
88	Ritwik Pal	NISER Bhubaneswar	Aug 01, 2021 – Jul 31, 2024	SMU, Kolkata	
89	Sukrit Chakraborty	ISI Kolkata	Aug 01, 2021 – Jul 31, 2024	SMU, Kolkata	
90	Sumit Kumar Rano	IIT Guwahati	Aug 01, 2021 – Jul 31, 2024	SMU, Kolkata	
91	Tathagata Mondal	IIT Knapur	Aug 01, 2021 – Jul 31, 2024	SMU, Kolkata	
92	Kajal Das	ISI Bangalore	Aug 01, 2021 – Jul 31, 2024	SMU, Kolkata	
93	Sampa Dey	IIT Gandhinagar	May 01, 2022 – Apr 30, 2025	SMU, Kolkata	
94	Rupam Karmakar	NISER Bhubaneswar	Dec 01, 2022 – Nov 30, 2025	SMU, Kolkata	
95	Kuntal Chakraborty	IISER Pune	Jan 10 – Jun 30, 2022	SMU, Kolkata	
96	Subhankar Sau	IIT Madras	Mar 04 – May 09, 2022	SMU, Kolkata	
97	Provanjan Mallick	IISER Kolkata	Jun 03 – Nov 30, 2022	SMU, Kolkata	
98	Santanu Debnath	*University of Calcutta,* Kolkata	Aug 29, 2022 – Feb 28, 2023	SMU, Kolkata	
99	Bidwan Chakraborty	IIT Kharagpur	Sep 06 – Dec 05, 2022	SMU, Kolkata	
100	Gopal Maiti	ISI Kolkata	Dec 14, 2022 – Feb 09, 2023	SMU, Kolkata	
101	Atibur Rahaman	NISER, Bhubaneswar	Jan 02 – Mar 31, 2023	SMU, Kolkata	
102	Arurva Seth	IISER Bhopal	Jun 02 – Aug 30, 2022	SMU, Kolkata	
103	Arghya Pramanik	IIT Bombay	Mar 10 –31, 2023	SMU, Kolkata	
104	Sreejith Siju	ISI Bangalore	Mar 20 – Jun 30, 2023	SMU, Kolkata	
105	Mitra Koley	TIFR Mumbai	Aug 01, 2021 – Jul 31, 2026	SMU, Kolkata	
106	Sayan Chakraborty	IISER Bhopal	Jun 10, 2020 – Mar 31, 2023	SMU, Kolkata	
107	Samya Kumar Ray	IIT Goa	Aug 02, 2021 – Aug 01, 2026	SMU, Kolkata	
108	Debapratim Banerjee	TIFR Bangalore	Sep 01, 2021 – Dec 31, 2022	SMU, Kolkata	
109	Nilkantha Das	NISER Bhubaneswar	Aug 01, 2022 – Jul 31, 2027	SMU, Kolkata	
110	Nilanjan Das	IIT Kharagpur	Oct 25, 2021 – Oct 24, 2023	SMU, Kolkata	
111	Bhaswar B. Bhattacharya	University of Pennsylvania	Jun 01 – Jul 31, 2022	SMU, Kolkata	
112	Mithun Kumar Das	The Institute of Mathematical Science	Mar 30 – Apr 15, 2022	SMU, Kolkata	
113	Akhilesh P	Kerala School of Mathematics, Kozhikode	Apr 10 - 15, 2022	SMU, Kolkata	
114	Stephan Baier	RKMVERI, Howrah	Jun 04 –05, 2022	SMU, Kolkata	
115	Anish Ghosh	TIFR	Jul 03 –05, 2022	SMU, Kolkata	

Sl. No.	Name of the Visiting Scientist	Affiliation	Duration	Unit Attached	Awards/Recognition/Publications of Visiting Scientists
116	Jyotirmoy Sengupta	IACS, Kolkata	Jul 03 - 06, 2022	SMU, Kolkata	
117	Kummari Mallesham	IIT Bombay	Jul 03 –10, 2022	SMU, Kolkata	
118	Akshaa Vatwani	IIT Gandhinagar	Jul 03 –06, 2022	SMU, Kolkata	
119	Ratnadeep Acharya	HRI, prayagraj	Jul 02 –09, 2022	SMU, Kolkata	
120	Keshav Aggarwal	Alfred Renyi Institute of Mathematics	Jul 03 –06, 2022	SMU, Kolkata	
121	Saurabh Kumar Singh	IIT Kanpur	Jul 02 –11, 2022	SMU, Kolkata	
122	Srivatsav Kunnawalkam Elayavalli	UCLA, USA	Jul 06 –08, 2022	SMU, Kolkata	
123	Anirban Mukhopadhyay	IMSc, Chennai	Aug 16 –20, 2022	SMU, Kolkata	
124	Shilpa Gondhali	Birla Institute of Technology & Science Pilani	Aug 29 – Sep 02, 2022	SMU, Kolkata	
125	Soham Sarkar	ISI Delhi	Sep 26 – Oct 28, 2022	SMU, Kolkata	
126	Bhaswar B. Bhattacharya	University of Pennsylvania	Oct 01 – Dec 31, 2022	SMU, Kolkata	
127	Sumit Roy	IBS Centre for Geometry and Physics, Pohang, South korea	Dec 02, 2022 – Dec 01, 2023	SMU, Kolkata	
128	Bidwan Chakraborty	ISI Kolkata	Dec 12, 2022 – Dec 11, 2023	SMU, Kolkata	
129	Beena Khurana	Asian University for Women, Bangaladesh	Dec 12, 2022	SMU, Kolkata	
130	Muna Naik	Harish-Chandra Research Institute, Prayagraj	Dec 12 –17, 2022	SMU, Kolkata	
131	Subhankar Sau	The Institute of Mathematical Science, Chennai	Dec 19, 2022 – Dec 18, 2023	SMU, Kolkata	
132	Arka Ghosh	IOWA State University	Jan 02 –09, 2023	SMU, Kolkata	
133	Arnab Kumar Bhattacharjee	Charles University, Paragues	Jan 05 – Mar 31, 2023	SMU, Kolkata	
134	Sumit Kumar	Renyi Institute of Mathematics	Jan 26 – Feb 11, 2023	SMU, Kolkata	
135	Prahlad Sharma	Renyi Institute, Budapest	Jan 26 – Feb 12, 2023	SMU, Kolkata	
136	Ramare Olivier	CNRS Axi Marselle University	Jan 29 – Feb 12, 2023	SMU, Kolkata	
137	Ratnadeep Acharya	HRI, prayagraj	Jan 30 – Feb 12, 2023	SMU, Kolkata	
138	Pranendu Darbar	NTNU, Trondheim, Norway	Feb 03 –11, 2023	SMU, Kolkata	
139	Kummari Mallesham	IIT Bombay	Feb 04 –12, 2023	SMU, Kolkata	
140	Saurabh Kumar Singh	IIT Kanpur	Feb 06 –08, 2023	SMU, Kolkata	
141	Anirban Mukhopadhyay	IMSc, Chennai	Feb 05 –10, 2023	SMU, Kolkata	

Sl. No.	Name of the Visiting Scientist	Affiliation	Duration	Unit Attached	Awards/Recognition/Publications of Visiting Scientists
142	Iuliia Zaitseva	HSE University, Moscow, Russia	Mar 11 –17, 2023	SMU, Kolkata	
143	Roman Avdeev	HSE University, Moscow, Russia	Mar 11 –17, 2023	SMU, Kolkata	
144	Anton Shafarevich	Higher School of Economics, Moscow, Russia	Mar 11 –17, 2023	SMU, Kolkata	
145	Aleksandr Perepechko	HSE University, Moscow, Russia	Mar 11 –17, 2023	SMU, Kolkata	
146	Anton Trushin	HSE University, Moscow, Russia	Mar 11 –17, 2023	SMU, Kolkata	
147	Ivan Arzhantsev	HSE University, Moscow, Russia	Mar 11 –18, 2023	SMU, Kolkata	
148	Sashadhar Dutta	Ramakrishna Mission Vivekananda Centenary College, Rahara	Mar 13 –17, 2023	SMU, Kolkata	
149	Sagnik Chakraborty	Ramakrishna Mission Vivekananda Educational and Research Institute	Mar 13 –17, 2023	SMU, Kolkata	
150	Nikhilesh Dasgupta	NMIMS, Mumbai	Mar 13 –17, 2023	SMU, Kolkata	
151	Animesh Lahiri	Chennai Mathematical Institute	Mar 13 –18, 2023	SMU, Kolkata	
152	Swapnil Ashok Lokhande	IIIT Vadodara	Mar 10 –18, 2023	SMU, Kolkata	
153	Sourav Sen	TIFR Mumbai	Mar 11 –18, 2023	SMU, Kolkata	
154	Sanjay Singha	IIIT Vadodara	Mar 13 –17, 2023	SMU, Kolkata	
155	Ashik Chattopadhyay	Ramakrishna Mission Vivekananda Educational and Research Institute	Mar 13 –17, 2023	SMU, Kolkata	
156	Madhuparna Pal	Ramakrishna Mission Vivekananda Educational and Research Institute	Mar 13 –17, 2023	SMU, Kolkata	
157	Prosenjit Das	Indian Institute of Space Science and Technology, Trivandrum	Mar 11 –18, 2023	SMU, Kolkata	
158	Sargei Gaifullin	HSE University, Moscow, Russia	Mar 11 –17, 2023	SMU, Kolkata	
159	Debasis Sen	IIT Kanpur	Mar 22 –27, 2023	SMU, Kolkata	

Chapter 7 Events

89 No. of Conferences, Symposia, Workshops & Training Programmes Organised

249 No. of Lectures

16 No. of Outreach Activities

P.C Mahalanobis delivering Convocation Address at the Fifth Convocation on 17.03.1967. L to R C.R Rao , Subimal Dutt, C.D Deshmukh

7.1 CONVOCATION

The 57th Convocation of the Indian Statistical Institute was held on 31st January, 2023, at 3:00 pm. It started with a Vedic Hymn by the ISI Club, followed by welcome address delivered by Prof. Sankar K. Pal, President, ISI and annual review by Prof. Sanghamitra Bandyopadhyay, Director, ISI. Dr. G. P. Samanta, Chief Statistician of India and Secretary, MoSPI, Government of India delivered his address as a Special Guest. The Chief Guest for this Convocation was Prof. Sir David John Spiegelhalter FRS OBE, Chair, Winton Centre for Risk and Evidence Communication, Centre for Mathematical Sciences, University of Cambridge, UK. After the award of degrees and diplomas to the graduating students and prizes and medals to the meritorious students, the Convocation Address was delivered by the Chief Guest Sir David John Spiegelhalter. A vote of thanks was given by Prof. Amita Pal, Officiating Dean of Studies, ISI. The 57th Convocation was closed by Prof. Sankar K. Pal, President of the Institute, followed by the National Anthem by the ISI Club.

The outgoing batch of students of all degree and diploma programmes were felicitated next. Degrees and Diplomas were awarded to scholars and students by Prof. Sankar K. Pal, President of the Institute. Prizes and Gold Medals were given to the meritorious students by Sir David John Spiegelhalter.





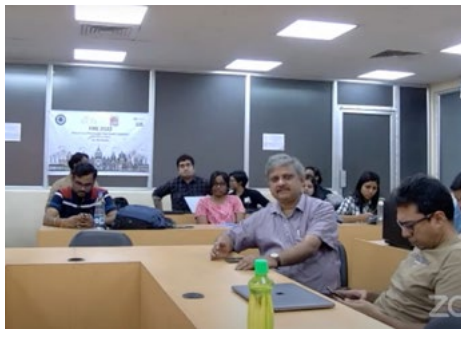
7.2 Conferences, Symposia, Workshops & Training Programmes

1. Conferences, Symposia and Workshops

Sl. no.	Dates	Conferences Symposia and Workshops Conducted	Collaborator	Organizing Unit	Venue
1	May 09-28, 2022	AIS – Advanced Linear Algebra (2022)	Jaydeb Sarkar (ISI) and Rajesh Sharma, Himachal Pradesh University Summer Hill	SMU, Bangalore	Virtual
2	Jun 06-17, 2022	Summer School for Women in Mathematics and Statistics 2022: Follow up	Anita Naolekar and Siva Athreya (ISI)	SMU, Bangalore	SMU, Bangalore
3	Jul 04-05, 2022	Analytic Number Theory		SMU, Kolkata	L-infinity, SMU, Kolkata
4	Jun 28 - Jul 02, 2022	Seventh conference and workshop on Statistical Methods in Finance	Chennai Mathematical Institute	ASU, Bangalore	Virtual
5	Jul 30, 2022	Brainstorming on Social Audit: Sharing Experience from States		SOSU, Kolkata	PJA, ISI Kolkata
6	Aug 09, 2022	SRELS Lecture Series -1 Information search patterns in complex task	SRELS	DRTC, Bangalore	ISI Bangalore
7	Aug 09, 2022	SRELS Lecture Series -2 Assessing information search by task outcome	SRELS	DRTC, Bangalore	ISI Bangalore
8	Aug 09, 2022	Tutorial - 1 Open Science and Open Access: Strategies for Libraries	SRELS	DRTC, Bangalore	ISI Bangalore
9	Aug 09, 2022	Tutorial - 2 Digital Library Platform	SRELS/DRF/Informatics	DRTC, Bangalore	ISI Bangalore
10	Aug 09, 2022	Tutorial - 3 Customer Connect in Digital Environment: Enhancing UI & UX	SRELS/DRF/Informatics	DRTC, Bangalore	ISI Bangalore
11	Aug 09, 2022	Tutorial - 4 Management of Research Data	SRELS/DRF/Informatics	DRTC, Bangalore	ISI Bangalore
12	Aug 09, 2022	Information search Pattern	SRELS/DRF/Informatics	DRTC, Bangalore	ISI Bangalore
13	Aug 10-12, 2022	International Conference on Emerging Digital Library Platforms : Shaping Digital Transformation and National Data Exchange (Photo Enclosed below)	SRELS, Digital Information Research Foundation, The informatics India Pvt Ltd	DRTC, Bangalore	ISI Bangalore
14	Sep 15-16, 2022	National Conference on Recent Trends in Microbial, Plant and Animal Research		AERU, Giridih	ISI, Giridih, Jharkhand
15	Nov 21-25 2022,	Workshop On Rating Scale Design And Analysis Using R-Studio (Code:Rsd22)	Dr. Murshida Khatoon, Dr. Shivani Santosh, Dr. Anurupa Kundu, Dr. Sushmita Chatterjee	PRU, ISI Kolkata	ISI Kolkata
16	Nov 24 - 26, 2022	Operator Theory and Complex Geometry	Jaydeb Sarkar (ISI), Shibananda Biswas & Subrata Shyam Roy (IISER)	SMU, Bangalore and IISER Kolkata	IISER, Kolkata
17	Dec 06-08, 2022	The 37th Annual Conference of the RMS	Jaydeb Sarkar (ISI) as Academic Secretary	SMU, Bangalore	SSN College of Engineering, Chennai
18	Dec 09-13, 2022	FIRE 2022: 14th meeting of the Forum for Information Retrieval Evaluation	ACM SIGIR, DA-IICT, Gandhinagar, Information Retrieval Society of India	CVPRU, Kolkata	Hybrid
19	Dec 12-24, 2022	NCM workshop on Jacobi forms	Jointly organised by ISI NEC and IIT Guwahati	TASU, Tezpur	IIT, Guwahati
20	Dec 13, 2022	Workshop on Statistical Techniques in Research Methodology.		SQC & OR, Mumbai	Virtual

Sl. no.	Dates	Conferences Symposia and Workshops Conducted	Collaborator	Organizing Unit	Venue
21	Dec 19-21, 2022	17th Annual Conference on Economic Growth and Development		EPU, Delhi	ISI, Delhi
22	Dec 19-23, 2022	Workshop on Bayesian inference and Computation		ISRU, Kolkata	ISI, Kolkata
23	Jan 19, 2023	Ecology, Epidemiology, and beyond: A walk on the students' corridor	RatanlalBrahmachari Foundation	AERU, Kolkata	ISI, Kolkata (Hybrid)
24	Feb 01-23, 2023	Winter School in Geospatial Science and Technology		AERU, Kolkata	ISI, Kolkata
25	Feb 6-10, 2023	Analytic Number Theory		SMU, Kolkata	L-infinity, SMU, Kolkata
26	Feb 19-23, 2023	Discussion meeting on Linear Analysis	B.V. Rajrama Bhat (ISI) with Tirthankar Bhattacharyya and Apoorva Khare (IISc)	IAS, SMU, Bangalore and IISc.	Evolve Back, Coorg
27	Mar 01-03, 2023	Workshop on "Application of Statistics & Machine Learning in Environmental Research"		TASU, Tezpur	ISI NEC, Tezpur
28	Mar 09, 2023	Diophantine Day @ ISI Delhi	Shanta Laishram	SMU, Delhi	ISI, Delhi
29	Mar 13-17, 2023	Workshop on "Affine Spaces, Algebraic Group Actions, and Lnds"	Funded by DST, GoI	SMU, Kolkata	L-infinity, SMU, Kolkata
30	Mar 13-18, 2023	Statistical and Research Methodologies with 'R' for Social Scientists	North Eastern Hill University (NEHU), Tura Campus, Meghalaya.	AERU, Kolkata	NEHU, Tura (Hybrid)
31	Mar 17, 2023	PDF-RS Annual Symposium 2023		SMU, Bangalore	SMU, Bangalore
32	Mar 30, 2023	Workshop on Machine Intelligence and Applications		MIU, Kolkata	ISI, Kolkata
33	March 16, 2023	Seminar on 'Restoration of Museum Buildings: Issues and Challenges'		PCMMM&A	ISI, Kolkata (Hybrid Mode)
34	March 09, 2023	10th Workshop on Digital Pictorial Photography, Photo Contest and Photography Exhibition		RPU, Kolkata	ISI, Kolkata




2. Training Programmes

Sl. no.	Dates	Training Programmes conducted	Organizing Unit	Venue
1	Mar – Aug 2022	Online Six Sigma Black Belt Certification Program	SQC & OR,Bangalore	Jubilant Ingrevia Limited
2	Apr 2022	Six Sigma Training	SQC & OR, Pune	3SV, Mumbai
3	Apr – May 2022	Faculty Development Program on Data Science using R	SQC & OR,Bangalore	SQC & OR, Bangalore
4	Apr – May, 2022	Six Sigma Consulting	SQC & OR, Pune	Schott Glass, Gujarat
5	Apr 2022 – Mar 2023	Public Programs on Six Sigma & Data Analytics	SQC & OR, Pune	Eduplusnow, Pune
6	Apr 11-16 and May 02-07, 2022	Lean Six Sigma Master Black Belt Training and Certification Program	SQC & OR, Mumbai	Virtual
7	May 2022	Six Sigma Green Belt Certification Program (GB-58_Online)	SQC & OR,Bangalore	SQC & OR, Bangalore
8	May 2022 – Mar 2023	Basic Six Sigma Green Belt & Root Cause Analysis	SQC & OR,Bangalore	Defence Institute of Quality Assurance
9	May 31 – Jul 14, 2022	Seventh Summer School on Computer Vision, Image Processing and Machine Learning	ECSU, Kolkata	ECSU, Kolkata
10	Jun 2022 – Mar 2023	Six Sigma BB DFSS GB & BADM	SQC & OR,Bangalore	BEL Bangalore
11	Jun 2022 – Mar 2023	Six Sigma GB & BB	SQC & OR,Bangalore	Daimler Chennai
12	Jun 2022 – Mar 2023	Process diagnostics and improvement using data science applications	SQC & OR,Bangalore	Clinchoice India
13	Jun 2022	Online Course on Business Forecasting using Python	SQC & OR,Bangalore	SQC & OR, Bangalore
14	Jun 2022	Six Sigma Green Belt Programme	SQC & OR, Pune	Schott Poonawala, Gujarat
15	Jun 03-05 & 17-19, 2022	Six Sigma Green Belt Training and Certification Program	SQC & OR, Mumbai	Virtual
16	Jun 06-11, Jun 27-Jul 02, Jul 11-16, & 25 -30 of 2022	Sigma Black Belt Training and Certification Program (Evening session)	SQC & OR, Mumbai	Virtual
17	Jun 21-22 and 27-28, 2022	Training program on Inferential Statistics	SQC & OR, Mumbai	Service Lee Technologies Private Limited
18	Jun 14 – 16, 2022	Six Sigma Green Belt Training and Project Guidance	SQC & OR, yderabad	All India Institute of Ayurveda, New Delhi
19	Jul 2022	Six Sigma Green Belt Certification Program	SQC & OR, Bangalore	HAL Management Academy
20	Jul 2022	Problem-Solving using Design of Experiments	SQC & OR,Bangalore	SQC & OR, Bangalore
21	Jul 04 – Aug 26, 2022	Survey Methodology and Data Analytics-ISS Probationers (43rd and 44th Batch)	SOSU, Kolkata	SOSU, Kolkata
22	Aug 2022 – Jan 2023	Online certification program on Six Sigma Black Belt (BB-37Batch)	SQC & OR, Bangalore	SQC & OR, Bangalore
23	Aug 2022 – Mar 2023	Six Sigma Green Belt Certification	SQC & OR, Bangalore	GE Healthcare
24	Aug 2022 (3 Months)	Training Program on Quality and Reliability Engineering	SQC & OR, Hyderabad	Defence Institute of Advanced Training, DRDO
25	Aug 02 - 05 and 08 – 12, 2022	Training program at Six Sigma Management Institute Asia	SQC & OR, Mumbai	Six Sigma Management Institute Asia, Sri Lanka
26	Aug 29 - Sep 02, 2022	Summer School On Research Methods And Statistical Applications With SPSS	HGU, Kolkata & BAU, Kolkata	ISI, Kolkata
27	Sep 2022	Six Sigma Green Belt Certification Program (GB-59 _Online)	SQC & OR,Bangalore	SQC & OR, Bangalore
28	Sep 2022 – Mar 2023	Statistical Data Analysis and Modeling	SQC & OR, Bangalore	Airbus India
29	Sep 07-08, 21-22 and Oct 13-14, 2022	Six Sigma Green Belt Training & Certification Program	SQC & OR, Mumbai	Deepak Fertilizer Ltd.
30	Oct – Dec 2022	Six Sigma Green Belt Certification	SQC & OR, Bangalore	Seek Solutions Management & Services Pvt. Ltd

Sl. no.	Dates	Training Programmes conducted	Organizing Unit	Venue
31	Nov 2022	Online Course on Business Analytics using R	SQC & OR, Bangalore	SQC & OR Bangalore
32	Nov 23-27, 2022	Training Programme On `Official Statistics` For Officials from the Directorate Of Economics And Statistics (DES), Government of Assam	TASU, Tezpur	ISI North-East Centre, Tezpur
33	Nov – Dec 2022	Six Sigma Master Black Belt Certification Program (MBB-35 _Online)	SQC & OR, Bangalore	SQC & OR, Bangalore
34	Nov 2022 – Jul 2023	Six Sigma Green Belt Training and Guidance (Wave I) towards achieving Business Excellence	SQC & OR, yderabad	ITC Limited, Paper Boards and Specialty Papers Division, Unit: KOVAI, Mettupalayam, Tamil Nadu
35	Nov 2022 – Feb 2023	Six Sigma Black Belt Training & Certification Program	SQC & OR, Mumbai	Deepak Fertilizer Ltd.
36	Nov 2022	Six Sigma Green Belt Programme	SQC & OR, Pune	Trident India, MP
37	Nov 2022 – Feb 2023	Six Sigma Green Belt Programme-online	SQC & OR, Pune	IIM, Sambalpur
38	Jan – Feb 2023	Six Sigma Green Belt Certification Program (GB-60 _Online)	SQC & OR, Bangalore	SQC & OR, Bangalore
39	Jan – Mar 2023	Online certification program on Six Sigma Black Belt (BB-38 Batch)	SQC & OR, Bangalore	SQC & OR, Bangalore
40	Jan – Jul 2023	Review/Revision of Existing Sampling Norms and Development of Comprehensive Scientific Sampling Methodology for Risk Focused Internal Audit by State Bank of India (SBI)	SQC & OR,Hyderabad	State Bank of India, I & MA Division, Hyderabad
41	Jan 06 - Mar 04, 2023	Second Winter School on Deep Learning (WSDL) from Perceptrons to Diffusion Models	ECSU, Kolkata	Virtual
42	Jan 20-22, & Feb 03-05, 2023	Six Sigma Green Belt Training & Certification Program	SQC & OR, Mumbai	Virtual
43	Jan 12, 19, 30 & 06 Feb 06, 2023	Training on Statistical Techniques for R&D	SQC & OR, Mumbai	Godrej Consumer Products Limited
44	Feb – Mar 2023	Rating scale design and analysis using R Studio	PRU, Kolkata	ISI Kolkata
45	Feb – Mar 2023	Lean Six Sigma Green Belt Certification & Project Evaluation	SQC & OR, Bangalore	RR Donnelley, Trivandrum
46	Feb – Mar 2023	Online Course on Machine Learning using Python	SQC & OR, Bangalore	SQC & OR, Bangalore
47	Feb 2023	SQC Lecture Series	SQC & OR, Pune	DIAT, Pune
48	Feb – Mar 2023	Six Sigma Green-Belt	SQC&OR, Pune	RCS, Baroda
49	Feb – Mar 2023	Six Sigma Green-Belt	SQC & OR, Pune	Varroc Polymers
50	Mar 2023	Statistics with special focus on Sampling-Online	SQC & OR, Pune	VKU Certification Pvt ltd, MP
51	2022-2023	Six Sigma Black Belt Program using R (Hybrid)(six months)	SQC & OR, Chennai	SQC & OR, Chennai
52	2022-2023	Workshop on R for Six Sigma (3 days)	SQC & OR, Chennai	SQC & OR, Chennai
53	2022-2023	Certification Program on Business Analytics, (20 days)	SQC & OR, Delhi & Chennai	ISI, Delhi
54	Feb 13 - 21, 2023	6th Training Programme on Multimedia for School Students	Reprography and Photography Unit, Kolkata	ISI, Kokata

3. International Training Programs/Workshops

Sl. No.	Exact Date/ Duration	Title of the International Training Programme conducted	Collaborator	Name of the Organizing Unit	Venue
1	Oct 10-21, 2022	Workshop on Industrial Experimentation for Engineers & Scientists	ISEC, ISI	SQC & OR Unit, Kolkata	ISEC, ISI

7.3 LECTURES

Applied Statistics Division (ASD)

Sl. No.	Date	Title of the Lecture	Name of the Speaker	Affiliation of the Speaker	Name of the Organizing Unit
1	March 28, 2023	Beyond Spherical Horses: Reasonable & Unreasonable Approximations in Natural Sciences.	Sabyasachi Bhattacharya	TCG-CREST	ASU, Kolkata
2	March 14, 2023	Understanding Contemporary World Politics from Theoretical Perspective	Biswanath Chakraborty	Rabindra Bharati University, Department of Political Science	ASU, Kolkata
3	March 14, 2023	The True Cost of Not Having Enough	Amitava Gupta	Anandabazar Patrika, Kolkata	ASU, Kolkata
4	January 24, 2023	Means to improve road safety for public vehicles in Indian conditions using some simple and economic tools of science	Sumantra Chattopadhyay	Engg., Avineon India Pvt. Ltd.	ASU, Kolkata
5	January 17, 2023	Meta-analyzing summary association statistics when studies report disparate covariate information	Debashree Ray	Johns Hopkins University, Baltimore, Maryland, USA	ASU, Kolkata
6	January 10, 2023	Orchestrated AMP in Network-Constrained Regression	Sagnik Nandy	University of Pennsylvania, USA	ASU, Kolkata
7	January 03, 2023	Multivariate Global-Local Priors for Small Area Estimation	Malay Ghosh	University of Florida, USA	ASU, Kolkata
8	December 20, 2022	On the Estimation of the Incidence and Prevalence in Two-Phase Longitudinal Sampling Design	Samiran Ghosh	University of Texas School of Public Health, USA	ASU, Kolkata
9	August 23, 2022	Identifying disease-critical variants, genes and cell types using genetic and genomic data	Kushal De	Harvard School of Public Health, USA	ASU, Kolkata
10	August 16, 2022	Some Topics in Transfer Learning	Moulinath Banerjee	University of Michigan, Ann Arbor, USA	ASU, Kolkata
11	July 19, 2022	Optimal designs for some bivariate cokriging models	Subhadra Dasgupta	Ruhr University Bochum, Germany	ASU, Kolkata
12	July 12, 2022	From gas cleaning to carbon dioxide sustainability: a paradigm shift	Basab Chaudhury	Heritage Institute of Technology, India	ASU, Kolkata
13	July 05, 2022	Bayesian iterative screening for ultra-high dimensional regressions	Vivekananda Roy	Lowa State University, USA	ASU, Kolkata
14	June 21, 2022	Semi-supervised Inference with Big Data: Robustness, Efficiency and the Challenges Beyond	Abhishek Chakrabortty	Texas A&M University, USA	ASU, Kolkata
15	May 24, 2022	Parameter-driven models for zero-inflated count time series	N Balakrishna	Cochin University of Science and Technology, India	ASU, Kolkata
16	May 10, 2022	Estimation of a score-explained non-randomized treatment effect in fixed and high dimensions	Moulinath Banerjee	University of Michigan, Ann Arbor, USA	ASU, Kolkata
17	April 07, 2022	Comparing time varying regression quantiles under shift invariance.	Subhra Sankar Dhar	Department of Mathematics and Statistics, IIT Kanpur	ISRU, Kolkata
18	May 12, 2022	Horseshoe shrinkage methods for Bayesian fusion estimation	Sayantan Banerjee	Indian Institute of Management, Indore	ISRU, Kolkata
19	June 02, 2022	Increasing Domain Infill Asymptotics for Stochastic Differential Equations Driven by Fractional Brownian Motion	Trisha Maitra	Department of Mathematics, Prasanta Chandra Mahalanobis Mahavidyalaya, Kolkata	ISRU, Kolkata
20	June 30, 2022	Scalable community detection in massive networks via predictive inference	Srijan Sengupta	North Carolina State University, Raleigh, USA	ISRU, Kolkata
21	July 14, 2022	Statistical Inference in Tensor Ising Models	Somabha Mukherjee	National University of Singapore, Singapore	ISRU, Kolkata

Sl. No.	Date	Title of the Lecture	Name of the Speaker	Affiliation of the Speaker	Name of the Organizing Unit
22	September 22, 2022	Dynamic portfolio optimization using Q learning, extreme value theory and liquidity measure for Indian stocks	Ananya Lahiri	IIT Tirupati	ISRU, Kolkata
23	October 13, 2022	On PC Adjustments for High Dimensional Association Studies.	Rajarshi Mukherjee	Harvard University, Amherst, USA	ISRU, Kolkata
24	October 20, 2022	The Battle of Two Cultures: Statistics versus (?) Data Science, Which side are you on?	Bhramar Mukherjee	Global Public Health School of Public Health, University of Michigan, Ann Arbor, USA	ISRU, Kolkata
25	November 25, 2022	Estimation of Conditional Jointly Survival Function under random right censoring data	Rustamjon Muradov	Department of Higher Mathematics, Namangan Institute of Engineering and Technology, Uzbekistan	ISRU, Kolkata
26	December 15, 2022	Semiparametric Analysis of Clustered Interval-Censored Survival Data using Soft Bayesian Additive Regression Trees (SBART).	Debajyoti Sinha	Florida State University, Tallahassee, USA	ISRU, Kolkata
27	December 16, 2022	Prediction of pigmentation in ancient DNA samples – a survey through time and space	Kaustubh Adhikari	Lecturer in Statistics, The Open University, UK	ISRU, Kolkata
28	January 05, 2023	Bayesian Nonparametric Common Atoms Regression for Generating Synthetic Controls in Clinical Trials	Noirrit Kiran Chandra	Assistant Professor Department of Mathematical Sciences The University of Texas at Dallas, USA	ISRU, Kolkata
29	January 12, 2023	Near-optimal inference in adaptive linear regression	Koulik Khamaru	Assistant Professor, Department of Statistics, Rutgers University, USA	ISRU, Kolkata
30	January 13, 2023	Bayesian Modeling with Spatial Curvature Processes	Dipak K. Dey	University of Connecticut, USA	ISRU, Kolkata
31	February 01, 2023	Offline Estimation of Controlled Markov Chains: Minimaxity and Sample Complexity	Imon Banerjee	PhD student, Purdue University, USA	ISRU, Kolkata
32	February 16, 2023	Mathematical Analysis of COVID-19 virus bonding with host cells	Arni S.R. Srinivasa Rao	Professor and Director Laboratory for Theory and Mathematical Modeling, Department of Medicine-Division of Infectious Diseases, Medical College of Georgia, U.S.A. and Department of Mathematics, Augusta University, USA	ISRU, Kolkata
33	March 10, 2023	New methods of structural break detection in multivariate time series and its use in modeling financial data	Soudeep Deb	Assistant Professor, Decision Sciences Area Indian Institute of Management, Bangalore	ISRU, Kolkata
34	March 31, 2023	Use of Markov boundary in feature selection and applications in banking	Anwesha Bhattacharyya	Senior Quantitative Analytics Specialist, Wells Fargo N.A, USA	ISRU, Kolkata

Computer and Communications Sciences Division (CCSD)

Sl. No.	Date	Title of Lecture	Name of Speaker	Affiliation of Speaker	Organizing Unit
1	February 03, 2023	Randomized Versus Deterministic Decision Tree Size	Arkadev Chattopadhyay	Faculty, TIFR, Mumbai	ACMU, Kolkata
2	January 13, 2023	Artificial Intelligence Driven Demand Side Management in Smart Grid	Arijit Mondal	Department of Computer Science and Engineering, IIT Patna	ACMU, Kolkata
3	January 09, 2023	Towards Building A Scalable Bitvector Model Counter	Anish Mukherjee	Postdoc, University of Warwick, UK	ACMU, Kolkata

Sl. No.	Date	Title of Lecture	Name of Speaker	Affiliation of Speaker	Organizing Unit
4	January 05, 2023	Noise-Resilient Quantum Computing	Prabhat Mishra	University of Florida, USA	ACMU, Kolkata
5	January 04, 2023	Anti-Virus Hardware: Applications in Embedded, Automotive and Power Systems Security.	Kanad Basu	University of Texas, Dallas, USA	ACMU, Kolkata
6	January 04, 2023	Complexity Analysis of the SAT Attack on Logic Locking	Ujjwal Guin	Auburn University, USA	ACMU, Kolkata
7	January 03, 2023	Reachability in Timed Automata with Diagonal Constraints and Updates	Sayan Mukherjee	Postdoc, Université Libre de Bruxelles, Belgium	ACMU, Kolkata
8	January 03, 2023	Convex Influences and a Quantitative Gaussian Correlation Inequality.	Anindya De	Faculty, University of Pennsylvania, USA	ACMU, Kolkata
9	December 28, 2022	Triangle-motif Based Dense Subgraph Discovery: Algorithms and Applications	Aritra Konar	KU Leuven, Belgium	ACMU, Kolkata
10	December 19, 2022,	Approximation Algorithms for Continuous Clustering and Facility Location Problems	Ankita Sarkar	Ph. D Student, Dartmouth University, USA	ACMU, Kolkata
11	December 15, 2022	Rabbits Approximate, Cows Compute Exactly	Nitin Saurabh	IIT Hyderabad	ACMU, Kolkata
12	December 14, 2022	Clustering Permutations: Offline to Streaming	Diptarka Chakraborty	NUS, Singapore	ACMU, Kolkata
13	December 14, 2022	Generalizations of the Length Limited Huffman Coding for Hierarchical Memory Setting	Sandeep Sen	IIT Delhi	ACMU, Kolkata
14	December 13, 2022	Non Local Games and Decision Tree Complexity	Rajat Mittal	IIT, Kanpur	ACMU, Kolkata
15	December 02, 2022	On the Border Complexity of Binomials (& more)	Pranjal Dutta	Postdoc, Chennai Mathematical Institute	ACMU, Kolkata
16	November 21, 2022	Latency, Capacity, and Distributed Minimum Spanning Trees	Suman Sourav	Postdoc, Singapore University of Technology and Design, Singapore	ACMU, Kolkata
17	November 04, 2022	Adversarially Robust Coloring for Graph Streams	Prantar Ghosh	Postdoc, Center for Discrete Mathematics and Theoretical Computer Science, Rutgers University, USA	ACMU, Kolkata
18	October 26, 2022	Machine Learning	Arnab Bhattacharyya	Faculty, School of Computing in National University of Singapore	ACMU, Kolkata
19	October 26, 2022	Algorithms for Learning and Testing High-Dimensional Statistical and Causal Relations	Arnab Bhattacharyya	Faculty, School of Computing in National University of Singapore	ACMU, Kolkata
20	September 23, 2022	Revisiting Convexity Testing	Abhiruk Lahiri	Researcher, Charles University, Prague, Czech Republic	ACMU, Kolkata
21	September 16, 2022	Circular Reasoning with Applications in Cryptography and Complexity Theory	Abhishek De	IRIF, Paris, France	ACMU, Kolkata
22	August 23, 2022	Guarding a Polygon Without Losing Touch	John Augustine	IIT Madras	ACMU, Kolkata
23	March 07, 2023	Intersection configurations in free times free-abelian groups	Mallika Roy	University of the Basque Country, Spain	CSU, Chennai
24	March 15, 2022	AI in Archaeology	Debasis Mitra	Florida Institute of Technology, USA	CVPRU, Kolkata
25	December 26, 2022	Development of a stochastic rainfall generator for unprecedented rainfall events	Rajarshi DasBhowmik	Indian Institute of Science, Bangalore	CVPRU, Kolkata
26	September 15, 2022	Five Laws of Library Science in Modern Librarianship	Ramakrishna Reddy	Acharya Institute of Technology, Bengaluru	DRTC, Bangalore
27	November 03 - 04,2022	Knowledge Management in Academic Libraries	K S Raghavan	Founder Secretary, SRELS, Mysuru, Karnataka	DRTC, Bangalore

Sl. No.	Date	Title of Lecture	Name of Speaker	Affiliation of Speaker	Organizing Unit
28	March 31, 2023	Dwijesh Dutta Majumder Memorial Lecture	B. Yegnanarayana	Distinguished Professor, IIT Hyderabad	ECSU, Kolkata
29	January 24, 2023	Looking for Needles in a Haystack: Filtering User Preferred Data from Large Volumes of Raw Data	Shikharesh Majumdar	Chancellor's Professor and the Director, Real Time and Distributed Systems Research Centre, Department of Systems and Computer Engineering Carleton University Ottawa, Canada	ECSU, Kolkata
30	March 30, 2023	The Edge of Artificial Intelligence: Self Driving Medical Image Analysis	Phaneendra K. Yalavarthy	Professor, Department of Computational and Data Sciences, Indian Institute of Science, Bangalore	MIU, Kolkata
31	March 30, 2023	Computing with Rhythms: The Search for Deep Oscillatory Neural Networks	V Srinivasa Chakravarthy	Professor, Department of Biotechnology, Indian Institute of Technology, Madras	MIU, Kolkata
32	March 30, 2023	Bringing Zero-Shot Deep Learning to Image Restoration	Debashis Sen	Associate Professor, Department of Electronics and Electrical Communication Engineering, Indian Institute of Technology, Kharagpur	MIU, Kolkata

Physics and Earth Sciences Division (PESD)

Sl. No.	Date	Title of the Lecture	Name of the Speaker	Affiliation of the Speaker	Name of the Organizing Unit
1	February 16, 2023	Gastropods in ancient hydrocarbon seeps and hydrothermal vents – history of the adaptation to extreme environments	Hab. Andrzej KAIM	Professor, IPAL PAS, Institute of Paleobiology PAS, Head of the Department of Evolutionary Paleobiology, Warszawa, Poland	GSU, Kolkata
2	April 04, 2022	IID and problem specific samples of random quantum states from quantum Wishart distributions	Shrobona Bagchi	Center for Quantum Information, Korea Institute of Science and Technology (KIST), Korea	PAMU, Kolkata
3	April 27, 2022	Primordial magnetogenesis: an EFT approach	Abhishek Naskar	Indian Institute of Technology, Bombay	PAMU, Kolkata
4	May 11, 2022	Does quantum Bayes' rule affirm consistency in measurement inferences in quantum mechanics?	Manabendra Nath Bera	Indian Institute of Science Education and Research, Mohali	PAMU, Kolkata
5	June 01, 2022	Generalization of freudenthal duality for near-extremal black holes	Taniya Mandal	School of Physics, University of the Witwatersrand, South Africa	PAMU, Kolkata
6	July 27, 2022	Recent development in deep learning: huge transformers and transfer learning	S. K. Venkatesan	CQRL Bits LLP, Chennai	PAMU, Kolkata
7	August 17, 2022	On a three-dimensional nonlinear model of equatorial ocean dynamics and some insight into particle paths for stratified rotational flows	Biswajit Basu	School of Engineering, Trinity College, Ireland	PAMU, Kolkata
8	September 14, 2022	Thermoelectric and thermal transport properties of different 2D materials	Suman Chowdhury	Department of Physics, Shiv Nadar University, Uttar Pradesh	PAMU, Kolkata
9	October 18, 2022	Bell-nonlocal correlations in quantum mechanics: foundation and some applications.	Ashutosh Rai	Quantum Information Theory Lab, School of Electrical Engineering, Korea Advanced Institute of Science and Technology (KAIST), South Korea	PAMU, Kolkata
10	October 21, 2022	Mapping the role of the magnetic fields and episodic accretion in star-formation	Indrani Das	University of Western Ontario, Canada	PAMU, Kolkata

Sl. No.	Date	Title of the Lecture	Name of the Speaker	Affiliation of the Speaker	Name of the Organizing Unit
11	October 28, 2022	Assembly of colloids into linear chains and studies of their structure and dynamics.	Bipul Biswas	Department of Physics, University of Massachusetts Amherst, USA	PAMU, Kolkata
12	November 09, 2022	Memory effects in exact radiative spacetimes in general relativity and modified gravity.	Indranil Chakraborty	IIT Kharagpur	PAMU, Kolkata
13	December 08, 2022	Quantum homogenization in non-Markovian collisional model	Sibasish Ghosh	Optics and Quantum Information Group, The Institute of Mathematical Sciences, Chennai	PAMU, Kolkata
14	December 14, 2022	Uncertainty relations in pre- and post-selected systems	Sibasish Ghosh	Optics and Quantum Information Group, The Institute of Mathematical Sciences, Chennai	PAMU, Kolkata
15	December 21, 2022	One day tutorial on sensitivity analysis in dynamic systems SEAVEA Toolkit	Arindam Saha	Brunel University, London	PAMU, Kolkata
16	December 28, 2022	Arbitrary separation in one-way zero-error quantum communication complexity of relations with finite set of inputs	Some Sankar Bhattacharya	ICTQT, University of Gdansk, Poland	PAMU, Kolkata
17	December 29, 2022	Self-similar gravitational dynamics, singularities and criticality in 2D	Upamanyu Moitra	The Abdus Salam International Centre for Theoretical Physics, Trieste, Italy	PAMU, Kolkata
18	January 03, 2023	Quantum Raychaudhuri Equation: implications for spacetime singularities and the quantum origin of lambda	Saurya Das	University of Lethbridge, Canada	PAMU, Kolkata
19	January 04, 2023	Light Dirac neutrino portal dark matter with observable ΔN_{eff}	Anirban Biswas	Center for Quantum SpaceTime (CQUeST) Sogang University, Seoul, South Korea	PAMU, Kolkata
20	January 11, 2023	Cosmology with Cosmic Microwave Background and Multi-line Intensity Mapping	Anirban Roy	Department of Astronomy, Cornell University, USA	PAMU, Kolkata
21	January18, 2023	Entanglement catalysis for quantum states and noisy channels	Chandan Datta	Centre of New Technologies University of Warsaw, Poland	PAMU, Kolkata
22	January 27, 2023	Quantum networking with short-range entanglement assistance	Siddhartha Santra	Department of Physics, IIT Bombay	PAMU, Kolkata
23	February 07, 2023	Electrokinetic transport of colloidal nano/micro-(bio)particles	Partha P. Gopmandal	Department of Mathematics, NIT Durgapur	PAMU, Kolkata
24	March 03, 2023	The 21-cm cosmology	Rajesh Mondal	Tel Aviv University, Israel	PAMU, Kolkata
25	March 15, 2023	Flavor leptogenesis during reheating era	Arunansu Sil	IIT Guwahati	PAMU, Kolkata
26	March 20, 2023	A class of Bell diagonal entanglement witnesses in $C^4 \otimes C^4$: optimization and the spanning property	Anindita Bera	Institute of Physics, Astronomy and Informatics Nicolaus Copernicus University, Poland	PAMU, Kolkata
27	March 22, 2023	Alleviating tensions in cosmology	Shreya Banerjee	Friedrich Alexander University, Germany	PAMU, Kolkata
28	March 01, 2023	The structure beneath the South India and the Himalaya: a quantitative assessment of past and present geology	Ritima Das	Department of Earth Sciences, Pondicherry University	TASU, Tezpur

Social Sciences Division (SSD)

Sl. No.	Date	Title of the Lecture	Name of the Speaker	Affiliation of the Speaker	Name of the Organizing Unit
1	April 21 – 28, 2022	Applied Econometrics	Kaushik Bora	Borlaug Institute for South Asia. International Centre for Maize and Wheat Reserach (CIMMYT), New Delhi	EAU, Bangalore

Sl. No.	Date	Title of the Lecture	Name of the Speaker	Affiliation of the Speaker	Name of the Organizing Unit
2	March 10, 2023	Agricultural Wages and Employment	Arindam Das	Foundation for Agrarian Studies, Bengaluru	EAU, Bangalore
3	March 10, 2023	History of Agricultural Policy in India	Sandipan Baksi	Foundation for Agrarian Studies, Bengaluru	EAU, Bangalore
4	April 01, 2022	A data-driven approach to estimating the social cost of carbon	Tama Carleton	University of California, Santa Barbara, USA	EPU, Delhi (Virtual)
5	April 08, 2022	Meritocracy in the Face of Group Inequality	Rajiv Sethi	Columbia University, USA	EPU, Delhi (Virtual)
6	April 15, 2022	Structural Transformation and Environmental Externalities	Teevrat Garg	University of California, San Diego, USA	EPU, Delhi (Virtual)
7	April 22, 2022	Learning from Others	Gautam Rao	Harvard University, USA	EPU, Delhi (Virtual)
8	April 28, 2022	Social choice under gradual learning	Takuro Yamashita	Tolouse School of Economics, France	EPU, Delhi (Virtual)
9	May 06, 2022	Individual Pay for Collective Performance and Deforestation: Evidence from Brazil	Po Yin Wong	Hong Kong Monetary Authority, Hong Kong	EPU, Delhi (Virtual)
10	May 13, 2022	Transhumant Pastoralism, Climate Change and Conflict in Africa	Nathan Nunn	Harvard University, USA	EPU, Delhi (Virtual)
11	May 27, 2022	Random choice from a weighted tournament	Yves Sprumont	Deakin University, Australia	EPU, Delhi (Virtual)
12	June 03, 2022	Female representation in school management and school quality	Bharti Nandwani	Indira Gandhi Institute of Development Research, Mumbai	EPU, Delhi (Virtual)
13	June 16, 2022	Women's Inheritance Rights and Time Use in India	Tanu Gupta	Indira Gandhi Institute of Development Research, Mumbai	EPU, Delhi
14	June 21, 2022	Model of Raiff a's Bargaining Solution for a Strategic Game	Kalyan Chatterjee	Penn State University, USA	EPU, Delhi (Virtual)
15	July 20, 2022	Optimistic Directors and CEO Turnover	Jaideep Chowdhury	James Madison University, USA	EPU, Delhi (Virtual)
16	July 29, 2022	Inferring trade-off s in university admissions: evidence from Cambridge	Debopam Bhattacharya	Cambridge University, United Kingdom	EPU, Delhi (Virtual)
17	August 08, 2022	The liquidity trap	Pradeep Dubey	Stony Brook University, USA	EPU, Delhi (Virtual)
18	August 19, 2022	Building State Capacity: What Is the Impact of Development Projects?	David Evans	Center for Global Development, USA	EPU, Delhi (Virtual)
19	August 26, 2022	Does Political Quota Lead to Development? Evidence from India	Resuf Ahmed	HEC Lausanne, Switzerland	EPU, Delhi (Virtual)
20	September 02, 2022	Does the choice of words in the Fed's Board of Governors' speeches matter?	Abhinav Anand	Indian Institute of Management, Bangalore	EPU, Delhi (Virtual)
21	September 08, 2022	Fair congestion	Herve Moulin	University of Glasgow, United Kingdom	EPU, Delhi (Virtual)
22	September 09, 2022	Cognitive Endurance as Human Capital	Supreet Kaur	University of California, Berkeley, USA	EPU, Delhi (Virtual)
23	September 23, 2022	Modelling optimal lockdowns with waning immunity	Aditya Goenka	University of Birmingham, England	EPU, Delhi (Virtual)
24	November 04, 2022	Some Characterizations of Generalized Top Trading Cycles	Yuki Tamura	New York University, Abu Dhabi	EPU, Delhi (Virtual)
25	November 11, 2022	Made in Heaven, Matched by Parents: Does Arranged Marriage Restrict Labour MarketAutonomy and Participation of Women? Theory and Evidence from India	Anirban Kar	Delhi School of Economics, Delhi	EPU, Delhi
26	November 14, 2022	Songs of Refugees	Stelios Michalopoulos	Brown University, USA	EPU, Delhi (Virtual)
27	November 25, 2022	Gender, Marriage, and Portfolio Choice: Role of Income Risk	Pubali Chakraborty	Ashoka University, Sonipat, Haryana	EPU, Delhi

Sl. No.	Date	Title of the Lecture	Name of the Speaker	Affiliation of the Speaker	Name of the Organizing Unit
28	December 02, 2022	School Choice with Preference Rank Classes	Szilvia Papai	Concordia University, Canada	EPU, Delhi (Virtual)
29	December 09, 2022	In-Kind Transfers as Insurance	Sandip Sukhtankar	University of Virginia, USA	EPU, Delhi
30	December 15, 2022	Inertial Updating	Matthew Kovach	Virginia Tech, USA	EPU, Delhi
31	January 13, 2023	Advertising Platforms and Privacy	Sridhar Moorthy	University of Toronto, Canada	EPU, Delhi
32	January 27, 2023	Affirmative Action and Application Strategies: Evidence from Field Experiments in Colombia	Ritwik Banerjee	Indian Institute of Management Bangalore	EPU, Delhi
33	January 31, 2023	Affirmative Action in Two Dimensions: A Multi-Period Apportionment Problem	Manshu Khanna	Peking University, China	EPU, Delhi
34	February 03 , 2023	The Changing Polarization of Party Ideologies: The Role of Sorting	Satyajit Chatterjee	Federal Reserve Bank of Philadelphia, USA	EPU, Delhi
35	February 10, 2023	Productivity and Quality of Multiple-Product Firms	Arpita Chatterjee,	Indian Institute of Management Bangalore	EPU, Delhi
36	February 17, 2023	Intertemporal Expectations Coordination	Sayantan Ghosal	Glasgow University, United Kingdom	EPU, Delhi
37	March 10, 2023	Insurance Cyclicality	Anand Chopra	Indian Institute of Technology Kanpur	EPU, Delhi
38	March 17, 2023	Does reshaping gender attitudes impact women's long term outcomes? Evidence from aschool-based experiment	Tarun Jain	Indian Institute of Management, Ahmedabad	EPU, Delhi
39	August 03, 2022	Inferring trade-offs in University Admissions: Evidence from Cambridge	Debopam Bhattacharya	Department of Economics, Trinity College and University of Cambridge, UK	ERU, Kolkata
40	August 10, 2022	To Use, or Not to Use the Spatial Durbin Model? - That is the Question	Anil K. Bera	Department of Economics, University of Illinois, Urbana Champaign, USA	ERU, Kolkata
41	August 10, 2022	Testing for Spatial Dependence in a Spatial Autoregresive (SAR) Model in the Presence of Endogenous Regressors	Malabika Kole	Department of Economics, University of Illinois, Urbana Champaign, USA	ERU, Kolkata
42	September 14, 2022	Does Non-farm Income Always Lead to Intensification of Polluting Agricultural Inputs? New Evidence from India.	Sabbuj Kumar Mandal	Department of Humanities and Social Sciences, Indian Institute of Technology, Madras	ERU, Kolkata
43	September 14, 2022	Does the Source of Oil Price Shock Matter for Indian Sectoral Stock Returns? A Time-frequency Approach to Analyse Dynamic Connectedness and Spillovers.	Sreelakshmi, R	Department of Humanities and Social Sciences, Indian Institute of Technology, Madras	ERU, Kolkata
44	February 08, 2023	Evaluating Rare Event Predictions	Kajal Lahiri	Distinguished Professor of Economics, University at Albany, SUNY, USA	ERU, Kolkata
45	April 28, 2022	Natural Language Processing and Robotics: A Possible Synergy	Debasmita Mukherjee	University of British Columbia, Canada	LRU, Kolkata
46	May 04, 2022	Problems and Features of Code Switching of English-Bengali Bilinguals	Julia Hofweber	University College London, UK	LRU, Kolkata
47	May 25, 2022	The nature of language loss of Bilingual Aphasic patients	Arpita Bose	University of Reading, UK	LRU, Kolkata
48	June 10, 2022	How to utilize tools and systems for speech data annotation and analysis	Atul Aman	VIT University, Bhopal, MP	LRU, Kolkata
49	October 19, 2022	Developing a useful graphical Interface for Bengali WordNet	Alok Ranjan Pal	College of Engineering and Management, Kolaghat, WB	LRU, Kolkata

Sl. No.	Date	Title of the Lecture	Name of the Speaker	Affiliation of the Speaker	Name of the Organizing Unit
50	November 11, 2022	Adding culture-specific ideas and information as Synsets in WordNet	Amrita Bhattacharyya	Amity University, Kolkata	LRU, Kolkata
51	December 19, 2022	Documentation of Family-level language use in Northern Ireland	Anik Nandi	University of the Basque Country, Spain	LRU, Kolkata
52	February 10, 2023	Basic challenges in the area of forensic linguistics in India	Sweta Sinha	Indian Institute of Technology, Patna	LRU, Kolkata

SQC & OR Division (SQC&ORD)

Sl. No.	Date	Title of the Lecture	Name of the Speaker	Affiliation of the Speaker	Name of the Organizing Unit
1	July 04, 2022	Attribute Measurement System Analysis	Asokan Mulayath Variyath	Memorial University of Newfoundland, Canada	SQC&OR, Bangalore
2	August 12, 2022	Some Korovkin-type results in matrix algebra	Seetharama Gowd	University of Maryland, Baltimore County, USA	SQC&OR, Bangalore
3	August 26, 2022	A Tour to Time Series Forecasting: Past, Present and the Future	Tanujit Charkraborty	Sorbonne University, Abu Dhabi	SQC&OR Bangalore
4	April 18 - May 06, 2022 (30 hours)	Statistical Quality Control (SQC) for QA, TSO Programme – Quality Assurance Engineering	A.L.N. Murthy	BARC Training School, Nuclear Fuel Complex (NFC), Hyderabad	SQC & OR, Hyderabad
5	January 25, 2023	OR in the Supply Chain: Case studies from the Industry	Aravind M. Nambiar	Head, Digital, Weave Services Limited, Hong Kong	SQC&OR, Kolkata

Theoretical Statistics and Mathematics Division (TSMD)

Sl. No	Date	Title of the Lecture	Name of the Speaker	Affiliation of the Speaker	Name of the Organizing Unit
1	April 11, 2022	Spectral phases of Erdös-Rényi graphs	Antti Knowles	University of Geneva, Switzerland	SMU, Bangalore
2	May 19, 2022	First-passage percolation, a model in the KPZ universality class	Arjun Krishnan	University of Rochester, USA	SMU, Bangalore
3	June 02, 2022	Covers of Singular Curves in Positive Characteristics	Soumyadip Das	TIFR Mumbai	SMU, Bangalore
4	July 04 & 05, 2022	Towards Proving the Capacity of Deep Operator Nets for Solving Differential Equations	Anirbit Mukherjee	University of Manchester, England	SMU, Bangalore
5	July 07, 2022	Jacobians, Anti-Affine Groups and Torsion Points	A.J. Parameswaran	TIFR Mumbai	SMU, Bangalore
6	August 02, 2022	Electrical networks and Lagrangian Grassmannians	Terrence George	University of Michigan, USA	SMU, Bangalore
7	August 04, 2022	Properties of cyclic functions	Jeet Sampat	University of St. Louis, Missouri, USA	SMU, Bangalore
8	August 12, 2022	Ashok Maitra Memorial Lecture Series: Vector concentration inequalities; The extremals of the Alexandrov-Fenchel inequality	Ramon van Handel	Princeton University, New Jersey, USA	SMU, Bangalore
9	August 18, 2022	Higher expanders: isoperimetric inequalities and random walks	Arghya Mondal	CMI, Chennai	SMU, Bangalore
10	September 12, 2022	A phase transition in the zero count of stationary Gaussian processes	Lakshmi Priya	Tel-Aviv University, Israel	SMU, Bangalore
11	September 14, 2022	p-adic Diophantine Approximation with respect to Fractal Measures	Shreyasi Datta	University of Michigan, Ann Arbor, USA	SMU, Bangalore

Sl. No	Date	Title of the Lecture	Name of the Speaker	Affiliation of the Speaker	Name of the Organizing Unit
12	September 16, 2022	Seminar on Singularities of local models	Najmuddin Fakhruddin	TIFR, Mumbai	SMU, Bangalore
13	October 10, 2022	Branching Brownian motion seen as a Markov process	Atul Shekhar	TIFR-CAM, Bangalore	SMU, Bangalore
14	November 10, 2022	A gentle introduction to Fourier restriction inequalities	Chandan Biswas	IISc., Bangalore	SMU, Bangalore
15	November 14, 2022	Partial divisibility in random sets	Biltu Das	IISc., Bangalore	SMU, Bangalore
16	November 14, 2022	Nonparametric Inference and Geometric Probability: The Curious Case of Dimension 8	Bhaswar Bhattacharya	University of Pennsylvania, USA	SMU, Bangalore
17	November 17, 2022	Sequences of operator algebras converging to odd spheres in the quantum Gromov-Hausdorff distance	Sushil Singla	IISc., Bangalore	SMU, Bangalore
18	January 05, 2023	Free entropy theory and von Neumann algebras	K E Srivatsav	University of California, USA	SMU, Bangalore
19	January 12, 2023	The F-signature function of a globally F-regular variety	Swaraj Pande	University of Michigan, USA	SMU, Bangalore
20	January 19, 2023	Higher Turán inequalities for the plane partition function	Badri Vishal Pandey	University of Virginia, USA	SMU, Bangalore
21	January 30, 2023	The Dimer Model in 3 dimensions	Nishant Chandgotia	TIFR-CAM, Bangalore	SMU, Bangalore
22	January 30, 2023	The stable algebraic measure tree diffusion	Roman Gambelin	INRIA, France	SMU, Bangalore
23	January 31, 2023	Cones in Banach spaces and Positive Operators	T E S Raghavan	University of Illinois, Chicago, USA	SMU, Bangalore
24	March 13, 2023	On *-centralizing maps in rings and algebras	Shakir Ali	Aligarh Muslim University, Uttar Pradesh	SMU, Delhi
25	March 03, 2023	Reconstructing an Epidemic Outbreak Using Steiner Connectivity	Gursharn Kaur	University of Virginia, USA	SMU, Delhi
26	March 01, 2023	Joint Modeling of Multiple Skewed Longitudinal Processes with Excess of Zeroes and Time-to-event Using a Shared Parameter Model	Subrata Kundu	George Washington University, USA	SMU, Delhi
27	February 23, 2023	q-Araki-Woods algebras, factoriality	Kunal Mukherjee	IIT Madras	SMU, Delhi
28	February 22, 2023	On Lindenstrauss's Problem	M.A. Sofi	Jammu & Kashmir Institute of Mathematical Sciences, Srinagar, Jammu & Kashmir	SMU, Delhi
29	February 15, 2023	Frobenius problem associated with the number of solution	Takao Komatsu	Zhejiang Sci-Tech University, China	SMU, Delhi
30	February 2, 2023	Quantum automorphism and permutation groups	Makoto Yamashita	University of Oslo, Norway	SMU, Delhi
31	January 25, 2023	Projective representations for compact quantum groups	Ruben Martos	University of Lille, France	SMU, Delhi
32	January 4, 2023	Dimension theories of C*-algebras	Anshu	National Institute of Science Education and Research, Bhubaneswar	SMU, Delhi
33	December 21, 2022	Sequence of operator algebras converging to odd spheres in the quantum Gromov-Hausdorff distance	Sushil Singla	IISc, Bangalore	SMU, Delhi
34	December 14, 2022	Large-graph approximations for interacting particles on graphs and their applications	Wasiur Khuda Bukhsh	University Nottingham, UK	SMU, Delhi

Sl. No	Date	Title of the Lecture	Name of the Speaker	Affiliation of the Speaker	Name of the Organizing Unit
35	October 26, 2022	Braided quantum symmetries of classical and quantum spaces	Sutanu Roy	National Institute of Science Education and Research, Bhubaneswar	SMU, Delhi
36	October 12, 2022	Equivariant C^*-correspondence	Soumalya Joardar	IISER Kolkata	SMU, Delhi
37	September 21, 2022	A simple extension of the Ramanujan-Serre derivative map and some applications	Anup Kumar Singh	National Institute of Science Education and Research, Bhubaneswar	SMU, Delhi
38	September 14, 2022	On the non-commutative Neveu decomposition and stochastic ergodic theorems	Panchugopal Bikram	National Institute of Science Education and Research, Bhubaneswar	SMU, Delhi
39	September 07, 2022	Dimensions of spaces of Siegel cusp forms of degree 2.	Manami Roy	Fordham University, New York, USA	SMU, Delhi
40	September 2, 2022	Discriminants and Integral Bases of Algebraic Number Fields	Sudesh Kaur Khanduja	IISER Mohali	SMU, Delhi
41	August 31, 2022	A non-abelian Polya-Vinogradov theorem	C.S. Rajan	Ashoka University, Sonipat, Haryana	SMU, Delhi
42	August 10, 2022	Nonasymptotic random matrix theory	Ramon van Handel	Princeton University, New Jersey, USA	SMU, Delhi
43	May 25, 2022	(Almost) Exact Bound on Factorization Norm of Certain Matrices with Application to Privacy	Jalaj Upadhyay	Rutgers University, USA	SMU, Delhi
44	May 18, 2022	A higher dimensional analog of Margulis' construction of expanders	Arghya Mondal	Chennai Mathematical Institute, Chennai	SMU, Delhi
45	May 11, 2022	Multiplicity one problem for Selberg Class	K. Srinivas	IMSc Chennai	SMU, Delhi
46	May 04, 2022	On the notion of hyperbolicity for differential forms	Diksha Mukhija	Université d'Artois, France	SMU, Delhi
47	April 27, 2022	Trace of Powers of Algebraic Numbers	R. Thangadurai	Harish-Chandra Research Institute, Prayagraj, Uttar Pradesh	SMU, Delhi
48	April 20, 2022	Quantum dynamical entropy for noncommutative dynamical systems	Anilesh Mohari	IMSc. Chennai	SMU, Delhi
49	April 13, 2022	Belinskaya's theorem is optimal	François Le Maître	Université Paris Cité, France	SMU, Delhi
50	April 05, 2022	An Algorithm for computation of Mixed volumes of lattice polytopes and Hilbert functions of multi-graded algebras	J. K. Verma	IIT Bombay	SMU, Kolkata
51	May 04, 2022	Bounds for standard L-functions	Paul Nelson	ETH, Zurich, Switzerland and Institute for Advanced Study, Princeton, USA	SMU, Kolkata
52	May 05, 2022	Some Limit Theorems in Sphere Packing and Lattice Point counting problem	Mahbub Alam	Uppsala University, Uppsala, Sweden	SMU, Kolkata
53	May 23, 2022	A tale of infinitely many balloons	Gourab Ray	University of Victoria, Canada	SMU, Kolkata
54	May 30, 2022	Improved inference for vaccine-induced immune responses via shape-constrained methods	Nilanjana Laha	Department of Biostatistics, Harvard University, USA	SMU, Kolkata
55	June 03, 2022	The Plancherel theorem for Hilbert modules	Rohit Dilip Holkar	IISER Bhopal	SMU, Kolkata
56	June 13, 2022	Least Squares Estimation of a Multivariate Quasiconvex Regression Function	Somabha Mukherjee	National University of Singapore, Singapore	SMU, Kolkata
57	June 27, 2022	Joins of Group Rings	Jonathan Merzel	Soka University, America	SMU, Kolkata
58	July 06, 2022	Proper proximality and applications to von Neumann algebras	Srivatsav Kunnawalkam Elayavalli	Vanderbilt University, USA	SMU, Kolkata

Sl. No	Date	Title of the Lecture	Name of the Speaker	Affiliation of the Speaker	Name of the Organizing Unit
59	July 07, 2022	Proper proximality and applications to von Neumann algebras	Srivatsav Kunnawalkam Elayavalli	Vanderbilt University, USA	SMU, Kolkata
60	July 07, 2022	Uniform singular value gaps	Sourav Ghosh	Ashoka University, Sonipat, Haryana	SMU, Kolkata
61	July 08, 2022	Proper proximality and applications to von Neumann algebras	Srivatsav Kunnawalkam Elayavalli	Vanderbilt University, USA	SMU, Kolkata
62	July 25, 2022	Functional Models for Time Varying Random Objects	Paromita Dubey	Department of Data Sciences and Operations, USC Marshall Business School, USA	SMU, Kolkata
63	August 16, 2022	Filtration of cohomology via symmetric (sem)isimplicial spaces	Oishee Banerjee	Hausdorff Centre for Mathematics, University of Bonn, Germany	SMU, Kolkata
64	August 16, 2022	The diabolical bubbles of H. Minkowski	Ramon Van Handel	Princeton University, New Jersey, USA	SMU, Kolkata
65	August 17, 2022	Universality in nonasymptotic random matrix theory	Ramon Van Handel	Princeton University, New Jersey, USA	SMU, Kolkata
66	August 25, 2022	Convergence to the Brownian web for a perturbed Howard model	Kumarjit Saha	Ashoka University, Sonipat, Haryana	SMU, Kolkata
67	August 29, 2022	Universality in Random Growth Processes	Sourav Sarkar	University of Cambridge, England	SMU, Kolkata
68	September 05, 2022	Sub-Weyl strength bound for short character sums of twist of GL(2) Fourier coefficients	K. Mallesham	IIT Bombay	SMU, Kolkata
69	September 11, 2022	Compact Heisenberg Manifolds and Abelian Varieties	Gerald Folland	University of Washington, Seattle, USA	SMU, Kolkata
70	September 19, 2022	A Cautionary Tale	Sourav Sen	TIFR, Mumbai	SMU, Kolkata
71	September 21, 2022	A model for lagged cross correction matrix from long range dependent Indian stock market data	Ananya Lahiri	IIT Tirupati	SMU, Kolkata
72	September 26, 2022	Nested cubing integration: how to get a O(N{-10}) error when you compute your favourite integral	Nicolas Chopin	ENSAE, Institut Polytechnique de Paris, France	SMU, Kolkata
73	November 16, 2022	Berezin-type quantization on compact even dimensional manifolds	Rukmini Dey	ICTS, Bangalore	SMU, Kolkata
74	November 24, 2022	Metric Compatibility and Levi-Civita Connections on Quantum Groups	Thomas Weber	University of Turin, Italy	SMU, Kolkata
75	November 28, 2022	Improved Nonparametric Empirical Bayes Estimation using Transfer Learning	Gourab Mukherjee	Marshall School of Business, University of Southern California, USA	SMU, Kolkata
76	December 05, 2022	Understanding linear groups via geometric structures, I	Mitul Islam	University of Heidelberg, Germany	SMU, Kolkata
77	December 06, 2022	Understanding linear groups via geometric structures, II	Mitul Islam	University of Heidelberg, Germany	SMU, Kolkata
78	December 13, 2022	Percolation on Hyperbolic groups	Mahan Mj	Tata Institute of Fundamental Research, Mumbai	SMU, Kolkata
79	December 13, 2022	Homology Of Symmetric Semi-Algebraic Sets	Saugata Basu	Purdue University, USA	SMU, Kolkata
80	December 19, 2022	Dynamic Pricing Under Shape Constraints	Moulinath Banerjee	University of Michigan, Ann Arbor, USA	SMU, Kolkata
81	December 21, 2022	Bootstrapping the error of Oja's algorithm	Purnamrita Sarkar	University of Texas, Austin, USA	SMU, Kolkata
82	January 03, 2023	Introduction to Symplectic Geometry and Pseudoholomorphic Curves	Ipsita Datta	Institute for Advanced Study, Princeton, USA	SMU, Kolkata
83	January 05, 2023	Lagrangian cobordisms, enriched knot diagrams, and algebraic invariants	Ipsita Datta	Institute for Advanced Study, Princeton, USA	SMU, Kolkata

Sl. No	Date	Title of the Lecture	Name of the Speaker	Affiliation of the Speaker	Name of the Organizing Unit
84	January 09, 2023	Equivariant Steenrod Operations	Prasit Bhattacharya	New Mexico State University,USA	SMU, Kolkata
85	January 11, 2023	Some Structures on Principal Lie 2-group Bundles over Lie groupoid	Praphulla Koushik	IISER Pune	SMU, Kolkata
86	January 13, 2023	Contact structures, Open Book Decompositions, and Legendrian Submanifolds	Agniva Roy	Georgia Institute of Technology, USA	SMU, Kolkata
87	January 25, 2023	A Theoretically Amenable Cross Validation Framework for Signal Denoising	Sabyasachi Chatterjee	University of Illinois Urbana-Champaign, USA	SMU, Kolkata
88	January 30, 2023	The Harman sieve and trigonometric polynomials	Olivier Ramaré	CNRS/ Aix-Marseille Université, France	SMU, Kolkata
89	January 31, 2023	Space like strong unique continuation for some fractional parabolic equations	Agnid Banerjee	TIFR-CAM, Bengaluru	SMU, Kolkata
90	February 01, 2023	The Harman sieve and trigonometric polynomials	Olivier Ramaré	CNRS/ Aix-Marseille Université, France	SMU, Kolkata
91	February 01, 2023	Quantum modular forms of non-zero weight	Sary Drappeau	Aix Marseille Universite, France	SMU, Kolkata
92	February 03, 2023	The Harman sieve and trigonometric polynomials	Olivier Ramaré	Aix Marseille Universite, France	SMU, Kolkata
93	February 03, 2023	Resurgence in enumerative geometry	Arpan Saha	Aix Marseille Universite, France	SMU, Kolkata
94	February 06, 2023	Sufficient Statistic and Rao-Blackwell Theorem in Quantum Probability	Prof. Kalyan B. Sinha	JNCASR, Bengaluru	SMU, Kolkata
95	February 14, 2023	Random lemniscates and their metric properties	Koushik Ramachandran	TIFR CAM, Bangalore	SMU, Kolkata
96	February 23, 2023	Reversibility of affine transformations	Krishnendu Gongopadhyay	IISER Mohali	SMU, Kolkata
97	March 03, 2023	Bounds on bilinear sums of Kloosterman sums	Nilanjan Bag	RKMVERI, Belur, West Bengal	SMU, Kolkata
98	March 27, 2023	Simplicial categories and their k-invariants	David Blanc	University of Haifa, Israel	SMU, Kolkata

7.4 OUTREACH ACTIVITIES

The Institute organized the following outreach activities-

Sl. No.	Date/ Duration	Title of the Outreach Activities conducted	Number of Participants	Name of the Target Audience	Purpose/ Objective	Organizing Unit
1	Apr 19, 2023	A one day visit to ISI-Kolkata for outreach program	19	B.Sc. Honours in Mathematics 3rd Year students, Rahara Ramkrishna Mission College, Kolkata	Outreach program	AERU, Kolkata
2	Jan 16, 2023	Statistics: Not a jugglery but an intelligence Science	40	School of Material Science and Nanotechnology, Jadavpur University, Kolkata	Refresher course	AERU, Kolkata (Virtual)
3	Jan 16-20, 2023	Winter School in Mathematics	24	Post Graduate students of the North Eastern States	Training, and Capacity building	TASU, Tezpur
4	2022- 23	Collaborative project with ISI on health to conduct a study on anaemia and Non communicable Disease with Centre for Research in Biological Sciences, Jiva-Vijnan-Anweshan-Niketan (JIVAN) RKMVERI	1000	Rural area of District of Hugli, West Bengal	Collaborative Research	SOSU, Kolkaata in collaboration with Ramakrishna Mission Vivekananda Educational and Research Institute (R.K.M.V.E.R.I.)
5	Dec 2022 – Jan 2023	Outreach Program on Data Processing using Python	115	Postgraduate students, research scholars, etc	To provide the science and Engineering Graduate students with the glimpses of the Institute's potential to equip them with the capability of extracting useful insights from large datasets. Create awareness among them on various post-graduate courses offered by the ISI.	SQC & OR Unit Bangalore
6	Jan – July 2022	Online training programme on Statistics and Machine learning	133	Faculty, research scholars, students from colleges and universities and institutions from across India; executive from industry	Faculty development and training. It was a six-month online programme for two batches. Duration: 120 hours for each batch. Two batches. Total training hours 240.	SQC & OR, Hyderabad
7	Jan 13, 2023	International Workshop on Machine Intelligence: Reliability Analysis and Applications	76	College Students, Research Scholars and Faculties	Skill development and Training	IDEAS-TIH
8	Aug 13, 2022	International Workshop on Remote Sensing and Applications	45	College Students, Research Scholars	Skill development and Training	IDEAS-TIH
9	Oct 31 - Nov 04, 2022	Workshop on 21-cm Cosmology in the Square Kilometre Array Era	63	College Students, Research Scholars and Faculties	Skill development and Training	IDEAS-TIH, PAMU

Sl. No.	Date/ Duration	Title of the Outreach Activities conducted	Number of Participants	Name of the Target Audience	Purpose/ Objective	Organizing Unit
10	Jun 10, 2022	International workshop on Machine learning and Data Science	54	College Students, Research Scholars	Skill development and Training	IDEAS-TIH, CVPRU
11	Aug 26, 2022 - Mar 03, 2023	Workshops/ Symposia on Mathematics, Statistics and Cryptology	100-125 participants in each of the 9 locations	Heritage Institute of Technology; East Calcutta Girls' College; Ramakrishna Mission Boys' Home High School, Rahara; Rahamat E-Alam Mission HS, Berachampa, North 24 Parganas; National English School; East Calcutta Girls' College; Presidency University; Pathankali Adarsha Vidyapith, North 24 Parganas; Barasat Mahatma Gandhi Memorial High School	Workshops/Symposia on Mathematics, Statistics and Cryptology	RCBCCS, Kolkata in Collaboration with Heritage Institute of Technology, Kolkata
12	Jan 09 - 13, 2023 (INMO, 2023 was held on: 15.01.2023)	INMO Training Camp: Logic, Geometry, Pigeon Hole Principle, Number Theory, Polynomials, Inequalities, Algebra, Counting principle & Combinatorics, Function equation.	29	WB Region RMO-qualified students	To get prepared for the next level examination INMO	Applied Statistics Unit, Kolkata
13	Mar 14, 2023	Asian Pacific Mathematic Olympiad Exam conducted by Homi Bhabha Centre for Science Education	2 out of 3	Mathematical talented students.	To appear APMO Exam	Applied Statistics Unit, Kolkata
14	Oct 14,2022	Iranian Geometrical Olympiad	1 out of 2	Mathematical talented students.	To appear IGO Exam	Applied Statistics Unit, Kolkata
15	Jan 29, 2023	Madhava Mathematics Competition for Bangalore region.	64	B.Sc & M.Sc Students in Mathematics	This is a national level competition initiated by NBHM, DAE	SMU, ISI Bangalore
16	Mar 25, 2023	Madhava Mathematics Competition Prize Distribution function	15	B.Sc & M.Sc Students in Mathematics	This is a national level competition initiated by NBHM, DAE	SMU, ISI Bangalore

Chapter 8

Administration

338	No. of Scientific and Technical Workers
335	No. of Non-Scientific Workers
557	No. of Male Workers
96	No. of Female Workers
	Covid-19 vaccination Programme
631	Covishied (Precautionary/ 2nd doses)
28	Covaxin (Precautionary/ 2nd doses)

General Administration

8.1 Administrative Services Division

The Administrative Services Division at the Headquarters caters to the various needs of the Scientific Workers in all the Scientific Units of the Institute engaged in various scientific, research and academic activities and provides them with necessary infrastructural facilities in their pursuit of excellence. The centres at Delhi, Bangalore, Chennai and Tezpur, each having a number of scientific units, by and large are getting administrative support from the administrative units/sections there. The Administrative Services Divisions of the Institute has the following units at the Headquarters in Kolkata:

Sl. No.	Name of the Unit	Sl. No.	Name of the Unit
1.	Accounts Section	17.	Internal Audit Cell
2.	Audio-Visual Unit	18.	Legal Cell
3.	Canteen	19.	Medical Expenses Reimbursement Unit
4.	Cash Unit	20.	Medical Welfare Unit
5.	CE (A & F)'s Office	21.	Personnel Unit
6.	Council Section	22.	Provident Fund Unit
7.	Central Despatch Unit	23.	Public Relations Unit
8.	Director's Office	24.	Printing and Publication Unit
9.	Electrical Maintenance Unit	25.	Official Language Cell
10.	Engineering Unit	26.	Retirement Benefit Cell
11.	Estate Office	27.	RTI, Grievance, Complaints and Vigilance Cell
12.	Guest House	28.	Security Unit
13.	Hostels	29.	Stores and Purchase Unit
14	House Building Advance Cell	30.	SC / ST / OBC Liaison Cell
15.	Human Resource Development Unit	31.	Telephone Unit
16.	Import & Travel Cell	32.	Transport Unit

Apart from the above mentioned Units, there are few cells dealing with Budget, and other issues to take care of the specific needs of the Institute. The Administrative Services Division also looks after the running of Hostels for Students, Research Scholars and International Statistical Education Centre (ISEC) Trainees and also the running of Canteens for the workers and students of the Institute. The other outlying Units are controlled directly by the Headquarters at Kolkata. The Administrative Services Division takes the responsibility for all new constructional activities of the Institute at its Headquarters and also at outlying centres/ branches. A brief report on the construction and other activities during the year is narrated in the subsequent paragraphs.

The Administrative activities in the four Centres, namely Delhi, Bangalore, Chennai and North East Centre at Tezpur and in other outlying branches of the Institute and Giridih Office are more or less similar to the Headquarters but on a much smaller scale.

8.2 Office Bearers of the Institute Administration during the year

Director		Professor Sanghamitra Bandyopadhyay		
		(01.04.2022 to 17.09.2022)	(18.09.2022 to 31.03.2023)	
Professors-in-Charge	Applied Statistics Division	Professor Mridul Nandi	Professor Smarajit Bose	
	Biological Sciences Division	Dr. Raghunath Chatterjee	Dr. Abhishek Mukherjee	
	Computer and Communication Sciences Division	Professor Krishnendu Mukhopadhyaya	Professor Rajat Kumar De	
	Physics & Earth Sciences Division	Professor Preeti Parashar	Professor Sarbani Patranabis Deb (18.09.2022 to 24.10.2022)	Professor Sarbani Patranabis Deb (05.10.2022 to 31.03.2023)
	Social Sciences Division	Professor Manipushpak Mitra	Professor Niladri Sekhar Dash	
	Theoretical Statistics and Mathematics Division	Professor Antar Bandyopadhyay	Professor Pradipta Bandyopadhyay	
Head, Statistical Quality Control and Operations Research Division		Dr. Arup Ranjan Mukhopadhyay	Professor Biswabrata Pradhan	
Head, Delhi Centre		Professor S.K. Neogy		
Head, Bangalore Centre		Professor C.R.E. Raja		
Acting Head, Chennai Centre		Dr. D. Sampangi Raman		
Head, Delhi Centre		Professor B. Ramakrishnan		

8.3 List of workers joined/ retired/ voluntarily retired/ resigned/ terminated/ died during the year

A. Appointments

(i) Scientific / Technical Workers

Sl. No.	Name
1	Dr. Jayant Jha
2	Dr. Debayan Pakrashi
3	Shri Arijit Debnath
4	Shri Sagar Bhimrao Gajbe
5	Shri Gopalji
6	Shri Tilak Nayak
7	Sm. Saheli Sarkar
8	Dr. Soham Sarkar
9	Shri Avik Kumar Das
10	Shri Vikash Kumar Kisku
11	Shri Neeraj Kumar
12	Sm. Manisha Mujawdiya
13	Shri Subham Ghosh
14	Shri Uttam Saha
15	Shri Avik Mitra

Sl. No.	Name
16	Dr. Naorem Ibemu Devi
17	Sm. Ramya K.
18	Shri Prasanta Dutta
19	Shri Tuhin Kumar Biswas
20	Shri Shivam Savita
21	Dr. Raju Maiti
22	Shri Manas Kumar Pan
23	Shri Suman Ghosh
24	Sm. Piyali Karmakar
25	Dr. Mamatha Sree C.M.
26	Dr. Kaustav Kundu
27	Dr. Sujeet Kumar Singh
28	Sm. Arpita Kundu
29	Shri Onkar Bansal
30	Dr. Soumendu Sundar Mukherjee

Sl. No.	Name
31	Shri Manmatha Roy
32	Shri Bikram Mahapatra
33	Dr. Charanya Ravi
34	Sm. Shuverthi Maity
35	Shri Amit Kumar Saha
36	Shri Priyajit Sen
37	Shri Prathapnayaka S
38	Shri Biswajit Halder
39	Shri Santosh Kumar
40	Shri Suraj Kumar
41	Shri Bibek Sharma
42	Dr. Jagadish
43	Mr. Rizwan Alam

ii) Non-Scientific Workers

Sl. No.	Name
1	Shri Ajaya Kumar Nayak
2	Shri Soumendra Nath Bhunia
3	Sk. Sabir Ali
4	Shri Shankar Singh
5	Shri Ramesh Kumar

Sl. No.	Name
6	Mr. Md. Parwez Alam
7	Sm. Sudipta Suman
8	Shri Puspak Chakrabortty
9	Shri Ranjit Chowdhury
10	Shri Soumyadeep Sain

Sl. No.	Name
11	Shri Alpin Mondal
12	Shri Satadal Sawdagar
13	Shri Debasish Hazra
14	Sm. Nupur Pal
15	Shri Krishna

B. Retirement/Voluntary Retirement

i) Scientific & Technical Workers

Sl. No.	Name
1	Dr. Subrata Kr. Roy
2	Dr. Anjana Dewanji
3	Dr. Susmita Mukhopadhyay
4	Shri Rajat Kanti Chatterjee
5	Dr. Rita Saha Ray
6	Dr. Banasri Basu
7	Dr. Debdulal Dutta Roy
8	Shri Tarak Dey
9	Dr. B. Rajeev
10	Dr. Asit Kumar Ghosh
11	Dr. Baidyanath Pal
12	Dr. Nabanita Das

ii) Non-Scientific Workers

Sl. No.	Name
1	Sm. Bula Das
2	Shri Balbir Singh Bist
3	Shri Raghunath Mondal

Sl. No.	Name
4	Shri Lachman Bahadur Magranti
5	Shri Thammaiah
6	Shri Suresh Singh
7	Sm. Shanti Hela
8	Shri Shyamal Kr. Roy
9	Sm. Uma Halder
10	Ms. Phoolzadi Khatoon
11	Shri Ratan Kr. Bhowmick
12	Shri Gobinda Ghosh
13	Shri Shankar Ram
14	Shri Samar Bhattacharyya
15	Shri Kartik Roy
16	Sm. Shrimati Devi Balmiki
17	Shri Asim Kr. Chattopadhyay
18	Shri Sudip Kr. Roy
19	Shri Ganesh Chandra Tudu
20	Shri Dipankar Sarkar
21	Shri Tapas Kr. Sarkar
22	Shri Pratap Chandra Behara
23	Shri Pradip Singh

C. Resignation

i) Scientific Worker

Sl. No.	Name
1.	Dr. Saurabh Trivedi
2.	Dr. Holendra Singh Chungkham
3.	Mr. Rizwan Alam

ii) Non - Scientific Worker

Sl. No.	Name
1.	Brig. Jagdish Narayan Pandey
2.	Shri Abhishek Mandal

D. Deputation

i) Non - Scientific Worker

Srl. No.	Name
1.	Lt. Col Sandeep Pal

E. Death

i) Scientific Worker

Sl. No.	Name
1.	Dr. Sourabh Ghosh
2.	Dr. Rina Chakraborty
3.	Dr. Sarbani Patranobis Deb

ii) Non - Scientific Worker

Sl. No.	Name
1.	Shri Sukumar Maity
2.	Shri Niranjan Bahadur
3.	Shri Shankar Bahadur

8.4 Manpower by Gender, Social Category and Disability Group

A. Number of workers in the Institute as on 31st March 2023:

338
Scientific and Technical Workers

335
Non-Scientific Workers

673
Total

B. Breakup of manpower by Gender, Social Category and Disability group as on 31st March 2023

1
Scheduled Caste (SC)
♂ 86
♀ 13
Total 99

3
Other Backward Classes (OBC)
♂ 78
♀ 09
Total 87

5
Total
♂ 577
♀ 96
Total 673

2
Persons with Benchmark Disabilities (PwBD)
♂ 06
♀ 01
Total 07

4
Scheduled Tribe (ST)
♂ 23
♀ 02
Total 25

6
Minorities
♂ 24
♀ 01
Total 25

8.5 Annual Return on Cases of Sexual Harassment

1.	Number of complaints of sexual harassment received in the year	**Bangalore Centre** – 2 **Delhi Centre** - 1
2.	Number of complaints disposed off during the year	**Bangalore Centre** – 2 **Delhi Centre** - Process of enquiry committee and preparation of report was in process till March 31, 2023
3.	Number of cases pending for more than 90 days	Nil
4.	Number of workshops on awareness programmers against sexual harassment conducted during the year	**Bangalore Centre** - 3; **Pune** - 1 & **Kolkata** - 1
5.	Nature of action	**Bangalore Centre:** 1. *Warning Letters were issued and recommended to undergo self-funded counselling session before attending the final exams* *and* 2. *Warning Letters were issued and an intensive counselling session for the whole class with compulsory attendance was arranged* ***Delhi Centre:*** Committee has submitted its report within 90 days after receiving the Complaint

8.6 Applications received and action taken by the Institute under RTI Act, 2005

	Sl. No.	Location	Name & Designation
Name of the Appellate Authority	1	Kolkata	Prof. Sanghamitra Bandyopadhyay, Director
	2	Kolkata	Lt Col Sandeep Pal, Officiating CE (A&F)
	3	Kolkata	Dean of Studies
	4	Delhi	Head, Delhi Centre
	5	Bangalore	Head, Bangalore Centre
	6	Tezpur	Head, North-East Centre
	7	Chennai	Head, Chennai Centre
Name of Central Public Information Officer	8	Delhi Centre	Shri Samapan Padhi, Dy. CE (Admn.)
	9	Kolkata	Shri Durgam Giri, Sr. AO
	10	Kolkata	Shri Raj Narayan Mukherjee, AO
	11	Bangalore Centre	Ms. Ashwini Ganesh Tambe, Dy. CE(Admn.)
	12	North-East Centre	Ms. Rimlee Bardhan, Engineer Civil 'B'
	13	Chennai Centre	Shri Biju Mathew, Sr. AO

The summary statement in this regard is given below: –

No. of Appli-cations received	No. of cases accepted	Decisions where requests were fully or partially rejected		No. of decisions from Appellate Authority	C I C decision			Amount collected (Rs.)		
		Fully rejected	Partially rejected		No. of decisions received	Penalty imposed	Disciplinary action, if any	Fee	Other Charges	Penalty amount
180	178	2	0	29	1	0	0	1780	258	0

8.7 Major Construction / Repair works taken up by the Institute

A. Bangalore

CIVIL WORK

	Sl. No.	Description of work	Total Amount (Rs.)
Work in progress	1.	Construction of New Academic Building	4,78,79,193.00
Work Completed	1.	Construction of Extension of Canteen Building	46,08,617.00
	2.	Renovation of C-04 Quarters	1,05,358.00
	3.	Renewing of Roof frame and Roof sheet of Two-wheeler parking shed	98,050.00

B. Delhi

CIVIL WORK

	Sl. No.	Description of work	Total Amount (Rs.)
Work in progress	1	Rehabilitation of Platinum Jubilee Hostel at ISI , Campus Delhi Centre	2,48,86,500.00
	2	Repair and water proofing work in (i) Faculty Block (ii) A- Block and (iii) Teaching Block at ISI Delhi Centre, New Delhi	48,10,000.00
Work Completed	1	Renovation work of Guest House in ISI Campus Delhi Centre, New Delhi	64,32,800.00
	2	C/o New Steel Structure of lift & Miscellaneous work near Faculty Block at ISI Delhi Centre, New Delhi	23,50,000.00
	3	Repair of Existing Campus Roads(Bitumen) at ISI Delhi Centre	39,74,000.00
	4	Exterior Painting of A- Block, b-Block, and D- Block at ISI Delhi Centre	22,36,000.00

C. Giridih

CIVIL WORK

	Sl. No.	Description of work	Total Amount (Rs.)
Work in progress	1	Construction of boundary wall of Upper Farm House of ISI, Giridih, Jharkhand	23,41,850.00.

D.Kolkata

CIVIL WORK

	Sl. No.	Description of work	Total Amount (Rs.)
Work in progress	1	R. C. Bose Centre for Cryptology and Security	1,91,16,534.00
	2	Construction of New Academic Building (G+5)	10,00,00,000.00
	3	Repairing of Over Head Reservoir at 205 B.T. Road, ISI Campus	Nil
	4	Repair & Renovation works at ISEC & RS Hostel at 205 B.T. Road ISI Campus, Kolkata	Nil
	5	Boundary Wall at lower farm house at Giridih, ISI	Nil
	6	Repair of Over Head Reservoir of S. N. Bose Bhavan, Kolkata	Nil
Work Completed	1	Replacement of Old Lifts (2 Nos.) with New Lifts at S. N. Bose Bhavan, Kolkata	Nil

ELECTRICAL WORK

	Sl. No.	Description of work	Total Amount (Rs.)
Work in progress	1	Electrical works of flats 5/8, 6/6 & 6/7 and A building at the 205 B T Road Campus, Kolkata	6, 52, 017.00

E. North-East Centre, Tezpur

CIVIL WORK

	Sl. No.	Description of work	Total Amount (Rs.)
Work in progress	**1**	Admin, Academic, Canteen, Boys' & Girls' Hostel, Amenities, 1 no. Transit Quarter, Site development works, etc.	1,51,47,298.00

8.8 Specific Achievements

8.8.1 Society Type Activities

A. Membership: (as on 31st March 2023)

Sl No.	Membership Type	Number of New Members	Number of Existing Members
1	Ordinary	24	178
2	Life	13	999
3	Institutional	01	05
	Total	**38**	**1182**

B. Finance Committee Meetings:

Sl. No.	Date		Venue
1.	10.08.2022	Both in online and offline modes	Kolkata
2.	06.12.2022		Kolkata
3.	17.03.2023		Kolkata

C. Council Meetings:

Sl. No.	Date		Venue
1.	14.05.2022	Both in online and offline modes	Kolkata
2.	11.08.2022		Kolkata
3.	19.10.2022		Kolkata
4.	22.11.2022		Kolkata
5.	08.12.2022		Kolkata
6.	21.03.2023		Delhi

D. General Body Meeting:

Sl. No.	Date	Venue
1.	26.08.2022 (Offline)	Kolkata

E. Annual General Meeting:

Sl. No.	Date	Venue
1.	12.12.2022 (Offline)	Kolkata

8.8.2 Awareness Programmes conducted by Medical Welfare Unit

Medical Welfare Unit caters to the health care need of the Students, Research Scholars, Faculty, Workers and their dependent family members of Indian Statistical Institute, Kolkata.

- Two (02) full time Resident Medical Officers Perform regular OPD services as well as emergency medical services.
- Specialist clinic of EYE, ENT and Psychiatry are held two days a week.
- Regular counselling session by two Psychological Counselors are held two days a week.
- Retired Staff and their spouses are provided medical care at OPD.
- Some essential medicines are supplied by the pharmacy of MWU.
- All Workers, both temporary and permanent, and students of ISI undergo medical fitness test in MWU before the Resident Medical Officers before joining the Institute and after availing commuted (sick) leave.
- Doctors of MWU provide Medical support to all beneficiaries of the Institute both by physical consultation and by telephonic consultation.
- The staff of MWU help the patients to get admitted in hospital in case of emergency.
- House visit for several patients were done, who were seriously ill & bed ridden.
- Doctors and paramedical staffs of MWU tried to spread awareness about COVID appropriate behaviour, prevention of Malaria and Dengue, among the students and workers.
- Counselling sessions are held for various workers/staff at MWU.
- Doctors of MWU look after the hygiene and sanitation measures at the ISI campus, with special attention to the hostels.
- As per directive of Ministry of Health and Family Welfare, ISI was allowed to undertake Workplace Vaccination Program. The Medical Welfare Unit continued vaccination programme for the Financial year 2022-2023 in collaboration with CMOH, 24 Parganas (North), Baranagar Municipality and Baranagar State General Hospital.
- In the financial year 2022 – 2023, 631 doses of Covishield and 28 doses of Covaxin were administered. Most of the recipient had their 3rd or precautionary dose of vaccine. However, some also got the second dose, who were left over as they got covid infected when the 2nd dose was due to them.
- The total number of COVID vaccine doses were 659 in Financial Year 2022 -2023.

8.9 Brief description of specific achievements and functions related to the implementation of the Official Language Policy by the Official Language Cell of the Institute

Bangalore:

A. Hindi Pakhwara:

Sl. No.	Date	Name of the Competition	No of participants
1	September 14 – 16, 2022	Hindi Poem Recitation	13
2	September 19 – 23, 2022	Hindi Patriotic Song Singing	07
3	September 26 – 29, 2022	Official Language Knowledge (Hindi Quiz)	12

Delhi:

A. Official Language Implementation Committee Members:

Sl. No.	Name	Designation
1	Prof. Samir Kumar Neogy	Head, Delhi Centre
2	Sh. Samapan Padhi	Dy. Chief Executive
3	Sh. S.A. Srinivas	Senior A.O.
4	Smt. Simmi Marwah	A.O. & In-Charge Hindi Cell
5	Sh. Lalan Kumar Singh	Section Officer
6	Sh. Praveen Pandey	Senior Assistant
7	Sh. Amardeep Singh	Office Assistant 'B'

B. Official Language Implementation Meeting:

Sl. No.	Date	Agenda
1	July 08, 2022	(i) Discussion on non-recruitment of Hindi officer. (ii) Discussion on Pakhwada to be held in the month of September. (iii) Discussion on the April-June quarterly report.
2	October 14, 2022	(i) Discussion on the quarterly report for July-September, 2022. (ii) Discussion on some special works to promote Hindi in the institute in the coming quarter.
3	January 09, 2023	(i) Discussion on the Quarterly Report for October- December, 2022. (ii) Discussion on promotion of Hindi in the institute in the coming quarter (January-March, 2023) and organizing Mini Hindi Pakhwada under the incentive scheme.
4	April 18, 2023	(i) Discussion on the quarterly report for January-March, 2023. (ii) Hindi officer has not been recruited yet, discussion on this has not been done.

C. Hindi Workshop:

Sl. No.	Date	Subject	No of participants	Speakers
1	June 21, 2022	How to fill Hindi quarterly report duly.	21	Smt. Vinita Sadhu
2	September 16, 2022	Noting and Drafting in Hindi.	14	Sh. Rajkumar Balmiki
3	December 26, 2022	Difficulties and solutions faced while working in the office in official language Hindi.	15	Sh. Dharam Singh
4	March 28, 2023	Government work - why and how in Hindi?	17	Sh. Heeravallabh Sharma

D. Hindi Pakhwara:

Sl. No.	Date	Name of the Competition	No of participants
1	September 12 -28, 2022	(I) Hindi Nibandh Pratiyogita, (II) Aashubhashan Pratiyogita, (III) Hindi Kavita Path Pratiyogita, (IV) Computer par Hindi Typing Pratiyogita, (V) Hindi Tippan/Praroop and Anuwaad Pratiyogita, (VI) Prashanottari/Quiz Pratiyogita.	Maximum=18

E. Laghu Hindi Pakhwara:

The Delhi Centre of the Institute has celebrated Laghu Hindi Pakhwada during the period 27 April 2022 to 10 May 2022 in which many competitions were organised as part of promoting official language and motivating the workers to work in Hindi

Giridih:

A. Official Language Implementation Committee Members:

Sl. No.	Name	Designation
1	Dr. Pradip Bhattacharyya	Chairman/ In-charge
2	Shri Ganesh Ch. Tudu	Member / S. O.
3	Md. Naquib Akhtar	Member / S. O.

B. Hindi Pakhwara:

Sl. No.	Date	Name of the Competition	No of participants
1	September 14, 2022	Essay Competition	5
2	September 19, 2022	Poem recitation	4
3	September 23, 2022	National songs	5

Kolkata:

A. Official Language Implementation Committee Members:

Sl. No.	Name	Designation
1.	Prof. Sanghamitra Bandyopadhyay, Director	Chairperson
2.	Prof. Preeti Parashar	Chairperson (Acting)
3.	Prof. Amita Pal	Member
4.	Lieutenant Colonel Sandeep Pal, Dy. Chief Executive (Admin.)-B	Member
5.	Shri Amitabh Mukherjee, Deputy Chief Executive (Finance)	Member
6.	Dr. Jadab Kumar Pal, Dy. Chief Executive (General Administration)	Member
7.	Shri Pratyush Banerjee, Dy. Chief Executive (Establishment)	Member
8.	Shri Manoj Kumar Pandey, Senior Administrative Officer	Member Convener
9.	Shri Durgam Giri, Senior Administrative Officer	Member
10.	Shri Raj Narayan Mukherjee, Administrative Officer	Member
11.	Shri Sounak Chakraborty, Administrative Officer	Member
12.	Shri Partha Bhattacharya, Administrative Officer	Member
13.	Shri Utpal Mahato, Administrative Officer	Member
14.	Shri Prashant Tiwari, Hindi Officer	Member

B. Official Language Implementation Committee Meeting:

Sl. No.	Date	Agenda
1	July 27, 2022	▶ Confirmation of the Minutes of the Last Meeting. ▶ Discussion on Hindi Quarterly Progress Report. ▶ Discussion on the Official Language Annual Program Year 2022-23. ▶ Discussion on extension of Hindi Language Training (Praveen, Pragya and Parangat). ▶ Discussion on nominating workers to participate in Online Hindi Intensive Workshops. ▶ Discussion regarding creation of permanent Hindi Posts. ▶ Discussion regarding the organization of Hindi Diwas and Hindi Pakhwada Program. ▶ Discussion for organizing Hindi Technical Workshop (for working in Hindi on computer) in the Institute. ▶ Discussion regarding participation by the Institute in the Second All India Official Language Conference, Surat, organized by the Department of Official Language, Ministry of Home Affairs, Government of India during 14-15 September, 2022. ▶ Discussion on Official Language Implementation related inspection in all the departments/sections/ units of the Institute. ▶ Discussion on any other subject with the permission of the Hon'ble Chairperson.
2	November 02, 2022	▶ Confirmation of the Minutes of the Last Meeting. ▶ Discussion on Hindi Quarterly Progress Report. ▶ Discussion on the Official Language Annual Program Year 2022-23. ▶ Discussion on nominating workers to participate in online Hindi Intensive Workshops. ▶ Discussion for organizing Hindi Technical Workshop (for working in Hindi on computer) ▶ Discussion regarding organizing Hindi Essay Writing Competition for the personnel during the current quarter in order to promote the Official Language in the Institute. ▶ Discussion regarding participation by the Institute in the Regional Official Language Conference and prize distribution ceremony to be organized by the Department of Official Language, Ministry of Home Affairs at Bhubaneswar on December 08, 2022. ▶ Discussion on Official Language Inspection of Delhi Centre by the Headquarters Kolkata. ▶ Discussion on any other subject with the permission of the Hon'ble Chairperson.

Sl. No.	Date	Agenda
3	January 06, 2023	▶ Confirmation of the Minutes of the Last Meeting. ▶ Discussion on Hindi Quarterly Progress Report. ▶ Discussion on the Official Language Annual Program Year 2022-23. ▶ Discussion on extension of Hindi Language Training (Praveen, Pragya and Parangat). ▶ Nomination of workers to participate in online Hindi Intensive Workshops. ▶ Discussion regarding Creation of permanent Hindi Posts. ▶ Discussion to be nominated for training in 05 Half Working Days Online Oriented Program. ▶ Discussion regarding organizing Hindi Poetry Recitation Competition for the personnel during the current quarter in order to promote the Official Language in the Institute. ▶ Discussion to arrange a permanent seminar room for smooth conduct of Hindi Language Training Classes and Hindi Workshops to be organized in the Institute from time to time. ▶ Discussion on conducting Official Language Inspection of Chennai Centre and Bangalore Centre by the Headquarters. Kolkata. ▶ Discussion regarding notification of the Delhi Centre of the Institute in the Gazette of India under Rule 10(4) of the Official Language Rules, 1976. ▶ Discussion on any other subject with the permission of the Hon'ble Chairperson.
4	March, 2023	▶ Confirmation of the Minutes of the Last Meeting. ▶ Discussion on Hindi Quarterly Progress Report. ▶ Discussion on the Official Language Annual Program Year 2022-23. ▶ Discussion on nominating workers to participate in online Hindi Intensive Workshops. ▶ Discussion regarding creation of permanent Hindi posts. ▶ Discussion on conducting Official Language Inspection of Giridih Branch by the Headquarters. Kolkata. ▶ Discussion to be nominated for training in 05 Half Working Days Online Oriented Program. ▶ Discussion on organizing 05 days Short Translation Training (Outreach) Program in the Institute by Central Translation Bureau, Department of Official Language, Ministry of Home Affairs, Government of India, Kolkata Centre. ▶ Discussion regarding organizing Hindi Noting-Drafting & Glossary Competition for the personnel during the current quarter in order to promote the Official Language in the Institute. ▶ Discussion on any other subject with the permission of the Hon'ble Chairperson.

C. Hindi Workshop:

Sl. No.	Date	Subject	No of participants	Speakers
1	June 27, 2022	First Session: Problems of Official Translation and their solutions Second Session: Noting-Drafting and translation Exercises	23	Chief Guest Speaker: Shri Navin Kumar Prajapati, Senior Consultant (Official Language) and In-charge, Kolkata Centre, Central Translation Bureau, Department of Official Language, Ministry of Home Affairs, Government of India.
2	September 14, 2022	First Session: "Utility of Official Language Hindi in Government Offices" Second Session: "The role of translation in Official Noting-Drafting"	30	Chief Guest Speaker: Shri Navin Kumar Prajapati, Senior Consultant (Official Language) and In-charge, Kolkata Centre, Central Translation Bureau, Department of Official Language, Ministry of Home Affairs, Government of India. Chief Guest Speaker: Smt. Rina Pandey, Manager (Official Language) Food Corporation of India, Kolkata – 700006

Sl. No.	Date	Subject	No of participants	Speakers
3	December 05, 2022	First Session: Use of Advanced Technology in promotion of Official Language Second Session: Use of Indian Languages on Computer	17	Chief Guest Speaker: Ms. Arpita Ray, Hindi Pradhyapak, Hindi Teaching Scheme, Department of Official Language, Ministry of Home Affairs, Government of India. Chief Guest Speaker: Shri Anoop Kumar, Assistant Director, Hindi Teaching Scheme, Department of Official Language, Ministry of Home Affairs, Government of India.
4	March 20, 2023	First Session: Long Journey of the Official Language Implementation (Efforts of its Progress & Review of its Alternative Measures) Second Session: Official Implementation of Official Language Hindi in Present Scenario	20	Chief Guest Speaker: Shri Navin Kumar Prajapati, Senior Consultant (Official Language) and In-charge, Kolkata Centre, Central Translation Bureau, Department of Official Language, Ministry of Home Affairs, Government of India. Chief Guest Speaker: Shri Nirmal Kumar Dubey, Assistant Director (Official Language) and Regional Implementation Office, Department of Official Language, Ministry of Home Affairs, Government of India.

D. Hindi Pakhwara:

Sl. No.	Date	Name of the Competition	No of participants
1	September 14, 2022	Inauguration of Hindi Diwas, Hindi Pakhwada & Hindi Workshop	35
2	September 19, 2022	Hindi Poem Recitation Competition	19
3	September 20, 2022	Hindi Debate Competition	15
4	September 21, 2022	Hindi Extempore Competition	17
5	September 22, 2022	Hindi Patriotic Song Singing Competition	15
6	September 23, 2022	Rajbhasha Knowledge Competition	20
7	October 28, 2022	Hindi Pakhwada Closing Ceremony	40
8	October 12, 2022	Hindi Pakhwada Prize Distribution Ceremony	50

E. Technical Workshop:

Sl. No.	Date	Subject	No of participants	Speaker/ Organizer
1	June 27, 2022	Crash Translation Training Program	23	Under the aegis of Central Translation Bureau, Kolkata
2	September 14, 2022	Crash Translation Training Program	30	Under the aegis of Central Translation Bureau, Kolkata
3	December 05, 2022	Technical Hindi Workshop	17	Under the aegis of Hindi Teaching Scheme, Kolkata

F. Any other special Workshop/ Training Programme:

Sl. No.	Date	Subject	No of participants	Speaker/ Organizer
01	June 06 – 10, 2022	Five Days Online Intensive Hindi Workshop	01	Central Hindi Training Institute, Department of Official Language, Ministry of Home Affairs, Government of India, New Delhi.
02	July 18 - 22, 2022	Five Days Online Intensive Hindi Workshop	02	Central Hindi Training Institute, Department of Official Language, Ministry of Home Affairs, Government of India, New Delhi.
03	September 05 - 09, 2022	Five Days Online Intensive Hindi Workshop	01	Central Hindi Training Institute, Department of Official Language, Ministry of Home Affairs, Government of India, New Delhi.
04	September 19 – 23, 2022	Five Days Online Intensive Hindi Workshop	01	Central Hindi Training Institute, Department of Official Language, Ministry of Home Affairs, Government of India, New Delhi.
05.	November 14 – 18, 2022	Five Days Online Intensive Hindi Workshop	02	Central Hindi Training Institute, Department of Official Language, Ministry of Home Affairs, Government of India, New Delhi.
06.	December 06 – 10, 2022	Five Days Online Intensive Hindi Workshop	01	Central Hindi Training Institute, Department of Official Language, Ministry of Home Affairs, Government of India, New Delhi.
07	April 28, 2022	Online Meeting of Town Official Language Implementation Committee, Kolkata (02)	02	Town Official Language Implementation Committee, Department of Official Language, Ministry of Home Affairs, Government of India, Kolkata.
08.	September 21, 2022	Online Meeting of Town Official Language Implementation Committee, Kolkata (02)	02	Town Official Language Implementation Committee, Department of Official Language, Ministry of Home Affairs, Government of India, Kolkata.
09.	July – November, 2022	Organization of Classes for Hindi Language Training (Praveen/Pragya/Parangat)	25 (Praveen/ Parangat)	Hindi Teaching Scheme, Department of Official Language, Ministry of Home Affairs, Government of India, Kolkata.
10.	January - May, 2023	Organization of Classes for Hindi Language Training (Praveen/Pragya/Parangat)	30 (Praveen/ Parangat)	Hindi Teaching Scheme, Department of Official Language, Ministry of Home Affairs, Government of India, Kolkata.

Miscellaneous

Sl. No.	Date	Subject	Organized by
1	June 17, 2022	Official Language Inspection of ISI Bangalore Centre	Official Language Cell, ISI Kolkata
2	June 20, 2022	Official Language Inspection of ISI Tezpur Centre	Official Language Cell, ISI Kolkata
3	August 29, 2022	Official Language Inspection of ISI Chennai Centre	Official Language Cell, ISI Kolkata
4	August 31, 2022	Official Language Inspection of ISI Hyderabad Centre	Official Language Cell, ISI Kolkata
5	November 04, 2022	Online Official Language Inspection of ISI Delhi Centre	Official Language Cell, ISI Kolkata
6	March 21 – 22, 2023	Official Language Inspection of ISI Chennai Centre	Official Language Cell, ISI Kolkata
7	March 23 – 24, 2023	Official Language Inspection of ISI Bangalore Centre	Official Language Cell, ISI Kolkata

Participation

Sl. No.	Date	Name of the program	Name of the Participants
01	May 12, 2022	Hindi Essay Writing Competition organized under the aegis of Town Official Language Implementation Committee, Department of Official Language, Ministry of Home Affairs, Government of India, Kolkata.	Shri Prosenjit Das, Scientific Assistant-C
02	June 20, 2022	Hindi Poetry Recitation Competition organized under the aegis of Town Official Language Implementation Committee, Department of Official Language, Ministry of Home Affairs, Government of India, Kolkata.	1. Ms. Srimoyee Bhowmick, Office Assistant-B 2. Ms. Archana Kumari Shaw, Office Assistant-A
03	June 24, 2022	Hindi Extempore Competition organized under the aegis of Town Official Language Implementation Committee, Department of Official Language, Ministry of Home Affairs, Government of India, Kolkata.	1. Shri Himanshu Sekhar Dutta, Office Assistant-C 2. Shri Satyanarayan Oraon, Office Assistant-C

North East Centre Tezpur:

A. Hindi Diwas and Hindi Pakhwada Programme:-

The North East Centre celebrated the Hindi Diwas on 14th Sept. 2022. The programme was inaugurated by lighting up of the lamp by the Centre Head, Prof. B. Ramakrishnan. Mr Prashant Tiwari, Hindi Officer, ISI, Kolkata attended the programme through virtual mode. The Centre also organised a quiz contest for students and all workers of the Institute in Hindi pakhwada. Pledge for using Hindi in day to day work was undertaken by the workers of the Institute.

8.10 Reports on various activities of the Institute

A. Celebration of Independence Day

Bangalore:

The Bangalore Centre celebrated the Independence day on 15th August 2022. Dr. Ramdin Mawia, Warden, Bangalore Centre had hoisted the flag. Staff, students and campus residents attended the function.

Delhi:

Independence Day was celebrated at Delhi Centre on 15th August,2022. To celebrate the 75 years of independence of our country a week was celebrated as Aazadi ka Amrit Mahotsav during 27 June 2022 to 3 July 2022. In this week a workshop was organised by Ms. Vineeta Sadhu, A.D of MOSPI to motivate workers to work in Hindi. Tree plantation was also organised in the Centre as a part of Aazadi ka Amrit Mahotsav in which many plants were plated in the Campus by Head, Delhi Centre, DCE and workers of the Centre

Kolkata:

Indian Statistical Institute, Kolkata celebrated the 'Azadi ka Amrit Mahotsav' to commemorate the 75th year of Indian Independence Day on 15th August 2022. The flag hoisting ceremony was followed by a special programme comprising of cultural event and Lecture on 'Stories on Data Science' by Dr. Srinivas Bhogle, Honorary Scientist, CSIR Fourth Paradigm Institute, Bangalore. Short expositions were held on important scientific developments during 1947-2022. A debate was organized on the Motion 'This House believes Indian Official Statistics has proved its mettle in changing lives of people', where trainee ISS Officers and Students/Research Scholars of ISI participated. A Documentary on 'Indian Official Statistics over the years', produced by Trainee ISS officers (43rd and 44th batches) and others was telecast. A large number of faculty & staff, research scholars, students, guests and dignitaries were present to grace the event.

Hyderabad:

SQC &OR Unit of ISI, Hyderabad has celebrated Independence Day during 2022-23

Tezpur:

The national flag was hoisted at the North-East Centre of the Institute on the occasion of the 76th Independence Day (azadi ka amrit mahotsav) on 15th August, 2022 by Prof. B. Ramakrishnan, Head, North-East Centre. All the workers of the Centre had put their best to make the "Har Ghar Tiranga" campaign a grand success.

B. Celebration of Republic Day

Bangalore:

The Bangalore Centre celebrated the Republic Day on 26th January 2023. Prof. C.R.E Raja , Head Bangalore Centre had hoisted the flag. Staff, students and campus residents had attended the function.

Delhi:

Republic Day was celebrated at the Centre on 26th January, 2023

Hyderabad:

SQC & OR Unit of ISI, Hyderabad has celebrated Republic Day during 2022-23

Kolkata:

To mark the 73rd Republic Day of India, Indian Statistical Institute organized a National Flag unfurling ceremony which was followed by a cultural event and distribution of sweets among the children of nearby schools. Prof. Sankar K. Pal, President, ISI, graced the event. Workers with their families, research scholars, students, guests and dignitaries were also present.

Tezpur:

The North-East Centre celebrated 74th Republic Day on 26th January, 2023. The national flag was unfurled by Prof. B. Ramakrishnan, Head, North-East Centre.

C. Celebration of Birth Anniversary of Prof. P. C. Mahalanobis

Bangalore:

129th Birth Anniversary of PC Mahalanobis was celebrated on 29th June 2022. Dr. Mohan Delampady, Professor, SMU, ISIBC and Dr. M. Krishnamurthy, Head, DRTC addressed the audience. Workers and students assembled in front of PCM Bust and and the Centre Head garlanded the PCM Bust. Workers' Day program live telecast from ISI-Kolkata also arranged through VC.

Chennai:

129th Birth Anniversary of Prof. P.C. Mahalanobis, was celebrated on 29.6.2022 as the 15th National Statistics Day. After garlanding the Photograph of the founder, technical talks were given by Dr. P. Balasubramanian, Additional Director, Agricultural Statistics, Department of Economics and Statistics, Government of Tamil Nadu; and Dr.T.Sekar, Inspector General of Police (Retired), CRPF

Hyderabad:

SQC &OR Unit of ISI, Hyderabad has celebrated Founder's Day during 2022-23

Kolkata:

Indian Statistical Institute celebrated the 129th Birth Anniversary of Professor P.C. Mahalanobis on 29th June 2022 as 'Workers' Day' and Statistics Day in all its Centres including Headquarters at Kolkata. In the Headquarters, it started with garlanding the bust of Professor Prasanta Chandra Mahalanobis followed by an inaugural song by the members of ISI Club. Prof. Somnath Dasgupta (INSA Senior Scientist), Chief Guest of the event gave a technical talk on 'The earth is restless with cycles of creation and destruction: The story from India'. Prof. Ambarish Ghosh, formerly associated with ISI, attended the event as a special guest. Shri Bibek Debroy, President, ISI (2020-2022) also graced the event.

Tezpur:

Workers of North-East Centre observed the 129th birth anniversary of Prof. P. C. Mahalanobis and National Statistics Day on 29th June, 2022 by paying homage to the founder of the Institute. The programme was inaugurated by lighting up of the lamp by the honourable Centre Head, Prof. B Ramakrishnan.

D. Celebration of International Yoga Day

Kolkata:

Indian Statistical Institute in association with ISI Club celebrated 'Common Yoga Protocol' as a prelude to 'International Yoga Day' on 15th May 2022. Students, Research Scholars and workers of the Institute participated in the said event to make it a grand success.

E. Celebration of Foundation Day

Kolkata:

The 92nd Foundation Day of the Institute was celebrated on 17th December 2022, in coordination with ISI Library. To commemorate the event, the Institute organized an "Exhibition on Exhibitions and remembering Professor Prasanta Chandra Mahalanobis on his 50th Death Anniversary year" from 19th December to 24th December 2022. Prof. Sankar K. Pal, President, ISI, graced the occasion as a Chief Guest. A large number of faculty & staff, research scholars, students, guests and dignitaries were present to celebrate the event.

F. Celebration of International Women's Day

Kolkata:

The Institute celebrated International Women's Day on 10th March, 2023 in a grand manner. The theme of the year 2023 was "Embrace Equity". The program covered a variety of events which included a speech on "Life and Works of Dr. Bibha Choudhuri, A Jewel Unearthed" by Prof. Suprakash Roy, Former Head of the Dept. of Physics, Bose Institute, Kolkata followed by a debate on the motion 'Does celebrating International Women's Day aid women's empowerment?' moderated by Prof. Smarajit Bose. A prize distribution ceremony also took place for the photography contest ('Her life and work'), essay and poetry writing contest ('Tales of empowerment: Inspiring stories from home and beyond), and debate. The celebration culminated with a cultural programme organized by the workers and students of ISI.

G. Birth Anniversary celebration of Dr. B.R. Ambedkar

Bangalore:

Birth Anniversary of Dr. B.R Ambedkar was celebrated on 14th April 2022. This function was jointly organised by the ISI Administration and SC/ST and OBC Council of the ISI Bangalore Centre

Delhi:

Like last year, on 13th April, 2022, Bharat Ratna, Babasaheb, Dr. B. R. Ambedkar's 131st birthday was celebrated. On this occasion, a multiple choice question competition was held on 11th April 2022 and this question paper was prepared by the institute's Deputy Chief executive Mr. Samapan Padhi and on 13th April,2022 the winning participants were given cash price, 1st Rs. 1500.00 2nd Rs. 1200.00 and 3rd prize Rs. 1000.00. On 13th April, 2022, on the occasion of Ambedkar Jayanti, Prof. P. C. Mahalanobis's statue was garlanded by Mr. Samapan Padhi. Moving forward in this sequence, the chief guest Prof. Swaraj Basu, School of Social Science, IGNOU, garlanded the statue of Dr. Ambedkar and lit the lamp and delivered his speech on Dr. Ambedkar.

The second guest of honor Dr. Umakant, guest from JNU also gave his speech on Dr. Ambedkar. At the end of the program a short movie on Dr. Ambedkar was shown and the President of the Council gave vote of thanks and urged everyone to have lunch in the canteen

Kolkata:

The SC/ST/BC Employees' Co-ordination Council of Indian Statistical Institute alongwith ISI administration celebrated the 131st Birth Anniversary of Dr. B.R. Ambedkar on 14th April 2022 with a garlanding ceremony. The Deputy Director and other employees of ISI graced the event.

H. Observation of Vigilance Awareness Week

Bangalore:

The centre observed Vigilance Awareness Week from 31st October to 6th November 2022. Most of the employees had taken "Integrity Pledge for Organizations" on 31st October 2022.

Kolkata:

Indian Statistical Institute observed Vigilance Awareness Week from 31st October to 6th November 2022. The theme of the Vigilance Awareness Week was 'Corruption free India for a developed nation'. All the employees of the Institute took oath to be vigilant at the workplace. On 2nd November 2022, a seminar was arranged on the same where Professor Kartiki V Desai, Chief Vigilance Officer, NIBMG and Shri Dipankar Chowdhury, IAS, Senior Special Secretary, Home & Hill Affairs Department, Govt. of West Bengal & Secretary, Justice Lokur & Justice Bhattacharya Commission of Inquiry, graced the event as a Chief Guest.

Tezpur:

The Vigilance Awareness Week was observed in the Institute from 31st October to 6th November, 2022. Integrity pledge was undertaken by the workers of the Institute

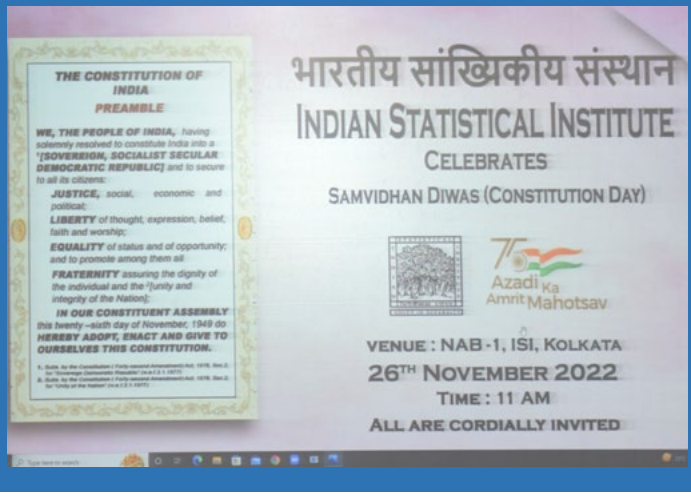
I. Observation of Samvidhan Diwas (Constitution Day)

Bangalore:

On the occasion of Constitution Day, the reading of "Preamble to the Constitution of India" held on 26th November 2022 to commemorate the adoption of the Constitution of India. Workers and students attended this function.

Kolkata:

Indian Statistical Institute celebrated the Samvidhan Divas (Constitution Day) on 26th November 2022 as part of the 'Azadi ka Amrit Mahotsav'. Workers, research scholars, students of the Institute joined the event and took oath from the Preamble of the Constitution of India.



J. Awareness Programme on Prevention of Sexual Harassment of Women at Workplace

Kolkata:

An awareness programme on Prevention of Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act 2013 was organized in the Institute on 20th December 2022. Smt. Satabdi Das, Gender Activist and author and Smt. Sayani Roy Chowdhury, Legal Advisor of the Institute enlightened the audience with their informative speech on the subject.

K. Karnataka Rajyotsava Samarambha

Bangalore:

ISIWO and Administration jointly organized Karnataka Rajyotsava function on 29 November 2022. Prof. Honnu Sidhartha, Director, Prasaranga, was invited as the Chief Guest.

L. Other Activities of the Institute

Chennai:

Visit by School Students:

Around 25 school students of the 6th and the 8th standard of the Chennai Girls Higher Secondary School, Pulla Avenue visited the ISI Chennai Centre to learn about application of Mathematical Concepts in day-to-day life. This was as a STEM initiative of the Department of School Education, Government of Tamil Nadu, as a part of the Samagra Siksha Project.

Pune:

The SQC & OR Unit Pune organised an Awareness Session on February 20, 2023. The various atrocities taking place in and around Pune and India at large were highlighted. Some of these atrocities may be wrongly portrayed as innocent phenomena. The Unit intends to invite knowledgeable person to understand various legal options available against such acts.

M. Swachhata Pakhwada

1st Phase: 14th October 2022

Indian Statistical Institute, with its headquarters at Kolkata and centres at Delhi, Bangalore, Chennai and Tezpur along with other outlying branches and units are taking part actively in Special Campaign 2.0 (02nd Oct-31st Oct' 2022) through its cleanliness and disposal drives on a weekly basis.

The mantra for the Institute has been the 3 R's:

Reduce, **R**euse, **R**ecycle – these three 'R' words are an important part of sustainable living, as they help to cut down on the amount of waste we have to throw away.

It's **R**eally simple!

1. Reduce the amount of waste you produce.
2. Reuse items as much as you can before replacing them.
3. Recycle items wherever possible.

Using the 3 'R's also helps to minimise the amount of space needed for landfill sites, where waste materials are disposed of.

Some of the snapshots of our endeavour to promote a sense of cleanliness in and around our surroundings are as follows:

Before and after snapshots of pathways after the cleanliness drive of the week

2nd Phase: 21st October 2022

During this period as per a s disposal and cleaning is concerned, we have focused on the ***"5S" technique***. This is a simple yet systematic way of cleaning, sorting and disposal of materials.

Some of the pictures clicked during the campaign period are depicted below:

Files sorted for disposal and disposed giving a clean look to the office.

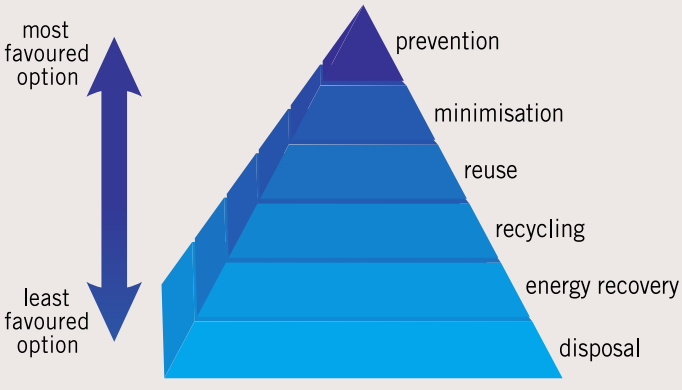
Before and after pictures of materials sorted before disposal into categories such as wooden, metallic, plastic etc.

Fumigation using mosquito repellent in the hostel surroundings and using disinfectants to prevent spread of communicable diseases while promoting a sense of cleanliness among the students.

Cleaning of office surroundings in a cost effective way and ensuring utmost cleanliness in the campus.

3rd Phase: 31st October 2022

The mantra for the Institute pertaining to waste management is illustrated through the below diagram:



A comprehensive training was conducted in the last week of October for the housekeeping staffs keeping in mind the use of chemicals for the process of fumigation.

Topics covered in the training are enumerated below:

1:- About Housekeeping chemicals

2:- Identification & selection of chemicals

3:- Dilution ratio

4:- Safety & precautions to be taken while using chemicals

5:- How to use Chemical in secondary container

6:- Colour coding

Segregation of types of wastes using colour coding methodology

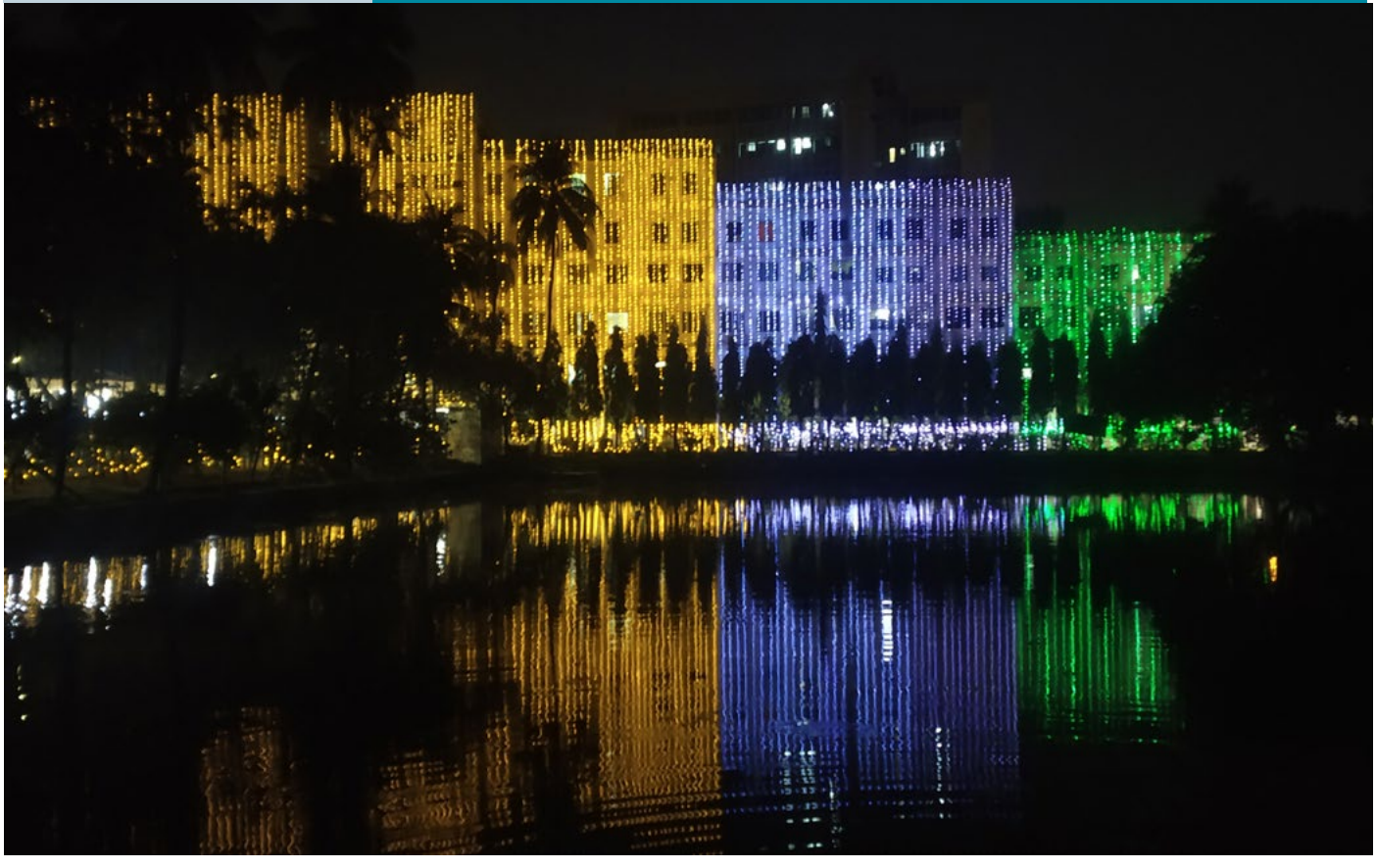
Some of the snapshots from the campaign are given below:

Cleaning of sewerage channels

Fumigation of drains and cleaning underway

Chapter 9

Annual Accounts



Balance Sheet as on 31st March 2023

(Amount In Rupees)

PARTICULARS	SCHEDULE	CURRENT YEAR (2022-23)	PREVIOUS YEAR (2021-22)
LIABILITIES			
CORPUS/CAPITAL FUND	1	2290280005	2189563322
EARMARKED/ENDOWMENT FUNDS	3	1384483942	1274736614
CURRENT LIABILITIES & PROVISION	7	290988591	258779793
LIABILITIES FOR FIXED ASSETS OF EXT. AIDED FUND		261075658	251075541
LIABILITIES FOR FIXED ASSETS OF ISEC FUND		1167659	1167659
LIABILITIES FOR FIXED ASSETS OF IGP PROJECT		7686123	7686123
TOTAL		**4235681978**	**3983009052**
ASSETS			
EARMARKED/ ENDOWMENT FUNDS	3	6398220	4419605
FIXED ASSESTS	8	2375476473	2242891955
INVESTMENT / ASSETS FROM EARMARKED/			
EARMARKED/ENDOWMENT FUNDS	9	1059028930	1004792092
CURRENT ASSETS, LOANS AND ADVANCES	11	524848915	470976077
FIXED ASSETS OF EXT. AIDED FUND		261075658	251075541
FIXED ASSETS OF ISEC FUND		1167659	1167659
FIXED ASSETS OF IGP PROJECT		7686123	7686123
TOTAL		**4235681978**	**3983009052**
SIGNIFICANT ACCOUNTING POLICIES	24		
CONTINGENT LIABILITIES & NOTES ON ACCOUNTS	25		

Signed in terms of our Report of even date.

Place: Kolkata
Date: 25.09.2023

Sd/-
A Mukherjee
Dy.Chief Executive(F)

Sd/-
Ravinder Kumar
Chief Executive (A&F)

Sd/-
Sanghamitra Bandyopadhyay
Director

For R. Kothari & Co LLP
Chartered Accountants
(Firm Registration No. 307069E/ E300266)

Sd/-
CA. Manoj Kumar Sethia
Partner
Membership No. 064308
ICAI UDIN: 23064308BGXWUF2953

Income & Expenditure
Account for the Year ended on 31st March 2023

(Amount In Rupees)

PARTICULARS	SCHEDULE	CURRENT YEAR (2022-23)		PREVIOUS YEAR (2021-22)	
		GRANT SALARY	GRANT GENERAL	GRANT SALARY	GRANT GENERAL
INCOME					
MISCELLANEOUS RECEIPTS	**12**	32515396	34346931	11724476	63123549
GRANT IN AID FROM GOVT OF INDIA	**13**	2162324489	581274939	2381946360	183715172
TOTAL (A)		**2194839885**	**615621870**	**2393670836**	**246838721**
EXPENDITURE					
ESTABLISHMENT EXPENSES	**20**	2266848027	---	2429443139	---
OTHER ADMINISTRATIVE EXPENSES	**21**	---	615621870	---	240339721
TOTAL(B)		**2266848027**	**615621870**	**2429443139**	**240339721**
BALANCE BEING SURPLUS / (DEFICIT)[A-B]		-72008142	---	-35772303	6499000
CARRIED TO CORPUS/ CAPITAL		---	-72008142	-29273303	---
SIGNIFICANT ACCOUNTING POLICIES	**24**				
CONTINGENT LIABILITIES & NOTES ON ACCOUNTS	**25**				

Signed in terms of our Report of even date.

Place: Kolkata
Date: 25.09.2023

Sd/-
A Mukherjee
Dy.Chief Executive(F)

Sd/-
Ravinder Kumar
Chief Executive (A&F)

Sd/-
Sanghamitra Bandyopadhyay
Director

For R. Kothari & Co LLP
Chartered Accountants
(Firm Registration No. 307069E/ E300266)

Sd/-
CA. Manoj Kumar Sethia
Partner
Membership No. 064308
ICAI UDIN: 23064308BGXWUF2953

Capital Utilization

Statement for the Year ended on 31st March 2023

PARTICULARS	CURRENT YEAR (2022-23)	PREVIOUS YEAR (2021-22)
GRANT RECEIVED FOR CREATION OF CAPITAL ASSETS	19,73,67,884.00	21,73,95,790.00
(INCL C/F OF PREVIOUS YEAR)		
TOTAL(A)	**19,73,67,884.00**	**21,73,95,790.00**
EXPENDITURE ON CREATION OF CAPITAL ASSETS	20,99,30,340.00	24,08,94,018.00
TOTAL(B)	**20,99,30,340.00**	**24,08,94,018.00**
NET BALANCE(A-B)	**-1,25,62,456.00**	**-2,34,98,228.00**

Signed in terms of our Report of even date.

Place: Kolkata
Date: 25.09.2023

Sd/-
A Mukherjee
Dy.Chief Executive(F)

Sd/-
Ravinder Kumar
Chief Executive (A&F)

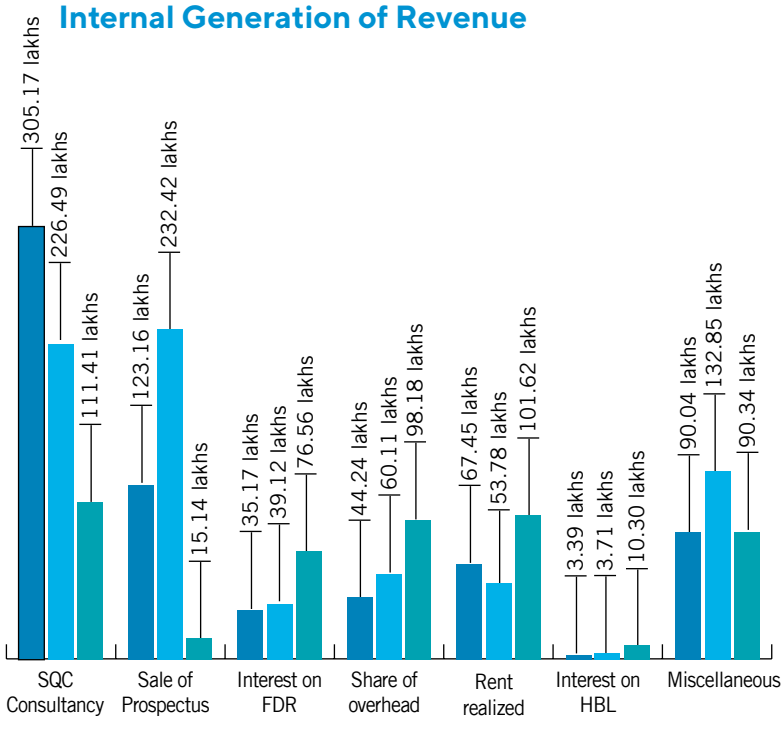
Sd/-
Sanghamitra Bandyopadhyay
Director

For R. Kothari & Co LLP
Chartered Accountants
(Firm Registration No. 307069E/ E300266)

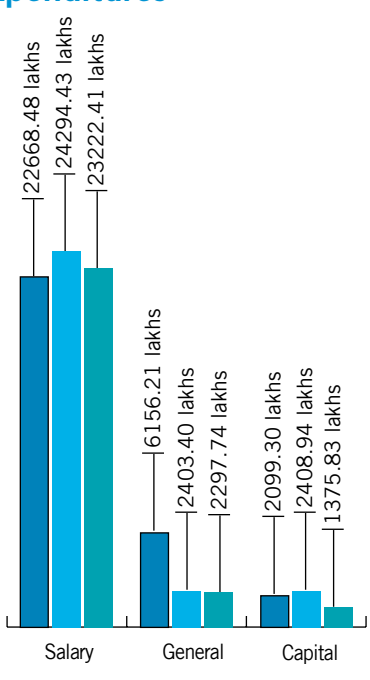
Sd/-
CA. Manoj Kumar Sethia
Partner
Membership No. 064308
ICAI UDIN: 23064308BGXWUF2953

AT A GLANCE

Internal Generation of Revenue



Expenditures



2022-23 2021-22 2020-21

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