ANNUAL REPORT
2016-2017

INDIAN STATISTICAL INSTITUTE

PRESIDENT OF THE INSTITUTE, CHAIRMAN AND OTHER MEMBERS OF THE COUNCIL AS ON MARCH 31, 2017

President: Dr. Vijay Kelkar, Padma Vibhushan

1. Chairman: Prof. Goverdhan Mehta, FNA, FRS, Dr. Kallam Anji Reddy Chair School of Chemistry, University of Hyderabad, Central University, Gachibowli, Hyderabad - 500 046, Telangana.
2. Director: Prof. Sanghamitra Bandyopadhyay.

Representatives of the Government of India

3. Shri S.K. Singh, Additional Secretary and Financial Advisor, Govt. of India, Ministry of Statistics and Programme Implementation, New Delhi.
4. Dr. G.C. Manna, DG, CSO, Govt. of India, Ministry of Statistics & P.I., New Delhi.
5. Shri Pramod Kumar Das, Additional Secretary, Govt. of India, Ministry of Finance, Department of Expenditure, New Delhi.
6. Dr. Praveer Asthana, Adviser/Scientist-G, Head (AI and Mega Science Divisions), Govt. of India, Ministry of Science and Technology, New Delhi.
7. Dr. M.D. Patra, Executive Director, Reserve Bank of India, Mumbai.
8. Shri R. Subrahmanyam, Additional Secretary (T), Govt. of India, Ministry of Human Resource Development, New Delhi.

Representative of the ICSSR

9. Dr. V.K. Malhotra, Member-Secretary, Indian Council of Social Science Research, New Delhi.

Representatives of the INSA

10. Dr. Manindra Agrawal, Indian Institute of Technology, Kanpur.
11. Prof. B.L.S. Prakasa Rao, Ph. D, FNA, FASc, FNASc., FAPAS, Former Director ISI, Ramanujan Chair Prof., CR Rao Advance Institute of Mathematics, Statistics and Computer Science, Hyderabad.
12. Dr. Baldev Raj, President, PSG Institutions, Tamil Nadu.
13. Prof. Yadati Narahari, Department of Computer Science and Automation, Indian Institute of Science, Bangalore.

Representative of the NITI Aayog/ Planning Commission

14. Ms. Anna Roy, Adviser (DM&A), Govt. of India, NITI Aayog, New Delhi.

Representative of the University Grants Commission

15. Prof. J.P. Singh Joorel, Former Dean, Faculty of Mathematical Sciences, University of Jammu, Jammu and Kashmir.

Scientists co-opted by the Council

16. Prof. Rohini M. Godbole, FNA, Centre for High Energy Physics, Indian Institute of Science, Bengaluru.
17. Prof. Mihir K Chaudhuri, Vice-Chancellor, Tezpur University, Assam.

Elected representatives of the Institute members not employed in the Institute

18. Prof. Shibdas Bandyopadhyay, Kolkata.
19. Prof. Atis Kr. Dasgupta, Kolkata.
20. Dr. I.K. Ravichandra Rao, Bangalore.

Elected representatives of the employees of the Institute

21. Dr. Partha Pratim Mohanta, Representative of the Scientific Workers.
22. Shri Gouri Sankar Acharya, Representative of the Non-scientific Workers.

Officers of the Institute

23. Prof. Arup Bose, Professor-in-Charge, Theoretical Statistics and Mathematics Division.
24. Prof. Ayanendranath Basu, Professor-in-Charge, Applied Statistics Division.
25. Prof. Arunava Sen, Professor-in-Charge, Social Sciences Division.
26. Dr. Tapan Chakraborty, Professor-in-Charge, Physics and Earth Sciences Division.
27. Prof. Pabitra Banik, Professor-in-Charge, Biological Sciences Division.
28. Prof. Susmita Sur-Kolay, Professor-in-Charge, Computer and Communication Sciences Division.
29. Shri Somnath Ray, Head, SQC & OR Division.
30. Prof. Abhay G. Bhatt, Head, Delhi Centre.
31. Prof. T.S.S.R.K. Rao, Head, Bangalore Centre.
32. Prof. S. Ponnusamy, Acting Head, Chennai Centre.
33. Dr. Amita Pal, Dean of Studies.

Non-Member Secretary

Col. S. Chakraborty, Chief Executive (Administration & Finance).

INDIAN STATISTICAL INSTITUTE

Annual Report

April 2016 – March 2017

203 Barrackpore Trunk Road
Kolkata – 700 108
(http://www.isical.ac.in)

INDIAN STATISTICAL INSTITUTE
EIGHTY FIFTH ANNUAL REPORT
April 2016 – March 2017

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Director's Report

It is my proud privilege and pleasure to present the Annual Report 2016-17 of the Indian Statistical Institute. This Institute, established by P.C. Mahalanobis in a small laboratory of Presidency College, Calcutta in 1931, has grown into a unique institution of higher learning spread over several cities of the country. As in the past, the Institute continues its glorious tradition of disseminating knowledge in Statistics, Mathematics, Computer Science, Quantitative Economics and related subjects. The year 2016 saw the reconstitution of the Council of the Institute for the term 2016-2018. We are happy to inform you that Dr. Vijay Kelkar has taken over as the President of the Institute succeeding Dr. C. Rangarajan and Professor Goverdhan Mehta has taken over as the Chairman of the Council succeeding Dr. Arun Shourie. We firmly believe that the Institute will continue to flourish under their able guidance.

The Institute celebrated its 51st Convocation in January 2017. Professor Leslie Gabriel Valiant, T. Jefferson Coolidge Professor of Computer Science and Applied Mathematics, Harvard University, USA, and A.M. Turning Award Winner delivered the convocation address as the Chief Guest. The year 2017 also marks the beginning of 125th birth anniversary year of Professor P.C. Mahalanobis.

The Post Graduate Diploma course in Business Analytics conducted jointly with Indian Institute of Management, Kolkata and Indian Institute of Technology Kharagpur, saw its first outgoing batch this year. This course has been designed keeping in mind the global requirement for professionals in Business Analytics in the coming years. The Post-Graduate Diploma in Statistical Methods and Analytics (PGDSMA) course has been running successfully at the N-E Centre, Tezpur. All the students of the 2016-17 batch passed out with First Division, including six with distinction, and as per the Memorandum of Agreement with Tata Consultancy Services (TCS), all of them will be absorbed by TCS.

A large number of prestigious awards and honours was bestowed upon the Scientists of our Institute for their significant contributions in various fields. Chetan Ghate was appointed to the Monetary Policy Committee, Reserve Bank of India, Nikhil R. Pal was elected Fellow of the Third World Academy of Sciences, Ritabrata Munshi was elected Fellow of the Indian Academy of Sciences, Rajendra Bhatia received the prestigious Hans Schneider Prize, 2016 B. V. Rajarama Bhat and Debasish Goswami have received the J.C. Bose Fellowship, Bhargab B. Bhattacharyya was selected for the Indian National Academy of Engineering (INAE) Chair Professorship, Arunava Sen received the Economic Theory Fellowship of the Society for Advancement of Economic Theory, Probal Roy Choudhury received the Indian Council of Social Science Research National Fellowship, Neena Gupta received the B. M. Birla Science Prize in Mathematics, Supratik Pal received the Humboldt Fellowship of the Alexander Von Humboldt Foundation, Rajat Subhra Hazra received the Indian National Science Academy Young Scientist Award, Joydev Sarkar received the NASI Scopus Young Scientist Award, Sushmita Mitra was selected Fellow of International Association of Pattern Recognition (IAPR), Ashish Ghosh was selected Fellow of West Bengal Academy of Science and Technology. B. Sury was appointed as the Natinoal Coordinator for the Mathematics Olympiad of India and was also elected as the Secretary of Ramanujan Mathematical Society. Jogeswaran D. received the Associateship of Indian Academy of Sciences, Pradipta Maji was selected for Visvesvaraya Young Faculty Research Fellowship, Susmita Ruj received the NetAppFaculty Fellowship for NetApp Inc, USA, Rajat De was awarded the Fulbright-Nehru Academic and Professional Excellence Award, and Antar Bandyopadhyay received the IISA young Scientist Award. Sankar K. Pal was selected as Fellow of the International Rough Sets Society. Abhirup Banerjee, Research Scholar, received the Young Scientist Award of the Indian Science Congress. The Reprography and Photography Unit received several international awards, and our Gardeners got horticulture prizes. The Institute is proud of them.

A Cell was setup in order to enhance academy-industry collaborative activities of the Institute. Through this Cell a large number of stakeholders, including research labs, academic organizations and industry are approaching the Institute for joint activities at different levels. Memorandum of Understanding (MOUs) and contracts were signed between the Indian Statistical Institute and various

other Organizations. Some of these are with Airport Authority of India, National Highway Authority of India, Silicon Valley Community Foundation, Ericsson India, Networks Specified, GE, University of Gothenburg, American Society for Quality India (ASQ India) and Duphine Université. An umbrella MoU was signed with the Tata Consultancy Services. Many more are in the offing.

The Institute undertook a large number of externally funded projects as a part of its academic activity. At present there are about 174 ongoing externally funded projects in the Institute. The major funding agencies are Government of West Bengal, DST, DGCIS, DAE, DBT, RBI, UGC, DRDO, Metro Rail, Kolkata, Ministry of Tourism, Government of India, IBM (USA), GE, Intel Corporation (USA), Samsung (Korea), London School of Economics, International Growth Centre and European Union Commission. The Institute also conducted training programmes and certificate courses for RBI Officers, ISS Probationers, as well as participants from academia and industry.

The Institute collaborated with Bose Institute, IICB, IISER and Tata Memorial Centre to set up the Systems Medicine Biocluster under the overall coordination of NIBMG and funded by DBT. Under this, a High Computing Data Centre will soon be set up in the Institute.

Major construction and renovation activities are lined up at Kolkata, Chennai, Tezpur and Bangalore. In particular, constructions of the main campus is expected to start soon in Tezpur. Construction of the boundary wall has already been completed in Chennai. Construction for the R.C. Bose Centre for Cryptology & Security is going on in full swing in Kolkata. New laboratories and a class room has been constructed in the Giridih branch of the Institute. We also plan to renovate Amrapali, the historic residence of our founder Prasanta Chandra Mahalanobis, and modernize the Museum and Archives.

I am extremely grateful to Dr. Vijay Kelkar, Padma Vibhusan, President of the Institute and Prof. Goverdhan Mehta, Chairman of the Institute for providing valuable advice at various stages for the smooth functioning of the Institute. I am thankful to Dr. T.C.A. Anant, Secretary, Ministry of Statistics and Programme Implementation and all other officials of the Ministry of Statistics and Programme Implementation, Government of India and Members of the Section 8(1) Committee for their active support. I also thank Dr. C. Rangarajan and Dr. Arun Shourie for their guidance. Finally, I thank all the scientific and non-scientific workers, students and well-wishers of the Institute for extending their cooperation for the all-round development of the Institute.

March 31, 2017 Sanghamitra Bandyopadhyay

INDIAN STATISTICAL INSTITUTE

203 B. T. Road Kolkata 700108.

Founder
Professor Prasanta Chandra Mahalanobis

The Indian Statistical Institute, a premier and internationally acclaimed research, teaching and training institute, founded in 1931, is recognized as an institute of national importance by an act of Parliament in 1959.

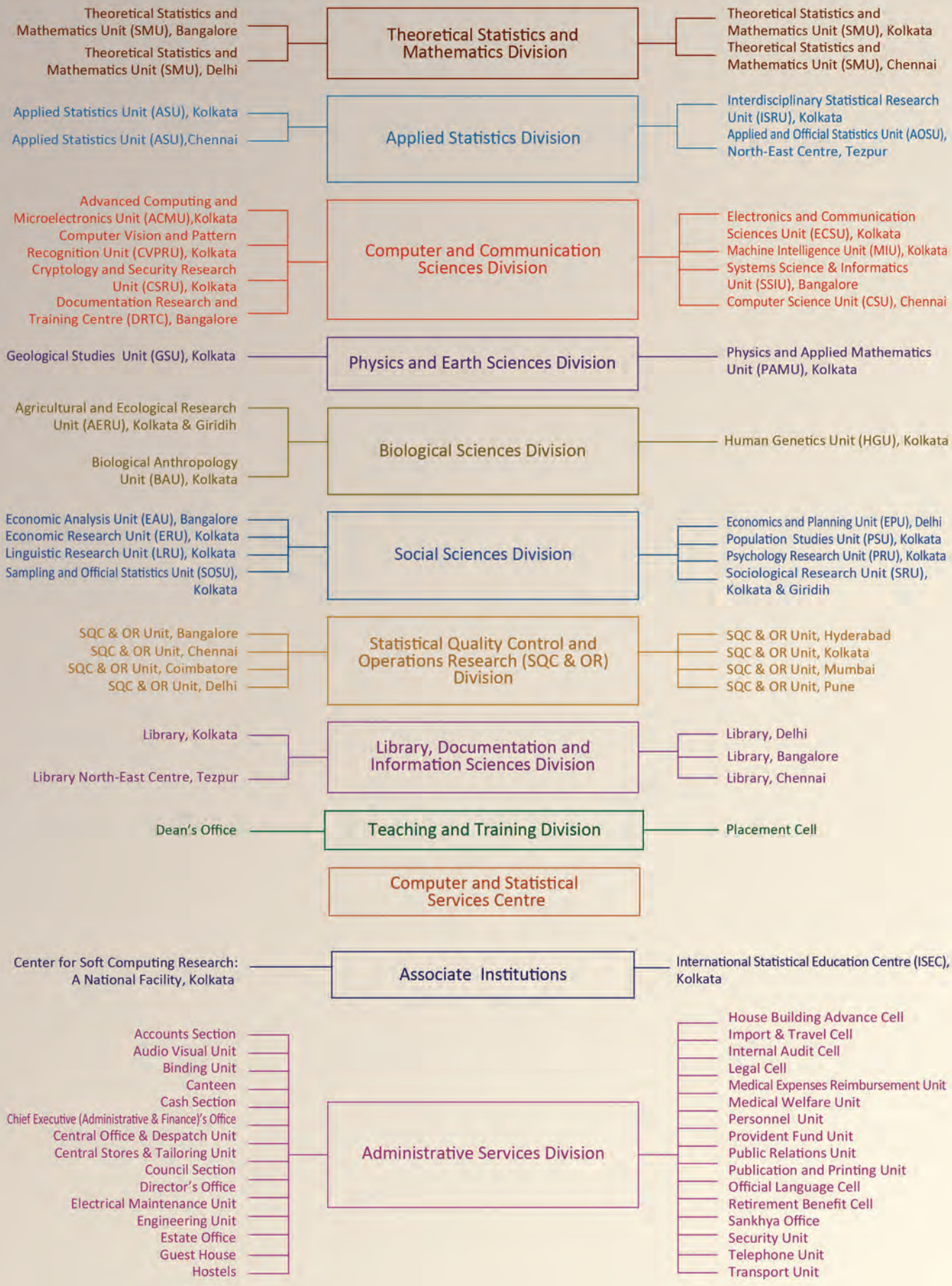
The Institute has distinguished faculty in statistics, mathematics, computer science, economics and other disciplines of natural and social sciences. Many of them are fellows of Indian National Science Academy, Indian Academy of Sciences, Indian National Academy of Engineering, National Academy of Sciences, India, Institute of Electrical & Electronics Engineers (IEEE) and many other distinguished scientific societies in India and abroad, and also recipients of prestigious awards like S.S. Bhatnagar Prize, Homi Bhaba Award etc.

The Institute offers -

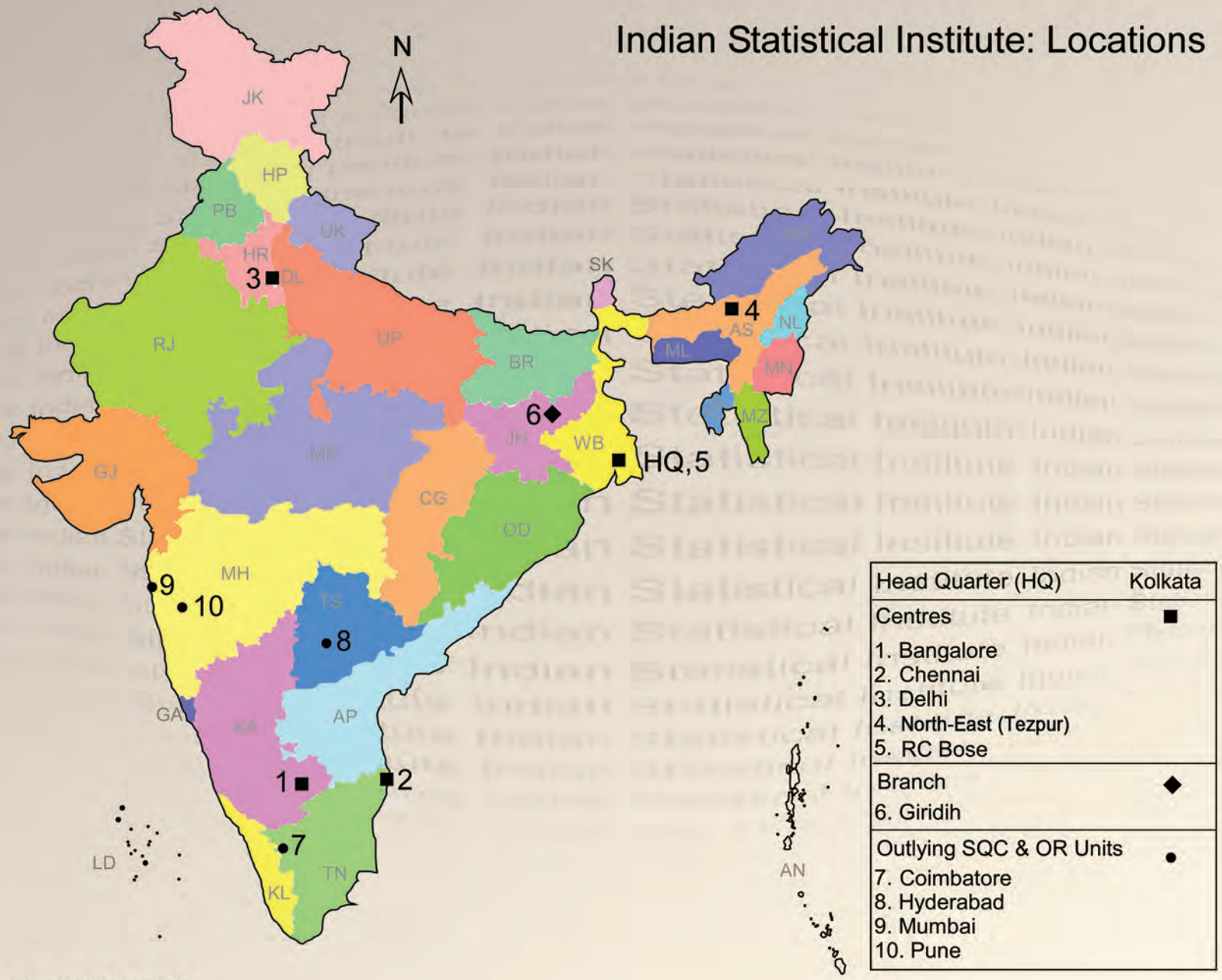
- B.Stat.(Hons.), B.Math.(Hons.), M.Stat., M.Math., M.S. in Quantitative Economics, M.S. in Quality Management Science, M.S. in Library and Information Science, M.Tech. in Computer Science, M.Tech. in Quality, Reliability and Operations Research
- Post Graduate Diploma in Statistical Methods and Analytics
- Post Graduate Diploma in Business Analytics (PGDBA) jointly with IIT Kharagpur and IIM Calcutta
- Post Graduate Diploma in Computer Applications (PGDCA)
- Junior/Senior Research Fellowships in several areas of natural and social sciences
- Statistical Training Diploma for students from developing countries (through International Statistical Education Centre)
- Ph.D. degrees in Statistics, Mathematics, Quantitative Economics, Computer Science and Quality, Reliability & Operations Research

The Institute also confers D.Sc. (Honoris Causa).

Organization of ISI by Divisions, Constituent Units and Associate Institutions



Indian Statistical Institute: Locations



Head Quarter (HQ)	Kolkata
Centres	■
1. Bangalore 2. Chennai 3. Delhi 4. North-East (Tezpur) 5. RC Bose	
Branch	◆
6. Giridih	
Outlying SQC & OR Units	●
7. Coimbatore 8. Hyderabad 9. Mumbai 10. Pune	

Felicitation of Prof. Leslie G. Valiant by Dr. Vijay Kelkar, President, ISI at 51st Convocation on 23 January 2017

Prof. S. Bandyopadhyay, Director, ISI and Prof. Goverdhan Mehta, Chairman, ISI at Council meeting on 18 February 2017

Prof. S. Bandyopadhyay, Director, ISI delivering lecture at INMO Training Camp, ISI, Kolkata on 03 January 2017

7th Workshop on 'Digital Pictorial Photography and Photography Exhibition' organized by Reprography & Photography Unit on 13 February 2017

Prof. R. L. Brahmachary delivering lecture at 'A Programme Celebrating 50 years of Tiger Research (1964-2014)' organized by Library and ISI Research Scholars on 22 June 2016

National Symposium on 'The Psychology in Diabetes, Issues, Challenges and Care' organized by Psychology Research Unit, ISI, Kolkata on 01 March 2017

Geology Museum visit of Prof. Leslie G. Valiant, Harvard University, with other dignitaries on 23 January 2017

Annual Workshop on 'Machine Intelligence and Applications' organized by Machine Intelligence Unit, ISI, Kolkata on 30 March 2017

Speakers and participants in Symposium on 'Mathematical Programming and Game Theory' at ISI, Delhi Centre during 9-11 January 2017

Inaugural Ceremony of New Academic Building, Giridih Branch, ISI on 01 January 2017

Prof. Rahul Mukerjee delivering a lecture, organized by ISI Retired Employees' Association on 17 March 2017

Training cum Workshop on 'Library Automation with Special Application of Koha' organized by Library, ISI Kolkata during 20-24 March 2017

Condolence in memory of Prof. M.G.K. Menon, Former President, ISI Council on 30 November 2016

Lecture in memory of Prof. P. C. Mahalanobis organized by P.C.M. Memorial Museum & Archives on 27 March 2017

Felicitation of Dr. Manilal Bhoumik by Prof. S. Bandyopadhyay, Director, ISI on 12 December 2016

Conference on 'India Biodiversity Meet-2016' organized by AERU on 24 October 2016

Workshop on 'Mathematical and Statistical Foundations for Machine Learning Today' organized by ACMU during 20-22 December 2016

Prof. S. G. Dani and Prof. S. Bandyopadhyay, Director, ISI at 'Sushil K. Banerjee Memorial Lecture' on 28 February 2017

69th ISEC Convocation at ISI, Kolkata on 30 May 2016

Felicitation of Dr. Neena Gupta by Prof. S. Bandyopadhyay, Director, ISI on 22 July 2016

One day Symposium on 'Interdisciplinary Statistical Research' organized by ISRU on 28 June 2016

Felicitation of Prof. Mriganka Sur by Prof. S. Bandyopadhyay, Director, ISI on 19 August 2016

Inauguration of a Programme at Coimbatore, ISI

Prof. T. Krishnan, ISI and Prof. C. Srinivasan, University of Kentucky at '123rd birthday celebration of Prof. P. C. Mahalanobis' at ISI, Chennai on 29 June 2016

Participants of Workshop on 'Open Source Software for Library Automation' organized jointly by ISI, Bangalore and Assam Don Bosco University, Assam during 23-25 January 2017

Celebration of '125th Birth Anniversary of Dr. B. R. Ambedkar' organized by ISI SC/ST/BC Employees' Co-ordination Council on 30 December 2016

'34th Annual Meeting of the Indian Society for Medical Statistics' at ISI, Kolkata on 01 December 2016

Seminar on 'Cancer Awareness' organized by Resurrection in association with Medical Welfare Unit at ISI Kolkata on 18 November 2016

65th Annual Sports at ISI Kolkata on 19 January 2017

Programme on Swachh Bharat Mission at ISI, Kolkata on 25 May 2016

Upcoming Centres

A Brief Account of Academic Activities at North-East Centre of Tezpur, Assam

The North-East (N-E) Centre of the Institute was established at Tezpur, Assam on 23rd July, 2011. It was inaugurated by Shri Prabab Mukherjee, the then Finance Minister, Govt. of India and the then Chairman, Indian Statistical Institute Council.

The Post-Graduate Diploma in Statistical Methods and Analytics (PGDSMA) course has been running successfully at the N-E Centre. All the students of the 2016-17 batch passed with FIRST DIVISION, and as per the Memorandum of Agreement with Tata Consultancy Services (TCS), all of them will be absorbed by TCS.

The research topics of this Centre include: Study on life expectancy and its various factors including mental health factors; Understanding the problem of estimating the unknown population parameter(s) in Morgenstern family of distributions; Systematic review and Meta-Analysis of Randomized Controlled Trails; Analysis of Atmospheric Particulate; Retrieval of Historic Atmospheric Black Carbon Concentration; Profile Analysis of Polycyclic Aromatic Hydrocarbons (PAHs) in Environmental Matrices; Tracking the Changes of Elevated Regions and Identification of Erosion Prone Areas; Rock Classification and Detection of Man-made contact Region of the Telengana Terrain; Identification of Coal Bearing Strata; Application of Deep Learning in Medical Image Analysis using CT Scan and Ultra Sound Images; Synergy Analysis of Remote Sensing Modalities for Environmental Applications; Regime Dependent Effect of Output Growth on Output Growth Uncertainty and *vice versa*; Asymmetric Effects of Exchange Rate Uncertainty and Demand Uncertainty on Export; Validation of Taylor's Hypothesis; Study on Inflation, Growth and Uncertainty in India.

Four workshops and training programmes were organised by the N-E Centre during this year. The Centre also hosted three such programmes, which were organised by different Units from Headquarters. Nine scientific papers were published in journals, and one in an edited book. Two faculty members visited many institutions abroad and seven institutions within India on scientific/academic assignments.

A Brief Account of Academic Activities at R C Bose Centre for Cryptology and Security, Kolkata

R C Bose Centre for Cryptology and Security is a new centre of the Indian Statistical Institute at Kolkata. It aims to promote 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 acts as a hub for all cryptographic requirements, cutting-edge research activities and technology development in relevant fields, in order to create a critical mass of researchers and experts to fulfil the growing demand in the national and international arena. As in previous years, in 2016-17 the Centre has provided direction and advice to various wings of Armed Forces, DRDO, Police Organisations and Security Agencies. The Centre has also signed an MOU with the Andhra Government to look into the various aspects of cryptocurrencies. Many externally funded projects funded by Samsung, NettApp Inc etc. were also carried out this year.

As part of capacity building at the national level, the Centre has provided dedicated research internship program in Cryptology and Security to senior undergraduate and fresh post-graduate students from premier institutions of the country. A two-month intensive training in Cryptology is given during summer every year where the interns are given some basic courses in all aspect of Cryptology

and Security. Many workshops and training programs have also been conducted for the students of colleges in and around Kolkata.

The R.C. Bose Centre is engaged in cutting-edge research in various aspects of Cryptography. During this period, in the area of Stream Ciphers, it has performed a systematic analysis of Grain-v1 and has obtained a tighter security bound for the stream cipher QUAD. In Crypto hardware, RunStream and a hardware acceleration suite for RC4-like stream ciphers have been developed and this work has been accepted in IEEE Transactions on VLSI Systems. A new family of tweakable enciphering scheme called FAST, which is suitable for in-place disk encryption, and a new family of universal hash functions, which is amenable to very efficient software implementation, have been proposed.

Some of the areas where work was done during this period include Quantum Cryptography, Steganography, Key Management in Wireless Sensor Networks, Security and Fault Tolerance in Smart Grids and IoT, Cloud Security. In Cloud Security, we proposed a new decentralized access control scheme for secure data storage in clouds. The number of papers published in reputed international journals during this period is at least 10.

The Centre continues continue to collaborate with leading experts from many academic institutions from around the world and had about 11 visitors during this period. The faculty members have also visited many institutions for collaborative work.

The R.C. Bose Centre will continue to act as a national hub for cryptographic requirements, cutting-edge research activities and indigenous capacity building in all relevant fields of study.

A Brief Account of Academic Activities at Chennai Centre

Chennai Centre of Indian Statistical Institute was declared open by ***Shri Pranab Mukherjee*** the then Chairman of ISI Council and External Affairs Minister, Govt. of India on 26th July 2008. During the year 2011, a Post Graduate programme called M. Stat. was introduced. By 2012, several units like Applied Statistics Unit, Computer Science Unit and Statistics and Mathematics Unit were introduced besides the already functioning SQC & OR Unit. At present there are 13 faculty members belonging to these four units. Chennai Center has about 12 post graduate students, 3 full time research scholars and 5 postdoctoral fellows.

ISI Chennai Centre collaborates with other institutions at home and abroad. Last year 7 researchers (5 - international) visited the Centre. Currently we are operating from Aminjikarai premises and the development of the new campus at Karapakkam is in the initial stages. Retainer/boundary wall has been constructed at the Karapakkam site and the Earth filling process is going on.

The research interest of faculty are Game Theory, Multi Objective Programming, Linear Complementarity Problems and its variants, Reliability, Statistical Finance, Harmonic mappings, Composition Operators, Quasiconformal and Special functions, Several complex variables, Semi definite Complementarity problems, Stochastic games, Bootstrap methods for High-dimensional Time Series, Cognitive models of strategic reasoning, Topological Quantum Computing, methods and materials, Development of quantum field theory for random and interacting systems etc.

The Centre is also engaged with various corporates on assignments related to Quality Management and Operations Research, Development of Cleanliness Index with TN Government, etc.

A BRIEF HISTORY OF THE INSTITUTE

In the 1920's, Prasanta Chandra Mahalanobis, then a Professor 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. In a meeting on 17th December 1931 presided by Sir R.N. Mukherjee, the first President of the Institute, the Indian Statistical Institute (ISI) was formally established and Prasanta Chandra Mahalanobis was appointed the Honorary Secretary. The Indian Statistical Institute was registered on 28th April, 1932, 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, amended in 1964. It has the following objectives:

(i) To promote the study and dissemination of knowledge of Statistics, to develop statistical theory and methods, and their use in research and practical applications generally, with special reference to problems of planning for national development and social welfare;

(ii) To undertake research in various fields of natural and social sciences with a view to the mutual development of Statistics and these sciences;

(iii) 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.

(iv) To undertake any other ancillary activities in fulfillment of the objectives (i), (ii) and (iii).

The Institute started functioning initially from a room of the Presidency College with enduring support from a number of distinguished personalities and devoted scholars in Kolkata. 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 of the urgent and live problems of the country. Such programmes included innovative projects on sample surveys of yield and land utilisation of crops, socio-economic after-effects of 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 the country in Statistics, came into being in 1933.

Apart from the impact made in the world of Statistics, the Institute held a pivotal role in the task of nation building, when India became independent, 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 able 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. The Institute is proud to have C.R. Rao, who is among the world leaders in statistical science over the last six decades and still active at the age of 93 as the Director of the Center for Multivariate Analysis at Pennsylvania State University, USA, in its list of alumni.

The 1950s saw the Institute establishing (i) a full fledged research and training school in Statistics and Probability, with its application in natural and social sciences, (ii) a planning wing entrusted with the formulation of the Second Five-Year Plan of India, (iii) publication of *Sankhyā*, (iv) the National Sample Survey wing engaging in comprehensive socio-economic data collection for the nation, (v) a string of Statistical Quality Control units for promoting the quality movement at various industrial centres in the country, (vi) a collaboration with the International Statistical Institute to train Government statisticians from Asia and Africa, and (vii) an Electronic Computer Laboratory that was responsible for developing (a) the 1st mechanical hand computing machine, (b) the 1st Analog computer, (c) the 1st Punched Card storing machine and (d) the 1st Solid State Computer in India, to name some of the principal activities. In 1954 Pandit Jawaharlal Nehru, the then Prime Minister of India, entrusted

Brief History

Professor Mahalanobis and ISI with the responsibility of preparing the draft Second Five-Year Plan for the country. The draft submitted by Prasanta Chandra Mahalanobis and the planning models formulated by him and his colleagues have since been regarded as major contributions to economic planning in India. In 1956, the Institute installed the first electronic computer in the country. In 1961, the ISI, in collaboration with Jadavpur University, undertook the design, development and fabrication of a fully transistorized digital computer, called ISI-JU-1, which was commissioned in 1966. The Institute, from its formative period till present times, received as guests eminent scientists, 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, Genichi Taguchi and George Akerlof, 2001 Nobel prize winner in economics and a visiting professor of ISI during 1967-68. In recent times, the visit of Amartya K. Sen, Robert Aumann, Lotfi A. Zadeh, Joseph E. Stiglitz, Sir James A. Mirrlees, Eric Maskin, Ei-ichi Negishi and S.R.S. Varadhan, 2007 Abel Prize winner for his contributions to probability theory and an alumnus of the institute, may be specially mentioned.

The formal recognition came in December 1959, when Pandit Jawaharlal Nehru piloted in the Parliament the enactment of the Indian Statistical Institute Act of 1959, which designated ISI as an 'Institution of national importance'. The activities 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. courses. An excellent library was founded at Kolkata and the Documentation Research and Training Centre began functioning in Bangalore. Other developments in infrastructure also began.

During 1971-72, two decisions of the Government of India produced serious repercussions on the functioning of the ISI. One was de-linking of the Institute from the Perspective Planning Division of the Planning Commission in 1971, while the other was the separation of National Sample Survey from the ISI and its take-over by the Central Government in 1972. Professor Mahalanobis passed away on 28th June, 1972. It was a critical period for the Institute. To overcome the problem, the ISI sought to strike a judicious balance between the individual academic work on truly fundamental problems and the work that called for a greater engagement with the social and economic problems of the country. The members of the Institute, under the Chairmanship of Shri P.N. Haksar, held a Special General Body Meeting on 26th July, 1974 and amended the Memorandum of Association and the Regulations of the Institute, encouraging more inter-disciplinary research and enhancing active participation of the scientists of the ISI in decision-making process of the Institute. The organisational amendments were implemented, with the concurrence of Government of India, in August, 1976. The various research units in natural, social and computer sciences were grouped under a number of scientific Divisions.

Over the decades diversity in research thrusts began to grow manifold, with emphasis on Computer Science and application of Statistics in the new areas of research in natural and social sciences. Two centres, one at Delhi and one at Bangalore were created with full-fledged research and teaching programmes. The Delhi Centre, initially housed within the Planning Commission premises, was started in 1974, and shifted to its present campus in 1975. The Bangalore Centre was conceived by Prof. P.C. Mahalanobis during 1960s. With the Statistical Quality Control unit functioning in Bangalore from 1956, and Documentation Research and training Centre from 1962, Professor Mahalanobis thought of starting a centre of ISI around the mid-sixties. However, the activities of the Bangalore Centre started in September 1978 in a rented building under the Directorship of Professor G. Kallianpur. The various units moved to the present campus in May 1985 and in September 1996, the Bangalore Centre was formally declared as a Centre of ISI. The Chennai centre of the Institute came into being on 26th July, 2008 and has to its credit several theoretical and applied research work in Statistics and Mathematics, and many of the projects undertaken have been breakthrough applications. A North-East Centre of the Institute has been established at Tezpur, Assam on 23rd July, 2011 and it is also expected to focus on such diversity of teaching, training and research. This centre is currently housed in Tezpur University campus. The Post-Graduate Diploma in Statistical Methods and Analytics (PGDSMA) course has been running successfully at the N-E Centre, Tezpur. The Institute has started offering a

one-year Postgraduate Diploma in Computer Applications (PGDCA) since the year 2014-15 at its Giridih Branch. A two-year full time diploma programme, Post Graduate Diploma in Business Analytics (PGDBA) is being jointly offered by ISI, IIT Kharagpur and IIM Calcutta since 2015 with 51 students in the first batch.

The Institute is fully funded by the Ministry of Statistics & Programme Implementation, Govt. of India. The support and encouragement of the Ministry of Statistics & Programme Implementation, Govt. of India are among the major factors which are helping the Institute to sustain its academic growth and excellence. The Ministry provides funds to the Institute under Plan & Non-Plan budget as per the recommendations of a committee set up for the purpose by the Ministry of Statistics & Programme Implementation, Govt. of India under Section 8(1) of the "Indian Statistical Institute Act. 1959, No. 57 of 1959" based on the programme of research, teaching, training and various academic activities. The grants-in-aid provided by the Ministry of Statistics & Programme Implementation, Govt. of India to the Institute includes the funds required for construction of buildings, hostels, guest house, purchase of equipments, hiring manpower etc. The Ministry plays a pivotal role in expansion of the research & training activities of the Institute by way of opening its new Centres in various parts of the country. The North-East Centre at Tezpur, Assam which was inaugurated by Shri Pranab Mukherjee, the then Finance Minister, Govt. of India and the then Chairman, Indian Statistical Institute Council in the presence of Shri Srikant Jena, Hon'ble Union Minister for Ministry of Statistics & Programme Implementation, Govt. of India; Shri Tarun Gogoi, Hon'ble Chief Minister, Govt. of Assam; Dr. T.C.A. Anant, Secretary, Ministry of Statistics & Programme Implementation, Govt. of India and other dignitaries. In July 2012, the Ministry of Statistics & Programme Implementation, Govt. of India approved establishment of R.C. Bose Centre for Cryptology and Security as a separate Centre of the Institute.

The present structure of eight divisions has been arrived at through some further changes. Recently there have been some changes. Systems Science and Informatics Unit (SSIU) has been started as a part of the Computer and Communication Sciences Division (CCSD) at ISI Bangalore centre in August 2009. The Documentation Research and Training Centre (DRTC) has been made a part of CCSD. Cryptology and Security Research Unit (CSRU) also became a part of CCSD since April, 2014. Which is an integral component of R.C. Bose Centre for Cryptology and Security, Kolkata, a national hub for cryptographic requirements. The Indian Statistical Institute Act of 1959 was amended by the Parliament in 1995 to empower 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 new courses have also been added since: M. Tech. in Computer Science, M. Tech. in Quality, Reliability and Operations Research, M.S. in Quantitative Economics, B. Math. and M. Math.

In conclusion, a list of the distinguished scientists and statesmen who have served the Institute during the 85 years of its existence in the capacities of President, Chairman or Director is presented. A list of recipients of the honorary D. Sc. degree given by the Institute is also provided.

Presidents of the Institute

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-till date

Chairmen of the Institute

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- till date

Directors of the Institute

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	April	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. S.K. Pal	Aug	2005	-	July	2010
11	Prof. Bimal K. Roy	Aug	2010	-	July	2015
12	Prof. Sanghamitra Bandyopadhyay	Aug	2015	-	till date	

List of persons awarded the D.Sc. (Honoris Causa) by the Institute

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

Summary of Activities at a Glance

- **MoU with other Organisations (15 Nos.) :**

  (i) American Society for Quality India; (ii) Ericsson India Pvt. Ltd; (iii) Networks Specified; (iv) Silicon Valley Community Foundation; (v) University of Gothenburg; (vi) Tata Consultancy Services Ltd; (vii) Airport Authority of India; (viii) National Highway Authority of India; (ix) Department of Biotechnology; (x) Dauphine Université Paris; (xi) School of Electrical Engineering, Kyungpook National University; (xii) SyMec Project under Dept. of Biotech; (xiii) Dhirubhai Ambani, DA-IICT, Gandhinagar; (xiv) Society for Elect. Transactions & Security and (v) Wipro Limited.

- **Number of books published : 22**

- **Number of papers published : 679**

- **Number of Conferences, Workshops and Seminars held (Total – 359) : 27 (Conference)**
  64 (Workshop)
  268 (Seminar)

- **Prestigious Awards and Honours**

  - **Neena Gupta (Stat-Math Unit, Kolkata) : B.M. Birla Science Prize in Mathematics;**
  - **Antar Bandyopadhyay (Stat-Math Unit, Delhi) : IISA Young Researcher Award (2016);**
  - **B.V. Rajarama Bhat (Stat-Math Unit, Bangalore) : J.C. Bose Fellowship;**
  - **Nikhil Ranjan Pal (ECSU, Kolkata) : Fellow of The World Academy of Sciences, 2016;**
  - **S. Bandyopadhyay (MIU, Kolkata) : J.C. Bose Fellowship, Engineering Sciences (2017-22), DST;**
  - **Supratik Pal (PAMU, Kolkata) : Alexander von Humboldt Fellowship, 2016;**
  - **Arunava Sen (EPU, Delhi) : Economic Theory fellow, Society for Advancement of Economic Theory, 2016;**

- **Regional Mathematical Olympiad (RMO), 2016**
  - **Date : 16 October, 2016**
  - **Participants : 191 (West Bengal), 1475 (Karnataka)**
  - **Successful Students : 32 (West Bengal), 45 (Karnataka)**

- **Indian National Mathematical Olympiad (INMO), 2017**
  - **Date : 15 January, 2017**
  - **Participants : 77**

- **International Statistical Education Centre (ISEC)**
  - **Founded : 1950**
  - **Commencement date of 70th Term : 01 August, 2016**
  - **Number of Trainees : 28**
  - **Countries participated : Afghanistan, Bangladesh, Congo, Côte d'Ívoire, Ethiopia, Fiji, Ghana, Kenya, Mongolia, Niger, Nigeria, South Sudan, Sri Lanka, Tanzania and Zambia.**

1. TEACHING AND TRAINING

A brief account of teaching and training activities of the Teaching and Training Division during the academic session **2016-2017** is given below.

Degree and Training Courses

During the academic session **2016-2017**, a total of **21763** candidates applied for admission and were called for written selection tests for various courses offered by the Institute, viz., B. Stat. (Hons.), B. Math. (Hons.), M. Stat., M. Math., Master of Science (M.S.) in Quantitative Economics, Master of Science (M.S.) in Quality Management Science, Master of Science (M.S.) in Library and Information Science, M. Tech. in Computer Science, M. Tech. in Quality, Reliability and Operations Research, Post Graduate Diploma in Statistical Methods and Analytics, Post Graduate Diploma in Computer Applications, Post Graduate Diploma in Business Analytics, **Research Fellowships** in Statistics, Mathematics, Quantitative Economics, Computer Science, Quality, Reliability and Operations Research, Physics and Applied Mathematics, Agriculture & Ecology, Geology, Library and Information Science and Development Studies. Admission tests were conducted at 39 different centres (38 centres were all over the country and one centre in Tanzania). A total of **14382** candidates finally appeared for admission tests and a total of **1375** candidates qualified in the written tests and were called for interviews. Based on the performance in the written tests, interview and the academic records, **451** candidates were offered admission to various courses during the academic session under review.

The annual examinations for all the regular courses during 2015-2016 academic session were held during April-May 2016. The 2016-2017 academic session commenced from **July, 2016**.

The number of candidates admitted to the different degree, Diploma programmes and in Junior Research Fellowship during 2016-2017 and the number of students who passed the annual examinations in 2016, are given in **Table 1**.

Till **31st** March**, 2017, 116** trainees of Mathematics, Statistics, Engineering and Technology courses from various Universities/Institutions (Academy of Technology; Amity University; Ashutosh College, Kolkata; Banaras Hindu University; Bengal School of Technology; Birla Institute of Technology, Mesra; Calcutta Institute of Engineering and Management; Camellia Institute of Technology; Chennai Mathematical Institute; Cochin University of Science and Technology; Department of Genetics, University of Calcutta; Department of Statistics, University of Madras; Dhirubhai Ambani Institute of Information and Communication Technology, Gujarat; Doon University, Dehradun; Heritage Institute of Technology; IASc-INSA-NASI Summer Research Fellowship Programme; Indian Institute of Engineering, Science and Technology, Shibpur; Indian Institute of Science Education and Research, Bhopal; Indian Institute of Science Education and Research, Thiruvananthapuram; Indian Institute of Science Education and Research, Kolkata; Indian Institute of Technology, Allahabad; Indian Institute of Technology, Bhubaneswar; Indian Institute of Technology, Chittoor; Indian Institute of Technology, Kanpur; Indian Institute of Technology, Kharagpur; Institute of Engineering and Management, Kolkata; Indian Institute of Information Technology, Sri City; International Institute of Information Technology, Hyderabad; Jadavpur University; Jalpaiguri Government Engineering College; MAKAUT, West Bengal; Narula Institute of Technology; National Institute of Technology, Rourkela; Oriental Institute of Science and Technology; Presidency University, Kolkata; Rajabazar Science College; Ramakrishna Mission Vivekananda University; Sir M. Visvesvaraya Institute of Technology, Bangalore; SRM University, Chennai; SRM University; Sikkim Manipal Institute of Technology, Sikkim; Tamil Nadu; St. Xavier's College, Kolkata; Techno India University; University of Calcutta; University of Kalyani; University of Hyderabad; University of Malaya, Malaysia; Vidyasagar University; Visva-Bharati University, Santiniketan) received four weeks/six weeks/two months/three months/four months and six months Project training in different Units of the Institute, viz., ACMU, AERU, ASU, BAU, CVPRU, DEAN'S OFFICE, ECSU, ERU, GSU, HGU, ISRU, MIU, PAMU, SMU and SQC & OR under the guidance of different faculty members of the Institute.

Convocation

The **51st Convocation** of the Indian Statistical Institute was held on **23rd January, 2017, at 10.00 A.M.** It started with a Vedic Hymn by the ISI Club, followed by welcome address by Dr. Vijay Kelkar, President, ISI, annual review by Prof. Sanghamitra Bandyopadhyay, Director, ISI and the Convocation Address by Professor Leslie G. Valiant, A.M. Turing Award Winner, Harvard University. Degrees and diplomas were awarded to students by Dr. Kelkar. The Convocation was closed by Dr. Kelkar, after a vote of thanks by Dr. Amita Pal, Dean of Studies, ISI and the National Anthem by ISI Club. The list of recipients of various medals and prizes is given below.

Prasanta Chandra Mahalanobis Gold Medal for the most outstanding performance in ***M. Stat.*** students (2014-2016):

Somabha Mukherjee

ISI Alumni Association ***Mrs. M.R. Iyer Memorial Gold Medals*** for outstanding performances:

B. Stat. (Hons.)**:** Souvik Ray ***M. Stat.*** **:** Swarnadip Ghosh
M. S. (Q.E.) **:** Abhishek Gaurav ***M. Tech. (QROR)*****:** Shraddha Ruidas

ISI Alumni Association ***Rashi Ray Memorial Medals*** for outstanding performance in ***M. Tech. (CS)*** (2014-2016):

Arka Rai Choudhuri

ISI Alumni Association ***P.C. Panesar Gold Medal*** for outstanding performance in ***M. Math.*** (2014-2016):

Mitul Islam

Mukul Chaudhuri Memorial Prize **for** the best female student in ***B. Stat. (Hons.)*** first year batch (2015-2016):

Disha Ghandwani

Nikhilesh Bhattacharya Memorial Gold Medal for the best student in ***B. Stat. (Hons.)*** (2013-2016):

Souvik Ray

S.H. Aravind Gold Medal for outstanding performance in ***B. Math. (Hons.)*** (2013-2016):

Pritam Dey

Sunity Kumar Pal Gold Medal for the best dissertation in ***M. Tech. (CS)*** (2014-2016):

Arka Rai Choudhuri Nitish Kumar Panigrahy

TCS award for the best dissertation in ***M. Tech. (CS)*** (2014-2016):

Nishant Kumar Arnab Kundu

Dr. N.S. Iyenger Award for best student of ***Econometrics*** (2016):

Mouli Modak

In addition to regular teaching duties in various academic programmes of the Institute, the faculty members of the Institute offered research courses in consultation with the research fellow advisory committees of respective divisions for the research fellows of the Institute.

Table – 1

Number of students who passed during 2016 and number of existing students/fellows during 2016-2017

Sl. No.	Courses		Number of students who passed the Annual Examination	
			In 2016	**During the year 2016-17**
01.	**B. Stat. (Hons.)** (Offered at Kolkata)	1st year 2nd year 3rd year	32 19 23	46☼☼☼ 35☼☼☼ 19
02.	**B. Math. (Hons./Pass)** (Offered at Bangalore)	1st year 2nd year 3rd year	23 22 14	34 25☼☼ 23☼
03.	**M. Math.** (Offered at Kolkata & Bangalore-in alternative year)	1st year 2nd year	16 22	18☼ 18 = (16+2☼☼)
04.	**M. Stat.** (Offered at Kolkata, Delhi & Chennai)	1st year 2nd year	32## = (17+7+8) 47	40## = (23$+8+9☼) 34$☼
05.	**M.S. (QMS)** (Offered at Bangalore)	1st year 2nd year	11 12	11 11
06.	**M.S.(QE)** (Offered at Kolkata & Delhi)	1st year 2nd year	37# = (15+22) 34# = (11+23)	41# = (13+28) 37# = (15+22)
07.	**M. Tech. (CS)** (Offered at Kolkata)	1st year 2nd year	21 27	21 21
08.	**M. Tech. (QROR)** (Offered at Kolkata)	1st year 2nd year	16 13	17 17☼
09.	**M.S. (Library and Information Science)** (Offered at Bangalore)	1st year 2nd year	07 06	10 07
10.	**Post-Graduate Diploma in Statistical Methods and Analytics** (Offered at North-East Centre, Tezpur)	1st year	06	15
11.	**Post-Graduate Diploma in Computer Applications** (Offered at Giridih)	1st year	07	06
12.	**Post Graduate Diploma in Business Analytics** (Offered at Kolkata)	1st Semester	51	52
13.	**Junior & Senior Research Fellows in different disciplines** (Offered at Kolkata, Delhi, Bangalore, Chennai & Hyderabad)		20	184***
Grand Total			**518**	**742**

☼ One student repeating a year, ☼☼ Two students repeating a year, ☼☼☼ Three students repeating a year
$ One student in exchange programme,
# Total number including Kolkata and Delhi,
Total number including Kolkata, Delhi and Chennai,
*** JRF & SRF at Kolkata

Table 2

Ph. D degree awarded by the Institute in the 51st Convocation held on 23.01.2017

Sl. No.	Name of the Fellow	Title of the Thesis	Subject	University / Institute	Name of the Supervisor(s)
1.	Soumitra Samanta M. Tech. (Computer Science) (Indian Statistical Institute)	On Human Action Analysis from Video Data.	Computer Science	ISI	Prof. Bhabatosh Chanda, ECSU, ISI, Kolkata
2.	Srimanta Bhattacharya M. Tech. (Computer Science) (Indian Statistical Institute)	Some Results on Combinatorial Batch Codes and Permutation Binomials over Finite Fields.	Computer Science	ISI	Prof. Bimal Kr. Roy, ASU, ISI, Kolkata
3.	Indranil Ghosh Ray M. C. A. (University of Kalyani)	Cryptographically Significant MDS matrices and low degree equations for S-Boxes.	Computer Science	ISI	Prof. Kishan Chand Gupta, ASU, ISI, Kolkata
4.	Shashank Singh M. Tech. (Computer Science) (Indian Statistical Institute)	Studies on Index Calculus Techniques for the Discrete Log Problem.	Computer Science	ISI	Prof. Palash Sarkar, ASU, ISI, Kolkata
5.	Kripabandhu Ghosh M. C. A. (Jadavpur University)	Information Retrieval in Legal Domain.	Computer Science	ISI	Prof. Swapan Kumar Parui, CVPRU, ISI, Kolkata
6.	Swapna Agarwal M. Sc. (Computer Science) (Visva-Bharati)	On Automatic Recognition and Synthesis of Emotional Facial Expressions.	Computer Science	ISI	Prof. Dipti Prasad Mukherjee, ECSU, ISI, Kolkata
7.	Nilanjan Datta M. Tech. (Computer Science) (Indian Statistical Institute)	Design and Security Analysis on Symmetric-Key Primitives.	Computer Science	ISI	Dr. Mridul Nandi, ASU, ISI, Kolkata
8.	Subhabrata Samajder M. Tech. (Computer Science) (Indian Statistical Institute)	Some Aspects of Statistical Analysis of Linear and Differential Cryptanalysis.	Computer Science	ISI	Prof. Palash Sarkar, ASU, ISI, Kolkata
9.	Tapas Pandit M. Tech. (Computer Science) (Indian Statistical Institute)	Studies on Predicate Signcryption and Related Cryptographic Primitives.	Computer Science	ISI	Prof. Rana Barua, SMU, ISI, Kolkata

10.	Monika Bhattacharjee M. Stat. (Indian Statistical Institute)	Asymptotics of Large Variance-Covariance and Autocovariance Matrices.	Statistics	ISI	Prof. Arup Bose, SMU, ISI, Kolkata
11.	Kiranmoy Chatterjee M. Sc. (Statistics) (University of Kalyani)	Some Contributions to the Analysis of Dual-record System for Estimating Human Population Size.	Statistics	ISI	Dr. Diganta Mukherjee, SOSU, ISI, Kolkata
12.	Minerva Mukhopadhyay M. Sc. (Statistics) (University of Calcutta)	Some Contributions to Bayesian Variable Selection in Linear Models Based on g-prior.	Statistics	ISI	Prof. Tapas Samanta, ASU, ISI, Kolkata
13.	Prajamitra Bhuyan M. Stat. (Indian Statistical Institute)	Dynamic Stress-Strength Modeling and Analysis.	Statistics	ISI	Prof. Anup Dewanji, ASU, ISI, Kolkata
14.	Bipul Saurabh M. Stat. (Indian Statistical Institute)	On quantum homogeneous spaces and local index formula in noncommutative geometry.	Mathematics	ISI	Prof. Arup Pal, SMU, ISI, Delhi
15.	Kumarjit Saha M. Stat. (Indian Statistical Institute)	Random directed trees and their scaling limits.	Mathematics	ISI	Prof. Anish Sarkar, SMU, ISI, Delhi
16.	Nirupama Mallick M. Sc. (Mathematics) (Utkal University)	Nilpotent completely positive maps and Regular representations of completely bounded maps.	Mathematics	ISI	Prof. B V Rajarama Bhat, SMU, ISI, Bangalore
17.	Shubhabrata Das M. Sc. (Mathematics) (Ramakrishna Mission Vidyamandira)	Controlled Floyd Separation and a Non-Relatively Hyperbolic Group.	Mathematics	ISI	Prof. Mahan Mj., School of Mathematical Sciences, TIFR, Mumbai

Teaching and Training

18.	Subrato Banerjee M. A. (Economics) (Jawaharlal Nehru University, Delhi)	Essays on Economic Behaviour and Regulation.	Quantitative Economics	ISI	Prof. Bharat Ramaswami, EPU, ISI, Delhi
19.	Debojyoti Mazumder M. Sc. (Economics) (University of Calcutta)	Three Essays on Search and Matching: Status Conscious Job Choice, Trade and Optimal Friction.	Quantitative Economics	ISI	Prof. Abhirup Sarkar, ERU, ISI, Kolkata
20.	Ritwik Bhattacharya M. Sc. (Mathematics) (Indian Institute of Technology Kharagpur)	On Some Design Issues in Censored Life Testing Experiments.	Quality, Reliability & Operations Research	ISI	Dr. Biswabrata Pradhan, SQC & OR Unit, ISI, Kolkata and Prof. Anup Dewanji, ASU, ISI, Kolkata

Table 3

Research Fellows who have been awarded Ph. D degree by Academic Bodies other than ISI during 2016 for work done in the ISI

Sl. No.	Name of the Fellow	Title of the Thesis	University	Name of the Supervisor (s)
1.	Paramita Bhattacharjee	Nutritional Status and Body Composition of Children and Adolescents among Mech and Limbu Communities of Darjeeling and Jalpaiguri Districts in West Bengal-Comperative Study.	Vidyasagar University	Prof. Barun Mukhopadhyay, BAU, ISI, Kolkata
2.	Roshni Roy	Involvement Of MicroRNA And MicroRNA Processing Genes In Conferring Risk To Tobacco Related Oral Precancer And Cancer.	University of Calcutta	Prof. Bidyut Roy, HGU, ISI, Kolkata
3.	Samit Biswas	On some aspects of land map image analysis.	Indian Institute of Engineering Science and Technology, Shibpur	Prof. Bhabatosh Chanda, ECSU, ISI, Kolkata
4.	Hemmaphan Suwanwiwat	Short Answer Assessment System with Student Identification using an Automatic Off-line Handwriting Recognition System and	Griffith University, Australia	Prof. Umapada Pal, CVPRU, ISI, Kolkata

		Novel Combined Features.		
5.	Tanmoy Mondal	From Times Series Signal Matching to Word Spotting in Multilingual Historical Document Images.	PolyTech Tours Université François Rabelais, Tours, France	Prof. Umapada Pal, CVPRU, ISI, Kolkata
6.	Biswajit Halder	Studies on Automatic Authentication of Printed Security Documents	The University of Burdwan	Prof. Utpal Garain, CVPRU, ISI, Kolkata

Number of candidates who were awarded degrees in the 51st Convocation of the Institute held on 23rd January, 2017

Degree /Diploma	Number of candidates
Doctor of Philosophy (Ph.D.)	**26***
Master of Technology (M. Tech.) in Computer Science	**27**
Master of Technology (M. Tech.) in Quality, Reliability and Operations Research	**13**
Master of Statistics (M. Stat.)	**47**
Master of Mathematics (M. Math.)	**22**
Master of Science (M.S.) in Quantitative Economics	**34**
Master of Science (M.S.) in Library and Information Science	**06**
Master of Science (M.S.) in Quality Management Science	**12**
Bachelor of Statistics (Honours) [B.Stat. (Hons.)]	**23**
Bachelor of Mathematics (Honours) [B.Math. (Hons.)]	**13**
Bachelor of Mathematics (Honours) [B.Math.]	**01**
Post-Graduate Diploma in Statistical Methods and Analytics	**06**
Post-Graduate Diploma in Computer Applications	**07**
Total	**237**

*** (Including those who worked in the Institute but were awarded Ph.D. degree by other academic bodies.)**

International Statistical Education Centre (ISEC)

The International Statistical Education Centre (ISEC) was founded in 1950 at the initiative of Professor P.C. Mahalanobis. The Centre opened at Kolkata through an agreement between the International Statistical Institute and the Indian Statistical Institute (ISI). At present, the Centre is run by the Indian Statistical Institute under the auspices of the Government of India. The Centre functions under a joint Board of Directors. In its history of more than 60 years, Prof. P.C. Mahalanobis was the Chairman of the Board of Directors since the inception of the Centre in 1950 until his death in 1972. Since then, Professor C.R. Rao had been the Chairman of the Board till 2015. Currently, Prof. S.P. Mukherjee is the Chairman of the Board.

The Centre aims to provide training in theoretical and applied statistics at various levels to selected participants from countries of the Middle East, the South and the South-East Asia, the Far-East and the commonwealth countries of Africa. The primary training programme is a 10-month regular course in Statistics leading to a Statistical Training Diploma. In addition, special courses on different topics of varying duration are also organized.

The commencement date of the 70th Term of the ISEC Regular Course (2016-2017) was August 1, 2016. There were 28 trainees from fifteen countries, namely, (1) Afghanistan, (2) Bangladesh, (3) Congo, (4) Côte d'Ívoire, (5) Ethiopia, (6) Fiji, (7) Ghana, (8) Kenya, (9) Mongolia, (10) Niger, (11) Nigeria, 12) South Sudan, (13) Sri Lanka, (14) Tanzania and (15) Zambia. Twenty-three trainees were supported by fellowships under the ITEC/SCAAP of the Government of India while five were supported by the Central Bank of Sri Lanka. They will be awarded the Statistical Training Diploma in the Convocation, scheduled on May 30, 2017.

The ISEC in its totality has shifted now to the first floor in a new building, named Deshmukh Bhavan, at 202, B.T. Road, Kolkata 700108, and has four class rooms, one computer laboratory, one library and a number of rooms for the Member-Secretary, the Programme Coordinator and the faculty members with all modern amenities including scope for interactive presentations. Professor Sanghamitra Bandyopadhyay, Director, ISI has taken special interest in enhancing the international image of the ISEC courses and its infrastructure. The trainees have been provided with computer facilities and internet connections in the Computer Laboratory and in the ISEC hostel. They also have access to the books at the ISI library. Teachers at the headquarter of the Indian Statistical Institute and officers of the Government of India at the National Statistical Systems Training Academy, the National Sample Survey Office and various ministries have been participating in teaching the Regular Course throughout the years (including the current year). Till now, about 1628 trainees from 84 countries have received the Statistical Training Diploma.

2. RESEARCH AND OTHER SCIENTIFIC ACTIVITIES

The major thrust of the Institute is on research in various disciplines comprising Theoretical and Applied Statistics, Mathematics, Computer Sciences, Biological Sciences, Economics and other Social Sciences, Physics and Earth Sciences, Statistical Quality Control and Operations Research, and Library and Information Sciences. 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 outside organizations. The Institute also takes up various internally and externally funded projects in diverse fields on challenging live problems of national and international importance. As a part of research activities, scientists of the Institute are involved in consultancy work as well. This section gives a brief account of the principal areas of work, over the past year, of the scientific divisions of the Institute, namely, the Divisions of:

- Theoretical Statistics and Mathematics
- Applied Statistics
- Computer and Communication Sciences
- Physics and Earth Sciences
- Biological Sciences
- Social Sciences
- Statistical Quality Control and Operations Research
- Library, Documentation and Information Sciences

In addition, there is a report each from the 'Center for Soft Computing Research: A National Facility' and the 'Computer and Statistical Services Centre'.

Theoretical Statistics and Mathematics Division

The Theoretical and Mathematics Division, which presently has units in Kolkata, Delhi, Bangalore and Chennai, continued its activities in the areas of Research, Teaching, conducting Workshops, International conferences and project related activities.

Some of the main thrust areas of research of the Division during this period are: Balanced Polya Urn Schemes, Absolute continuous Marshall Olkin bivariate distributions, Probability theory, Free probability and large dimensional random matrices, Hypergraph connectivity of random complexes, Cryptography, Geometry, non-commutative geometry, Topology, Algebra, Number theory, Functional Analysis, Linear Algebra, Harmonic Analysis, Operator theory, Operator algebras, Complex analysis.

Colleagues also continued collaborative research under internal and externally funded projects with funding from prestigious organizations like JC Bose Fellowship, Marie Curie Research Staff Exchange, Fulbright Academic Excellence Fellowship, Microsoft Research, Hitachi.

Publications by the Division include over 150 papers in reputed international and national journals and colleagues also contributed editorial activities of monographs and journals.

Recognition bestowed on our colleagues during this period included JC Bose Fellowship, Young researcher awards, Associateship of the Academy of Science, Hans Schneider Prize, B M Birla Science prize.

The Division conducted several national and international conferences. The flagship lectures PC Mahalanobis Memorial Lecture and the Ashok Maitra Memorial lectures were delivered by Professor

IM Johnstone and Professor Mahtew Penrose. Professor S.R.S. Varadhan gave a mini course on Random Graphs.

Stat-Math Unit, Kolkata

Cryptography: a complete characterization of Format Preserving Sets with respect to matrices over finite fields.

Barua, R., Gupta, K.C. (ASU), Pandey, S. (CSRU) and Ghosh Roy, I.

Statistical significance tests and graphical tests for different hypotheses in one and two sample problems

Bose, A.

Non-Commutative Geometry, Levi civita connection in noncommutative geometry

Bhowmick, J.

An Uncertainty Principle of Paley and Wiener on Euclidean Motion group

Bhowmik, M. and Sen, S.

Tests for High-Dimensional Data Based on Means, Spatial Signs and Saptial Ranks

Chaudhuri, P. and Chakraborty, A.

Commutative Algebra: a complete description of “nice derivations” of the polynomial ring in three variables over a principal ideal domain containing the field of rational numbers; new algebraic characterisations of the affine 2-space and the affine 3-space.

Dasgupta, N. and Gupta, N.

Non-parametric statistics; Rates of convergence in Central Limit Theorem (CLT); Law of iterated logarithms (LIL) and Characterization theorems; Growth Curve Model and plant sensitivity; Applications of Statistics to Industrial quality control, Physics, Sociology, Agriculture, Education and other natural sciences

Dasgupta, R.

Quantum symmetry of classical spaces

Goswami, D. and Bhattacharyya, S.

Thick points for Gaussian free fields with different cut-offs

Hazra, R.S.

Point Process convergence of branching random walk with heavy tailed step size

Hazra, R.S., Bhattacharyya, A. and Roy, P.

Extremes of some Gaussian random interfaces

Hazra, R.S. and Chiarini, A.

Geometry and Topology: Introduced the notion of Nambu structure on Lie algebroid. Investigated higher order generalizations of well known results for Lie algebroids and bialgebroids

Mukherjee, G.

Number Theory: Established subconvex bounds for certain degree six L-functions, studied the subconvexity problem for degree one L-functions

Munshi, R., Holowinsky, R. and Qi, Z.

Proposed a new measure of inequality/poverty based on L^p metric

Munshi, R. and Munshi, S. (ERU)

Analysis: A theorem of A. Atzmon regarding uniform approximation

Ray, S. K. and Sengupta, J.

Stat-Math Unit, Delhi

Oscillation of eigenvalues of structured matrices; Bures-Wasserstein distance on positive definite matrices

Bhatia, R. and Jain, T.

Balanced Pólya Urn Schemes with Colors indexed by a Polish Space

Bandyopadhyay, A. and Thacker, D.

Negatively Reinforced Urn Schemes

Bandyopadhyay, A. and Kaur, G.

Estimation of parameters of absolute continuous Marshall Olkin bivariate distribution using EM algorithm

Dewan, I. and Nandi, S.

Irreducibility of a general family of classical orthogonal polynomials, particularly Hermite-Laguerre polynomials and Generalized Laguerre polynomials and their associated Galois groups

Nair, S., Shorey, T. N., Jindal, A., Sarma, R. and Laishram, S.

Exponential diophantine equations involving sums of products of consecutive integers

Hajdu, L., Tengely, S. and Laishram, S.

Perfect cubes in product of term of arithmetic progression extending earlier results

Das, P., Saradha, N. and Laishram, S.

Problem of existence of infinitely many positive integers who sum of digits in different bases are close enough

Deshouillers, J.M, Habsieger, L., Landreau, B. and Laishram, S.

Chirp signal model when a linear trend is present

Nandi, S.

Difficulties observed in estimation of parameters of chirp signal model

Nandi, S. and Kundu,D.

Quantum groups and noncommutative geometry

A. K.Pal

Recovering the underlying image from motion-blurred photographs

Sarkar, D. and Nandy, K.

Research Activities

Random graphs

Roy, R., Mazumdar, R. and Mukhopadhyay, A.

Drainage networks and Brownian web

Roy, R., Saha, K. and Sarkar, A.

Kneser-Tits (equivalently Tits-Weiss) conjecture, "R-triviality of some exceptional groups"

Thakur, M.

Classification result for Albert division algebras, up to isotopy

Thakur, M. and Hooda,N.

Stat-Math Unit, Bangalore

Push-forward at the level of Chow groups the relation of monodromy and algebraic cycles

Banerjee, K. (Visiting Scientist –ISF UGC)

Symmetric homomorphisms and Representations for completely bounded maps.

Rajarama Bhat, B.V., Mallick, N. and Sumesh, K.

Bures distance and representation metric

Rajarama Bhat, B.V., and Mukherjee, M.

- **Williamson form & quasifree states**
- **Extendibility for Gaussian states**

Rajarama Bhat, B.V.

Study of smooth homotopy complex projective spaces

Kasilingam, R. (Inspire Faculty)

Stability for parabolic bundles and construction of the corresponding module space

Majumder, S. (Visiting Scientist –ISF UGC)

Distal actions, Group actions, Co finite groups.

Raja, C.R.E.

Geometry of Banach spaces and application to approximation theory and convex optimization

Rao, T.S.S.R.K.

Martingale Chaoses, Weiner (Brownian motion) and Ito (Levy processes)

Rajeev, B.

Operator theory

- **Rank of a non-trivial co-doubly commuting submodule**
- **Characterizations, in the theme of Brown and Halmos, of analytic Toeplitz operators over unit polydisc**
- **A characterization of commuting pair of contractions, for which the product of them is a pure contraction**
- **Results on covariant representations of subproduct systems A series of results concerning reproducing kernel Hilbert spaces, related to the factorization of their kernels**

Sarkar, J.

Factorization of Kernels and Reproducing Kernel Hilbert Space
Kumari, R., Timotin, D. and Sarkar, J.

Factorizations of Contractions
Das, B.K. and Sarkar, J.

Representations for a Commuting Pair of Pure Contractions similar to that of Berger-Coburn-Lebow type representations for a Commuting Pair of Pure Isometries
Sarkar, S. (SRF)

Random Spanning acycles
Skraba, P., Thoppe, G. and Dhandapani, Y.

Hypergraph connectivity of random complexes
Iyer, S.K. and Dhandapani, Y.

Stat-Math Unit, Chennai

On the generalized Zalcman functional $\lambda a^2_n - a_{2n-1}$ in the close-to-convex family
Ponnusamy, S. and Li, L.

Turan type inequalities for Struve functions
Ponnusamy, S., Singh, S. and Baricz, A.

Characterization of univalent harmonic mappings with integer or half-integer coefficients
Ponnusamy, S. and Qiao, J.

John disks and K-quasiconformal harmonic mappings
Ponnusamy, S. and Chen, Sh.

On the Bohr inequality
Ponnusamy, S., Abu Muhanna, Y. and Ali, R.M.

Bounds for the product of modified Bessel functions
Ponnusamy, S., Baricz, A., Maširević, D.J. and Singh, S.

Modified Dini functions: monotonicity patterns and functional inequalities
Ponnusamy, S., Baricz, A. and Singh, S.

Radii of covering disks for locally univalent harmonic mappings
Ponnusamy, S., Yu Gra, S. and Starkov, V.V.

Injectivity of sections of convex harmonic mappings and convolution theorems
Li, L. and Ponnusamy, S.

Generalized Zalcman conjecture for convex functions of order alpha
Li, L., Ponnusamy, S. and Qiao, J.

Geometric studies on the class u (λ)
Obradovi_c, M., Ponnusamy, S. and Wirths, K.J.

Circular symmetrization, subordination and arclength problems on convex functions
Okada, M., Ponnusamy, S., Vasudevarao, A. and Yanagihara, H.

Applied Statistics Division

The Applied Statistics Division came into being in September 1996 in place of the Applied Statistics, Survey and Computing Division. The Computer Science Unit was renamed as the Applied Statistics Unit and the Biometry Unit was transferred to the Biological Sciences Division. Till 2005-2006, the Applied Statistics Division consisted solely of the Applied Statistics Unit. In 2006, a new unit, namely, the Bayesian and Interdisciplinary Research Unit was created within this Division. Later in 2012, two more units named Applied and Official Statistics Unit, North East centre, Tezpur and Applied Statistics Unit, Chennai became parts of this Division. In October 2014 Bayesian and Interdisciplinary Research Unit of this Division was renamed as Interdisciplinary Statistical Research Unit.

The main activities of the Division include teaching, training, research and Ph.D. guidance, projects and consultancy, academic administration, editorial work, etc., along with many others miscellaneous duties. All the members of the Division take active part in teaching in the degree and diploma courses of the institute. They also take part in ISEC and other short-term courses. The members of the Division regularly conduct North East workshops, Winter/ Summer schools and Training programmes on topics of general interest for users of Statistics including researchers/ teachers, ISS officers and probationers, summer interns, high school students, officials from government and other agencies, etc. The Statistical Trainee programme for fresh MSc (Statistics) students is a unique training programme in which the trainees get hands-on experience with application-oriented research and projects and eventually assist the faculty members.

The research activities of the scientists of the Division have a wide focus. The topics of interest include Sample Surveys, Design of Experiments/ Optimal Designs, Statistical Inference/ Robust Inference, Bayesian Methods/ Decision Theory, Large Sample Theory/ Asymptotic Theory, Multivariate Analysis, Directional Data Analysis, Time Series Analysis, Reliability/Survival Analysis/ Actuarial Statistics, Epidemiology/ Clinical Trials, Environmental Statistics, Demography/ Population Studies, Image Processing/ Pattern and Speech Recognition/Neural Networks, Classification and Clustering, Circular and Spherical regression, Financial Statistics, Stochastic Modelling/ Applied Stochastic Processes, Statistical Computing/ Big Data Analysis, Cellular Automata/ Mathematical Genetics, Cryptology and Security, and several others.

Applied Statistics Unit, Kolkata

- **Study on Optimal Response-adaptive Designs under Different Types of Constraints**
- **Modeling, Analysis and Coherent Forecasting for Categorical, Count Data and Zero-inflated Count Data**
- **Regression for Circular-circular Data and Robustness Issues for Circular Data**
- **Study on the Clinic Visit Rates Due to Respiratory Failure Caused by Different Pollutants**
- **Group Sequential Methods for Comparing Odds Ratio under Inverse Sampling**

Biswas, A.

- **Classification of Genes/Proteins**
- **Expansion of the Notion of Carry Value Transformation (CVT) and Exclusive-OR Transformation (XORT) for Performing Arithmetic Operations**
- **Analysis of Boolean Functions**

Pal Choudhury, P.

Sharp Upper and Lower Bounds for the reliability of a Decreasing Mean Residual Life (DMRL) Distribution with Known Mean

Das, S. and Sengupta, D.

- **Estimation of the Reliability of a Software Based on A NHPP Model for Error Occurrence, Adapted to Periodic Debugging Data**
- **Investigation into Defining a Broad Class of Failure Time Models Based on the Stress-strength Mechanism and a Study on Optimal Censoring Scheme in the Context of Random and Progressive Hybrid Censoring**
- **Completion and Extension of Some Work on Nonparametric Estimation of Competing Risks with Current Status Data to Include Dependent Inspection Time**
- **Development of an algorithmic approach to arrive at a near-optimal allocation of units with fixed covariate values into two or more treatment groups**

Dewanji, A.

Modelling and Analysis of the Size and Shape of Typical Contiguous Areas under Rainfall Using Satellite Images Depicting Average Rate of Rainfall over different pixels representing a grid over the Earth's Surface

Jana, K.K. and Sengupgta, D.

Study on Inference Issues for Imperfectly Recalled Time to Event Data in Retrospective Studies

Mirzaei, S. and Sengupta, D.

Interdisciplinary Statistical Research Unit, Kolkata

Variance Estimation in Randomized Response Surface

Adhikary, A. K.

Robust Estimation based on the Extended Bregman Divergence

Basak, S. and Basu, A.

Weighted Likelihood Estimation for Right Censored Data.

Biswas, A. Majumder, S., Guha Niyogi, P. and Basu, A.

A Bayesian Approach of Analyzing Semi-continuous Longitudinal Data with Monotone Missingness

Biswas, J. and Das, K.

Classification Using Estimation of Voronoi Area

Bhandari, S. K. and Kundu, A.

- **A Bayesian Semiparametric Approach to Learn about Gene-Gene Interactions in Case-Control Studies**
- **Effects of Gene-Environment and Gene-Gene Interactions in Case-Control Studies: A Novel Bayesian Semiparametric Approach**
- **A Non-Gaussian, Nonparametric Structure for Gene-Gene and Gene-Environment Interactions in Case-Control Studies Based on Hierarchies of Dirichlet Processes**

Bhattacharya, D. and Bhattacharya, S.

A Bayesian Two-stage Regression Model for Zero-inflated Longitudinal Outcomes

Bhuyan, P., Biswas, J. and Das, K.

Research Activities

- **Non-marginal Decisions: A Novel Multiple Testing Procedure**
- **Asymptotic Theory of a Non-Marginal Multiple Testing Procedure and Comparison with Existing Methods**

Chandra, N.K. and Bhattacharya, S.

A Bayesian Joint Model for Patient Monitoring Using Wireless Sensor Networks

Chatterjee, A., Biswas, J. and Das, K.

A Short Note on Almost Sure Convergence of Bayes Factors in the General Set-Up

Chatterjee, D., Maitra, T. and Bhattacharya, S.

- **Robust Tests of Hypothesis for non-homogeneous data**
- **Model Adequacy Test and the S-Divergence in Robust Parametric Inference**
- **Robust Bayes Inference against Data Contamination**

Ghosh, A. and Basu, A.

. **Robust inferences in Beta regression model with applications to health-care studies**

Ghosh, A.

Robust Wald-type Tests for Different Hypothesis Testing Problems

Basu, A., Ghosh, A. Martin, N. and Pardo, L.

A Multivariate Quantile Regression Model for Longitudinal Outcomes

Kulkarni, H., Biswas, J. and Das, K.

- **On Classical and Bayesian Asymptotics in Stochastic Differential Equations with Random Effects Having Mixture Normal Distributions**
- **On Asymptotics Related to Classical and Bayesian Inference in Stochastic Differential Equations with Time-Varying Covariates**
- **On Classical and Bayesian Asymptotics in State Space Stochastic Differential Equations**

Maitra, T. and Bhattacharya, S.

Robust Estimation based on the Family of C-divergences.

Maji, A., Ghosh, A., Basu, A. and Pardo, L.

Semi-supervised Approach for Updating Classifier

Mukherjee, D. and Bose, S.

Classification under Elliptically Symmetric Multivariate Models

Pal, A., Bhandari, S. and Bose, S.

A Bayesian Approach for Determination of Convergence, Divergence and Oscillation of Infinite Series with Application to Riemann Hypothesis

Roy, S. and Bhattacharya, S.

Robust Discriminant Analysis in the Presence of Outliers

SahaRay, R. and Ghosh, A.

Applied Statistics Unit, Chennai

Estimating Headrooms of Indian ADRs- An Application of Nonlinear Filtering Technique

Sen, R. and Bhattacharya, K.

To Evaluate Biomarkers Performance Development of the Three Class Receiver Operating Characteristic Curve model and Study on the Volume under the ROC Surface

Sen, R. and Kumarapandiyan, G.

Bayesian Portfolio Optimization with Low Tail-risk

Sen, R. and Das,S.

- **Analysis of Recall Based Time to Event Data**
- **Test for Independence between Time to Failure and Cause of Failure with k Causes**

Sudheesh, K. K., Dewan, I. (Stat-Math Unit, Delhi) and Anjana, S.

Jackknife Empirical Likelihood-based Inference for S-Gini Indices

Sudheesh, K. K., Sreealkshmi,N. and Sen, R.

Quantile Based Tests for Exponentiality against DMRL and NBUE Alternatives

Sudheesh, K. K., Sreealkshmi, N. and Asha, G.

Applied and Official Statistics Unit, North-East Centre, Tezpur

Determinants of Healthy Life Expectancy" Using the 'Integrated Data in Europe on Ageing Research' (IDEAR)

Chungkham, H.S., Westerlund, H. Head, J. and Hanson, L.M.

Understanding the Moderating Effect of Physical Inactivity in the Relationship between Psychosocial Work Factors and Depressive Symptoms

Paraskevi, P., Rod, N. H., Chungkham, H.S. and Hanson, L.M.

Analysis of Atmospheric Particulate Matter Removal using Satellite Imagery Derived Vegetative Cover

Maitra, S. and Jyethi, D. S.

Retrieval of Historic Atmospheric Black Carbon Concentration in the Arctic Region and North America

Jyethi, D. S., Husainand, L. and Dutkiewicz, V.

Profile analysis of polycyclic aromatic hydrocarbons (PAHs) in environmental matrices

Jyethi, D. S. and Khillare, P. S.

- **Systematic Review and Meta-Analysis of Randomized Controlled Trails on Food Fortification/ Supplementation**
- **Meta-Analysis Approach on Iron Fortified Foods and its Effect on Haemoglobin Concentration in Pregnant Women**

Athe, A.

Tracking the Changes of Elevated Regions and Identification of Erosion Prone Areas around Kaziranga National Park Using Satellite Imagery

Maitra, S., Neogi, N. and Ghosh, K. (MIU, Kolkata)

Research Activities

- **Rock Classification and Detection of Manmade Contact Region of the Telengana Terrain**
- **Identification of Coal Bearing Strata in Adilabad District of Telengana**

Maitra, S., Ghosh, K. (MIU, Kolkata) and Chakraborty, T. (GSU, Kolkata)

Application of Deep Learning in Medical Image Analysis using CT Scan and Ultra Sound Images

Ghosh, R., Maitra, S. and Ghosh, K. (MIU, Kolkata)

Synergy Analysis of Remote Sensing Modalities for environmental applications

Neogi, S., Maitra, S. and Ghosh, K. (MIU, Kolkata)

Regime Dependent Effect of Output Growth on Output Growth Uncertainty: Evidence from OECD Countries

Chowdhury, K. B. and Sarkar, N. (ERU, Kolkata)

Regime Dependent Effects of Uncertainty on Inflation and Output Growth: Evidence from the UK and the USA

Chowdhury, K. B., Kundu, S. and Sarkar, N. (ERU, Kolkata)

- **Asymmetric Effects of Exchange Rate Uncertainty and Demand Uncertainty on Export**
- **Validation of Taylor hypothesis**

Chowdhury, K. B. and Kundu, S.

Inflation, Growth and Uncertainty in India

Chowdhury, K. B., Kundu, S. and Sarkar, K.K.

Understanding the Problem of Estimating the Unknown Population Parameter(s) in Morgenstern Family of Distribution(s) of the Study Variable Using Information on Supplementary Variable

Mehta, V. and Singh, H.P.

Computer and Communication Sciences Division

Over the years, the Computer and Communication Sciences Division (CCSD) at ISI has grown to eight units spread over four centres:

- **Advanced Computing and Microelectronics Unit, Kolkata**
- **Computer Vision and Pattern Recognition Unit, Kolkata**
- **Electronics and Communication Sciences Unit, Kolkata**
- **Machine Intelligence Unit, Kolkata**
- **Documentation, Research and Training Centre, Bangalore**
- **Systems Science and Informatics Unit, Bangalore**
- **Computer Science Unit, Chennai**
- **Cryptology and Security Research Unit, RC Bose Centre, Kolkata**

CCSD counts amongst its faculty a number of highly decorated scientists, as well as fellows of various prestigious national and international academies and societies. The various activities undertaken by the staff of this division are summarised in the following pages under the heads of teaching, research, externally and internally funded project work, workshops and conferences conducted, editorial work, etc.

Advanced Computing and Microelectronics Unit, Kolkata

The members of the faculty and research students of the ACM Unit are engaged in teaching, research, training and consultancy in the following two major areas of Computer Science and Engineering: (i) Algorithms and Architectures and (ii) Computer-Aided Design for Microelectronic Circuits and Systems. In particular, our work focuses on:

Algorithms and Architectures:

- Streaming and Low Memory Algorithms
- Discrete and Computational Geometry
- Discrete and Combinatorial Geometry
- Parametrized Complexity
- High Dimensional Geometry and Computational Topology
- Randomized and Approximation Algorithms
- Multi-Core Computing
- Parallel and Distributed Algorithms
- Program Analysis and Software Engineering
- Wireless, Sensor and Mobile Networks
- Network Planning and Design
- 5G Device to Device Communication
- VLSI Architectures for Image Processing
- Combinatorial Image Processing
- Graph Coloring and Graph Algorithms

Computer-Aided Design for Microelectronics:

- CAD for Lab-on-a-Chip, Microfluidics
- CAD Tools for Quantum Computing, Reversible Circuits
- Embedded Systems and System-on-Chip Design
- Intellectual Property Protection of VLSI Design
- Logic Synthesis and Testing
- Low-Power Chip Design
- Nanoelectronics and Giga-Scale Integration
- Physical Design of ASIC and FPGA Chips
- Design Verification

During the period 2016-2017, the faculty members of the unit were engaged in different research projects mentioned below.

Intelligent Transportation System

Sinha, B. P. and Chakraborty, G.

Holy Grail of Error-Resilient Bio-Assays on a Lab-on-a-Chip (HERBAL)

Bhattacharya, B.B., Banerjee, A., Chakraborty, P. P., Dinda, A., Tsung-Y, Ho, Wille, R. and Chakrabarty, K.

GP-GPU Computing for Large Scale Networks (GPLN)

Das, N., Bhattacharjee, S. and Ghosal, A.

Logic Synthesis for Quantum Computing

Sur-Kolay, S., Jha, N., Das, D. and Chakrabarti, A.

Massive Data Algorithms

Nandy, S. C.and Bishnu, A.

Voronoi Game

Das, S.

Algorithms & Bounds for Dominiting Set, Geodetic Set and Obstacle Number in Graphs

Bishnu, A., Paul, S. and Ghosh, A.

A Framework for Collaborative Application Execution for Mobile Cloud Computing

Banerjee, A. and De, P.

Efficient Vertical Handover Techniques in Heterogeneous Wireless Networks

Ghosh, S.C.

Computer Vision and Pattern Recognition Unit, Kolkata

The faculty of the Computer Vision and Pattern Recognition Unit, Kolkata, are engaged in research related to the broad area of Language Technology and Image Processing. They are currently working on projects in the following areas.

Document Analysis: text recognition from stylized printed documents

Tripathy, N., Chakraborti, T., Nasipuri, N. and Pal, U.

Efficient off-line signature verification

Alaei,A., Pal, S., Pal, U. and Blumenstein, M.

Recognition of text from natural scene images and video frames

Bhunia, A.K., Kumar, G., Roy, P. P., Balasubramanian, R. and Pal, U.

Line-wise text identification in comic books

Pal, S., Christophe Burie,J., Pal, U. and Ogier, Jean-Marc

Document image retrieval

Alaei, F., Alaei, A., Blumenstein, M. and Pal, U.

Affiliation Analysis of Academic Papers

Yadav, A. and Majumdar, D.

Detecting Factual and Non-Factual Content from News Articles

Sahu, I. and Majumdar, D.

South Asian Face Database

Chatterjee, G. and Chakraborty, N.

Effect of Internet on brain structure

Chatterjee, G., Ghosh, P., Kanai, R. and Datta, H.

Studying the phenomenon of disgust with reference to genetic contribution using twins

Chatterjee, G. and Singh, D.

- **Cognitive architecture of face-processing – understanding the separation of information streams**
- **Human face and body skin tone and their relationship with various biological and social parameters**

Chatterjee, G. and Chakraborty, N.

Detection and assessment of image and video quality degradation

Palit, S. and Sarkar, S.

Generation of Synthetic Online Handwriting Samples based on Sigma-Lognormal Model

Bhattacharya, U., Plamondon, R., Dutta Chowdhury, S., Goyal,P. and Parui, S. K.

Deep Learning for Document Image Classification

Chakraborty,B., Mukherjee, P. S. and Bhattacharya, U.

Bangla Online Handwriting Recognition Using Recurrent Neural Network Architecture

Roy,S., Das, A. and Bhattacharya, U.

An Approach to Automatic Reading of Old Degraded Bangla Printed Documents

Parui, S. K. and Bhattacharya, U.

Study of a real-life problem of automatic face recognition

Sanyal, A.,Bhattacharya, U. and Parui, S. K.

Electronics and Communication Sciences Unit, Kolkata

The faculty of the Electronics and Communication Sciences Unit, Kolkata, are engaged in research on Image and Video Processing, Machine Learning, Social Networks, etc. They are currently working on projects in the following areas.

- **Image processing: Improving quality of degraded / damaged images**
- **Biometrics: Iris recognition**
- **Handwritten word recognition**

Chanda, B.

Theoretical Machine Learning

Das, S.

- **Video scene classification**
- **Event recognition from unconstrained video**

Mohanta, P.P.

- **Reconstruction of 3D linear structures in the breast from Cranio-Caudal (CC) and Medio-Lateral-Oblique (MLO) mammographic views**
- **Recognition and localization of consumer products on the shelves of a supermarket**

Mukherjee, D. P.

Research Activities

- **Fusion scheme for multimodal heterogeneous information based on Dempster-Shafer framework**
- **Neural network based schemes for transfer learning**

Pal, N. R.

Model access and privacy control for online social networks

Pal, P.

- **Detecting and tracking objects in videos with variable background**
- **Common Sense Reasoning**
- **Watson-Crick Automata**
- **DNA Computing**

Ray, K. S.

Machine Intelligence Unit, Kolkata

- **Dimensionality Reduction**
- **Video Processing**

Ghosh, A.

Medical Imaging

Maji, P.

Bioinformatics

Bandyopadhyay, S., De, R. K., Maji, P. and Ray, S. S.

Computational Systems Biology

De, R. K.

Pattern Recognition

Bandhyopadyay, S. and Murthy, R. K.

Machine Vision and Perception

Ghosh, K.

Documentation, Research and Training Centre, Bangalore

The Documentation Research and Training Centre was established as an integral part of the Indian Statistical Institute in 1962. The primary objectives of DRTC are to promote research and training, in the area of Library Science, Documentation and Information Science. The main areas of research in which the different faculty members of the DRTC were engaged during the period, are furnished below.

Knowledge Organization

Madalli, D. P.

- **Faceted Approach for Domain Ontology Development**
- **Development of Universal Knowledge Core**

Dutta, B. and Madalli, D. P.

- **Linguistic Phenomenon and Knowledge Organization**
- **Graph Database and Query Optimization**

Dutta, B.

- **Digital Libraries and Semantic Web**
- **Multilingual data in Indian languages for Universal Decimal Classification**

Madalli, D.P.

- **Library and Information Technology**
- **Big Data**

Prasad, A. R. D.

Institutional Repositories and Open Access to Information

Prasad, A. R. D. and Madalli, D.P.

Ontology Supported Information Systems

Krishnamurthy, M.

Systems Science and Informatics Unit, Bangalore

Visualizing Image Segmentation and Filtering Algorithms in Optimization Framework

Danda, S., Najman, L. and Daya Sagar, B. S.

Mathematical Morphology on General Data

Challa, A., Najman, L. and Daya Sagar, B. S.

Granulometric and Fractal Analyses for Feature (Shape-Size-Orientation) Based Classification of Planar and Grayscale Basins Hierarchically Decomposed from CARTOSAT-I DEMs

Ashok Vardhan, S. and Daya Sagar, B. S.

Quantitative Morphologic and Scaling Analyses of Lunar Digital Elevation Models (LDEM) Derived from TMC Data of Chandrayaan-1 Mission via Mathematical Morphology and Fractal Geometry

Surendran, A. and Daya Sagar, B. S.

Quantitative Characterization of Complex Topologically Prominent Components of Porous Media derived from Rocks of Petrologic Significance via Mathematical Morphology and Fractal Geometry

Soor, S., Gade, S. and Daya Sagar, B. S.

Pattern Recognition, Machine Learning, Image Processing

Meher, S. K. and Arun Kumar,D.

- **Neural information processing: study of human depth EEG signals**
- **Micro seizure detection**

Majumdar, K.

Computer Science Unit, Chennai

Almost Involutory Recursive MDS Diffusion Layers

Gupta, K. C. (ASU), Pandey, S.K. and Venkateswarlu, A.

Structured strategies in dynamic games

Ghosh, S. Konar, N. and Ramanujam, R.

Cognitive models of strategic reasoning

Ghosh, S. and Verbrugge, R.

Empirical studies on strategic reasoning

Ghosh, S. Heifetz, A., Verbrugge, R. and Weerd,H.de

Formal studies on preference and reliability dynamics

Ghosh, S. and Sano, K.

Syntactic studies of epistemic attitudes in conversation

Banerjee, A. Ghosh, S. and Karmakar, S.

Weighted Independent Sets in Graph Classes

Maffray, F. and Karthick, T.

Weighted Efficient Domination in Graph Classes

Brandstädt, A., Eschen, E.M., Friese,E. and Karthick,T.

Vertex Coloring of Graph Classes

Maffray,F. and Karthick,T.

Variations in vertex coloring

Karthick, T.

Stab number of rectangle intersection graphs

Chakraborty, D. (ACMU), Francis, M.C.

Cograph dimension and permutation dimension of planar graphs

Chacko, D. Francis, M.C.and Salam, S.

Total Colouring Conjecture

Basavaraju, M., Sunil Chandran, L. and Francis, M.C

More efficient certifying algorithms for circular-arc graph recognition

Francis, M. C., Hell, P. and Stacho, J.

Cryptology and Security Research Unit, Kolkata

Format Preserving Sets

Barua, R., Gupta,K. (ASU), Pandey, S. and Ghosh Roy,I.

Stream Ciphers

Paul, G., Maitra,S. (ASU), Sinha,N. Gangopadhyay,S., Mihaljevic, M. and Matsuura,K.

Disk Encryption

Chakraborty**, D.,** Sarkar,P. (ASU), Ghosh,S. and Lopez,C.M.

Provable Security

Paul, G. and Sanyal,A.

Crypto hardware

Paul,G., Khalid,A.,Chattopadhyay,A., Abediostad,F., Imad Ud Din,S., Hassan,M.,Biswas,B. and Ravi,P.

Quantum Cryptography

Paul, G. and Acharya, A. (ASU)

Steganography

Paul, G., Mukherjee, I., Davidson, I. and Ravi,S.S.

Key Management in Wireless Sensor Networks

Ruj, S., Sakurai.K. and Sardar,L.

Cloud Security

Ruj,S., De,S.J.,Sengupta,B.(ASU), Das,A., Sakurai,K.,Kawamoto,J.,Anada,H.,Nishide,T., Verma, R. and Saxena, R.

Security and Fault Tolerance in Smart Grids and IoT

Ruj, S., Paul, A., Dorbala, Y.,Huang,Z., Nayak, A., Pal, A. and Huh, M.

Uniform intersecting family of finite sets

Majumder, K.

Physics and Earth Sciences Division

The Division comprises of two units: Geological Studies Unit (GSU) and Physics & Applied Mathematics Unit (PAMU), both located at Kolkata.

The major areas of research of the Geological Studies Unit are Structural Geology, Sedimentology, Stratigraphy and Palaeontology. Most of these studies are based on extensive field work.

The thrust areas of research in PAMU are Theoretical Physics and Applied Mathematics. Additionally, some experimental work is being done in the Fluvial Mechanics Laboratory of this Unit. Broadly, the scientists work in the areas of Astrophysics and Data Analysis, Biological Optics, Condensed Matter Physics, Cosmology of the Early Universe, High Energy Physics, Mesoscopic Physics and Nanoelectronics, Quantum Field Theory, Quantum Information Theory, Quantum Mechanics, Nonlinear Dynamical Systems, Sediment-fluid Interactions and Flow Visualization.

Scientists have also carried out work on intndernally as well as externally funded projects. The division has published around 60 research papers in reputed international journals. It is also involved in teaching B. Stat. and M. Tech. courses apart from their own Ph.D. program. Also a few lecture series, workshops and conferences were organized during this period.

Geological Studies Unit, Kolkata

The major areas of research of the Geological Studies Unit of the Institute are Structural Geology, Sedimentology, Stratigraphy and Palaeontology. Below are the specific topics on which research is conducted.

Geochemistry and numerical modeling

Banerjee, A.

Archean greenstone belts of India – tectonics and sedimentation

Saha, D., S. Patranabis-Deb, Banerjee, A., P. Bachhar, B. Biswas, G. Deb

Fault zones and crustal deformation in the Eastern Himalaya

Saha, D., Banerjee, A. and Patra, A.

Field study of flow, salinity and sedimentation-erosion patterns in the Sundarbans estuarine system

Chakraborty, C.

Sedimentology and palaeogeography of the Siwalik Group in the eastern Himalaya

Chakraborty, T., Bera,S.,Beek,P. van der,Huyghe,P., Taral,S., Mallick,S., Debnath,A. and More,S.

Precambrian aeolian deposits of India and Brazil

Chakraborty, T. and Basillici, G.

Stratigraphic Basin analysis

Patranabis-Deb, S., Saha, D., Majumder, T. and Khan, S.

Sedimentary record of the Triassic - Jurassic fluvial to lacustrine transition in a continental rift basin, India (Pranhita-Godavari Gondwana Basin)

Ghosh, P., Goswami, S. and Gierlowski-Kordesch, E.

The signatures of microbial activity in a Late Triassic fluvial succession – the Maleri Formation, Pranhita-Godavari Rift Basin, India

Ghosh, P. and Dasgupta,S.

A GIS-based study on the drainage network of the Kosi Megafan, India, and its interaction with the August 2008 flood flow

Majumder,D. and Ghosh, P.

A GIS-based study on the orogen-wide pattern of erosional relief and its implications for physiographic evolution of the Himalayan mountain belt

Ghosh, P.

Shape analysis of vertebrate fossil bones

Sengupta, D.P., Bandyopadhyay, S. and Chakravorty, S.

Revision of stratigraphy of the Upper Gondwana formations of Satpura basin, central India

Sengupta, S., Sengupta, D.P. and Bandyopadhyay, S.

Cistecephalid dicynodont from the Permian Kundaram Formation of Pranhita-Godavari Basin

Kammerer, C.F., Bandyopadhyay, S., and Ray, S.

Vertebrate microfossils from the Tiki Formation of the Rewa Gondwana basin

Bandyopadhyay, S. and Ray, S.

Vertebrate faunal assemblage of the Jurassic Kota Formation, Pranhita-Godavari basin, India

Mukherjee, D. and Bandyopadhyay, S.

Jurassic Gondwana vertebrates of India

Mukherjee, D.

Post cranial anatomy and growth strategy of the Indian Middle Triassic capitosaurs as deduced from osteohistology

Mukherjee, D., Sengupta, D.P. and Rakshit, N.

Diversity, palaeobiogeography and palaeoecology of Miocene gastropods from India with special emphasis on Kutch, Gujarat

Das, S.S.

Physics and Applied Mathematics Unit, Kolkata

The main areas of research in Physics & Applied Mathematics Unit are Theoretical Physics and Applied Mathematics. Additionally, some experimental work is also being done in the Fluvial Mechanics Laboratory of this Unit.

Broadly, the Scientists of the Physics & Applied Mathematics Unit (PAMU) of the Institute work in the areas of Astrophysics & Data Analysis, Biological Optics, Condensed Matter Physics, Cosmology of the Early Universe, High Energy Physics, Mesoscopic Physics and Nanoelectronics, Quantum Field Theory, Quantum Information Theory, Quantum Mechanics, Nonlinear Dynamical Systems, Sediment-fluid Interactions and Flow Visualization.

A brief account of the specific research work done by the members of PAMU during the year 2016-17 is given below:

PHYSICS

Biological Optics: Phase function (reflectance) modeling in biological (cell) media that could be applied for medical diagnostic purposes of general or specific tissue cells or the likes has been initiated.

Roy, A. K., Sharma,S.K.

Cosmology : How one can possibly constrain the initial vacuum by Cosmic Microwave background data has been demonstrated. Also, the idea of conformal attractors in inflation has been extended to non-canonical sectors that corroborates with latest observational data.

Chandra,D., Pinhero,T. and Pal, S.

Quantum nonlocality and randomness: The relation among incompatible measurement, violation of Bell's inequality and steering has been explored in most general non-signaling theory and quantum results have been reproduced as a special case.

Kar, G.

Quantum Coherence: It has been shown that the distillable coherence is always bounded by the l_1 norm measure of coherence, giving the latter an operational interpretation from a resource-theoretic viewpoint.

Parashar, P., Rana,S.,Winter,A. and Lewenstien,M.

Theoretical Fluid Dynamics: Noncommutative effects in fluid dynamics in continuity and Euler equations in constraint dynamics framework has been explored.

Ghosh, S., Banerjee,R.and Mitra,A.K.

AdS- CFT correspondence: Effect of noncommutative black hole in bulk metric on boundary holographic superconductor has been analysed and extension of this model in presence of magnetic field has also been investigated.

Ghosh, S., Pramanik,S. and Das,S.

Particle motion in a torus knot: Particle motion in a torus knot, related constraint analysis and motion of charged particle in torus knot in presence of electromagnetic field, its semi-classical quantization is studied.

Ghosh, S., Pramanik,S. and Das,P.

Jacobi metric approach in General Relativity: Charged particle dynamics in Reissner-Nordstrom spacetime has been studied in Jacobi metric formalism.

Ghosh, S., Das,P.and Ripon, S.K.

Quantum Mechanics: Energy dependent Hermitian as well as non- Hermitian potentials have been studied. Exact solutions of many particle Calogero type models have been obtained. Discrete spectrum and corresponding closed form solutions of rational extensions to quantum systems of generalized nonlinear oscillators have been obtained.

Roy, P., Roy, B., Nath,D. and Schulze Halberg,A.

Vortex beams : A unified approach towards the dynamics of optical and electronic vortex beam from the perspective of geometrical phase and associated Hall effects has been proposed. The geometric phase and fractional orbital angular momentum states in electron vortex beam have also been studied.

Basu, B., Bandyopadhyay,P. and Chowdhury,D.

Thin Topological Insulator : The quantum capacitance in ultrathin topological insulator (TI)-ferromagnetic interface, electric field induced spin accumulation in the Landau level states of TI thin films and the effect of hybridization and the external field on a thin film TI in the context of quantum phase transition have been theoretically studied.

Basu, B., **Chowdhury, D.,** Menon,A., Z.B. Siu,Z.B.and Jalil, M.B.A.

Electronic transport in mesoscale and nanoscale systems: Circular currents in nanojunctions, persistent currents in isolated conducting rings and spin selectivity in electronic transmission have been studied.

Maiti, S.K.

APPLIED MATHEMATICS

Chimera states in neuronal networks: The occurrence of chimera patterns in neuronal networks have been observed using purely local synaptic coupling. A new chimera pattern, namely the imperfect traveling chimera state, where the incoherent traveling domain spreads into the coherent domain of the network has been identified.

Ghosh,D.,Perc,M.,Hramov,A.E.,Koronovskii,A.A.,Banerjee,T. and Bera, B.K.

Nonlinear waves: Study of the dynamics of periodic waves in competing cubic-quintic nonlinear medium reveals that defocusing/focusing quintic nonlinearity leads to stabilization of snoidal / (cnoidal and dnoidal) periodic waves depending on whether the Kerr-medium is focusing / defocusing.

Roy, B., Nath,D.and Roychoudhury,R.

Suppression of Oscillation: Bifurcation and Basin Stability analysis: The stabilization of saddle point in coupled systems has been investigated using mean-field coupling via inverse pitchfork bifurcation.

Ghosh, D., Bera,B.K.,Majhi,S.,Hens,C. and Pal,P.

INTERDISCIPLINARY RESEARCH - Fluvial Mechanics Laboratory

Live-bed scour around bridge pier: A number of experiments were carried out in the Fluvial mechanics laboratory of ISI Kolkata to observe the flow past a surface-mounted vertical circular cylinder at immobile and scoured bed conditions.

Sarkar, S. and Dey,S.

Image based Bed-load transport: The image-based bed-load sediment transports were studied at Politecnico di Milano.

Sarkar, S., Radice,A. and Ballio,F.

Biological Sciences Division

Agricultural and Ecological Research Unit carries out both internally and externally funded research and projects mainly in the areas of Agriculture, Ecology and Statistical and Mathematical modelling. In Agriculture, emphasis is given on Agronomy, Soil Chemistry, and Entomology and even on Agricultural marketing. Researches are being carried on various agricultural and cash crops like rice, sorghum and tea. Works are also being done on various aspect of soil chemistry such as soil carbon dynamics, soil nutrients and contaminants. Even scientists of the unit are working on using nano technology in the field of fertilizers and pesticides. Ecology is also one of the major thrust areas of work on which many projects are being carried out. Scientists are working on invasive plant biology and its threat on one hand and also on genetic variation of mangrove plants at Sundarbans through SSR markers on the other.

Biological Anthropology Unit is primarily engaged in research on aspects of health, aging and physical growth and development. Presently, the following areas of research are being pursued by the faculty members of the Unit, such as , health aspects of : i) Tea garden and agricultural labourers in North Bengal; ii) Eating behaviours and health of adolescent girls; iv) Health and aging among the urban elderly women; iii) bio-cultural dimensions of aging considering urban and rural elderly populations of West Bengal; iv) Assessment of health of family caregivers of dementia (Alzheimer related) patients; v) evaluation of physical growth and development and its secular trend among children and adolescent in Kolkata and its neighbourhood.

The Human Genetics Unit has been pursuing research projects, both internally and externally funded. The focus of these studies is to understand the genomic and environmental contributions to common diseases in India.

Epigenetic studies on Oral Cancer*:*

Genome-wide CpG methylation confirmed the abnormal and dynamic variations in CpG promoters in various cancer genomes. They also revealed that the CpG methylation status (either hypo or hyper) of promoters affected the expression of protein coding genes and various noncoding RNAs. Oral squamous cell carcinoma (OSCC) is one of the common malignancies in Southeast Asia. Epigenetic changes, mainly the altered DNA methylation, have been implicated in many cancers. Considering the varied environmental and genotoxic exposures among the Indian population, a genome-wide DNA methylation study conducted on paired tumor and adjacent normal tissues of ten well-differentiated OSCC patients and validated in an additional 53 well-differentiated OSCC and adjacent normal samples.

Genetic and epigenetic studies on Psoriasis*:*

Psoriasis is a chronic inflammatory skin disorder. Several studies suggested psoriasis to be a complex multifactorial genetic disease, but the exact triggering factor is yet to be determined. Epistatic interactions between HLA-Cw6 and other susceptibility loci have also been demonstrated in some populations. Our data suggested the association of IL12B with the psoriasis, however no evidence was observed for the epistatic effect of IL12B with HLA-Cw6 among the psoriasis patients in India.

Statistical Genomics:

Research Activities

Some novel statistical methods have been developed for association analyses of complex genetic traits. These include:

(a) A Quasi-likelihood based method association mapping of multivariate phenotypes using sibship data and transmission information from both parents.
(b) Comparison of genotype-based and allele-based population-based association methods for mapping longittudinal phenotypes.
(c) Developing an imputation-based method for population-based association mapping of multivariate phenotypes in the presence of missing data.
(d) Developing a test for gene-gene interaction and SNP-SNP interaction for case-control data.
(e) A new clustering method for clustering mixed type data arising in medical diagnosis.
(f) Methodological development on integrating SNP data and eQTL data in genetic association study.

Analyses were performed on association analyses of different phenotypes under collaborative projects.

Agricultural and Ecological Research Unit, Kolkata

Development of Information on Agricultural and Horticultural Production and their Marketing using RS and GIS in some district of West Bengal

P. Banik, Ghosal, P. K., Banerjee, A.K. and Sarker,A.

Fantastic yields in the system of rice intensification: fact or fallacy?

Banik, P.

Competition or facilitation between two invasive plants

Dewanji, A., Banerjee, A.K., Jha,P., Chatterjee, S., Bhattacharya, S. and Dewanji, A . (ASU)

Development of natural food preservatives from spices and herbs

Chattopadhyay, R.R.

Phytonematode problems of rice in Jharkhand: density, diversity and pathogenesis

Mukherjee, A., Mondal,S. and Khan,M.R.

Biorational management of rice pests and diseases: evaluation of nanoparticle based and endophyte-mediated approaches

Mukherjee, A. and Dhal,P.

Study of soil carbon dynamics through integrated nutrient management in different agroecosystems of Assam

Bhattacharya, P.

Parallel analysis of transport of contaminants in soil-plant systems in different soil types of eastern India: a sustainable approach

Bhattacharya, P., Mandal, A., Sarkar, S. and Roy, S.

Generation and characterization of SSR marker for some mangroves of Sundarbans, India

Das, S. and Dasgupta,N.

Studies on keeping quality of different types of tea (Black, Green, Oolong& White) and their bio chemical aspects & antioxidant properties

Das, S. and Hazra,A.

Exploring Potential of Sweet Sorghum for Bio-Ethanol Production in West Bengal

Barik, S.

Determination of functional response under selective predation through experimentation and modeling

Chattopadhyay, J., Bhattacharya, S. and Mukhopadhyay, I.

Comparison of relative growth rate measures under different environmental conditions with application to biological data

Bhattacharya, S., Mukhopadhyay,S., Hazra,A. and Bhowmick, A.R.

***Sterculiafoetida,* L.– Eco-friendly, cost effective and rich sources of nutritious edible oil, animal food supplements as well as biofuel and its multimodal application to environmental perspectives**

Mandal Biswas, S.

Management Practices for growth, yield and quality of maize (*Zea mays* L)

Adhikary, S.

Surface Functionalized Porous Nanomaterial Loaded Micronutrient Fertilizers for Gangetic Alluvial Soils

Goswami, A., Barik, S. and Pradhan,S.

SYL-MNS-CEA-ZAAL-BER/API nanocomposite drug for Mongpa tribe neonates: Innovation from anthropo-cultural knowledge base

Goswami, A., Barik, S. and Singh,J.

Biological Anthropology Unit, Kolkata

Health Status and Survival Strategy of the tea garden labourers of locked tea gardens of Jalpaiguri district, West Bengal

Ray, S.K., Bhattacharya, A. and Mallick,A.

Living with Age: An Investigation on the Urban Poor Elderly Women

Mukhopadhyay, S. and Ghosh,A.

A study on mental health and well-being of dementia caregivers in urban areas of West Bengal

Mukhopadhyay, S. and Basu,I.

Bio-cultural dimensions of aging considering urban and rural elderly populations of West Bengal

Mukhopadhyay, B.

Human Genetics Unit, Kolkata

Genomic and Epigentics Studies on Common Diseases in Indian Populations: Role of Mitochondrial and mitochondrial-function-associated nuclear genes in oral cancer

Roy, B.

- **Epigenetic studies on Oral Cancer**
- **Genetic and epigenetic studies on Psoriasis**

Chatterjee, R.

Research Activities

Genetics and Functional Genomics of Pancreatic Cancer: Genome-wide analysis of DNA methylation profile in pancreatic adenocarcinoma

Sikdar, N.

Statistical Genomics: Statistical Methods for Analysis of Complex Traits

Ghosh, S. and Mukhopadhyay, I.

Social Sciences Division

The Social Sciences Division consists of eight units spread over Kolkata, Giridih, Delhi and Bangalore. These are: Economic Research Unit (Kolkata), Linguistic research Unit (Kolkata), Population Studies Unit (Kolkata), Psychology research Unit (Kolkata), Sampling and Official Statistics Unit (Kolkata), Sociological Research Unit (Kolkata and Giridih), Economics and Planning Unit (Delhi) and Economic Analysis Unit (Bangalore).

The scientific workers of these units are extensively involved in research, teaching, consultancy, editorial work, externally and internally funded project works and academic administration. Research is carried out both at individual and collaborative/interdisciplinary levels. The faculty members are also providing guidance to the Research Fellows. Training programs/ workshops are organized on a regular basis for non-ISI research fellows, college teachers and ISS probationers at different centres and at universities in the Northeastern region of India.

The main topics of different dimensions of current researches in the Economic Research Unit are as follows: Analyzing multidimensional Well-being, Inequality, Poverty and Welfare; Gender Bias in Education, Intra-household Allocation Models; Purchasing Power Parity, Cross Country Studies, Commodity Taxation; Gender Inequality in Health, Gender Violence, Analysis of Voting Pattern; Growth Theory, Development Economics; Effects of Demonetization on Different Important Indices of Sectoral Growth in India; The Effect of Inflation on Inflation Uncertainty in the G7 Countries Ethnic Conflict; Linguistic Conflict and Linguistic Justice; Trade and Unemployment; Various Issues in Panel Data Models with Cross Sectional Dependence; Experimental Choice Consistency and Social Learning; Mechanism Design; Evolution of Socialist Societies; Government-Industry Nexus and Indigenous Armed Resistance; Violence and Elections: A Game-theoretic Exploration of Student Politics; Impact of MGNREGA on the Livelihood Security of Rural Poor in India: a Study Using National Sample Survey Data; Variations in Income Elasticity: An Analysis of Indian Household Budget Data; Spousal Violence against working women in India; Gender violence in India: its roots, nature and extent; Status of Women in East India: Its Measurement and Determinants.

The Linguistic Research Unit is engaged in research activities in the areas of Cognitive Linguistics, Corpus Linguistics, Computational Linguistics, Language Technology, Sociolinguistics, Field Linguistics and Descriptive Linguistics.

The Population Studies Unit is engaged in research on population growth, attitude of family members toward their children, child mortality, gender differentials in socio-economic status of the children and gender inequalities.

The Psychology Research Unit has been pursuing research in the area of school, educational, cognitive and health psychology.

The Sampling and Official Statistics Unit is engaged in research on agricultural credit, randomized response model, demand for banknotes and coins, concurrent impact evaluation of the Foreign Trade Policy of India (FTP) 2015- 2020 and socio-economic impact of national highways on the rural population of the country.

The research in the Sociological Research Unit covers diverse areas such as HIV/AIDS in underdeveloped Countries; Women studies: Tribal women, empowerment, NREGA, women and child

health; Cooperatives; Social Justice and Development; Gender inequality in morbidity pattern in India, Agrarian relations and Social Network Analysis.

The Economics and Planning Unit (Delhi) faculty continues to work on the cutting edge of economic research, both in theory, as well as empirical analysis. The unit currently has 23 Ph.D. students (13 Senior Research Fellows and 10 Junior Research Fellows). Members of the faculty teach a number of PhD and MSQE courses in macroeconomics, microeconomic theory, game theory, statistics and probability, panel data econometrics, mathematical economics, and development economics.

Research in the area of agriculture economics has looked at food supply chains, the welfare effects of trade liberalization, as well as the impact of climate change on welfare outcomes in the agriculture sector. Research in mechanism design and auction theory, long a strength of the unit, continues. Recent work has explored the link between matching theory and mechanism design theory. The links between education, health, and other public goods and the distribution of income has been investigated theoretically. Social capital and collective action in the Himalayas, the impact of climate change on agriculture and manufacturing, the economics of groundwater depletion, and climate change and electricity demand in India are some of the environmental issues in India on which empirical research has been conducted. Declining labour force participation by women in rural India has been studied. There has also been recent work analyzing inter-caste marriages. In the field of health economics, gender bias in access to health care has been explored, as well as how health policy in India needs to be devised to meet the Sustainable Development Goals. The political economy of holdouts in land markets has also been studied. In macroeconomics, endogenous growth theory and optimal taxation continues to be active areas. Fiscal policy in small open economies is also an area of ongoing work. Research exploring the links between distortions in the agriculture sector and monetary policy using multi-sector NK DSGE models is also ongoing work. The link between myopia and pensions has also been explored in a macroeconomic setting. In microfinance ongoing work examines the institutional aspects behind success/failure of micro-finance. Other fundamental issues in the micro-finance literature, such as group vs. individual lending, various aspects of dynamic incentives, and the effect of competition have also been examined.

Economic Analysis Unit (Bangalore) is engaged in research on Climate change and agricultural yields, Livelihoods and human development in Tripura, Small Farmers in India and research on women workers of coffee industry.

Economic Research Unit, Kolkata

The scientific workers of the Unit are extensively involved in research, teaching, training, consultancy and academic administration. The research is carried out both at individual and collaborative/interdisciplinary levels. These include theoretical as well as empirical research in economics and econometrics.

The topics of different dimensions of researches in the unit are as follows:

Analyzing multidimensional Well-being: a Quantitative Approach; Axiomatic Approaches to Success Functions in Conflicting Situations; Inequality and Welfare: Some Axiomatic Characterizations; Gender Bias in Education, Intra-household Allocation Models; Purchasing Power Parity, Cross Country Studies, Poverty, Inequality, Welfare; Applied Demand Analysis (Parametric and Semiparametric Models), Commodity Taxation; Gender Inequality in Health, Methods for Assessing Overweight and Obesity; Woman and Child Health, Generalized Measure of Diversity; Gender Violence, Analysis of Voting Pattern; Average Growth Index; Growth Theory, Development Economics; Effects of Demonetisation on Different Important Indices of Sectoral Growth in India; Re-investigating the Puzzling Relationship Between Inflation and REIT Returns: A Regime-Switching Approach; Convergence of Food-grains Productivity in Indian Agriculture; The Effect of Inflation on Inflation Uncertainty in the G7 Countries: A Double Threshold GARCH Model; Political Economy; Credit Markets in LDCs; A Theory of Joint Venture Formation and Break-up; R&D Incentives in an Upstream-

Research Activities

Downstream Structure; Ethnic Conflict; Linguistic Conflict and Linguistic Justice; Reordering an Existing Queue**;** Incentives and Justice for Sequencing Problems; A Characterization of the Symmetrically Balanced VCG Rule in the Queueing Problem; Bidding rings-A Bargaining Approach; Trade and Unemployment; Various Issues in Panel Data Models with Cross Sectional Dependence; Experimental Choice Consistency and Social Learning; Mechanism Design; Evolution of Socialist Societies; Government-Industry Nexus and Indigenous Armed Resistance; Violence and Elections: A Game-theoretic Exploration of Student Politics; Impact of MGNREGA on the Livelihood Security of Rural Poor in India: a Study Using National Sample Survey Data; Variations in Income Elasticity: An Analysis of Indian Household Budget Data; Spousal Violence against working women in India; Gender violence in India: its roots, nature and extent; Status of Women in East India: Its Measurement and Determinants.

The details of the applied and theoretical researches in Economic Research Unit are given below:

Analyzing Multidimensional Well-Being: A Quantitative Approach

Chakravarty, S.R. and Maharaj,B.

Axiomatic Approaches to Success Functions in Conflicting Situations

Chakravarty, S.R., Chattopadhyay, N. (SOSU) and Qingbin,L.

Inequality and Welfare: Some Axiomatic Characterizations

Chakravarty, S.R.

Gender Bias in Education, Intra-household Allocation Models

Majumder, A. and Mitra,C.

Purchasing Power Parity, Cross Country Studies, Poverty, Inequality, Welfare

Majumder, A., Ray,R. and Santra,S.

Applied Demand Analysis (Parametric and Semiparametric Models), Commodity Taxation

Majumder, A., Chakrabarty, M., Ray,R. and Santra,S.

- **Gender Inequality in Health, Methods for Assessing Overweight and Obesity**
- **Woman and Child Health, Generalized Measure of Diversity**
- **Gender Violence, Analysis of Voting Pattern**
- **Average Growth Index**

Pal, M.

Growth Theory, Development Economics

Gupta, M.R.

- **Effects of Demonetisation on Different Important Indices of Sectoral Growth in India**
- **Convergence of Food-grains Productivity in Indian Agriculture**

Sarkar, N. and Mukhopadhyay, D.

Re-investigating the Puzzling Relationship Between Inflation and REIT Returns: A Regime-Switching Approach

Sarkar, N. and Das,M.

The Effect of Inflation on Inflation Uncertainty in the G7 Countries: A Double Threshold GARCH Model

Sarkar, N. and Banik Chowdhury,K. (Tezpur)

- **Political Economy**
- **Credit Markets in LDCs**

Sarkar, A.

A Theory of Joint Venture Formation and Break-up

Kabiraj, T. and Sengupta,S.

R&D Incentives in an Upstream-Downstream Structure

Kabiraj, T. and Modak,M.

Ethnic Conflict

Dasgupta, I. and Bakshi,D.

Linguistic Conflict and Linguistic Justice

Dasgupta, I. and Guha- Neogi,R.

- **Reordering an Existing Queue**
- **A Characterization of the Symmetrically Balanced VCG rule in the Queueing Problem**

Mitra, M., Youngsub Chun and Mutuswami, S.

Incentives and Justice for Sequencing Problems

Mitra, M. and De,P.

Bidding rings-A Bargaining Approach

Mitra, M., Chatterjee,K. and Mukherjee,C.

Trade and Unemployment

Chakrabarty, B.S.

Various issues in Panel Data Models with Cross Sectional Dependence

Das, Samarjit

Experimental Choice Consistency and Social Learning

Banerjee, P.

Mechanism Design

Roy, S.

Evolution of Socialist Societies

Ghosh, C.

- **Government-Industry Nexus and Indigenous Armed Resistance**
- **Violence and Elections: A Game-theoretic Exploration of Student Politics**

Munshi, S.

- **Impact of MGNREGA on the Livelihood Security of Rural Poor in India: a Study Using National Sample Survey Data**
- **Variations in Income Elasticity: An Analysis of Indian Household Budget Data**

Das, S.

- **Spousal Violence Against Working Women in India**
- **Gender violence in India: its Roots, Nature and Extent**
- **Status of Women in East India: Its Measurement and Determinants**

Sharma Biswas, C.

Linguistic Research Unit, Kolkata

During the period (April 2016 - March 2017) the Linguistic Research Unit of the Institute is engaged in research activities in the areas of **Cognitive Linguistics, Corpus Linguistics, Computational Linguistics, Language Technology, Sociolinguistics, Field Linguistics** and **Descriptive Linguistics.** The specific topics are given below**.**

- **Substantivist Lexicological Study of Bangla**
- **Interlexical Study of Asamiya in a Substantivist Framework:** to develop the empirical base for electronic lexical resources for Asamiya.
- **Sociolinguistics:** studies in linguistic (lexical and syntactic) difficulty in the context of the study of cognition and discourse.

Dasgupta, P.

- **Domain-Specific Parallel Translation Corpora from Hindi to Bangla:** a Hind-Bangla parallel-translation corpus keeping Hindi as the source language and Bangla as the target language.
- **POS Tagset of Bangla Text Corpus:** The POS tagset and POS tagged Bangla corpus are available at the TDIL Data Centre, Govt. of India homepage.
- **POS Tagged Hindi-Bangla Parallel Translation Corpus**
- **Chunked Hindi-Bangla Parallel Translation Corpus**
- **Bangla Web Text Corpus Generation**
- **Corpus of Indian English used in Newspapers (From Newspapers)**
- **Bangla Pronunciation Dictionary in Electronic Form**
- **Corpus-Based English Language Teaching (C-BELT) System**
- **Digital Lexical Database for Tribal Languages of West Bengal, Odisha, and Jharkhand**

Dash, N. S.

Population Studies Unit, Kolkata

A Sample Based Method to Estimate Population Growth Rate in a District of Jharkhand, India

Prasanta Pathak

- **Attitude of Family Members toward their children with developmental challenges**
- **Post-2015 Development Agenda and Child Mortality in India**

De, P.

- **Gender differentials in socio-economic status of the children across the states in India**
- **Causal Analysis Approach in the context of gender inequalities across Indian states**

Barman, S.

Psychology Research Unit, Kolkata

Safe School Survey

Dutta Roy, D.

A study on Innovative Self- efficacy of School Teachers

Dutta Roy, D. and Kundu,A.

A study on Visuospatial Reasoning ability of adolescent school students

Dutta Roy, D. and Datta,S.

Self-care efficacy in Diabetes management

Dutta Roy, D. and Adhikari, S.

Metamemory among adolescents

Dutta Roy, D. and Khatoon, M.

Development and Validation of a Cognitive measure for Juvenile Delinquent in Indian Context

Ghosh, A. and Maitra,T.

- **Spirituality and Self-esteem among adolescent boys and girls of H.S. School, Kolkata**
- **Loneliness and social adjustment in old age**

Bhattacharya, H.

Value profile similarity of Scientists and Non-scientists

Dutta Roy, D. and Paul Chowdhury, S.

Value profile similarity and Symptom Severity

Dutta Roy, D. and Chatterjee, D.

Rabindrik value preferences across gender and periods in Adolescence

Dutta Roy, D. and Banerjee, A.

Sampling and Official Statistics Unit, Kolkata

The Equity Impacts of Targeted Smallholder Agricultural Credit:

Mitra, S., Visaria, S., Mookherjee,D.and Maitra,P.

Decentralized Targeting of Agricultural Credit Programs: Private Agents or Local Governments?

Mitra, S., Visaria,S., Mookherjee,D.and Maitra,P.

Politicians' Motivations: Evidence from a lab-in-the-field experiment in India:

Mitra, S., Banerjee,P.,Iversen,V., Niccolo,A. and Sen,A.

Sham Litigation, Delayed Tax Payment and Evasion: The Role of Informal Credit Market:

Mitra, S., Marjit,S.and Misra,S.

Data Link Initiative

SOSU and IFMR

Protection of respondent's privacy in estimating sensitive population proportion by hypergeometric randomized response model

Dihidar, K.

Respondent privacy in randomized response surveys for continuous sensitive variables

Dihidar, K. and Bose, M. (ASU)

On the generalization of finding the robust optimum plot size and shape

Dihidar, K. and Satyabrata Pal

Protection of privacy in estimating sensitive population proportion by a modified unrelated question model and its inverse mechanism

Dihidar, K. and Basu, L.

Estimating sensitive population proportion using a combination of binomial and hypergeometric randomized responses by direct and inverse mechanism

Dihidar, K. and Bhattacharya, M.

Estimation of the demand for banknotes and coins at aggregate and denomination levels as well as at national and regional levels, assessment of demand-supply mismatch of currency

Chattopadhyay, N., Chakraborty, A.B., Chaudhuri,P. (SMU) and Sengupta,D. (ASU)

Concurrent impact evaluation of the Foreign Trade Policy of India (FTP) 2015- 2020

Chattopadhyay, N., Chakraborty, A.B., Bose,M. (ASU), Dewanji, A. (ASU) and Basak, G.K. (SMU)

Socio-economic impact of national highways on the rural population of the country

Chattopadhyay,N., Mitra,S., Chakraborty, A.B, Chaudhuri, P. (SMU) and Sengupta,D. (ASU)

A study on estimation of the variability of the prices for different items of consumption expenditure across different states/districts

Chakraborty, A.B.

Sociological Research Unit, Kolkata

The faculty and scientific members of the unit are engaged in teaching various courses in Sociology in ISI and other universities. The unit has one Ph.D. student. The current research topics are:

Contextualizing Intergenerational Mobility of Women 'Techies' of Kolkata

Ghosh, B.N. and Bhattacharya, A.

- **Causes of HIV/AIDS in underdeveloped Countries: A critical Review**
- **Development of Tribal Women in Rural Jharkhand**
- **The Health problems of ageing in India: some theoretical issues**
- **Changing Matrilinity of the Khasi Society of Meghalaya**
- **Empowerment of Tribal Women in India: A Brief Review on Actions Taken and Goals Achieved**

Ghosh, B.N.

Women in Natural Resource Collection: Experience from Rural Jharkhand in India

Ghosh, B.N. and De, U.K.

Existing status of co-operatives specially milk co-operatives in India: the case study of West Bengal

Ghosh, B.N., Das, K. and Karmakar, R.

NREGA on Women in West Bengal

Ghosh, B.N., Kar, N.B. and Das Roy, S

Status of Muslim women: a case study of north 24-parganas district in West Bengal

Ghosh, B.N. and Kar, N.B.

Role of women in the production organization of family based handloom industry

Shome, S.

Levels of undernutrition among the tribes of Central India

Shome, S., Pal, M. (ERU), Bharati, P. (BAU)

Overweight and obesity among the children or adults; women and children health and nutritional status and its relationship with socio-economy

Bharati, S.

Changes in basic amenities, awareness, socio-economy and child morbidity: A comparative study from NFHS-2 and NFHS-3

Bharati, S., Pal, M. (ERU), Mitra, M. and Bharati, P. (BAU)

Social Justice and Development: With Special Reference to Dalits in Eastern India

Ghosh, T.

- **Contribution of the unpaid family labour in the handloom sector of textile industry.**
- **Labour market discrimination in India**
- **Child labour in handloom industry in Murshidabad district**
- **Female Employment in Meghalaya**
- **Gender inequality in morbidity pattern in India**

Chakraborty, S.

Human- crocodile conflict in Indian Sundarban: an analysis of the spatio-temporal incidences in relation to people's livelihood

Das, C.S. and Jana, R.

Social Network Analysis Approach for Studying Livelihood Strategy of Rural People in India: An Empirical Attempt

Jana, R. and Choudhuri, A.

Economics and Planning Unit, Delhi

The Economics and Planning Unit faculty continues to work on the cutting edge of economic research, both in theory, as well as empirical analysis. The unit currently has 23 Ph.D. students (13 Senior Research Fellows and 10 Junior Research Fellows). Members of the faculty teach a number of PhD and MSQE courses in macroeconomics, microeconomic theory, game theory, statistics and probability, panel data econometrics, mathematical economics, and development economics.

Research in the area of agriculture economics has looked at food supply chains, the welfare effects of trade liberalization, as well as the impact of climate change on welfare outcomes in the agriculture sector. Research in mechanism design and auction theory, long strength of the unit, continues. Recent work has explored the link between matching theory and mechanism design theory. The links between education, health, and other public goods and the distribution of income has been investigated theoretically. Social capital and collective action in the Himalayas, the impact of climate change on agriculture and manufacturing, the economics of groundwater depletion, and climate change and electricity demand in India are some of the environmental issues in India on which empirical research has been conducted. Declining labour force participation by women in rural India has been studied. There has also been recent work analyzing inter-caste marriages. In the field of health economics, gender bias in access to health care has been explored, as well as how health policy in India needs to be devised to meet the Sustainable Development Goals. The political economy of holdouts in land markets has also been studied. In macroeconomics, endogenous growth theory and optimal taxation continues to be active areas. Fiscal policy in small open economies is also an area of ongoing work. Research exploring the links between distortions in the agriculture sector and monetary policy using multi-sector NK DSGE models is also ongoing work. The link between myopia

and pensions has also been explored in a macroeconomic setting. In microfinance ongoing work examines the institutional aspects behind success/failure of micro-finance. Other fundamental issues in the micro-finance literature, such as group vs. individual lending, various aspects of dynamic incentives, and the effect of competition have also been examined.

Below is a more detailed breakdown of research interests by faculty members.
Areas of research by the members of the unit:

- **Why Are Fewer Married Women Working in Rural India? A Decomposition Analysis over Two Decades**
- **Student Responses to the Changing Content of School Meals in India**
- **Exposing Corruption: Can electoral competition discipline politicians?**
- **Information Provision and Learning Outcomes: Evidence from a Randomized Control Trial and**
- **Social Identity and Incentives in the workplace: A Quasi field experiment in India's Manufacturing Sector**

Afridi, F.

- **Optimal inheritance and capital taxes under the present-biased preferences**
- **Political intergenerational welfare state**
- **Myopia and pensions and**
- **Market for investment loans**

Bishnu, M.

- **On the role of aid selectivity in aid programs**
- **On the role of regulation in platform markets**
- **On holdout with land contiguity**
- **On the political economy of holdout in land acquisition**

Roy Chowdhury, P.

- **DSGE models with a banking sector,**
- **Small open economy models with fiscal policy**
- **A model of employment targeting with search and matching frictions.**

Ghate, C.

- **Gender bias in access to Healthcare**
- **Efficient utilisation of existing resources of healthcare facilities**
- **Distribution of healthcare resources between and within states to understand how health resources must be allocated to meet the SDGs**

Kapoor, M.

Auctions and mechanism design

Mishra, D.

Issues relating to the economics of education

Mukhopadhyay, A.

- **Food supply chains**
- **World food markets**
- **Welfare effects of trade liberalization, and**
- **Experimental economics**

Ramaswami, B.

- **Matching theory and mechanism design theory**

- **Stability of matching rules for teams and implementation via undominated strategies in bounded mechanisms**

Sen, A.

- **Impact of climate change on agriculture and manufacturing**
- **Economics of groundwater depletion**

Somanathan, E.

- **Whose Education Matters? An Analysis of Inter Caste Marriages in India**
- **Untouchability: Cultural or Institutional? An Analysis of the Practice of Untouchability in India**
- **Impact of Education Loans on Higher Education: The Indian Experience**
- **Gender Peer Effects in High Schools: Evidence from India**
- **Public versus Private Provisioning: Role of Education and Political Participation**

Ray, T.

Economic Analysis Unit, Bangalore

Five Junior Research Fellows were taken for programme in Development Studies. Courses taught in the first year include Statistics, Applied Econometrics, Data Base of the Indian Economy, Development theory and policy, Poverty and Inequality. The research topics of the unit are:

Research on Climate change and agricultural yields in Karnataka

Swaminathan, M. and Jayaraman, T.

- **Research on Livelihoods and human development in Tripura**
- **Small Farmers in India: Evidence from Village Studies**

Swaminathan, M. and Ramachandran, V.K.

Research on women workers of coffee industry using primary survey secondary sources

Chattopadhyay, M. and Pais, J.

Statistical Quality Control and Operations Research Division

The Division comprises of eight SQC & OR Units located at Bangalore, Chennai, Coimbatore, Delhi, Hyderabad, Kolkata, Mumbai and Pune and the Central SQC (CSQC) Office located in the main campus at Baranagore which co-ordinates the activities of the Division. The Division presently has 39 Faculty Members at different levels and designations.

The scientific workers of the Division are extensively involved in research, teaching, consultancy (with a special emphasis to enhance Quality and Productivity), editorial work, externally and internally funded project works and academic administration. The uniqueness of the Division is in carrying out research in application areas and disseminating Statistical Knowledge to a large section of the industry, and thus helping the country in enhancing Quality and Productivity of goods and services.

Research is carried out both at individual and collaborative/interdisciplinary levels. Training programs/ workshops are organized on a regular basis.

The Division is instrumental in running the following Academic Programmes:
- M.Tech. (QROR) programme at Kolkata;
- M.S. (QMS) programme at Bangalore and Hyderabad;

Research Activities

- Part-Time Certificate Course at Bangalore; and
- Part-Time Certificate Course at Hyderabad.

The faculty members of the division also teach in other academic programmes like B.Stat., M.Stat. (both Kolkata and Chennai), M.S. (LIS) (Bangalore). They also supervise Ph.D. thesis and Dissertation and Project work of M.Tech. (QROR), M.S. (QMS) and M.Stat. students.

Some of the main thrust areas of research of the Division during this period are: Generalized Positive Subdefinite Matrices and Interior Point Algorithm, Progressive type-I interval censoring with random removal; process capability indices; fuzzy optimization approach for software reliability estimation; Mathematical Programming and Multivariate Statistical Process Control.

The scientific workers of the Division published more than 35 papers in reputed international and national journals and colleagues also contributed towards editorial activities of monographs and journals.

Apart from the usual Industrial/Organisational consultancy projects, the Division has also taken up some very interesting and useful projects of National Importance like
- Improving the Quality Management System of a section of the Defence Production Industry,
- Developing a Sampling Scheme to estimate the amount of Fake Currency in circulation in the country,
- Developing a methodology to Normalise the scores of the students from Different Examination Boards,
- Developing an index for Cleanliness in order to assess the effectiveness of the “Swacch Bharat” Programme in different parts of Tamil Nadu.

The Division also caters to the needs of some of the industries abroad.

SQC and OR Unit, Kolkata

On Generalized Positive Subdefinite Matrices and Interior Point Algorithm

Das, A.K., Jana, R.and Deepmala

On existence results for some nonlinear systems of equations

Das, A. K., Deepmala, Jana, R.

Impact on Noise Quality due to Highway and Infrastructure Development

Mukhopadhyay, A. R.

Point and interval estimation under progressive type-I interval censoring with random removal

Pradhan, B. and Budhiraja, S.

Acceptance Sampling Plan with progressive Type-I Interval Censoring with Random Removal using Cost Function

Pradhan, B. and Budhiraja, S.

- **Generalized hybrid censored reliability acceptance sampling plans for the Weibull distribution**
- **Inference and optimum life testing plans under Type-II progressive hybrid censoring scheme**

Pradhan, B., Sen, T., Bhattacharya, R. and Tripathi, Y.M.

- **Process Control for Ordinal Data**

- **Process Control for joint monitoring of mean and variance**

Das, N.

Assessing lifetime performance index of Weibull distributed products using progressive type II right censored samples

Dey, S., Sharma, V.K., Anis, M.Z. and Yadav

On some subtle misconceptions about process capability indices

Anis, M.Z. and Md. Tahir

Development of Risk Analytics towards Multidisciplinary Big-Data Study of Humanitarian Logistics for Disaster Response

Das, P., Anis, M. Z. and Sadhukhan, S.

Modeling Multistage Process Monitoring and Fault Detection Strategies under Partial and Imprecise Information

Das,P., Gauri, S.K. and Chatterjee, D.

Development of System to Measure Cleanliness

Bandyopadhyay, A., Biswas, A., Sett, R., Manna, D.K. and Raman, S.

Assessment of Capability of MSME Sector

Rajagopal, A. and Bandyopadhyay, A.

Development of Holistic Production System

Bandyopadhyay, A. and Sett, R.

Estimation and Control of Prices of Agricultural Commodities

Bandyopadhyay, A., Biswas, A., Sett, R., Manna, D.K. and Raman, S.

Improvement of Government Service Delivery Systems

Bandyopadhyay, A., Biswas, A., Sett, R. and Manna, D.K.

Integrated shift and drift control of a growth process

Mandal, P. and Chakraborty, S.

SQC and OR Unit, Delhi

Mathematical Programming, Linear Complementarity Problem(LCP) 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

Neogy, S.K.

Design of Experiments – Static Characteristics, Dynamic Characteristics and Categorical Characteristics in a multi response processes

Chakravorty, R.

Mathematical Programming, Matrix classes in Linear Complementarity Problem, Game theory

Dubey, D.

SQC and OR Unit, Bangalore

- **Simultaneous optimization of coding productivity and defect density at coding phase of software development process using Taguchi's loss function**
- **Development of a fuzzy optimization approach for software reliability estimation**
- **Development of an integrated EPC - SPC methodology for simultaneously monitoring multiple characteristics**

John, B.

A Study on Regression Models which are Insensitive to the Variation of Training Data from a stable Process

Chowdhury, K.K. and Giri, H.

SQC and OR Unit, Coimbatore

Textile Sector

Quality circle initiatives of female workers in control of hard waste in spinning mills

Rajagopal, A.

Control of TDS contribution from Bleaching process of knitted fabrics.

Venkatraman, R. and Rajagopal, A.

Safety stock in inventory control and management on for purchases in spinning.

Narayanan, V. and Rajagopal, A.

Optimum operation level for compressor loadings to textile machinery towards energy savings

Chandran, V. and Rajagopal, A.

Ensuring on-time delivery of Capital machines – eliminating shortage of child parts in an Italian collaborative post spinning machine assembly

Sankara Kuthalam, P. and Rajagopal, A.

Automobiles Sector

Multi pot - Multi plate Braking system for Agriculture tractor Design Improvement Design Optimization in Booster Tandem Master Cylinder assembly (TVS Brakes India)

Ruban, and Rajagopal, A.

Troubleshooting of rejection in Chain Sprockets of Two Wheelers in an OEM company

Sri Vignesh, S. and Rajagopal, A.

Software Sector

Less space More vehicles to park at same time – an allocation plan in an MNC. was carried out using queuing model

Varadarajan, V. and Rajagopal, A.

Lean Six Sigma approach of minimizing defects in software development projects

Galraj, G.K. and Rajagopal, A.

Scope for developing Software to fix specified defects in Customer support (Production) was carried down at MNC

Ronald Paul, P. and Rajagopal, A.

Detecting errors in Drawings of custom made Furniture for a German collaborative firm in Coimbatore

Bharanidharan Raj, B. and Rajagopal, A.

Finance Sector

Increasing earnings from the preparation of financial reports from the inputs of audio & transcripts by minimizing errors on BPO on errors financial reports

Viswanathan, K. and Rajagopal, A.

Environmental Sector

Zero effect of Radiation of Cell Towers beyond environmental norms conducted in MNC

Anthony Cruze, M. and Rajagopal, A.

Health Care Sector

Efficiency & Effectiveness of Housekeeping department in Multi-specialty Hospital an allocation problem of paramedical staff

Solomon David, J. and Rajagopal, A.

Cleanliness of hand to avoid secondary infection at ICU in healthcare

Senthilkumar, S. and Rajagopal, A.

Infrastructure

Reducing the cost of Production by identifying productivity of product mix (among several B products) in a Rock crusher plant

Lakshmipathy, D. and Rajagopal, A.

Food Processing

Service quality of Food court of MNCs – a win win approach

Abimanyu, S. and Rajagopal, A.

SME Sector

Defense purchase analytics of OFB for SEM among MSME

Rajagopal, A., Venugopal, V. and Suresh, A.

Engineering Sector

Quality improvement of petroleum dispensing product for Indian Markets and minimize the warranty claims from customers

Selvaraj, R. and Rajagopal, A.

Forecasting the sales for the next quarter – SMART solution for edible oil

Sudhakar, C. and Rajagopal,A.

Research Activities

Reduction of soldering defects of through hole connectors in printed circuit boards conducted at MNC Bangalore

Nadukudy, V. and Rajagopal, A.

Process design for reducing Customer returns of Castings

Vignesh, V. and Rajagopal, A.

Human Resource Sector

Reducing the attrition of workers in a textile spinning mill – A statistical diagnostics

Rajagopal, A. and Lakshmipathy, D.

Wholesome Excellence measuring the productivity after YOGA practices

Raja, A. and Rajagopal, A.

SQC and OR Unit, Hyderabad

Statistical Modelling, Credit Risk Modelling, Linear Complementarity Problem, Decision Support Systems, Fixed Point Theorems in Fuzzy Metric Spaces, Six Sigma, DOE, SPC, Text Data Mining, Generalized Gaussian Distributions (GGD)

Murthy, G.S.R., Murthy, A.L.N., Murali Rao, G. and Subhani, S.M.

Drugs Survey, National Haemovigilance Programme

Murthy, G.S.R.

Signal Review Panel

Murthy, G.S.R. and Murthy, A.L.N.

SQC and OR Unit, Mumbai

Process classification through Cp, Cpk and Taguchi's Loss function

Sarkar, A.

Multivariate Statistical Process Control

Sikder, S.

SQC and OR Unit, Pune

Six Sigma- Integration of approaches to synergies growth of an Organisation, Design for Six Sigma, Reliability and Data Analytic

Rath, R.

Library, Documentation and Information Sciences Division

The Library, Documentation and Information Science Division has its Central Library located in Kolkata with a network of other libraries in ISI Bangalore Centre, ISI Delhi Centre, ISI Chennai Centre and NE Library, Tezpur. The scientific workers of this division have worked on different projects. The division has arranged workshop, conference, seminar and lecture on different fields of library and information science.

Main research areas are on the Annotated and Chronological History of Indian Statistical Insitute, Restitution, Indexing and Editing of Old Photographs of ISI for historical illustration, Unification of Gold and Green OA Resources in the domain of Mathematics and Statistics where the OA service providers are using different retrieval software, different meta-data schema and more importantly different sets of retrieval techniques, Development of digital libraries including Shewhart collection, Haldane collection, Dissertations, working papers and others. This project deals with open source institutional repository software specially DSpace.

Central Library, Kolkata

The Central Library occupies a unique place in 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. It continues to function as the Eastern Regional Library of the National Board of Higher Mathematics [NBHM], Department of Atomic Energy, Government of India since 1989.

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, following activities were undertaken during the year under report:

Collection Development

The Library maintains an excellent collection of books, journals, reports, rare and special collection, government publications, data-books, theses and other documents/ materials in print and electronic formats. During the year under report, the library accessioned 794 books were purchased from ISI budget, while 52 books were received on complimentary basis. The Library also accessioned more than 2700 bound volumes of journals and subscribed to 600 scholarly journal titles in print. More than 52 journal titles were received as complimentary and 95 titles in exchange with Sankhya. The library received and processed more than 2000 loose issues of journals. It classified and catalogued 829 new books. It also processed 140 titles on government reports/data-books etc. more than 200 government reports have been added. Beside this, the library has added a collection of 160 books in English and Bengali and in Hindi 83 books on literature, humanities, travel, health and recreation in its Statistical Workers' Circulating Library totaling its collection to around 40000. In addition to this, the library has about 32000 reprints.

E-Resources

The library has a good collection of electronic resources on different media and has access to several online journals/databases. During the year under report, the library has added approximately 600 e-books, 15 CDs & DVDs containing books and CDs on statistical data. The library has provided the online access to about 4000+ full-text journals. It has renewed the online database like MathSciNet, Science Direct, Springer Link through consortia. It has also subscribed to the IEL online of the IEEE/IEE publications, ACM Digital Library and Current Index to Statistics (CIS) on Web. The library has also subscribed to Census data, online database and statistical data sources available on CDs.

Publications Exchange Programme

The library maintains the publication exchange programme of 'Sankhya - the Indian Journal of Statistics' with 52 national and 23 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. In exchange the Library has received 95 titles during the reporting period.

Research Activities

Membership

Membership of the ISI-Library is restricted to persons with post-graduate or equivalent academic qualification and interest in the objectives of the Institute. Faculty members, research scholars, students, research associates, visiting scientists, ISEC trainees, project-linked staff, project assistants, ISI-employees, outside students and the Institute members are eligible for the membership of the Institute Library. However, they have to apply for the membership of the library and receive a bar-coded Library Card. During this period, library membership was given to 325 persons and 970 readers were given special permission to use the library for a short period. Currently the total number of library member is 2548. Total number of members including staff, students and research scholars of the Institute is 960 in its Workers' Circulating Library.

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:

Inter-library loan: 42 Books and journals were borrowed from other libraries, while 125 books and journals were lent to other libraries.

Current Awareness Service: 12 monthly lists of current additions to the library were made available online.

Self-Photocopying Service: The library provided the Self-photocopying service in its periodical section, which was available everyday throughout the library hours. During this period 5000 pages were photocopied from the journals.

Electronic Document Delivery Service: Full-text articles and/or bibliographical data were provided through email from online resources. Besides electronic document delivery, 8000 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 4000+ online journals and major databases like MathSciNet, Econlit, ScienceDirect, Springer Link, IEL Online (IEEE/IEE Electronic Library), Wiley inter science, ACM Digital Library, CIS on WEB, OUP journal online consortia and JSTOR (Life science). The online access is available through campus-wide network.

Reprographic & Photographic Service: During the year, it provided around 409270 pages of photocopies, 662 graphic designs, 7901 scanned items, 3500+ pages of color and b/w pages of print outs, 18300 pages of color photocopies, and 966 spiral bindings. 853 pages were laminated. The Unit has developed a Digital Photo Archive of ISI. It has digitized all rare photographs of ISI since its inception.
The Unit is developing a digital archival repository comprising of ISI's old documents like ISI council proceedings, library's accession register, administrative documents, old letters of ISI's distinguished persons etc. that are preserved in paper document and microfilm. 17650 frames of microfilm/fiche have been digitized.

Documentation Service: A searchable bibliographic database has been prepared on scientific contributions made by the ISI scientists on all subject fields since 1934. The entries are currently being subjected to editing.

General Enquiry Assistance & Consultation Service: Assistance has been extended to 200 external visitors including participants of the Winter School, NBHM Nurture Programme, Summer Research School and visiting students of different institutions.

Special Initiatives:

Consortia arrangements: During the reporting year, the Library has further strengthened the consortia initiative by enhancing the electronic collection and online access to scholarly resources to cope up with the increasing subscription cost and diminishing budget.

Preservation and conservation: It has completed binding of more than 1000 physical volumes of journals. Lamination and de-acidification of 8 rare books of 2000 pages were completed. 120 books were fumigated and rare and out-of-print books were scanned and photocopied.

Institutional Repository (IR): A prototype of IR of ISI has been created. Currently it covers scientific writings of Professor P.C. Mahalanobis, full-text of 3000+ ISI research papers, full text of all convocation addresses, ISI Annual Report from 1933to 2008 and 100 Ph.D theses.

Digitization: 40 books were digitized. These will be made available on the Web after the completion of the work.

Library, Delhi

Indian Statistical Institute, Delhi Centre, maintains an academic library, which aims to be a leading library in the fields of Economics, Mathematics, Statistics, Operations Research and Statistical Quality Control. The library caters mainly to the needs of bonafide students, scholars and staff of the Institute. 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.

It is an automated library with an extensive collection of books, journals, CDs, reports, govt.publications and other documents in print and electronic formats. The ISI Delhi Centre library also act as one of the NBHM regional library of northern India and provides information resources to support academic and research activities in the areas of Mathematics, and allied subject areas. Some of the main activities of the library during the period under review were as under:

Collection Development

Books: The library accessioned 69 new books and 544 bound volumes during the year under report from the ISI and NBHM funds. The library also received 74 books as gift from different sources. Thus raising the current library stock both books and bound journals to 51576 volumes.

Journals: During the period under review 132 journals, both foreign as well as Indian have been renewed. 20 journals on gratis and 9 journals in exchange are being received in the library from various sources.

Online Resources: The library also participated consortia based subscription to electronic resources and provided users more than 700 full text electronic journals access including EconLit, SIAM e-journals, Current Index to Statistics, MathSciNet, IAOR, ScienceDirect, SpringerLink, JSTOR, Oxford Journals, Taylor & Francis, IEEE, INFORMS, AMS, IMS, Sankhya and many others.

CDs: The library has more than 570 CDs of different reference books and journals including databases.

Research Activities

Exchange Programme

Exchange program established with seven scientific institutions in the regions of China, Korea, Netherlands, Poland, Spain and Vietnam for getting their publications in exchange to our journal 'Sankhya'- Indian Journal of Statistics and "Texts and Readings in Mathematics" (book series).

Library Services

Circulation services: During the period April 1 2016 to March 31, 2017, total 150 members, availed the lending facilities as permanent members of the library, whereas more than 200 users availed reference facilities of the library. More than 2400 publications have been circulated among the members.

Reprographic services: During the period under review more than 2000 pages have been photocopied and made available to users of the library and outsiders. Photocopy facilities were also provided to research scholars of neighboring institutes under NBHM programme.

Electronic document delivery service: In addition to Photocopy facilities, more than 1000 full-text articles (PDF files) were provided to the users.

Current awareness service: The following lists were brought out regularly from the Library:
- Monthly list of current periodicals
- New additions of books

Web-OPAC Facility: The users have been given *koha* Web OPAC access facilities on the Internet.

Web Enable Library Services: The library provides web enabled library service to users. The library web site contains information about the library its collection, services, rules, list of electronic journals, catalogues, databases, telephone directories, and online requisition forms etc. The contents of library web pages are regularly updated to serve the internal and external needs of users.

Union Catalogue of Serials
The Indian Statistical Institute Delhi Centre library has developed this Union Catalogue of Serials database with a view to promote the new improved access to journal holdings among the users. The database stored the serial holdings information of 3 ISI Libraries i.e. Kolkata, Delhi and Bangalore. The tool provides a web based central access point to all print and electronic journal holdings information and can be search under Journal title, Keywords, ISSN, Item types, Alphabetical browse (A-Z) or even Library wise serial holdings.

Library, Bangalore

Indian Statistical Institute Bangalore Centre Library is aiming to be identified as a model Library in the Indian Academic scenario. The Library is providing many modern Library Services using Internet and they are popularly known as Web based Information Services. Bangalore Centre Library has also initiated interactive applications for its users. The Library has developed a very distinguished collection in different knowledge domains namely Mathematics, Statistics, Systems science, Information Science, Economics, Quality management and Operations Research, Library and Information Science, Computation and 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 Research Institutes and Universities are also permitted to use the Library.The following activities were undertaken by the library during the period October 2016 – March 2017.

Collection Development

The Library purchased 113 books, received 186 books as gift during this period. The Library subscribed to 352 journals, 16 journals were subscribed from NBHM grants. Additionally Library has subscribed to "IEL ONLINE" giving access to journals and technical reports published by IEEE. The Library has 39 E-Books from World Scientific Publishing.

Library Collection
Total no. of books is 30,466 and bound volumes are 19007.

Membership
More than 260 registered users enjoyed the Library facilities and the services. I addition, facilities were extended to around 720 walk-in users during this period.

Current Content Service: Content pages of around 1600 journals have been scanned.

Circulation Service: Around 21208 books and 964 journals were circulated during this period. 200 loose issues of journals were issued to users overnight.

Inter-library Loan Service
Due to good liaison amongst the local libraries, the library has been involving itself in providing Inter-library Loan Service.

Document Delivery Service: Under this service around 600 documents in pdf format were downloaded and supplied to the registered users.

Reprographic Service: During this period 28002 photocopies were supplied to the Library users.

Web based Library Services: The Library has devised various services using World Wide Web. They are all accessible at http://www.isibang.ac.in/library. Full-text Online journals were accessed through this website. The Library also provides access to various abstracting and indexing services.

Library, Chennai

Academic Library for Indian Statistical Institute Chennai Centre (ISIC) was started in 2011 to cater to the information needs, adding to the existing library of SQC & OR unit, at Taramani. This evolving library aims to a vibrant collection in the fields of Statistics, Applied Statistics, Mathematics, Computer Science, Statistical Quality Control and Operation Research making it prototypical in functioning, administration and unique in collection. Various services are provided for an efficient usage of library facilities by the students, faculty members, visiting scientists and research scholars. Researchers from other institutions are offered reference service.

Collection Development

The Library maintains an excellent collection of books, journals, magazines, question papers, multimedia resources etc. During April 2016 – March 2017, 410 books were added raising the collection to 3525 books. Around 16 International online journals and 16 magazines were subscribed.

Technical Processing

All the books were catalogued and the database entry, done in KOHA, the Library Automation software, are updated in Z39.50 Standard bibliographic format. Web OPAC with accessibility and users' details are updated in the library database. Other services like Inter-Library Loan, content service, reprography service and document delivery service are initiated.

Research Activities

Web based library services

It has remote access to more than 2000 e-journals accessible through ISI Kolkata Library procured under ISI Consortia.

Membership

ISIC library has restricted access to postgraduate students, research scholars, faculty members and visiting scientists totaling to around 35. Institutional Membership were renewed with Indian Institute of Technology, Madras (IITM) and Interlibrary Loan with other ISI Centers and Units were activated.

Library Services

Lending and document delivery service: Around 600 documents were delivered during the period April 2016 – March 2017, showing the active participation of the users. Automation of library with full setup of RFID was fully completed. Database was completed for ISI Chennai Centre Library, Taramani, SQC&OR Unit Library, Aminjikarai and ISI Chennai Centre Hostel library. Full automation of library was completed.

Library, Tezpur

ISI N-E centre Library started functioning from July 2011. The library aims to provide value services to its users by developing quality documents in the field of Statistics, Mathematics, Quantitative Economics and other allied subjects. The Library has good collection on the three main subjects. Further, it has limited collection in the fields of Computer Science, Soil Science, Library Science and Environmental Science etc. The ISIN-E Centre Library always tries to cater to the needs of user community.
The library installed the software KOHA in the year 2013 and then onwards all the circulation works are done through this software. In October, 2015, ISI N-E Centre Library upgraded its KOHA version from 3.02 to 3.20.

Collection Development

ISI N-E Centre Library has an excellent collection of books, journals etc. In order to cater to the requirements of the user, the library has procured 128 new books in different fields during the 2016-17 session. Total number of books accessioned till date is 2600. The ISI N-E Centre Library also received 11 books from different sources as gift. The Library has 57 CDs of different reference books. The ISI N-E Centre Library has subscribed to 19 Indian and Foreign Journals and 5 Newspapers and 3 magazines during this period.

Technical Processing

All the purchased books are technically processed.

Membership

The main users of this Library are the students, faculty members, visiting scientists and staffs of the Institute. Total number of Library members in 2016-17 is 29. In addition, facilities were extended to around 50 users who participated in different workshops and seminars held in the institute.
Library Services

Circulation Service: Around 500 books were circulated in this period.

Web Opac: Library members use this facility to browse and search the bibliographic database of the library and check the status of documents including their own transactions. The Library web page contains information about the Library, its collection, services, catalogue and list of Journals.

Current Awareness Service: Monthly book arrival list is regularly updated in the Library webpage.

Electronic Document Delivery Service: Under this service around 20 full-text articles and e-books in pdf format were downloaded and e-mailed to the students as per their requirement.

Web Based Service: Library has remote access to e-resources i.e., full-text and bibliographic databases from ISI Kolkata library website.

Prasanta Chandra Mahalanobis Memorial Museum and Archives

The Museum and Archives carried out regular up keeping programme for 752 exhibits through 91 panels and a collection of artifacts related to Professor Mahalanobis displayed in the ground floor, chatal, and Professor's residence along with the pest control programme for the whole building of Amrapali. Among other programmes a new project on 'Arrangement and description of archival collection of P.C. Mahalanobis Memorial Museum & Archives' has worked for the development of archival record management system. Under the project over 2,800 photographic documents and above nine hundred letters, manuscripts etc. have been identified, sorted and listed. Ten audio spools have been restored through CD conversion and 4600 nos. of archival documents have been digitized. Under the conservation programme 4,500 archival documents have been treated. Computerized fire alarm and display security system like surveillance camera has been installed in the museum galleries.

A new gallery on Rabindranath Tagore and Prasanta Chandra has been completed in this financial year.

Besides the general visitors, eminent persons and scientists and students from schools, colleges and universities were among the visitors of the museum. Scholars and researchers from different field consulted the archival collection for reference.

Center for Soft Computing Research: A National Facility, Kolkata

Moving Object Segmentation from Video Images

Dey, B. and Kundu, M.K.

Rough Sets in Video Tracking

Chakraborty, D. and Pal, S.K.

Moving Object Detection

Subudhi, B.N. and Ghosh, A.

Remote Sensing Image Analysis

Datta, A. and Ghosh, A.

Image Co-segmentation

Bandyopadhyay,S. and Ghosh, A.

Granular Computing

Ganivada, A., Ray, S.S. and Pal, S.K.

Research Activities

Network Mining

Kundu, S. and Pal, S.K.

Understanding the Dynamics of User Interaction in Social Networks

Kundu, A. and Pal, S.K.

Bio-informatics

micro RNA Analysis

Pal, J.K., Ray, S.S. and Pal, S.K.

Gene Regulatory Network Analysis

Ray, S.S.

Quantum Inspired Evolutionary Computing

Das.S. and Pal, S.K.

Cognitive Vision

Ghosh, K.

Understanding Temporal Integration of External Stimuli in Human Cognition through Pyschophysical Studies on Flicker Fusion

Chandran, K.S. and Ghosh, K.

Computing With Words (CWW) and Artificial General Intelligence (AGI)

Banerjee, R. and Pal, S.K.

Climate informatics and climate change

Chatterjee, C. and Das, S.

Computer and Statistical Services Centre, Kolkata

The IT infrastructures of the Institute was updated/ developed by the CSSC. The outlying Centres (Delhi, Chennai, Tezpur and Bengaluru) and the Giridhi Unit of the Institute were connected with Site-to-Site VPN (Virtual Private Network). The IT infrastructure of the Institute including server's virtualization (cloud), software [Vmware (esxi and Vcenter), Matlab, Mathematica, ArcGis, R etc], Network (wired and wifi), Network and Internet security, IP Telephones, Video conferencing facility, e-library and internet facilities (NKN - 1 gbps) were managed by the CSSC and used by all the Centers of the Institute as a LAN. The meetings including Academic Council meetings among the Institute's Centers (Delhi, Bengaluru, Chennai and Tezpur) and Giridhi Unit through Video Conferencing facilities were managed by the CSSC. The cloud infrastructure with virtualization software, Cisco UCS servers (304 cores/608 threads) and the EMC 260 TB storage were managed by the CSSC, providing the computing facility to the users of the Institute. The classes (M.Tech. in Computer Science and PGDA of ISI Tezpur) through video conferencing facilities were organized by the CSSC throughout the year. The Server of the accounting package FACT installed in ISI Kolkata was accessed from all outlying Centers and Unit through the Site-to-Site VPN connections for maintaining central accounts system of the Institute. The LAN (wire) connection with 100 mbps was provided to all the rooms of all the hostels excluding ISEC in the Kolkata campus. The wifi facility covering the ISEC hostel was installed. The backbone connections connected between all hostels (including Guest House) and CSSC was upgraded from 100 mbps to 10 Gbs facility. The CSSC arranged to provide Laptops and Desktops to the faculties, scientific staff and research scholars of the Institute. The CSSC also arranged to provide technical support to the Institute by Computer Trainees trained by the CSSC.

Members of CSSC took part in teaching different courses of the Institute and supervised project work of non-ISI students studying MCA, B.Tech. etc. In addition, it organized the following activities.

i. **Regular course of M.Tech and B.Stat.:** Lab class on MySql and PHP
ii. **Regular Course of PGDCA ISI, Giridih:** Teaching several Courses of Semester I and II
iii. **Staff Training Program:** Under Professional Training & Development Scheme of ISI throughout of the year.

3. PROJECTS

Internally Funded Projects

Ongoing Projects

Sl. no.	Name of the project	Principal Investigator(s)	Unit(s) involved
Theoretical Statistics and Mathematics Division			
1.	Advances in Non Commutative Mathematics (ANCM)	B.V. Rajarama Bhat, TSSRK Rao & Jayadeb Sarkar	Stat-Math Unit, Bangalore
Applied Statistics Division			
1.	Understanding the classification of various protein families and protein–protein interaction networks	Pabitra Pal Choudhury	ASU, Kolkata
2.	Weight Selection in Multiple Hypothesis Testing	Kiranmoy Das	ISRU
Computer and Communication Sciences Division			
1.	GP-GPU Computing for Large Scale Networks (GPLN)	Nabanita Das	ACMU
2.	A Framework for Collaborative Application Execution for Mobile Cloud Computing (MCC)	A. Banerjee	ACMU
3.	Holy Grail of Error-Resilient Bio-Assay on a Lab-on-a-Chip (HERBAL)	B.B. Bhattacharya	ACMU
4.	Efficient Vertical Handover Techniques in Heterogeneous Wireless Networks (VHO)	S.C. Ghosh	ACMU
5.	Algorithms and Bounds for Dominating Set, Geodetic Set and Obstacle Number in Graphs	A. Bishnu	ACMU
6.	Development of Methodologies Towards Robust Reading of Old Degraded Bangla Printed Documents	S.K. Parui	CVPRU
7.	Administrative Document Analysis	T. Pal	CVPRU
8.	Video Text Understanding	U. Pal	CVPRU
9.	Information Retrieval from Microblogs	M. Mitra	CVPRU
10.	Unsupervised algorithms for deriving insights from text data and building intelligent query suggestion systems	D. Majumdar	CVPRU
11.	Separation of information streams in face image processing	G. Chatterjee	CVPRU
12.	Detection and assessment of image and video quality degradation	S. Palit	CVPRU
13.	Biometric System Design using Bio-hashing Approach	B. Chanda	ECSU
14.	Development of Nature Inspired Metaheuristics for Large Scale Engineering Optimization in Dynamic Environments	S. Das	ECSU

15.	Video Scene Segmentation and Classification	P.P. Mohanta	ECSU
16.	Eulerian Magnification of Video of Biomedical Interest	D.P. Mukherjee	ECSU
17.	Computational Intelligence Approaches for Finding Synergy Networks from Gene Expression Data	N.R. Pal	ECSU
18.	Secured Query Processing for Semantic Web Applications	P. Pal	ECSU
19.	Non-monotonic Reasoning using Disposition: An Approach to Common Sense Reasoning	K.S. Ray	ECSU
20.	Tracking of Moving Objects from Video Scenes using Pattern Classifiers	A. Ghosh	MIU
21.	Modeling Host-Pathogen Interactions	R.K. De	MIU
22.	Analyzing the structure and dynamics of large scale real world complex networks	C.A. Murthy	MIU
23.	Computational Methods for Studying HIV-1 Pathogenicity in Humans: Analysis over Multiple Infection Stages, Mechanisms and Biomolecular Networks	S. Bandyopadyay	MIU
24.	Indian Language Spoken Document Retrieval	D.P. Mandal	MIU
25.	Computational Model of Brightness Perception in Images	K. Ghosh	MIU
26.	Development of Algorithms for miRNA Expression Analysis in Cancer	S.S. Ray	MIU
27.	Deep learning neural networks for pattern classification	S.K. Meher	SSIU
28.	Strategic reasoning in a dynamic world	S. Ghosh	CSU
29.	Intersection representations for graphs	M.C. Francis	CSU
Physics and Earth Sciences Division			
1.	Oxygenation of the Proterozoic ocean	A. Banerjee	GSU
2.	Field study of flow, salinity and sedimentation-erosion patterns in the Sundarban estuarine system	C. Chakraborty	GSU
3.	Sedimentology and stratigraphy of the Siwalik succession of eastern Himalaya and its bearing on the evolution of the Neogene foreland basin in the eastern Himalaya	T. Chakraborty	GSU
4.	Implications of biotic events present within the Mesozoic non-marine vertebrates of the Gondwana basins of peninsular India	D P. Sengupta & S. Bandyopadhyay	GSU
5.	Diversity, palaeobiogeography and palaeoecology of Miocene gastropods from India with special emphasis on Kutch, Gujarat	S.S. Das	GSU
6.	Archean greenstone belts in India – tectonics and sedimentation	D. Saha	GSU

Projects

7.	Sedimentological and geochemical characteristics of the Late Triassic – Middle Jurassic formations in a Gondwana succession of Pranhita-Godavari Valley Basin – clues for changes in depositional environment and palaeoclimate	P. Ghosh	GSU
8.	Tectonostratigraphic evolution of the Sonakhan Greenstone Belt: A link between Archaean greenstones and younger cratonic basins.	S. Patranabis-Deb	GSU
9.	Upkeep of Geology Museum at the Platinum Jubilee Academic Building	D.P. Sengupta	GSU
10.	Turbulence phenomena due to combined wave current flows over objects	S. Ghosh	PAMU
11.	Live-bed scour around Bridge abutment	S. Sarkar	PAMU
12.	Live-bed scour around Bridge pier	S. Sarkar	PAMU
Biological Sciences Division			
1.	Surface Functionalized Porous Nanomaterial Loaded Micronutrient Fertilizers for Gangetic Alluvial Soils	A. Goswami	AERU
2.	SYL-MNS-CEA-ZAAL-BER/API nanocomposite drug for Mongpa tribe neonates: Innovation from anthropo-cultural knowledge base	A. Goswami	AERU
3.	Generation of SSR marker in some mangroves from Sunderbans, India	S. Das	AERU
4.	Exploring Potential of Sweet Sorghum for Bio-Ethanol Production in West Bengal	S. Barik	AERU
5.	Fantastic yields in the system of rice intensification: fact or fallacy?	P. Banik	AERU
6.	Development of natural food preservatives from spices and herbs	R.R. Chattopadhyay	AERU
7.	Phytonematode problems of rice in Jharkhand: density, diversity and pathogenesis:	A. Mukherjee	AERU
8.	Biorational management of rice pests and diseases: evaluation of nanoparticle based and endophyte-mediated approaches	A. Mukherjee	AERU
9.	Study of soil carbon dynamics through integrated nutrient management in different agroecosystems of Assam	P. Bhattacharyya	AERU
10.	Parallel analysis of transport of contaminants in soil-plant systems in different soil types of eastern India: a sustainable approach	P. Bhattacharyya	AERU
11.	Determination of functional response under selective predation through experimentation and modeling	J. Chattopadhyay & S. Bhattacharya	AERU

12.	*Sterculiafoetida,* L.– Eco-friendly, cost effective and rich sources of nutritious edible oil, animal food supplements as well as biofuel and its multimodal application to environmental perspectives.	S. Mandal Biswas	AERU
13.	Management Practices for growth, yield and quality of maize (*Zea mays* L).	S. Adhikary	AERU
14.	Health Status and Survival Strategy of the tea garden labourers of locked tea gardens of Jalpaiguri district, West Bengal	S. Roy	BAU
15.	Living with age :An investigation on the urban poor	S. Mukhopadhyay	BAU
16.	Study of expression of OXPHOS related mitochondrial and nuclear genes from normal, leukoplakia and cancer tissues of oral cavity and importance in progression of disease.	B. Roy	HGU
17.	Genetic Mapping of rare variants, multivariate and longitudinal phenotypes	S. Ghosh	HGU
18.	On integrating several data sources in genetic association study	I. Mukhopadhyay	HGU
19.	Role of epigenetics in psoriasis: Identification of DNA methylation biomarker	R. Chatterjee	HGU
20.	Identification of epigenetic biomarkers in the cell free nucleic acids of the Oral Potentially Malignant Disorder (OPMD) and Oral Squamous Cell Carcinoma (OSCC) patients from eastern India.	R. Chatterjee	HGU
Social Sciences Division			
1.	Bayesian Incentive Compatible Mechanism Design	S. Roy	ERU
2.	Bangla Pronunciation Dictionary	N.S. Dash	LRU
3.	Safe School Survey	D.D. Roy	Psychology Research Unit
4.	Algorithmic High-frequency Trading using Machine Learning Techniques	D. Mukherjee	SOSU
5.	Fiscal Policy, Public Debt, and Emerging Market Economy Business Cycles	C. Ghate, Chetan Dave (NYU-Abu Dhabi), Pawan Gopalakrishnan (RBI) & Suchismita Tarafdar (SNU)	EPU
6.	Why is the aggregate demand side channel of monetary transmission weak in India?	C. Ghate, Parantap Basu (Durham), Pawan Gopalakrishnan (RBI), Shesadri	EPU

Projects

		Banerjee (CSSSC) & S. Gupta	
7.	An economic analysis of alternative treatment methods of ovarian cancer in India: An appraisal of economic burden, quality of life and mortality risk	P. Roy Chowdhury, Asima Mukhopadhyay (Tata Medical Centre), Zakir Husain (IIT Kgp), Mousumi Datta (Presidency U), Indrani Roy Chowdhury (JNU) & Jaydip Bhaumik (TMC)	EPU
8.	Simultaneous Borrowing and Saving in Microfinance	P. Roy Chowdhury & D. Dasgupta	EPU
9.	Persistence of Caste System in India: The Practice of Intra-Caste Marriage	T. Ray & A. Roy Chaudhuri	EPU
10.	Power Sharing Across Ethnic Groups In India	A. Roy Chaudhuri & Shampa Bhattacharjee (SNU)	EPU
11.	Impact of Expanding Choices on Household Calorie Consumption in India	T. Ray & A. Das Gupta	EPU
12.	Backward linkages in the provision of education: Effect of tertiary education on schooling	A. Mukhopadhyay, Shampa Bhattacharjee (SNU) & Nishant Chaddha (SNU)	EPU
13.	Linear correlation, basis risk and the design of index based crop insurance	B. Ramaswami & D. Singh Negi	EPU
14.	What drives career choice in urban India?	A. Mukhopadhyay, Tarun Jain (ISB) & Nishith Prakash (U. Conn)	EPU
15.	Identity, Networks and Labor Productivity	F. Afridi, Amrita Dhillon (King's College) & Sherry Xin Li (University of Texas,	EPU

		Dallas)	
16.	Council Characteristics of Gram Panchayats and Local Public Good Provision	B. Ramaswami & Sabyasachi Das (Yale University)	EPU
Statistical Quality Control and Operations Research Division			
1.	Modelling multistage Process Monitoring and Fault Detection Strategies under Partial and Imprecise Information	P. Das	SQC & OR Unit, Kolkata
2.	Development of Cleanliness Index and Budget Allocation System for Government of Tamil Nadu	A. Bandyopadhyay (PI), A. Biswas, R. Sett & D. Sampangi Raman	SQC & OR Unit, Kolkata & Chennai
Library, Documentation and Information Sciences Division			
1.	An Annotated Chronological History of Indian Statistical Institute	N. Ganguly	Library, Kolkata
2.	Development of Digital libraries : Shewhart collections, Haldane collections, Dissertations,working papers and others	A K. Pal	Library, Kolkata
3.	Arrangement and description of archival collection of P.C. Mahalanobis Memorial Museum & Archives'	K. Bhattacharya & N. Ganguly	PCM Memorial Museum & Archives

Completed Projects

Sl. No.	Name of the project	Principal Investigator(s)	Unit(s) involved
Theoretical Statistics and Mathematics Division			
1.	Algebra Discussion meeting on Polinomial rings	Mrinal Kanti Das	Stat-Math Unit, Kolkata
2.	Ashok Maitra Memorial Lectures on Probability	Antar Bandyopadhyay & Krishanu Maulik	Stat-Math Unit, Delhi & Kolkata
Applied Statistics Division			
1.	Understanding genes and genomes through the Fractals and Mathematical Morphology	Pabitra Pal Choudhury	ASU, Kolkata
Computer and Communication Sciences Division			
1.	Localizability Testing for Wireless Sensor Networks (LTWSN)	K. Mukhopadhyaya	ACMU
2.	Logic Synthesis for Quantum Computing (QCS)	S. Sur-Kolay	ACMU

Projects

3.	Voronoi Game	S. Das	ACMU
4.	Massive Data Algorithms	S.C. Nandy	ACMU
5.	Intelligent Transportation System (ITS)	B.P. Sinha	ACMU
6.	Biomedical Natural Language Processing (BioNLP)	U. Garain	CVPRU
7.	User Adaptive Online Handwriting Recognition	U. Bhattacharya	CVPRU
8.	Algorithms for Blind Quality Assessment of Images, Tamper Detection and Correction	S. Palit	CVPRU
9.	Integrating CT Images with Gene Expressions using Soft Computing	S. Mitra	MIU
10.	Development of Rough Set Based Approaches for Identification of Co-Expressed miRNAs	P. Maji	MIU
11.	Binary Code for the Brain	K. Majumdar	SSIU
Physics and Earth Sciences Division			
1.	Fault zones, fractals and crustal deformation in the Western Himalaya	D. Saha	GSU
2.	Stratigraphic analysis of the Cuddapah, Bhima and Kaladgi succession: implications for Palaeoproterozoic to Neoproterozoic lithospheric dynamics	S. Patranabis-Deb	GSU
3.	A comprehensive study on vertebrate faunal assemblage of Jurassic Kota Formation, Pranhita-Godavari basin, India	D. Mukherjee	GSU
4.	Study of Caenozoic molluscan diversity from western India with special emphasis on systematics, evolutionary trends and palaeoecological interactions	S.S. Das	GSU
5.	Numerical models of fluid flow in Cuddapah basin: Implication for Mineralization	A. Banerjee	GSU
6.	Simulation of Hawking effect in analogue (fluid) gravity model	S. Ghosh	PAMU
Biological Sciences Division			
1.	Competition or facilitation between two invasive plants?	A. Dewanji	AERU
Social Sciences Division			
1.	Orientation training program on data analytics in Psychological research	D. Dutta Roy	Psychology Research Unit
2.	To Contest or Not to Contest: An Explanation for so Few Women in Politics	M. Kapoor	EPU
3.	Conditional foreign aid, gradualism, and interim aid diversion	P. Roy Chowdhury	EPU

4.	Where do private schools locate themselves?	A. Mukhopadhyay, Pushkar Maitra (Monash University) & S. Sahoo	EPU
5.	Evaluating the Consumption Effect of Trade	B. Ramaswami & S. Bandhopadhyay	EPU
6.	Livelihoods, homestead farming & Human Development in Tripura	M. Swaminathan	EAU
Statistical Quality Control and Operations Research Division			
1.	Development of Risk Analytics towards Multidisciplinary Big-Data Study of Humanitarian Logistics for Disaster Response	P. Das & M.Z. Anis	SQC & OR Unit, Kolkata
2.	Annual Six Sigma Project	Head, SQC & OR Unit, Bangalore	SQC & OR Unit, Bangalore
3.	Workshop on Statistical Techniques for Research Methodology	Ashok Sarkar	SQC & OR Unit, Mumbai & Chennai
4.	Analysis of attrition and absence of Labour in textile mills	A. Rajagopal	SQC & OR Unit, Coimbatore

Externally Funded Projects

Ongoing Projects

Sl. no.	Name of the project	Principal Investigator(s)	Unit(s) involved	Funded by
Theoretical Statistics and Mathematics Division				
1.	J.C.Bose Fellowship	Debashish Goswami	Stat-Math Unit, Kolkata	DST
2.	J.C.Bose Fellowship	Arup Bose	Stat-Math Unit, Kolkata	DST
3.	Risk Analysis, Ruin and Extremes (RARE)	Krishanu Maulik & Parthanil Roy	Stat-Math Unit, Kolkata	Marie Curie Research Staff Exchange Fellowship from the 7th European Community Framework Programme
4.	Microsoft Research India: Unrestricted Research Grant	Krishanu Maulik & Ansuman Banerjee	Stat-Math Unit, Kolkata & ACMU	Microsoft Research India
5.	J.C. Bose Fellowship	R.B. Bapat	Stat-Math Unit, Delhi	DST, Govt. of India
6.	BOBASIO Region Airspace Safety Assessment Study	Antar Bandyopadhyay	Stat-Math Unit, Delhi	Airport Authority of India

Projects

7.	Exponential Diophantine Equations: Resolution of some well-known Diophantine equations	Shanta Laishram	Stat-Math Unit, Delhi	Ministry of Defence, Government of India
8.	Implementation of the Attacks on Elliptic Curve Discrete Log Problem	Shanta Laishram	Stat-Math Unit, Delhi	Ministry of Defence, Government of India
9.	SERB Women Excellence	Tanvi Jain	Stat-Math Unit, Delhi	SERB
10.	E_0-semigroups: classification and invariants	B.V. Rajarama Bhat & Daniel Markiewicz	Stat-Math Unit, Bangalore	UGC
11.	Uniqueness for Stochastic Partial Differential Equations	Siva Athreya & Leonid Mytnik	Stat-Math Unit, Bangalore	UGC
12.	Etale Fundamental groups	Manish Kumar & Lior Bary-Soroker	Stat-Math Unit, Bangalore	UGC
13.	Mathematical Examination of a Load Forecasting Model	Mohan Delampady, B.V. Rajarama Bhat, V.R. Padmawar & Soumen Dey	Stat-Math Unit, Bangalore	Hitachi India Limited, Bangalore
14.	J C Bose Fellowship project	B.V. Rajarama Bhat	Stat-Math Unit, Bangalore	Science and Engineering Research Board
15.	Contractive Hilbert modules	Jayadeb Sarkar	Stat-Math Unit, Bangalore	NBHM research project
Applied Statistics Division				
1.	IBM Award	Atanu Biswas	ASU, Kolkata	IBM
2.	Mathematical Examination of a Load Forecasting Model	Mohan Delampady	ASU, Chennai & Stat-Math Unit, Bangalore	Hitachi India Private Limited
3.	Robust minimum divdidivergence inferences fofor for Non-Standard data problems: Emphasis on Censored, Longitudinal and Highdimensional data and Machine Learning and Multi Sample set ups	Abhik Ghosh	ISRU	DST

Computer and Communication Sciences Division				
1.	Automatic Sample Preparation and Validation of Biochemical Assays on a Microfluidic Lab-on-a-Chip (LoC)	B.B. Bhattacharya	ACMU	India-Taiwan Joint Research Programme in Science & Technology
2.	Delay Fault Modeling and Test Generation for Power Supply Noise	S. Sur-Kolay & B.B. Bhattacharya	ACMU	Intel Corporation, USA
3.	Design for Manufacturability Aware Global Routing	S. Sur-Kolay	ACMU	IBM, USA
4.	Lithography Aware Physical Design for Below 20nm Process Technology	S. Sur-Kolay	ACMU	Indo-Taiwan Joint Research Programme in Science & Technology
5.	A Framework for Response Time Analysis for Embedded Programs on Modern Processors	A. Banerjee	ACMU	Advanced Systems Lab Hyderabad, DRDO, Govt. of India
6.	An Equivalence Checking Framework for Vulnerability Assessment for FPGA-Based Design Flows	A. Banerjee	ACMU	Centre for Artificial Intelligence and Robotics, DRDO, Govt. of India
7.	Binary Analysis for Software Security	A. Banerjee	ACMU	Scientific Analysis Group, DRDO, Govt. of India
8.	Development of Online Handwriting Recognition System for Indian Languages – Phase II	S.K. Parui	CVPRU	Department of Information Technology, Govt. of India
9.	Development of Cross Lingual Information Access System – Phase II	M. Mitra	CVPRU	Department of Information Technology, Govt. of India
10.	The cognitive architecture of face-processing – understanding the separation of information streams	G. Chatterjee	CVPRU	DST - INSA
11.	Analysis, Recognition and Synthesis of Facial Expressions	S. Agarwal & D.P. Mukherjee	ECSU	DST
12.	Digital Image Reconstruction of Indian Cultural Heritage with focus on Hampi Ruins	B. Chanda	ECSU	DST
13.	Identification of Bainite and Martensite from Steel Micrographs	P. Das & D.P. Mukherjee	SQC & OR Unit, Kolkata & ECSU	Tata Steel
14.	Planogram Image Matching	D.P. Mukherjee	ECSU	TCS

Projects

15.	Analysis and Modelling of Atmospheric Pollutant over Indo Gangetic Plain	S. Pal	ECSU	CSIR
16.	MOBILE+ project: a network project involving various Indian and European Institutes	A. Ghosh	MIU	European Commission
17.	Recognition of Antinuclear Antibodies by Automated HEp-2 Cell IIF Image Analysis for Diagnosis of Connective Tissue Disease	P. Maji	MIU	DST, GoI
18.	Development of Computational Techniques to Integrate Multimodal, Multiscale Omics and Imaging Data for Cancer Diagnosis and Prognosis	P. Maji	MIU	DeitY, GoI
19.	Training Programme of Tata Consultancy Services Limited IGP	C.A. Murthy	MIU	TCS, Kolkata
20.	A big data perspective for energy management in smart grids and dwellings (BiDEE: Big Data in Energy managEment)	Ujjwal Maulik, (Jadavpur University), Sanghamitra Bandyopadhyay, Stéphane Ploix, (Grenoble INP) & Corinne Touati, (INRIA)	MIU	Indo-French Center for Promotion of Advanced Research
21.	Land Cover Classification of Remote Sensing Images Using Granular Computing Methodologies	Saroj K. Meher	SSIU	DST-SERB, Govt. of India
22.	Quantitative Characterization of Complex Topologically Prominent Components of Porous Media derived from Rocks of Petrologic Significance via Mathematical Morphology and Fractal Geometry	B.S. Daya Sagar	SSIU	DST-SERB, Govt. of India
23.	Quantitative Morphologic and Scaling Analyses of Lunar Digital Elevation Models (LDEM) Derived from TMC Data of Chandrayaan-1 Mission via Mathematical Morphology and Fractal Geometry	B.S. Daya Sagar	SSIU	ISRO-Chandrayaan, Govt. of India
24.	Quantification of neural information and subsequent coding scheme	Kaushik Majumdar	SSIU	DBT, Govt. of India
25.	Automatic detection of micro-seizures and a study on how they evolve into macro-seizures	Kaushik Majumdar, Florian Mormann (Department of Epileptology, University of Bonn, Germany)	SSIU	DBT & German Ministry of Education

26.	INSPIRE Faculty Award – Structural & algorithmic study of some geometric intersection graph classes	Mathew C. Francis	CSU	DST
27.	NetApp Faculty Fellowship	Sushmita Ruj	CSRU	NetApp Inc, USA
28.	Samsung GRO	Sushmita Ruj	CSRU	Samsung Electronics, Korea
Physics and Earth Sciences Division				
1.	New Statistical Techniques to Identify Modified Gravity as the Source of Cosmic Acceleration	U. Alam	PAMU	DST
2.	Quest for Dark Matter and Inflation	A. Chatterjee	PAMU	DST
3.	Some Current Quantum Mechanical Problems in Linear and Nonlinear Quantum Systems	A. Sinha	PAMU	DST
4.	Macroscopic dynamics in ensembles of dynamical systems: some challenging issues	D. Ghosh	PAMU	DST
Biological Sciences Division				
1.	Development of information on Agricultural and Horticultural production using RS and GIS technology in some district of West Bengal	P. Banik	AERU	DST, Govt. of WB
2.	Studies on keeping quality of different types of tea (Black, Green, Oolong & White) and their biochemical aspects & antioxidant properties	S. Das	AERU	NTRF
3.	Evidence theory based uncertainty analysis of ground water flow and contaminant transport	I. Mukhopadhyay	HGU	Department of Atomic Energy, Govt. of India
4.	Statistical methods to detect epistasis and gene-environment interactions in genetic association study	I. Mukhopadhyay	HGU	Dept. of Science and Technology, Govt. of India
5.	Non-invasive identification and validation of Epigenetic biomarker in saliva for early detection of Oral pre-cancer and cancer patients in India.	R. Chatterjee	HGU	Council of Scientific and Industrial Research (CSIR), Govt. of India
6.	Identification of Genetic and Epigenetic Associations Among Psoriasis patients in India	R. Chatterjee	HGU	SERB, Dept. of Science and Technology, Govt. of India
7.	Identification of the contribution of Human Leukocyte Antigen (HLA) alleles and functional coding variants to the risk of psoriasis in patients from West Bengal	R. Chatterjee	HGU	Department of Biotechnology, Govt. of WB

Projects

Social Sciences Division				
1.	Evaluation Study on Boarder Area (BADP) Cluster – B	B. Ghosh	ERU	Planning Commission, Government of India
2.	Evaluation Study on Boarder Area (BADP) Cluster – C	B. Ghosh	ERU	Planning Commission, Government of India
3.	Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA): Himachal Pradesh, Jammu & Kashmir and Uttarakhand	B. Ghosh	ERU	Planning Commission, Government of India
4.	Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA): All India Coordination Report	B. Ghosh	ERU	Planning Commission, Government of India
5.	Informal Insurance Under Group Lending with Individual Liability: Evidence from India	A. Sarkar	ERU	IGC, London School of Economics, London
6.	Gender Violence in India: Its Roots, Nature and Extent	C. Sharma Biswas	ERU	ICSSR, Govt. of India
7.	Children's World: International Survey of Children's Well-Being	S. Das	ERU	Goethe University, Germany
8.	Indian Language Corpora Initiative-Bangla-2 (ILCI-2)	N.S. Dash	LRU	DeitY, MCIT, Govt. of India
9.	Poverty and Aspiration	S. Mitra	SOSU	ESRC grant through CAGE, Warwick University, UK
10.	Reviewing the existing system of compilation of trade indices	N. Chattopadhyay	SOSU	DGCI & S, Govt. of India
11.	IGP Project on evaluating the framework of various tests conducted	N. Chattopadhyay	SOSU	Tata Consultancy Services Limited (TCS ion)
12.	Design and Conc. Evaluation of Foreign Trade Policy	N. Chattopadhyay	SOSU	DGCI&S, Govt. of India
13.	Statistics and its applications for RBI Officers	N. Chattopadhyay	SOSU	Reserve Bank of India
14.	Manchester University-ISI Project on Political Economy	S. Mitra	SOSU	ESRC Grant, Manchester University
15.	Socio-Economic Impact of National Highways	N. Chattopadhyay	SOSU	National Highways Authority of India
16.	Women and Work in Rural India	F. Afridi & A. Mukhopadhyay	EPU	IGC

17.	Terms of Trade Shocks and Monetary Policy in India	C. Ghate, Debdulal Mallick (Deakin University) & S. Gupta	EPU	IGC
Statistical Quality Control and Operations Research Division				
1.	Development of Quality System – Ordnance Factory, Ambajhari, Nagpur	R. Sett & A. Bandyopadhyay	SQC & OR Unit, Kolkata	Ordnance Factory
2.	Estimation of Quantum of FICN (fake Indian currency note) in Circulation	A. Gupta, A. Banerjee, D.K. Manna, R. Sett & A.K. Das	SQC & OR Unit, Kolkata	NIA, Ministry of Home Affairs, Govt. of India
3.	Normalization of Marks with Admission Committee for Professional courses	A.K. Chakraborty	SQC & OR Unit, Kolkata	Government of Gujarat
4.	Six Sigma Training & Implementation	A.K. Chakraborty & A. Roy Chowdhury	SQC & OR Unit, Bangalore & Kolkata	ITC, Bollaram, ITC Triveni, ITC, Kovai
5.	Six Sigma Training & Implementation	S. Ray, A. Roy Chowdhury & E V Gijo	SQC & OR Unit, Bangalore	HAL Management Academy, Bangalore
6.	Six sigma Training & Implementation	U.H. Acharya & K.K. Chowdhury	SQC & OR Unit, Bangalore	TVS Motors, Hosur
7.	Six sigma Training & Implementation	U.H. Acharya	SQC & OR Unit, Bangalore	FIAT, Pune
8.	Facilitation and guidance for statistical modelling	B. John	SQC & OR Unit, Bangalore	Hewlett Packard (Global Soft)
9.	Certification program on Six Sigma Black Belt	K.K. Chowdhury & B. John	SQC & OR Unit, Bangalore	Huawei Technologies
10.	Training program on Six Sigma tools and techniques	B. John	SQC & OR Unit, Bangalore	MeritTrac Services
11.	Program on business analytics	A. Banerjee & B. John	SQC & OR Unit, Kolkata & Bangalore	Infosys
12.	Program on business analytics	A. Banerjee, B. John	SQC & OR Unit, Kolkata,	L&T Infotech

Projects

		& A. Sarkar	Bangalore & Mumbai	
13.	Six Sigma Training & Implementation	S. Ray & U.H. Acharya	SQC & OR Unit, Bangalore	DU, Dubai
14.	Six Sigma Training & Implementation	S. Ray	SQC & OR Unit, Bangalore	Aditya Birla Fashion & Retail Limited, Bangalore
15.	Six Sigma Training & Implementation	S. Ray	SQC & OR Unit, Bangalore	Mother Dairy, New Delhi
16.	Program on Design of Experiments	B. John	SQC & OR Unit, Bangalore	Titan Jewellery Division (Tanishq), Hosur
17.	Program on Business Analytics	A. Sarkar & B. John	SQC & OR Unit, Mumbai & Bangalore	Adani Power, Ahmedabad
18.	Program on Business Analytics	B. John & K.K. Chowdhury	SQC & OR Unit, Bangalore	Airbus India, Bangalore
19.	Design & Development of Risk Based Sampling Methodology	G. Murali Rao & A.L.N. Murthy	SQC & OR Unit, Hyderabad	SBI Associate Banks
20.	Six Sigma Training and Guidance on Six Sigma Projects	A.L.N. Murthy & G. Murali Rao	SQC & OR Unit, Hyderabad	ITC Limited – PSPD, Bhadrachalam
21.	Design & Development of Risk Based Sampling Methodology for Internal Verification Audit	A.L.N. Murthy & G. Murali Rao	SQC & OR Unit, Hyderabad	State Bank of India
22.	International Passenger Survey	A. Sengupta & S.M. Subhani	ASU, Kolkata & SQC & OR Unit, Hyderabad	Government of India
23.	Evaluation of the Status of Implementation of Robust Methodology for Estimation of Agricultural Power Consumption and Development of Audit System	G.S.R. Murthy	SQC & OR Unit, Hyderabad	Telangana State Electricity Regulatory Commission
24.	Design & Development of Risk Based Sampling Methodology	G. Murali Rao & A.L.N. Murthy	SQC & OR Unit, Hyderabad	SBI Associate Banks
25.	Quality System Implementation at crusher	A. Rajagopal	SQC & OR Unit, Coimbatore	SRC Projects, Salem
26.	Increasing the outsourcing and vender identification for	A. Rajagopal	SQC & OR Unit, Coimbatore	TCTP, Erode
27.	Cotton lot classification and K mean algorithm	A. Rajagopal	SQC & OR Unit, Coimbatore	MYK, Hyderabad

28.	Revision of QMS and ISO 9001:2015 standards	A. Rajagopal	SQC & OR Unit, Coimbatore	Bannari Amman, Dindigul
29.	Continual Improvement Studies through data analytics ISO compliance	A. Rajagopal	SQC & OR Unit, Coimbatore	Shiva Texyarn Unit - II
30.	QMS Audit	A. Rajagopal	SQC & OR Unit, Coimbatore	SRC Projects, Salem
31.	DFSS implementation	S. Rath	SQC & OR Unit, Pune	Technova Imaging Systems Ltd
32.	Six Sigma Champion Program	S. Rath	SQC & OR Unit, Pune	TACO Group
33.	Six Sigma Champion Program	S. Rath	SQC & OR Unit, Pune	Bilcare
34.	DFSS Champion Programs	S. Rath	SQC & OR Unit, Pune	Asian Paints
35.	Data Analytic Program	S. Rath	SQC & OR Unit, Pune	Vodafone International
36.	Six Sigma Black-Belt Public Program	S. Rath	SQC & OR Unit, Pune	Participants
37.	Six Sigma Master Black-Belt Public Program	S. Rath	SQC & OR Unit, Pune	Participants
38.	Data Analytic Programs	S. Rath	SQC & OR Unit, Pune	Participants
39.	Six Black-Belt Program	S. Rath	SQC & OR Unit, Pune	Gallagher Operations Support Services Pvt. Ltd., Pune
40.	Six Sigma Deployment Program	S. Rath	SQC & OR Unit, Pune	TACO Group
41.	Six Sigma Black-belt Public Program	S. Rath	SQC & OR Unit, Pune	Participants
42.	Six Sigma Green-Belt Prgram	S. Rath	SQC & OR Unit, Pune	Symbiosys Institute of Business Management, Lavale
43.	Six Sigma Master Black-Belt Public Program	S. Rath	SQC & OR Unit, Pune	Participants
Centre for Soft Computing Research: A National Facility				
1.	J.C. Bose Fellowship	S.K. Pal	CSCR	DST, Govt. of India
2.	DAE Raja Ramanna Fellowship	S. K. Pal	CSCR	Department of Atomic Energy, Govt. of India
3.	Erusmus Mundus External Cooperation Window (EMECW)	A. Ghosh	CSCR	European Commission
4.	DST INSPIRE Faculty Award	S. Das	CSCR	DST, Govt. of India
5.	NavIC-GAGAN Utilization Programme at SAC, Ahmedabad	S. Das	CSCR	ISRO

Projects

Completed Projects

Sl. no.	Name of the project	Principal Investigator(s)	Unit(s) involved	Funded by
Theoretical Statistics and Mathematics Division				
1.	Diophantine Equations With Product of integers in Arithmetic Progressions	Shanta Laishram	Stat-Math Unit, Delhi	Ministry of Defence, Government of India
Computer and Communication Sciences Division				
1.	Indo-Japan Cooperative project	Sushmita Ruj & Kouichi Sakurai	CSRU	DST-JSPS
2.	Ontology and Metadata	Biswanath Dutta	DRTC	Youribot Limited, Hong Kong China
Physics and Earth Sciences Division				
1.	Vertebrate microfossils from the Tiki Formation of the Rewa Gondwana basin: an integrated study on Upper Triassic biodiversity	S. Bandyopadhyay	GSU	SERB, DST
2.	Jurassic Gondwana Vertebrates of India: An Integrated Study on Palaeobiology	D. Mukherjee	GSU	SERB, DST
3.	Synchronization, Clustering and death in Networks of Complex Systems (Theory and Application to Biology and Neurophysiology)	D. Ghosh	PAMU	DST, New Delhi and Russian Federation of Basic Research (RFBR), Russia
Social Sciences Division				
1.	Price Escalation Verification	A. Majumder	ERU	Coal India Limited
2.	Estimation of demand for banknotes and coins	N. Chattopadhyay	SOSU	Reserve Bank Of India
3.	ISI-RBI collaboration research project	D. Mukherjee	SOSU	Reserve Bank of India
Statistical Quality Control and Operations Research Division				
1.	Talent Development and Support in the area of Business Analytics	A. Bandyopadhyay, A. Sarkar & B. John	SQC & OR Unit, Bangalore, Mumbai & Kolkata	L&T Infotech Ltd.
2.	Six Sigma training and Implementation	A. Kumar Chakraborty, P. Mandal S. Ray	SQC & OR Unit Kolkata, Bangalore, Hyderabad,	ITC, PSPD

		A. Roy Chowdhury & D. Sampangi Raman	& Chennai	
3.	Talent Development and Support in the area of Business Analytics	A. Bandyopadhyay & B. John	SQC & OR Unit, Bangalore & Kolkata	Infosys Technologies Ltd.
4.	Development of Sampling Scheme	R. Sett	SQC & OR Unit, Kolkata	ITC LTD., Unit Tribeni
5.	Deployment of Six Sigma	P. Mandal	SQC & OR Unit, Kolkata	J. K. Paper Ltd., Rayagada, Orissa
6.	Module-wise Training on Statistical Techniques	E. V. Gijo, A. Roy Chowdhury & S. Ray	SQC & OR Unit, Bangalore	Biocon Ltd., Bangalore
7.	Six Sigma Black Belt Training	E.V. Gijo	SQC & OR Unit, Bangalore	Crossdomain Solutions, Bangalore (Gallagher Operations Support Services Pvt Ltd
8.	Certification program on Six Sigma Black Belt	B. John & K.K. Chowdhury	SQC & OR Unit, Bangalore	Hinduja Global Solutions
9.	Program on business analytics	B. John & K.K. Chowdhury	SQC & OR Unit, Bangalore	Deloitte, Hyderabad
10.	Program on advanced data analysis	B. John & K.K. Chowdhury	SQC & OR Unit, Bangalore	Hewlett Packard (Global Analytics)
11.	Certification program on Six Sigma Green Belt	B. John & K.K. Chowdhury	SQC & OR Unit, Bangalore	Hinduja Global Solutions
12.	Program on business analytics	B. John & K.K. Chowdhury	SQC & OR Unit, Bangalore	Deloitte, Mumbai
13.	Program on Business Forecasting	K.K. Chowdhury & B. John	SQC & OR Unit, Bangalore	Society for Indian Automobile Manufacturers
14.	Certification program on "Design for Six Sigma" -Green Belt	K.K. Chowdhury	SQC & OR Unit, Bangalore	Hollingsworth & Vose India, Mysore
15.	Certification program on "Design for Six Sigma" -Green Belt	K.K. Chowdhury & U.H. Acharya	SQC & OR Unit, Bangalore	TVS Motor,Hosur

Projects

16.	SPC Training	P.K. Perumallu	SQC & OR Unit, Bangalore	Centum Electronics
17.	Training Program on Reliability Engineering	P.K. Perumallu.	SQC & OR Unit, Bangalore	Centum Electronics
18.	SPC Implementation	P.K. Perumallu.	SQC & OR Unit, Bangalore	Centum Electronics
19.	DoE for QbD	A.L.N. Murthy & G. Murali Rao	SQC & OR Unit, Hyderabad	Sai Life Sciences Limited
20.	National Haemovigilance Programme of India	G.S.R. Murthy	SQC & OR Unit, Hyderabad	National Institute of Biologicals
21.	Statistical Process Control (SPC)	A. Sarkar	SQC & OR Unit, Mumbai	H&R Johnson (India)
22.	Reliability & Defect prevention	A. Sarkar	SQC & OR Unit, Mumbai	Naval Armament Inspectorate (NAI), Karanja
23.	Six Sigma Green Belt training program	S. Sikder	SQC & OR Unit, Mumbai	L&T EBG, Mumbai
24.	Six Sigma Black Belt (BB) training program	S. Sikder	SQC & OR Unit, Mumbai	Naval Armament Inspectorate (NAI), Karanja
25.	Six Sigma Training	A. Sarkar	SQC & OR Unit, Mumbai	CBE, Aditya Birla Group Companies
26.	Six Sigma Green Belt training program	A. Sarkar	SQC & OR Unit, Mumbai	XIMB, Bhubaneswar
27.	Statistical Process Control (SPC)	A. Sarkar	SQC & OR Unit, Mumbai	Jindal Steel and Power
28.	Development of Buying Propensity Index	A. Sarkar	SQC & OR Unit, Mumbai	Participants
29.	Statistical Techniques for Data Mining and Business Analytics	A. Sarkar	SQC & OR Unit, Mumbai, Bangalore	Adani Power, Ahmadabad.
30.	Development of Incontinence-depression Correlation Index	A. Sarkar	SQC & OR Unit, Mumbai	Noble Hygiene, Mumbai
31.	General Six Sigma Black Belt (BB) Training Program	A. Sarkar	SQC & OR Unit, Mumbai	Participants
32.	General Six Sigma Green Belt (GB) Training program	S. Sikder	SQC & OR Unit, Mumbai	Participants
33.	Training Program on Data mining for Business Analytics (DBMA)	A. Sarkar	SQC & OR Unit, Mumbai & Bangalore	Participants
34.	General Six Sigma Black Belt (BB) training Program	A. Sarkar	SQC & OR Unit, Mumbai	Participants
35.	General Six Sigma Green Belt (GB) Training Program	S. Sikder	SQC & OR Unit, Mumbai	Participants

36.	Workshop on Design of Experiment (DOE)	A. Sarkar	SQC & OR Unit, Mumbai	Participants
37.	General Six Sigma Master Black Belt (MBB) Training Program	A. Sarkar	SQC & OR Unit, Mumbai & Bangalore	Participants
38.	Training Program on Data mining for Business Analytics (DBMA)	A. Sarkar	SQC & OR Unit, Mumbai & Bangalore	Participants

North East Projects

Ongoing Projects

Sl. no.	Name of the project	Principal Investigator(s)	Unit(s) involved
Theoretical Statistics and Mathematics Division			
1.	North East Summer Workshop in Analysis and Probability (NE-SWAP)	J. Sarkar	Stat-Math Unit, Bangalore
Social Sciences Division			
1.	Workshop on Official Statistics in North East States	P. Pathak & S. Mitra	PSU & SOSU

Completed Projects

Sl. no.	Name of the project	Principal Investigator(s)	Unit(s) involved
Computer and Communication Sciences Division			
1.	Algorithms with special focus on graphs	Faculty Members	ACMU
2.	Activities of MIU for North East region of the country	Faculty Members	MIU
3.	Workshop on Open Source Software for Library Automation	A.R.D. Prasad & D.P. Madalli	DRTC
Social Sciences Division			
1.	The Biaxial Syntax of Inflected Clauses in Assamese and Bangla	P. Dasgupta	LRU
Statistical Quality Control and Operations Research Division			
1.	Program for North East (Bangalore)	S. Ray & A.R. Chowdhury	SQC & OR Unit, Bangalore

4. SYMPOSIA, CONFERENCES, WORKSHOPS, LECTURES AND SEMINARS ORGANISED

Symposia and Conferences

1. Symposium on "*Model Theory*": Stat-Math Unit, Kolkata held at University of Notre Dame, Indiana, USA, June 20-July 1, 2016.

2. Symposium on "*Polynomial rings, projective modules and related topics*": Stat-Math Unit, Kolkata, November 7-9, 2016.

3. Symposium on "*Advanced Instructional School (AIS) in Algebraic Geometry*": Stat-Math Unit, Bangalore, May 16 – June 4, 2016.

4. Symposium on "*Stat-Math*": Stat-Math Unit, Bangalore by Doctoral and Post-Doctoral Fellows (2016) August 4-5, 2016.

5. Conference on "*TSSRK Fest*": Stat-Math Unit, Bangalore, September 22-24, 2016.

6. Symposium on "*Celebration of N.S. Narasimha Sastry's career*": Stat-Math Unit, Bangalore, November 25, 2016.

7. Symposium on "*Linear Analysis*": Stat-Math Unit, Bangalore in collaboration with the Indian Academy of Sciences, held at Orange County, Coorg, Kodagu, Karnataka, November 27-December 1, 2016.

8. Workshop on "*Statistical Ecology and Related topics*": Stat-Math Unit, Bangalore, December 8-11, 2016.

9. International conference and workshop on "*Recent advances in Operator Theory and Operator Algebras – 2016 (OTOA-2016)*": Stat-Math Unit, Bangalore, December 13-22, 2016.

10. Symposium on "*K-theory and its applications*": Stat-Math Unit, Bangalore, December 26, 2016–January 7, 2017.

11. 2nd Symposium on "*Advances in Noncommutative Mathematics (ANCM)*": Stat-Math Unit, Bangalore, January 11-13, 2017.

12. Symposium on *" Stochastic Reflection* (An event in celebration of S. Ramasubramanian's career at ISI, Bangalore)": Stat-Math Unit, Bangalore, January 23, 2017.

13. Symposium on "*Geometric Function Theory and Special functions*": Stat-Math Unit, Chennai August 31, 2016.

14. Symposium on *"Interdisciplinary Statistical Research*": ISRU, Kolkata, June 28, 2016.

15. Conference on "*8th meeting of the Forum for Information Retrieval Evaluation (FIRE 2016)*": CVPR, Kolkata, in collaboration with DA-IICT, Gandhinagar and Information Retrieval Society of India, December 07-10, 2016.

16. National Conference on "*Condensed Matter Physics*": PAMU, Kolkata, February 2–3, 2017.

17. 4th International Conference on "*India Biodiversity Meet, 2016*": jointly organized by AERU, Kolkata and Government College of Engineering and Textile Technology, Berhampur, in collaboration with Biomathematical Society of India, October 24 – 27, 2016

18. Symposium on "*XIII Annual Group Meeting of the All India Coordinated projects on Nematodes*": organized by AERU, Kolkata in collaboration with Indian Council of Agricultural Research, New Delhi, February 24-25, 2017.

19. Symposium on "*School Psychology: critical issues and challenges*": PRU, Kolkata collaboration with Indian School Psychology Association, May 30, 2016.

20. National Symposium on "*Psychology in Diabetes: issues, challenges and care*": PRU, Kolkata in collaboration with Indian Academy of Health Psychology, March 1, 2017.

21. 6th Conference on "*West Bengal Growth*": SOSU, Kolkata in collaboration with IGC and Jadavpur University, held at Jadavpur University, December 26-27, 2016.

22. Conference on "*honor of Lloyd Shapley*": EPU, Delhi, November 23 and 25, 2016.

23. 12th Annual Conference on "*Economic Growth and Development*", EPU, Delhi, December 19-21, 2016.

24. 1st Symposium on "*Climate Change and Agricultural Yields in Karnataka*": EAU, Bangalore in collaboration with Karnataka Government, April 16, 2016.

25. 2nd Symposium on "*Climate Change and Agricultural Yield in Karnataka*": EAU, Bangalore in collaboration with Karnataka Government, November 9, 2016.

26. International Workshop-cum-Conference on "G*ame Theory and optimization*": SQC & OR Unit, Chennai, held at IIT, Madras, Chennai, June 6-10, 2016.

North-East Symposia and Conferences

1. Symposium on "*Human Genetics: Techniques and Statistical Analyses":* HGU, Kolkata, held at Assam University, Silchar, March 23-24, 2017.

Workshops and Training Programmes

1. Workshop on "*Growth Curve Model (GCM):* Stat-Math Unit, Kolkata was organized at ISI Giridih, Jharkhand, February 23-24, 2017.

2. Training Programme on "*Advanced topics on Discrete Logarithms over Finite Fields & Elliptic Curves*": Stat-Math Unit, Delhi, held at DRDO, New Delhi, July 14-22, 2016.

3. Mini Course on "*Random Graphs : Large deviation properties of Dense Graphs*": Stat-Math Unit, Bangalore, January 25 and 27, 2017.

4. Mini Course on "*Several Complex Variables*": Stat-Math Unit, Chennai, December 8-13, 2016.

5. Workshop and Conference on "*Statistical Methods in Finance*": ASU, Chennai in collaboration with Chennai Mathematical Institute, Chennai, December 18-22, 2016.

Conferences and Seminars

6. Winter School on "*Introduction to Optimization Techniques"*: ACMU, Kolkata, in collaboration with IEEE CEDA India Chapter, December 15-20, 2016.

7. Workshop on "*High Performance Computing*": ACMU, Kolkata, December 28-29, 2016.

8. Workshop on "*Machine Learning and Data Mining (WMLDM)*": CVPR, Kolkata, November 10-11, 2016.

9. International Workshop on "*Pattern Analysis and Applications* (IWPAA 2017)": CVPR, Kolkata, January 18-20, 2017.

10. 3rd Summer School on "*Computer Vision, Graphics and Image Processing*": ECSU, Kolkata, June 1–July 15, 2016.

11. 2nd National Workshop on "*Medical Imaging*": ECSU, Kolkata, in collaboration with IASST Guwahati and ECSU, ISI, March 8-9, 2017.

12. Workshop on "*Application of Mathematics and Statistics*": MIU, Kolkata, September 08-09, 2016.

13. Workshop on "*Machine Intelligence and Applications*": MIU, Kolkata, March 30, 2017.

14. International Workshop on "*Open Data Repositories*": DRTC, Bangalore, March 1-3, 2017.

15. Summer Internship in "*Cryptology*": CSRU, Kolkata, May 16- July 15, 2016.

16. Workshop on "*Mathematics, Computer Science and Cryptology*": CSRU, Kolkata in collaboration with Departments of Mathematics, Computer Science and Science Forum, Mrinalini Datta Mahavidyapith, Birati, Kolkata, August 23, 2016.

17. Workshop on "*Mathematics, Computer Science and Cryptology*": CSRU, Kolkata in collaboration with Vivekananda College, Thakurpukur, Kolkata, September 14, 2016.

18. Workshop on "*Advances in Authenticated Encryption*": CSRU, Kolkata in collaboration with National Mathematics Initiative, September 19-22, 2017.

19. Workshop on "*Mathematics-Cryptology-Computer Science*" (for Higher Secondary students of Kamala Girls' High School and Harinavi Subhasini Balika Sikshalaya): CSRU, Kolkata in collaboration with Netaji Nagar College for Women, Kolkata, September 21, 2016.

20. Workshop on "*Mathematics-Cryptology-Computer Science*" (for Higher Secondary students of A.K. Ghosh Memorial School and Khanpur (Boys') High School): CSRU, Kolkata in collaboration with Netaji Nagar College for Women, Kolkata, September 26, 2016.

21. State-Level Workshop on "*Mathematics, Computer Science and Cryptology*": CSRU, Kolkata held at Department of Mathematics, Brahmananda Keshab Chandra (BKC) College, Kolkata, November 8, 2016.

22. Workshop on "*Physics and Applied Mathematics Researchers' Meet-2017*": PAMU, Kolkata, March 14–16, 2017.

23. Workshop on "*Species distribution modelling with MaxEnt"*: AERU, Kolkata, January 9–14, 2017.

24. Training Programme on "*Winter School on Biological Research Methods" (*for Research Scholars and young faculty members of different Universities /Institutes across India): BAU, Kolkata, January 16 – 23, 2017.

25. Orientation Ttraining Programme on "*Data analytics in Psychological Research":* PRU, Kolkata, August 11-12, 2016.

26. Orientation Training Programme on "*Data analytics in Psychological Research*": PRU, Kolkata, in collaboration with SQC & OR Unit, held at Indian Statistical Institute, Hyderabad Branch, Hyderabad, February 8-9, 2017.

27. Orientation Training Programme on "*Data analytics in Psychological Research*": PRU, Kolkata held at the Indian Statistical Institute, Giridih Branch, Jharkhand, March 29, 2017.

28. Workshop on "*Political Economy*": SOSU, Kolkata in collaboration with Manchester University December 19, 2016.

29. Workshop on "*Local Level Statistics for policy with various State and Central Government Departments (National Statistical Commission, RBI, NABARD, Ministry of Finance, Ministry of Drinking Water and Sanitation, Ministry of Agriculture and Farmers Welfare, MOS&PI, Govt of Chhattisgarh, Government of Andhra Pradesh, Govt of Gujarat, IFMR)"* : SOSU, Kolkata, March 29, 2017.

30. Workshop on "*Delhi Theory*": EPU, Delhi, August 6, October 1, 2016 and February 4, 2017.

31. 5th Workshop on "*Delhi Macroeconomics*": EPU, Delhi, October 21, 2016.

32. Training Program on "*Macro and Microeconomics*" (for ISS Probationers): EPU, Delhi, March 28 - April 8, 2016.

33. Workshop "*CECFEE*": EPU, Delhi, October 15-16, 2016.

34. Mini Workshop on "*Macroeconomics*": EPU, Delhi, November 17, 2016.

35. Workshop on "*Experimental Methods within Surveys*": EPU, Delhi, November 21-24, 2016.

36. Workshop on "*GMO*": EAU, Bangalore, January 25, 2017.

37. Mini Workshop on "*Linear complementarity and its generalizations*": SQC & OR Unit, Chennai, September 24-25, 2016.

38. Short Term Course on "*Mathematical finance, theory and practice*": SQC & OR Unit, Chennai, January 16-21, 2017.

39. Training Programme-cum-Workshop on *"Library Automation with Special Application of KOHA & Creating Library Networks*": Library, Kolkata, March 20–24, 2017.

40. 7th Workshop on *"Digital Pictorial Photography and a Photography Exhibition":* Reprography & Photography Unit, Library, Kolkata, February 13–17, 2017.

41. Training Programme on "*Multimedia"* (for School Students): Reprography & Photography Unit, Library, Kolkata, January 09- February 3, 2017.

42. Workshop cum Seminar on "*Eugene Garfield Memorial*": Library, Documentation and Information Science Division, Kolkata, March 6, 2017.

Conferences and Seminars

43. Lecture Programme on *"Conservation of Archival Records and Museum Artifacts: Lecture in Memory of Professor P C Mahalanobis".* PCM Memorial Museum & Archives, Kolkata, March 28, 2017.

44. Workshop on "*Data Science and Machine Learning*", CSCR, Kolkata, March 28-31, 2017.

North-East Workshops and Training Programmes

1. Workshop on *"Mathematical Genomics*": ASU, held at Bioinformatics Centre, Tripura University, Tripura, January 23-28, 2017.

2. Workshop on "*Statistics in Social Sciences*": ASU, held at North Eastern Hill University, Tura, Meghalaya, March 20-24, 2017.

3. Workshop on "*Statistical Methods for Business*": ISRU, Kolkata held at Indian Statistical Institute, North-east Centre, Tezpur, Assam, December 5-9, 2016.

4. Training Programme on "*Economic and Environmental Statistics*": AOSU, Tezpur, held at Indian Statistical Institute North-East Centre, September 26-30, 2016.

5. Winter School on *"Basic Mathematics for College Students"*: AOSU, Tezpur, December 26, 2016 – January 3, 2017.

6. Training Programme on *"Banking, Monetary and Financial Statistics, and National Accounts, Statistical Infrastructure, and Accounting of Local Bodies"*: AOSU, Tezpur, February 13-17, 2017.

7. Workshop on *"Application of Statistical Techniques in Environmental Science"*: AOSU, Tezpur, March 15-27, 2017.

8. 4th Workshop on "*Pattern Analysis and Applications*": CVPR, Kolkata, held at Sikkim Manipal Institute of Technology, Majitar, Rangpo, Sikkim, February 6-10, 2017.

9. Workshop on "*Machine Learning and Applications*": CVPR, Kolkata, held at Tripura University, Agartala, February 22-24, 2017.

10. 19th Workshop on "*Computational Information Processing*": ECSU, Kolkata, in collaboration with Department of Electrical and Electronics Engineering, SMIT, Rangpo, Sikkim, March 23-25, 2017.

11. Summer School on "*Soft Computing Paradigm and Machine Intelligence Techniques*": MIU, Kolkata, held at Department of Computer Science and Information Technology, Assam Don Bosco University, Airport Road, Azara, Guwahati, July 07-11, 2016.

12. School on "*Soft Computing Techniques: Theory and Applications*": MIU, Kolkata, held at Department of Mathematics & Computer Science, Mizoram University, Aizawl, March 20-24, 2017.

13. Workshop on "*Open Source Software for Library Automation*": DRTC, Bangalore, in collaboration with Assam Don Bosco University held at Assam Don Bosco University, Guwahati, Assam, January 23-25, 2017.

14. Workshop on "*Modern Ecological and Agricultural Practices with Statistical Methodology and R-Software":* AERU, Kolkata in collaboration with Department of Management, North Eastern Hill University, Tura Campus, Meghalaya, March 30 – 31, 2017.

15. Workshop on "*Genetic Analyses of Complex Traits*": HGU, Kolkata, held at Dibrugarh University, Dibrugarh, September 21-22, 2016.

16. Workshop on "*Human Genetics: Techniques and Statistical Analyses*": HGU, Kolkata, held at Assam University, Silchar, March 23-24, 2017.

17. Advanced Academic Programme on "*Linguistics*": LRU, Kolkata held at Dept. of Linguistics, Manipur University, Imphal, Manipur, India, October 17-21, 2016.

18. Advanced Academic Programme on "*Linguistics*": LRU, Kolkata held at Indian Statistical Institute North East Center, Tezpur and Dept. of English and Foreign Languages, Tezpur University, Assam, March 9-11, 2017.

19. Workshop on "*Application of Statistics in Social Sciences and Official Data*": SOSU, Kolkata held at NEHU, Tura Campus, Meghalaya, December 05-11, 2016.

20. Workshop on "*Livelihoods, homestead farming and human development*": EAU, Bangalore in Tripura, Agartala, March 18-19, 2017.

Lectures and Seminars

Theoretical Statistics and Mathematics Division

Stat-Math Unit, Kolkata

1. Adimurthi, A., TIFR-CAM, Bangalore (12.09.2016): Hyperbolic conservation laws.

2. Adimurthi, A., TIFR-CAM, Bangalore (14.09.2016): Structure theorem for entropy solutions of conservation laws.

3. Asanuma, T., Retd. University of Toyama (06.03.2017): Locally homeomorphisms and simply continuous maps.

4. Bandyopadhyay, Saugata, IIISER, Kolkata (04.02.2017): Calculus of Variations with Differential Forms.

5. Bannerjee, Arindam, Purdue University (27.06.2016): Algebra of bipartite graphs.

6. Beelen, Peter, Technical University of Denmark, Copenhagen (25.01.2017): function fields with many rational places.

7. Bisch, Dietmar, Vanderbilt University, USA (22.02.2017): The free product of planar algebras, and subfactors.

8. Chatterjee, Shirshendu, City University of New York, City College (09.01.2017): Phase transition for the threshold contact proves, an "annealed approximation" of Heterogeneous random Boolean networks.

9. Chandgotia, Nishant, Tel Aviv University (04.11.2016): Some Strange Results about Universality among Hom-Shifts and Reflection Positivity.

10. Chakraborty, Partha Sarathi, Institute of Mathemtical Sciences (01.09.2016): The essence of Noncommutative geometry and the concept of dimension.

11. Correia, Joaquim M.C., University of Evora, Evora, Portugal (02.08.2016): Zero limit of dissipative-dispersive perturbed conservation laws.

12. Darji, Dario, Ashoka University (03.03.2017): Some Examples of University in Dynamics.

13. Das, Kajal, ENS de Lyon (01.08.2016): Coarse embedding between box spaces.

14. De, Shyamal Krishn, National Institute of Science Education & Research Odisha (22.11.2016): On Controlling Desired Error Rates of Multiple Hypothesis Testing for Sequential Data.

15. Dhar, Subhra Sanmar, IIT, Kanpur (15.03.2017): study on Robustness and Local Power of a New Test for Independence with Application in Non-parametric Regression.

16. Ganguly, Arijit, TIFR, Mumbai (10.03.2017): Khinchin type theorems in Diophantine approximation.

17. Ghate, Eknath, TIFR, Mumbai (20.01.2017): The tau of Ramanujan.

18. Ghorpade, S., IIT, Bombay (25.01.2017): Polynomial equations over finite fields.

19. Giri, Sumit, Tel Aviv University (21.10.2016): Short average distribution of a prime counting function over families of elliptic curves.

20. Hind, Richard, University of Notre Dame, USA (26.12.2016): Hamilonian flows.

21. Jana, Subhajit, ETH, Zurich (15.07.2016): Supnorm Problem of Hecke Engenforms at a Single Place.

22. Jha, Somnath, IIT, Kanpur(23.05.2016): A twisting result in Iwasawa theory.

23. Joardar, Soumalya, JNCASR, Bangalore (25.10.2016): Weyl System for the Hyperbolic place and the Lindbladian.

24. Juneja, Sandeep, TIFR, Mumbai (27.10.2016): Large deviations selecting the best population and multi-armed bandit methods.

25. Kalelkar, Tejas, IISER, Pune (12.12.2016): Taut foliations in 3-manifolds

26. Krishna, Amalendu, TIFR, Mumbai (26.09.2016): Euler class group of affine algebras.

27. Lahiri, Animesh, RKMV, SVRC (08.07.2016): Embeddings of affine algebraic varieties.

28. Mazumdar, Saikat, Universite de Lorraine, France (12.08.2016): Higher order elliptic problems with critical sobolev growth on a compact riemannian manifold: Best constants and existence.

29. Mitra, Debanjana, Department of Mathematics, Virginia Tech, Blacksburg, USA (14.02.2017): Ingham inequality and its application to PDE.

30. Murthy, Chandra R., Electrical communications Engineering, IISc, Bangalore (10.11.2016): Performance analysis of massive MIMO systems under aging channels.

31. Pareekh, Sandeepan, Vanderbilt University (25.07.2016): The Poisson boundary of a group.

32. Penrose, Mathew, University of Bath, UK (16.01.2017): Random Geometric Graphs: A Survey - Public Lecture.

33. Penrose, Mathew, University of Bath, UK (17.01.2017): Optimal Cuts of Random Geometric Graphs.

34. Penrose, Mathew, University of Bath, UK (19.01.2017): (i) The Strong Giant in a Random Digraph & (ii) Recent Results on Variants of Random Geometric Graphs.

35. Penrose, Mathew, University of Bath, UK (24.01.2017): The Strong Giant in a Random Digraph.

36. Penrose, Mathew, University of Bath, UK (25.01.2017): Recent Results on Variants of Random Geometric Graphs.

37. Poddar, Mainak, Middle East Technical University Northern Cyprus Campus, Turkish Republic of Northern Cyprus (11.07.2016): Group actions and non-Kahler complex manifolds.

38. Prasad, Dipendra, TIFR, Mumbai (09.09.2016): harmonic Analysis on Homogeneous spaces, and the Langlands program.

39. Prathamesh, T.V., Institute of Mathematical Sciences, Chennai (29.09.2016): Set Theory, Racks and Legendrian and Transverse Knots.

40. Roy, Rishdeep, IIM, Bangalore (19.01.2017): BRW pressed against a hard wall.

41. Saha, Kumarjit, TIFR Centre for Applicable Mathematics, Bangalore (09.10.2016): Continuum random tree as a scaling limit for drainage network models.

42. Sarkar, Sourav, University of California, Berkley (19.12.2016): Limiting measure for TASEP with a slow bond.

43. Sashiell, Frederick K., Jr. UCLA and Chapman University (20.12.2016): The Baire classes of a Banach Space.

44. Sathaye, Avinash, University of Kentucky (13.06.2016): A curious property of polynomials.

45. Sathaye, Avinash, University of Kentucky(22.06.2016): How to recognize hyperbola?

46. Sen, Subhabrata, Stanford University (14.09.2016): Optimization on Sparse Random Graphs and its Applications.

47. Sengupta, J., School of Mathematics, TIFR (27.01.2017): Non-vanishing and sign changes of Hecke eigenvalues for Siegel cusp forms of genus two.

48. Shrestha, G.B., IIT, Guwahati (17.11.2016): Analytical development of basic concepts for the study of Pnini's code for Sanskrit Grammar.

49. Sinha, K.B., JNCASR, Bangalore (04.05.2016): Lyapunov's Stability Problem, Growth and Spectral Bounds for Positive Semigroups.

50. Sinha, K.B., JNCASR, Bangalore (24.10.2016): Laplacian of the hyperbolic Plane and its diagonalization.

51. Sinha, K.B., JNCASR, Bangalore (26.10.2016): Operator Inequalities and a problem on Positive Semigroups.

52. Sinha, K.B., JNCASR, Bangalore (15.03.2017): Spectral Analysis of Semibounded Operators by truncation.

53. Urroz, Jorge Jimenez, UPC Barcelona (16.02.2017): Primitive roots and malleability of RSA moduli.

54. Urroz, Jorge Jimenez, UPC Barcelona (17.02.2017): Some problems on the arithmetic of Elliptic curves over finite fields.

55. Villani, Cedric, Universite de Lyon and Director, Institut Henri Poincare (26.08.2016): Of triangles, gases, prices and men.

56. Villani, Cedric, Institute Henri Poincare and University of Lyon (29.08.2016): On the synthetic theory of Ricci curvature bounds: when geometry, probability theory and calculus of variations happily meet.

57. Vishe, Pankaj, Durbam University (05.09.2016): Quartic forms in 37 variables.

58. Voiculescu, Dan Virgil, University of California, Berkley (02.01.2017): A Glimpse at bi-free probability.

59. Voiculescu, Dan Virgil, University of California, Berkley (04.01.2017): The commutant mod a normed ideal of an n-tuple of operators.

60. Yamashit, Makoto, Ochanomizu University, Tokyo (14.02.2017): Graded twisting of quantum groups, actions and categories.

Stat-Math Unit, Delhi

1. Athreya, Krishna B., Iowa State University (19.08.2016): Glivenko Cantelli theorem for noniid rvs.

2. Baier, Stephan, JNU New Delhi (28.09.2016): On gaps between zeros of Epstein's zeta function.

3. Bapat, Sudeep R., University of Connecticut (23.05.2016): Multistage Estimation of a Negative Exponential Location Under a Modified Linex Loss Function: Illustrations in Health Studies.

4. Basu, Rabeya, IISER Pune (03.04.2017): Unification of Classical Groups.

5. Bhatnagar, Gaurav, University of Vienna (28.12.2016): A_n generalizations of the elliptic WP Bailey transform and lemma.

6. Deshouillers, Jean-Marc, University of Bordeaux, France (17.04. 2017): Automatic sequences and Sarnak’s conjecture.

7. Deshouillers, Jean-Marc, University of Bordeaux, France (19.10.2016): How many integral points on a strictly convex curve?

8. Garg, Naveen, IIT Delhi (02.11.2016): Online Scheduling.

9. Giri, Sumit, Tel Aviv University, Israel (26.10.2016): Short average distribution of a prime counting function over families of elliptic curves.

10. Haq, Rukhsan-ul, JNCASR Bangalore (12.04.2017): Majorana fermions and topological Quantum Computing.

11. Jha, Somnath, IIT Kanpur (11.05.2016) : A twisting result in Iwasawa theory

12. Johnstone, Iain, Stanford University (27.01.2017): Estimating sparse eigenstructure for high dimensional data.

13. Johnstone, Iain, Stanford University (06.02.2017): Low rank structure in highly multivariate models.

14. Kumarjit Saha, TIFR Centre for Applicable Mathematics, Bangalore (27.07.2016): Continuum random tree as scaling limit for drainage network models.

15. Maddaly, Krishna, Ashoka University (22.02.2017): Eigenvalue statistics for random operators.

16. Mishra, Manish, IISER Pune (07.12.2016): Bernstein center of supercuspidal blocks.

17. Murty, M. Ram, Queen's University, Canada (05.09.2016): Twin Primes.

18. Penrose, Mathew, University of Bath, UK (16.01.2017): Random geometric graphs: a survey.

19. Penrose, Mathew, University of Bath, UK (25.01.2017): Recent results on variants of random geometric graphs.

20. Ramare, Olivier, CNRS and University of Marseilles, France (08.02.2017): A gentle stroll around the Goldbach's conjecture

21. Saikia, Manjil, University of Vienna (14.02.2017): Enumeration of Domino Tilings of an Aztec Rectangle with boundary defects.

22. Saradha, N., TIFR, Mumbai (14.09.2016): Thue inequalities.

23. Sethuraman, Prof Sunder, University of Arizona (13.07.2016): Consistency of modularity clustering in random geometric graphs.

24. Sharma, Divyum, University of Waterloo, Canada (26.04.2017): On the multi-base representation of integers.

25. Shorey, T.N., NIAS Bangalore (15.03.2017): Baker's explicit abc conjecture and its new applications.

26. Sinha, Bimal, University of Maryland, Baltimore County (09.05.2016): An overview of data analysis under confidentiality protection - analysis of noise multiplied and synthetic data.

27. Sinha, Kaneenika, IISER Pune (18.01.2017): Fluctuations of Hecke eigenvalues.

28. Srinivasan, Anitha, St Louis University, Madrid Campus (03.08.2016): The Ramanujan Primes.

29. Timer, Adam, Renyi Institute, Budapest, Hungary (11.01.2017): Factors of the Poisson point process.

30. Whitmeyer, Joseph, UNC Charlotte (09.11.2016): Steady States in Population Dynamics.

Conferences and Seminars

Stat-Math Unit, Bangalore

1. Adhikari, Prashanth, Research and Development Concur Technologies, USA (5.4.2016): Einstein's road to General Relativity.

2. Athreya, Krishna B., Iowa State University - USA and IIT Bombay (8.8.2016): Glivenko Cantelli theorem for noniid sequences of random variables.

3. Balagopalan, Sonia, Hebrew University of Jerusalem, Israel (28.4.2016): Minimal Triangulations of $\mathbb{RP}^n$: Small values of n.

4. Balakrishnan, Rohini, Indian Institute of Science, Bangalore (12.4.2016): Understanding a natural acoustic communication network.

5. Banerjee, Arindam, Purdue University, USA (28.12.2016): Homological Algebra of Ideals Related to Finite Simple Graphs.

6. Chandrahekhar, C.M., Institute of Mathematics Sciences, Chennai (30.03.2017): Quantum walk as a universal quantum simulator.

7. Chaudhury, Chitrabhanu, IISER Pune (4.4.2016): Moduli of certain Weighted Pointed Rational Curves.

8. Chowdhury, Utsav, RMVU Belur (16.1.2017, 17.1.2017 & 24.1.2017): Nori motives.

9. Dhar, Abhishek, ICTS, Bangalore (22.8.2016): Deriving Fourier's law of heat diffusion from microscopic dynamics.

10. D' Mello, Shane, IISER Pune (24.10.2016): An application of the braid group in constructing real rational representatives of knots.

11. Dutta, Sudipta, IIT Kanpur (8.7.2016): On completely bounded multipliers.

12. Gadgil, Siddhartha, Indian Institute of Science, Bangalore (3.11.2016): Metric Measure spaces; Random matrices and Riemann surfaces.

13. Giri, Varad B., National Centre for Biological Sciences – Bangalore (12.8.2016): Study of amphibians and reptiles.

14. Gomez, Tomas L., ICMAT, Madrid (10.11.2016 & 24.03.2017): Torelli theorem for the parabolic Deligne-Hitchin moduli space & Automorphisms of a symmetric product of a curve.

15. Gupta, Subhojoy, Indian Institute of Science, Bangalore (23.2.2017): Complex domains and Teichmüller space.

16. Hoegele, Michael, Universidad de los Andes, Colombia (14.6.2016): The first exit problem of dynamical systems perturbed by Brownian motion and stable processes.

17. Johnstone, Iain M., Stanford University, USA (2.2.2017): Low rank structure in highly multivariate models.

18. Kannappan, S., University of Michigan, Ann Arbor (5.7.2016 11.7.2016): An Introduction to Perfectoid Spaces.

19. Krishnapur, Manjunath, Indian Institute of Science, Bangalore (6.10.2016): A universality theorem in random matrix theory.

20. Kulkarni, Upendra, Chennai Mathematical Institute, Chennai (06.03.2017): Schur-Weyl duality and a new tensor product for representations of the general linear group.

21. Loehr, Wolfgang, University of Duisburg-Essen (21.11.2016): Concepts of (continuum) trees: R-trees versus Algebraic Trees.

22. Manjunath, Madhusudan, Queen Mary, University of London (1.9.2016): Tropical Algebraic Geometry: an Introduction.

23. Maldeghem, Hendrik Van, University of Ghent, Belgium (15.4.2016): Hack's law for Howard's model.

24. Molnar, Lajos, Bolyai Institute, University of Szeged (26.9.2016): Preserver problems.

25. Mukhopadhyay, Swarnava, University of Maryland (27.7.2016): Topology of hyperplane arrangements and invariant theory.

26. Mytnik, Leonid, Technion, Israel (22.8.2016): On the boundary of the support of super-Brownian motion.

27. Owada, Takashi, Technion, Israel (14.6.2016): Limit theorems for Betti numbers of extreme sample clouds.

28. Penrose, Mathew, University of Bath, UK (19.1.2017): (i) The strong giant in a random digraph & (ii) Recent results on variants of random geometric graphs.

29. Ramachandran, Koushik, Oklahoma State University (4.7.2016): Equidistribution of zeros of Random orthogonal polynomials.

30. Rao, KPSB, Indiana University North West Gary, USA (24.11.2016): Strictly nonzero integer valued charges on Boolean algebras.

31. Sarkar, Jyotirmoy, Indiana University-Purdue University Indianapolis, USA (2.6.2016): Randomized Response and a New Hartley-Politz-Simmons Technique.

32. Sastry, Sivashankar (14.3.2017): Maths through Origami for Indian Schools.

33. Sethuraman, J., Florida State University, USA (16.2.2017): History of the stick breaking representation of the Dirichlet Process.

34. Sethuraman, Sunder, University of Arizona, USA (25.7.2016): A scaling limit or `consistency' of modularity clustering in random geometric graphs.

35. Singh, Rajneesh Kumar, Ben-Gurion University of the Negev-Beer-Sheva, Israel (13.5.2016): Product formula for Carlitz motive.

36. Singla, Pooja, Indian Institute of Science, Bangalore (24.8.2016): On characterization of monomial irreducible representations of discrete supersolvable groups.

37. Sinha, Debajyoti, Florida State University, USA (29.7.2016): Bayesian Regression Methods for Highly Skewed Multivariate Response.

Conferences and Seminars

38. Sircar, Swati, Azim Premji University, Bangalore (25.10.2016): Playing Mathematics to Doing Mathematics.

39. Spreer, Jonathan, University of Queensland, Australia (21.9.2016): Telling 3-manifolds apart: Turaev-Viro invariants and generalised normal surfaces.

40. Tappe, Stefan, University of Hannover, Germany (29.9.2016 & 23.03.2017): Invariant manifolds with boundary for jump-diffusions & Invariance of closed convex cones for stochastic partial differential equations.

41. Uma, Divya Bellur, Azim Premji University, Bangalore (21.03.2017): Deceit and cooperation in the eight legged world.

42. Varma, Sandeep, TIFR Mumbai (22.8.2016): On Residues of Certain Intertwining Operators.

43. Voiculescu, Dan-Virgil, University of California, Berkeley (26.12.2016): Topological free entropy.

Stat-Math Unit, Chennai

1. Singh, Sanjeev, Indian Institute of Technology, Madras (05.12.2016): Turan type inequalities and bounds for some special functions.

2. Agrawal, Sarita, Indian Institute of Technology, Indore (06.12.2016): Geometric Properties of basic Hypergeometric functions.

3. Sahoo, Swadesh Kumar, Indian Institute of Technology, Indore (23.03.2016): On quasihyperbolic metric and its importance.

Applied Statistics Division

Applied Statistics Unit, Kolkata

1. Banerjee, Sayantan, OM & QT Area, Indian Institute of Management, Indore, (06.12.2016): Bayesian Nonparametric Graph Clustering: Applications in Pan-Cancer Proteomic Signaling Networks.

2. Ghoshal, Subhashis, North Carolina State University, USA. (21.06.2016): Bayesian Estimation and Uncertainty Quantification for Differential Equation Models.

3. Hassan, Sk. Sarif, Department of Mathematics, University of Petroleum and Energy Studies, Bidholi, Via Prem Nagar, Dehradun, Uttarakhand. (28.06.2016): Understanding Discrete Dynamics of a Three Dimensional System and Possible Applications in Biology.

4. Paul, Debashis, Department of Statistics, University of California, Davis, USA, (03.01.2016): Modeling non-Gaussian Processes on a Sphere Using Multi-resolution Analysis.

5. Sinha, Debajyoti, Department of Statistics, Florida State University, USA, (2.08.2016): Bayesian Regression Methods for Highly Skewed Multivariate Response.

6. Tokdar, Surya, Department of Statistical Science, Duke University, USA, (18.10.2016): Joint Estimation of Quantile Planes over Arbitrary Predictor Spaces.

Interdisciplinary Statistical Research Unit, Kolkata

1. Dey, Dipak K, University of Connecticut (25.01.2017): Canonical Variate Regression in the Era of Big Data.

2. Dharmani, Bhavesh, DAIICT, Gandhinagar (05.05.2016): On Large Scale Near Independent Blind Source Separation.

3. Dharmani, Bhavesh, DAIICT, Gandhinagar, (19.01.2017): Robust Estimation Based on a Novel Family of arctan Disparities and the Limitation of the Second Order Influence Function.

4. Ghosh, Abhik, Post-doctoral research at the University of Oslo, Norway (04.08.2016): General Model Adequacy Test and Robust Statistical Inference based on A New Family of Divergence

5. Hazra, Arnab, NC State University (16.06.2016): A non-parametric Bayesian state-space model for the analysis of annual frequency of the North Indian Ocean cyclones.

6. Kuchibhotla, Arun Kumar, Department of Statistics, University of Pennsylvania, Wharton School, USA (29.12.2016): Valid Post-Selection Inference with Random Covariates.

7. Mukhhopadhyay, Sabyasachi, University of Southampton (01.09.2016): Bayesian spatio-temporal point level modelling of air pollution concentration levels of estimating long term exposure in coarser administrative geographies in England and Wales.

8. Rahman, Arshad, IIT Kanpur, (28.02.2017): Flexible Bayesian Quantile Regression in Ordinal Models.

Applied Statistics Unit, Chennai

1. Deshpande, Jayant V., Chennai Mathematical Institute (21.04.2017): Some issues Reliability Theory.

2. Koul, Hira L, Michigan State University, East Lansing, USA (23.01.2017): Minimum distance estimation in additive models: A brief review.

3. Sarkar, Jyotirmoy, Indiana University-Purdue University Indianapolis, USA (10.06.2016): A Random Walk on a Cube.

Computer and Communication Sciences Division

Advanced Computing and Microelectronics Unit, Kolkata

1. Dasgupta, Pallab and Dey, Soumyajit, Dept. of Computer Science & Engg., IIT Kharagpur (07.04.2016): Emerging Research Opportunities in Cyber-physical Systems and related research.

2. Drechsler, Rolf, University of Bremen / DFKI, Germany (16.08.2016): Synthesis and Verification of Approximate Circuits.

3. Dutta, Kunal, INRIA Sophia Antipolis - Mediterranee (21.12.2016–23.12.2016): Combinatorial Discrepancy.

4. Easwaran, Arvind, Nanyang Technological University (NTU), Singapore (12.12.2016): Mixed-Criticality Scheduling to Minimize Makespan.

5. Fujita, Masahiro, Dept. of Electrical Engineering and Information, Univ. of Tokyo, Japan, (27.04.2017): Very efficient power gating for higher performance computing.

6. Laskar, Renu, Dept. of Mathematical Sciences, Clemson University (25.01.2017): Beautiful Minds.

7. Rajamani, Sriram, Microsoft Research India (15.09.2016): Security and Privacy in the Cloud.

8. Regan, Kenneth W., Dept. of CSE, University at Buffalo, SUNY, USA (02.08.2016): Statistical Pitfalls and Lessons from a model of Human Decision-Making at Chess.

Electronics and Communication Sciences Unit, Kolkata

1. Agarwal, S., TCS Innovation Lab (15.11.2016): On Automatic Recognition and Synthesis of Emotional Facial Expressions.

2. Banerjee, S., IIT, Delhi (15.12.2016): On large scale 3D reconstruction from images and videos.

3. Bose, A., Springer India Pvt. Ltd. (09.08.2016): How to write for and get published in scientific journals.

4. Dasgupta, P., University of Nebraska, Omaha (03.11.2017): Fast Learning Robot Navigation Maneuvers from Past Experiences.

5. Saha, P.K., University of Iowa, USA (04.01.2017): Skeletonization and its application to quantitative morphometry.

Machine Intelligence Unit, Kolkata

1. Dash, Debasis, CSIR-IGIB (30.03.2017): Challenges in Proteogenomics in Exploring Protein Coding Landscapes.

2. Deb, Kalyanmoy, Michigan State University, East Lansing, USA (23.09.2016): Optimization via Nature: Principles, Performance and Promises.

3. Doshi, Amit, MATLAB, INDIA (09.08.2016): Rise of engineering driven data analytics, Accessing Big Data and Analyzing it, Increasing Computation Speed, Data Analytics Demo 1) Health Monitoring 2) Sensor Analytics, Taking analytics to production.

4. Naik, Sarif Kumar, Philips Research India (30.3.2017): Image Analysis for Cervical Cancer Screening.

5. Sarkar, Sudeshna, IIT, Kharagpur (30.3.2017): Deep Learning.

Documentation Research and Training Centre, Bangalore

1. Roy Chowdhury, Soudip, Director, Data Science, Fractal Analytics, Mumbai (12.05.2016): Interactive AI - keeping users in the loop.

Computer Science Unit, Chennai

1. Chakraborti, Anirban, School of Computational and Integrative Sciences, Jawaharlal Nehru University, New Delhi (23.12.2016): Mesoscopic networks in socio-economic complex systems.

2. Karmakar, Madhuparna, Institute of Mathematical Sciences, Chennai (21.10.2016): Population imbalanced Fermi superfluid.

Physics and Earth Sciences Division

Geological Studies Unit, Kolkata

1. Basilici, Giorgio, Institute of Geosciences, University of Campina, Sao Paulo, Brazil (01.12.2016): Palaeosols and Deposits in the temporal evolution of a semiarid fluvial distributary system.

2. Beukes, N.J., DST-NRF Centre of Excellence for Integrated Mineral and Energy Resource Analysis (CIMERA), Department of Geology, University of Johannesburg, South Africa. (16.01.2017): Pre GOE (Great Oxygenation Event) Iron Formation.

3. Soares, M.V.T., Institute of Geosciences, University of Campina, Sao Paulo, Brazil (01.12.2016): Proximal portion of a semiarid fluvial system.

4. Shanmugam, G., University of Texas at Arlington, USA and consultant for Exxon Mobil Oil Company (10.11.2016): The fallacy of interpreting soft-sediment deformation structures (SSDS) with different types of breccias as seismites amid the multifarious origins of earthquakes: Implications.

5. Shanmugam, G., University of Texas at Arlington, USA and consultant for Exxon Mobil Oil Company (11.11.2016): The landslide problem

6. Shanmugam, G., University of Texas at Arlington, USA and consultant for Exxon Mobil Oil Company (11.11.2016): Deep-water bottom currents.

Physics and Applied Mathematics Unit, Kolkata

1. Ali, Amna, S. N. Bose Centre for Basic Sciences, Kolkata (13.06.2016): The future evolution of the two scale inhomogeneous universe and the analogous scalar field cosmology.

2. Banerjee, Arunima, IUCAA, Pune (29.12.2016): Vertical structure of disk galaxies & their dark matter halos.

3. Banerjee, Saikat, Condensed Matter Physics Nordic Institute of Theoretical Physics, Nordita (02.01.2017): Magnons in a honeycomb ferromagnet.

4. Chakraborty, Mainak, Department of Physics, Saha Institute of Nuclear Physics, Kolkata (13.06.2016): A generalized approach towards diagonalization of neutrino mass matrix and baryogenesis through leptogenesis.

5. Dey, Sanjib, Centre de Recherches Mathematiques, Universite de Montreal, Canada (29.12.2016): Non-commutative spaces with generalized uncertainty principle and their implications in quantum information theory.

6. Ganguly, Nirman, Haritage Institute of Technology, Kolkata (07.06.2016): Existence of hermitian operators to detect non-absolutely separable states.

7. Lala, Arindam, S. N. Bose Centre for Basic Sciences, Kolkata (14.06.2016): Gauge, gravity corrections and black hole physics.

8. Mamon, Al Abduall, Viswa Bharati, Santiniketan, (14.06.2016): Non-canonical scalar field: A new approach to dark energy problem.

9. Mazumdar, Arindam, Theoretical Physics, Saha Institute of Nuclear Physics, Kolkata (19.10.2016): Curvature perturbations from preheating.

10. Modak, Sanhita, Netaji Subhash Engineering College, Techno City Garia, Kolkata (13.06.2016): Renormalization group approach to spinor Bose-Fermi mixtures in a shallow optical lattice.

11. Mohapatra, Abhishek, The Ohio State University, USA (06.01.2017): Dense axion stars.

12. Mukherjee, Abhik, Saha Institute of Nuclear Physics, Kolkata (14.06.2016): Study of high amplitude nonlinear oceanic waves in both deep and shallow water limit.

13. Nath, Palash, Department of Physics, Calcutta University, Kolkata (13.06.2016): Theoretical study of electronic and optical properties of grapheme systems.

14. Poria, Swarup, Department of Applied Mathematics, University of Calcutta (4.05.2016): Existence & uniqueness of solution of ODE; an overview.

Biological Sciences Division

Biological Anthropology Unit, Kolkata

1. Dobe, M., All India Institute of Hygiene *&* Public Health (16.1.2017): An overview on the role of Statistics in health .

Human Genetics Unit, Kolkata

1. Banerjee, Sreeparna, Associate Professor, Department of Biological Sciences, Middle East Technical University, Ankara, Turkey (18.01.2017): Intestinal epithelial cell differentiation and inflammation: dissection of molecular mechanisms.

Social Sciences Division

Economic Research Unit, Kolkata

1. Bhattacharya, Sourav, Department of Economics, Royal Holloway University of London, United Kingdom (04.08.2016): A Possibility Theorem on Information Aggregation in Elections.

2. Bhattacharya, Souray, Department of Economics, Royal Holloway University of London, United Kingdom (14.12.2016): Strategic Communication and Group Formation.

3. Bradford, Charles, Scott, Department of Economic, Brigham Young University, Provo, USA (09.01.2017): A General Equilibrium Model of Migration and Poverty.

4. Chatterjee, Kalyan, Department of Economics, The Pennsylvania State University, USA (04.01.2017): Triggering Extremism: Political Consequences of Profit Seeking Media.

5. Chatterjee, Santanu, Department of Economics, University of Georgia, USA (14.12.2016): The Macroeconomic Consequences of Remittances.

6. Chaudhuri, Ananish, Department of Economics, University of Auckland, New Zealand (15.12.2016): Piece-rates and Tournaments: Implications for Learning in a Cognitively Challenging Task.

7. Das, Satadru, Department of Economics, Louisiana State University, Baton Rouge, USA (25.07.2016): Analyzing the Impact of the World's Largest Public Works Project on Family Planning.

8. Kar, Anirban, Department of Economics, Delhi School of Economics, University of Delhi (22.11.2016): Local Institutional Structure and Clientelistic Access to Employment: The Case of MGNREGS in Three States of India.

9. Mallik, Girijasankar, School of Business, Locked Bag 1797, Penrith South DC, NSW 1797, Australia (27.01.2017): Demonetisation: Causes and Consequences.

10. Modak Chowdhury, Subhasish, School of Economics, Centre for Behavioural and Experimental Social Science, and Centre for Competition Policy, University of East Anglia, United Kingdom (21.12.2016): Post-Cartel Tacit Collusion: Determinants, Consequences and Prevention.

11. Lunawat, Radhika, University of California-Irvine, Paul Merage School of Business, Irvine, CA, U.S.A. (29.12.2016): Soft Information Production and Investment in Specific Assets.

12. Roy, Sanchari, Department of Economics, University of Sussex, United Kingdom (12.01.2017): Sex Workers, Self-Image and Stigma: Evidence from Kolkata Brothels.

Population Studies Unit, Kolkata

1. Bhattacharya, Gargi, Department of Economics, Mahadevananda Mahavidyalaya, Barrackpore, Kolkata (26.08.2016): Reproductive and Child Health in the Context of Demographic Dividends in India: Some Emerging Policy Issues.

2. Dey, Dilip Kumar, Additional Director, Ministry of HRD, Ministry of Defence and Ministry of Home (24.03.2017): Dynamics of Concept and Definition in Indian Census.

Conferences and Seminars

3. Haldar, Susil Kr., Centre for Advanced Studies, Economics Department, Jadavpur University, Kolkata (27.02.2017): Determinants of Declining Juvenile Sex Ratio in India: A Panel Data Analysis.

4. Mukherjee, Subrata, Institute of Development Studies, Kolkata (17.02.2017): Measuring the Multidimensionality of Household Catastrophic Health Expenses: Evidence from Rural West Bengal.

Sociological Research Unit, Kolkata

1. Bhaduri, Amit, Professor Emeritus, Jawaharlal Nehru University, New Delhi & *Research Professor*, University of Goa, Goa, India (06.09.2016): Danger Zones Of High Economic Growth.

2. Bhattacharyya, Susmita, Department of Sociology, Prasanta Chandra Mahalanabis Mahavidyalaya, Kolkata (27.06.2016): Revisiting Rabindra Sangeet in Contemporary Situation.

3. Bose, Kaushik, Anthropology Department, Vidyasagar University, Medinapore (03.02.2017): Nutritional Profile of Adult Tribal Populations in India: A Review.

4. Chakraborty, Arindam, S.R. Lahiri Mahavidyalaya Majdia, Nadia (27.02.2017): Economic and Social Aspects of MNNAGERA.

5. Chakraborty, Basabi**,** Department of Sociology, Rabindra Bharati University, Kolkata (16.01.2017): Violence Against Women - A Socio-Legal Perspective.

6. Chatterjee, Subrata, Khejuri College, East Medinipur, W.B. (02.11.2016): Sanitation and Rural Development.

7. Roy Chowdhury, Arnab, PPM Group, IIM-C, Joka (26.08.2016): A Peasant or a Miner? Agrarian Transition, De-peasantisation and Gemstone mining in Western Odisha.

8. Roy Chowdhury, Sarthak, Department of Sociology, Gokhale Memorial Girls' College (04.07.2016): For another complement from Cosmos.

Economics and Planning Unit, Delhi

1. Aggarwal, Nidhi, IGIDR (06.03.2017): The causal impact of algorithmic trading on market quality.

2. Agnieszka, Wiszniewska-Matyszkiel, Institute of Applied Mathematics and Mechanics, University of Warsaw (17.01.2017): Dynamic oligopoly with sticky prices.

3. Anand, Abhinav, University College Dublin (09.12.2016): Integration among us banks: trends and determinants.

4. Anand, Abhinav, Visiting Scientist (27.01.2017): Who does affirmative action better? China or India?

5. Azariadis, Costas, Washington University (16.12.2016): Credit cycles and business cycles.

6. Banerjee, Ritwik, IIM, Bangalore (25.11.2016): Combatting corruption: Role of monetary and non-monetary interventions.

7. Barua, Rashmi, JNU (30.09.2016): Financial education vs. financial access: field experimental evidence from transnational households in the philippines.

8. Basu, Sujata, Jawaharlal Nehru University (07.04.2016): Distance to frontier, human capital and economic growth: a theoretical and cross-country empirical analysis.

9. Bhaskar, Umang, TIFR (28.10.2016): Optimal signaling in bayesian games.

10. Bhattacharya, Prasad, Deakin University (11.11.2016): The political economy of land reform enactment and implementation: new cross-national evidence (1900-2010).

11. Borah, Abhinash, Ashoka University (12.08.2016): Socially justify then choose: a theory of social influence in individual choice.

12. Chaithanya, Jayakumar, University of Siena (01.06.2016): Analysing inflation dynamics in india using time varying SVAR model.

13. Chakraborty, Tanika, IIT Kanpur (16.09.2016): School feeding and cognitive skills: evidence from india's midday meal program.

14. Chatterjee, Swarnendu, Maastricht University (15.03.2017): Frequency Based Analysis of Voting Rules.

15. Das, Piyali, Indiana University, Bloomington (19.08.2016): Fiscal financing components in a simple model of policy interaction.

16. Datt, Gaurav, Monash University (01.04.2016): Growth urbanization and poverty reduction in India.

17. Desai, Sonalde, University of Maryland (03.03.2017): Do public works programs increase women's economic empowerment?.

18. Dubey , Ram Sewak ,Montclair State University (22.07.2016): On construction of social welfare orders satisfying hammond equity and weak pareto axiom.

19. Dutta, Prajit K., Columbia University, New York (16.01.2017): Compromise is key to repeated bargaining.

20. Bahal, Girish, National council of applied economic research (08.03.2017): Estimating transfer multiplier using spending on rural development programs in india.

21. Gupta, Abhimanyu, University of Essex (29.04.2016): Nonparametric specification testing via the trinity of tests.

22. Jha, Chandan Kumar, Le Moyne College (27.07.2016): The role of historical resource scarcity in modern gender inequality.

23. Jha, Nikhil, University of Melbourne (14.10.2016): No time for crime? the effect of compulsory engagement on youth crime.

24. Kakar, Venoo, San Francisco State University (11.01.2017): Asset prices and optimal monetary policy.

25. Kunimoto, Takashi, Singapore Management University (23.02.2017): Rationalizable implementation of correspondences.

26. Kumar, Alok, University of Victoria, Canada (24.03.2017): Earning risks, parental schooling investment and old-age income support from children.

27. Lahiri, Abhinaba, Maastricht University (10.03.2017): Strategy-proof location of public bads in a two-country model.

28. Mitra, Shabana, Indian Institute of Management Bangalore (17.03.2017): Wheels of power: Long-term effects of a one time targeted program.

29. Patnaik, Megha, Stanford University (07.03.2017): Financing micro and small firms during the great recession.

30. Ranjan, Priya, UC Irvine (21.07.2016): Optimal labor market regulations in the context of structural transformation.

31. Serizawa, Shigehiro, Osaka University (06.02.2017): Multi-object auction design without quasilinearity: revenue maximization with no wastage.

32. Sethi, Rajiv, Columbia University (21.10.2016): Culture and communication.

33. Sharma, Anisha , Ashoka University (10.02.2017): The impact of a macroeconomic crisis on child schooling outcomes in Indonesia.

34. Spears, Dean, RICE (18.11.2016): Health externalities of India's expansion of coal plants: Evidence from a national panel of 40,000 households.

35. Soundararajan, Vidhya, IIM Bangalore (31.03.2017): The role of political activists in clientelistic settings: evidence from an indian public works program.

36. Sinha, Rishabh, World Bank (05.08.2016): Sectoral productivity gaps and aggregate productivity.

37. Tuteja, Divya , Delhi School of Economics (13.12.2016): Revisiting decoupling and recoupling of bric stock markets with U.S. and Eurozone.

Economic Analysis Unit, Bangalore

1. Bakshi, Aparajita, TISS, Mumbai (12.09. 2016): Income diversification in Rural India.

2. Panda, Sitakanta, IIT, Delhi (21.09.2016) : Factors in BPL card allocations.

3. Herring, J. Ronald, Cornell University, Itacha (27.01.2017): Political Puzzles of the GMO: It's Not About the Science.

4. Rajeev, Meenakshi, ISEC, Bangalore (03.03.2017): National Accounts Statistics.

Center for Soft Computing Research, Kolkata

1. Basu, Rajendra N., CSIR-Central Glass & Ceramic Research Institute, Kolkata (15.09.2016): Solid Oxide Fuel Cell: An Alternate Source of Power Generation.

2. Basu, Tanmay, University of Michigan, USA (27.02.2017): NLP for Knowledge Discovery in Biomedical text.

3. Mandal, Bappaditya, Institute for Infocomm Research A*STAR, Singapore (13.12.2016): Assistive Vision Based Methodologies in Wearable Devices.

4. Roy, Siddhartha, Bose Institute, Kolkata (28.02.2017): Genomes, Epigenomes and Beyond.

5. Sinha, Sitabhra, Institute of Mathematical Sciences, Chennai (20.05.2016): Modeling the dynamics of brain activity at the meso-scale.

6. Stolkin, Rustam, University of Birmingham, U.K. (29.11.2016): Advanced robotics for nuclear decommissioning.

7. Tsutsui, Shigeyoshi, Hannan University & Osaka Prefecture University, Japan (11.01.2017): Parallel Processing of Evolutionary Algorithms with GPGPUs for Fast Solving Combinatorial Optimization Problems.

5. SANKHYĀ

The internationally renowned journal *Sankhyā,* an official publication of the Indian Statistical Institute, was founded by Professor P.C. Mahalanobis in 1932 and began publication under his editorship. It is devoted to original research articles in Probability, Mathematical Statistics and Applied Statistics. 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.* The journal is published in two separate series – Series A and Series B. Series A with two issues per year, one in February and the other in August, covers Probability and Theoretical Statistics, while Series B with two issues per year, one in May and the other in November, covers Applied and Interdisciplinary Statistics. The present Editorial Board (2016-2018) of *Sankhyā* is as follows:

Editor-in-Chief	: Dipak K. Dey, University of Connecticut, USA.
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Beginning 2010, Springer has entered into a co-publication agreement with the Institute and has taken over exclusive rights for the international distribution of the journal, in both prints and electronic editions from 2010. The editorial system is now completely electronic, that is, the entire process starting from submission of articles to editorial processing ending in final editorial decision for articles is now done online. The free access to the electronic editions of *Sankhyā* is expected to be available for all scientific workers of the Institute through Springer.

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The following issues have been published during April 2016 to March 2017:

May, 2016	: Volume 78, Part I, Series B [Both Electronic and Print Editions]
August, 2016	: Volume 78, Part II, Series A [Both Electronic and Print Editions]
November, 2016	: Volume 78, Part II, Series B [Both Electronic and Print Editions]
February, 2017	: Volume 79, Part I, Series A [Both Electronic and Print Editions]

6. SCIENTIFIC PAPERS AND PUBLICATIONS

(Some Publications may have multiple entries due to collaboration across Units)

Books Published

Theoretical Statistics and Mathematics Division

Stat Math Unit, Kolkata

1. Goswami, D. and Bhowmick, J.: *Quantum Isometry Groups,* Infosys Science Foundation Series*,* Springer*,* New Delhi, 2016.

2. Sarbadhikari, H. and Srivastava, S.M.: *A Course on Basic Model Theory*, Springer, New Delhi, 2017.

Stat Math Unit, New Delhi

1. Bandyopadhyay, A. and Thacker, D.: *On Pólya Urn Schemes with Infinitely Many Colors. Bernoulli (Journal of Bernoulli Society),* 23(4B): 3243–3267, 2017.

2. Bhatia, R.: *Linear Algebra and Analysis Masterclasses*, Indian Academy of Science, 2016.

Applied Statistics Division

Interdisciplinary Statistical Research Unit, Kolkata

1. Basu, A. and Basu, S.: *A User's Guide to Business Analytics*, CRC Press (A Chapman & Hall Book), Boca Raton, Florida, 2016.

2. Chandra, T K and Gangopadhyay, S.: *Fundamentals of Probability Theory*, Narosa Publishing House Pvt. Ltd., 2017.

3. Pal, A., and Pal, S.K.(eds.): *Pattern Recognition and Big Data*, World Scientific, Singapore, pages 876, 2017, ISBN: 978-981-3144-54-5 (hardcover).

Computer and Communication Sciences Division

Advanced Computing and Microelectronics Unit, Kolkata

1. Bhunia, S., Ray, S. and Sur-Kolay, S. (eds.): *Fundamentals of IP and SoC Security – Design, Verification and Debug*, Springer, 2017.

Publications

Machine Intelligence Unit, Kolkata

1. Rodriguez, J.M.C., Mitra, S., Thampi, S.M. and El-Alfy, E.-S.: *Intelligent Systems Technologies and Applications 2016*, Advances in Intelligent Systems and Computing, Springer, 530, 2016.

Social Sciences Division

Economic Research Unit, Kolkata

1. Ghosh, C. and Ghosh, A.: *Indian Economy: A Macro-theoretic Analysis*, Prentice Hall of India Learning Private Limited, Delhi, 256, 2016.

Linguistic Research Unit, Kolkata

1. Dasgupta, P., Ertl, S., Jacobsen, J.L.and Moinhos, S. (eds.): *Beletra Almanako 26,* Mondial, New York, 2016.

2. Dasgupta, P., Ertl, S., Jacobsen, J.L.and Moinhos,S. (eds.): *Beletra Almanako 27,* Mondial, New York, 2017.

3. Dash, N.S., Bhattacharyya, P. and Pawar, Jyoti D. (eds.): *The WordNet in Indian Languages*, Springer, Singapore, HB, 275, 2017 (ISBN: 978-981-10-1907-4).

Sociological Research Unit, Kolkata

1. Ghosh, B.N.: (Bengali translation by Himanshu Ghosh), *Gramin Netritya O Unnayan,* Pragatisil Prakasak, Kolkata, 222, 2016, ISBN: 978-81-89846-62-6.

2. Ghosh, B.N.: *Empowerment of Women in North East in India,* Concept Publishing Company (P) Ltd, New Delhi, 183+xxiii, 2016, ISBN-13:978-93-5125-104-0**.**

Economics and Planning Unit, New Delhi

1. Ghate, C. and Kletzer, K. (UCSC) (eds.): *Monetary Policy in India: A Modern Macroeconomic Perspective,* Springer Verlag, India, 2016.

Economic Analysis Unit, Bangalore

1. Swaminathan, M. and Das, A.: *Socio-Economic Surveys of Three Villages in Karnataka,* Tulika Books, New Delhi, 2017, ISBN 9789382381884.

Statistical Quality Control and Operations Research Division

SQC & OR Unit, Kolkata

1. Neogy, S.K., Bapat, R.B., Das, A.K**.** and Pradhan, B., (eds): *Optimization Models with Economic & Game Theoretic Applications*, *Annals of Operations Research***,** Springer Publication, ISSN 0254-5330, Annals of Operations Research, Online Version: DOI: 10.1007/s10479-016-2250-0, 2016.

SQC & OR Unit, Bangalore

1. Antony, J., Vinodh, S., and Gijo, E.V.: *Lean Six Sigma for Small and Medium Sized Enterprises: A Practical Guide*, CRC Press, New York, 215, 2016.

Centre for Soft Computing Research, Kolkata

1. Misra, S. and Pal, S K. (eds.).: *Soft Computing Applications in Sensor Networks*, Chapman & Hall/CRC, Boca Raton, Florida, 284, 2017, ISBN No. 13: 978-1-4822-9875-8, 2017.

2. Pal, S.K., Ray, S.S. and Ganivada, A.: *Granular Neural Networks, Pattern Recognition and Bioinformatics*, (Series: Studies in Computational Intelligence), Springer Verlag, Heidelberg, 240, ISBN: 978-3-319-57115-7 (ebook); ISBN: 978-3-319-57113-3 (hardcover); Series ISSN: 1860-949X, 2017.

3. Pal, A. and Pal, S.K. (eds.): *Pattern Recognition and Big Data, World Scientific*, Singapore, 876, ISBN No. 978-981-3144-54-5, 2017.

Papers Published in Journals

Theoretical Statistics and Mathematics Division

Stat-Math Unit, Kolkata

1. Bhowmik, M. and Sen, S.: An uncertainty principle of Paley and Wiener on euclidean motion group, Online Version: DOI: 10.1007/s00041-016-9510-x, 2016.

2. Banerjee, D. and Bose, A.: Bulk behaviour of some patterned block matrices*, Indian Journal of Pure and Applied Mathematics, Special issue on Stochastic Systems and Applications*, **47(2)**, 273-289, 2016.

3. Basak, G. K. and Biswas, A. : Langevin type limiting processes for adaptive MCMC, *Indian Journal of Pure Applied Mathematics,* **47(2)**, 301–328, 2016.

4. Bhatwadekar, S.M., Gupta, N. and Lokhande, S.: Some K-theoretic properties of the kernel of a locally nilpotent derivation on k[X_1, \dots, X_4], *Transactions of American Mathematical Society*, **369 (1)**, 341-363, 2017.

Publications

5. Basak, G. K. and Das, S. (ERU): Intercept homogeneity test for fixed effect models under cross-sectional dependence: Some insights, *Journal Economic Method*ology, **1**, 2015-0004, **22**, Online Version: DOI: https://doi.org/10.1515/jem-2015-0004, 2017.

6. Bhattacharjee, M. and Bose, A.: Matrix polynomial generalizations of the sample variance-covariance matrix when p/n → 0, Random *Matrices: Theory and Applications*, 5**(4)**, 1650014, 41, Online Version: DOI: 10.1142/S2010326316500143, 2016.

7. Bose, A., Pal, D. and Sappington, D.: Pricing to preclude sabotage in vertically integrated regulated industries, *International Journal of Industrial Organization*, **51**, 162-184, 2017.

8. Biswas, M., Sarkar, S. and Ghosh, A.K.: On some exact distribution-free tests of independence between two random vectors of arbitrary dimensions*, Journal of Statistical Planning and Inference*, **175**, 78-86, 2016.

9. Chakrabarty, A., Hazra, R.S. and Sarkar, D.: From random matrices to long-range dependence, *Journal: Random Matrices: Theory and Applications***, 5(2)**, 1650008, 52, 2016.

10. Chakraborty, A. and Chaudhuri, P.: Tests for High-Dimensional data based on means, Spatial signs and saptial ranks, *The Annals of Statistics*, **45**, 771-799, 2017.

11. Dutta, A.K. The bhavana in Mathematics, *Bhavana*, 1**(1)**, 13—19, 2017.

12. Dutta, S. and Ghosh, A.K.: On some transformations of high dimension, low sample size data for nearest neighbor classification, *Machine Learning*, 102 **(1)**, 57-83, 2016.

13. Dutta, S., Sarkar, S. and Ghosh, A. K.: Multi-scale classification using localized spatial depth, *Journal of Machine Learning Research*, 17 **(218)**, 1—30, 2016.

14. Dasgupta, R.: Growth curve of elephant foot yam under moderate to severe stress and plant sensitivity, *International Journal of Horticulture*, 6**(14)**, 1-8, Online Version: DOI: 10.5376/ijh.2016.06.0014), 2016.

15. Etingof, P., Goswami, D., Mandal, A. and Walton, C.: Hopf coactions on commutative algebras generated by a quadratically independent comodule, *Communications in Algebra*, 45 **(8)**, 3410–3412, 2017.

16. Goswami, D. and Roy, S.: Faithful actions of locally compact quantum groups on classical spaces, *Letters in Mathematical Physics*, **107(7)**, 1375-1390, Online Version: DOI: 10.1007/s11005-017-0951-1, 2017.

17. Goswami, D. and Mandal, A.: Quantum isometry groups of dual of finitely generated discrete groups and quantum groups, *Reviews in Mathematical Phys*ics, **29 (3)**, 38, 1750008, 2017.

18. Ghosh, A.K. and Biswas, M.: Distribution-free high dimensional two-sample tests based on discriminating hyperplanes, *Test*, **25 (3)**, 525-547, 2016.

19. Maulik, K. and Podder, M.: Ruin probabilities under Sarmanov dependence structure, *Statistics and Probability Letters*, **117**, 173-182, 2016.

20. Mukherjee, G. Sarkar, S. and Sen, D.: Finite group actions on Kan complexes' – Journal of the *Indian Mathematical Society,* **83(1-2)**, 145-160, 2016.

21. Pal, A. K., Mondal, P. K. and Ghosh, A. K.: High dimensional nearest neighbor classification based on mean absolute differences of inter-point distances, *Pattern Recognition Letters*, **74**, 1-8, 2016.

22. Ray, S.K.and Sengupta, J.: Remark on a theorem of A. Atzmon regarding uniform approximation, *J. Ramanijan Math. Soc*., **31(4)**, 431–438, 2016.

Stat-Math Unit, Delhi

1. Akian, M., Bapat, R. and Gaubert, S.: Non-archimedean valuations of eigenvalues of matrix polynomials, *Linear Algebra and Its Applications*, **498**, 592-627, 2016.

2. Bapat, R.B. and Neogy, S.K.: On a quadratic programming problem involving distances in trees, *Annals of Operations Research*, 243 **(1-2)**, 365-373, 2016.

3. Bapat, R.B., Panda S.K. and Pati S.: Strong reciprocal eigenvalue property of a class of weighted graphs, *Linear Algebra and Its Applications*, **511**, 460-475, 2016.

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Applied Statistics Unit, Chennai

1. Jyethi, D.S.: Air quality: Global and regional emissions of particulate matter, SOx and NOx, *Plant responses to Air Pollution,* U. Kulshreshtha and P. Saxena (eds.), Springer Nature, 5-19, 2016, ISBN 978-981-10-1201-3.

Computer and Communications Sciences Division

Advanced Computing and Microelectronics Unit, Kolkata

1. Saha, D. and Sur-Kolay, S.: FPGA-based IP and SoC Security, *Fundamentals of IP and SoC Security - Design, Verification and Debug,* Springer, 167-197, 2017.

Machine Intelligence Unit, Kolkata

1. Maji, P. and Paul, S.: Fundamentals of Rough-Fuzzy Clustering and Its Application in Bioinformatics, *Pattern Recognition and Big Data*, A. Pal and S.K. Pal (eds.), World Scientific, Singapore, 513-543, 2016.

Publications

Documentation, Research and Training Centre, Bangalore

1. Chatterjee, U., Giunchiglia, F., Madalli, D.P. and Maltese, V.: Modeling Recipes for Online Search, *On the Move to Meaningful Internet Systems: OTM 2016 Conferences,* C. Debruyne, H. Panetto, R. Meersman, T. Dillon, Eva Kühn, D. O'Sullivan and C.A. Ardagna (eds.), Springer International Publishing, 625–642, https://doi.org/10.1007/978-3-319-48472-3_37, 2016.

Physics and Earty Sciences Division

Geological Studies Unit

1. Saha, D., Patranabis-Deb, S. and Collins, A.S.: Proterozoic stratigraphy of southern Indian cratons and global context, *Stratigraphy and Timescales* v.1, M.Montenari (ed.), Elsevier, 1-59, 2016.

Biological Sciences Division

Biological Anthropology Unit, Kolkata

1. Basu, I., Mukhopadhyay, S., Som, N., Roy, S.: Mental health status of school going urban adolescents: A study in West Bengal, *Readings in Biological Anthropology,* S. Ghosh and D.K. Limbu (eds.), B.R. Publishing Corporation, Delhi, 277, 2017.

2. Kar Purakayastha, S. and Mukhopadhyay, B.: Establishing ethical benchmark in clinical practice: Is it necessary?, *Ethical Practice in Medicine: Contemporary Commentaries,* K. Ray and S. Datta (eds.), Kolkata Network of Ethics in Medicine, Kolkata, 95-100, 2016.

3. Kundu Chowdhury, T. and Roy, S.K :.Study on the Somatotype of Male Oraons of North 24 Parganas, West Bengal, *Contemporary Anthropological Research in Eastern and North Eastern India*, Sarthak Sengupta (ed.), Gyan Publishing House, Delhi, pages 277, 41 – 54, 2017.

4. Malakar,B .and Roy S.K :.Comparison of selected anthropometric traits of two Santal occupational groups of Birbhum district, West Bengal, *Readings in Biological Anthropology,* Ghosh, S., Limbu, D.K .and Khongsdier, R. (eds.), B.R .Publishing Corporation, New Delhi ,277, 2016.

5. Mukhopadhyay, B**:**Biological vis-à-vis sociocultural Identities of the Bhutia-Lepcha tribal communities of Sikkim, *Identities, Ethnic Boundaries and the State,*INCAA Occasional Papers, A . K .Danda (ed.), INCAA, Jhargram, 173-186 ,2017.

6. Roy, S.K .and Kundu Chowdhury,T. :.Health status and lifestyle of the Oraon tea garden labourers of Jalpaiguri district, West Bengal*, Work and Health in India, Hyde*, M., Singh Chungkham, H .and Ladusingh, L. (ed.), University of Bristol, Policy Press ,U.K., 224, 2017.

Social Sciences Division

Economic Research Unit, Kolkata

1. Banerjee, P., Mitra, M. and Mukherjee, C.: Kolkata Restaurant Problem: Some further research directions, *Econophysics and Sociophysics: Recent Progress and Future Directions*, F

Abergel, H. Aoyama, B.K. Chakrabarti, A. Chakraborti, N.Deo, D.Raina and I.Vodenska (eds.) New Economic Window Series, Springer Verlag Italia, Milan, 125-130, 2017.

2. Banerjee, P., Mitra, M. and Mukherjee, C: Game Theory (Classical): A Brief Introduction, Invited appendix, *Econophysics of the Kolkata Restaurant Problem & Related Games: Classical and Quantum Strategies for Multi-agent Multi-choice Repetitive Games*, B.K. Chakrabarti, A.Chatterjee, A.Ghosh, S.Mukherjee and B.Tamir, New Economic Window Series, Springer Verlag Italia, Milan, 147-161, 2017.

3. Bharati, S. (SRU), Pal, M. and Bharati, P. (BAU): Child Health in North East India, *Contemporary Anthropological Research in Eastern and North Eastern India*, S. Sengupta *(*ed.), Gyan Publishing House, New Delhi, 87-100, 2017.

4. Chakravarty, S.R. and Lugo, M.A.: Multidimensional Indicators, *Oxford Handbook of Well-Being and Public Policy,* M.D. Adler and Marc Fleurbaey (eds.), Oxford University Press, New York, 246-285, 2016

5. Chakravarty, S.R., Chattopadhyay, N.(SOSU) and Silber, J.: A poverty Line Contingent on Reference Groups: Implications for the Extent of Poverty in Some Asian Countries, *The Asian Poverty Miracle, Impressive Accomplishments or Incomplete Achievements,* J. Silber and G. Wan (eds.), Edward Elgar, Cheltenham, 30-52, 2016.

6. Chakravarty, S.R., Chattopadhyay, N.(SOSU) and Silber, J. and Wan, G.: Measuring the Impact of Vulnerability on the Number of Poor: A New Methodology with an Empirical Illustration, *The Asian Poverty Miracle: Impressive Accomplishments or Incomplete Achievements,* J.Silber and G. Wan (eds.), Edward Elgar, Cheltenham, 84-117, 2016.

7. Sarkar, A. and Neogi, C.: Economic Development and Political Stability, *Decentralization, Governance and Development: An Indian Perspective*, P.K.Das (ed.), Orient Black Swan, 253–274, 2017.

Linguistic Research Unit, Kolkata

1. Dasgupta, P.: Pri la forpaso de Detlev Blanke, *Beletra, A. 27,* Probal Dasgupta, István Ertl, Jesper Lykke Jacobsen, Suso Moinhos (eds.), New York, Mondial, 96, 2016.

2. Dasgupta, P.: La dialektoj, la beletro kaj la maldika priskribado, *Lingua, Politica, Cultura: Serta Gratulatoria in honorem Renato Corsetti,* F. Gobbo (ed.), New York, Mondial, 57-67, 2016.

3. Dasgupta, P.: Analysis and modernity: the language debate in the Bangiya Sahitya Parishad, *Language Policy and Education in India: Documents, Contexts, and Debates,* M. Sridhar, S. Mishra (eds.), London/ New York, Routledge, 112-125, 2017.

4. Dasgupta, P.: Antanaš Poška and Esperanto in India, *India and Lithuania – A Personal Bond,* L.Talat-Kelpša (ed.), New Delhi, Vilnius: Lithuanian Embassy, New Delhi, 71-80, 2017.

5. Dash, N.S.: Indian languages in School Education: the Case of West Bengal, *Indian languages in School Education System,* K.V. Narayana (ed.), Bengaluru, Kuvempu Bhasha Bharathi Pradhikara, 132-148, 2016.

6. Dash, N.S., Bhattacharyya, P. and Pawar, J.: IndoWordNet: A Rainbow in the Indian Lexical Panorama (Preface), *The WordNet In Indian Languages,* N.S.Dash, P. Bhattacharyya and J. Pawar (eds.), Singapore, Springer, V-XII, 2017.

7. Dash, N.S.: Defining Language-Specific Synsets in IndoWordNet: Some Theoretical and Practical Issues, *The WordNet In Indian Languages,* N.S., Dash, P. Bhattacharyya and J. Pawar (eds.), Singapore, Springer, 45-64, 2017.

8. Dash, N.S.: Problems in Translating Hindi Synsets into the Bangla WordNet, *The WordNet In Indian Languages,* N.S.Dash, P. Bhattacharyya and J. Pawar (eds.), Singapore, Springer, 65-82, 2017.

9. Dash, N.S.: A Robust Method of Lemmatization of Inflected Nouns in the Bangla Text Corpus, *Language Technology* (Festschrift Volume in honour of Prof. Udaya Narayana Singh), S.K. Singh and V.Kumar Kaul (eds.), EBH Publishers, New Guwahati, 35-52, 2017.

10. Rahman, R., Hussain, M.M. and Dash, N.S.: Language-specific Synsets and Challenges in Synset Linkage in Urdu WordNet, *The WordNet In Indian Languages,* N.S.Dash, P. Bhattacharyya and J. Pawar (eds.), Singapore, Springer, 221-230, 2017.

Psychology Research Unit, Kolkata

1. Gupta, R.: Scholastic Performance of School Students - some Demographic Correlates, *Stress-Perspective and Its Management*, U. K. Reddy and R. Singh (eds.), Stress Management Lab Pvt. Ltd., Hyderabad, India,147-158, 2016.

Sampling and Official Statistics Unit, Kolkata

1. Chakravarty, S.R.(ERU), Chattopadhyay, N. and Silber, J.: A poverty Line Contingent on Reference Groups: Implications for the Extent of Poverty in Some Asian Countries, *The Asian Poverty Miracle: Impressive Accomplishments or Incomplete Achievements,* J. Silber and G. Wan (eds.), Edward Elgar, Cheltenham, 30-52, 2016.

2. Chakravarty, S.R. (ERU), Chattopadhyay, N., Silber, J. and Wan, G.: Measuring the Impact of Vulnerability on the Number of Poor: A New Methodology with an Empirical Illustration, *The Asian Poverty Miracle: Impressive Accomplishments or Incomplete Achievements,* J. Silber and G. Wan (eds.), Edward Elgar, Cheltenham, 84-117, 2016.

3. Mukherjee, D. and Mallick, A.: Exploratory Study of Select Commodity and Equity Indices around the Meltdown of 2008, *International Trade and International Finance,* M. Roy and S. Sinha Roy (eds.), Springer, India, 387 – 404, 2016.

Sociogical Research Unit, Kolkata

1. Bharati, S., Pal, M. (ERU) and Bharati, P. (BAU): Child Health in North East India, *Contemporary Anthropological Research in Eastern and North Eastern India*, S. Sengupta (ed.), Gyan Publishing House, New Delhi, 87-100, 2017.

2. Ghosh, B. N. and Bhattacharya, S.: Professor G.S. Ghurye: His life and works (Tar Jiban O Karma), *Bharater Samajttwa: Udhbhav O Bikash*, A. Choudhury (ed.), Chatterjee Publishers, Kolkata, 180-196, 2017.

3. Ghosh, B. N.: Status of Khasi (Tribal) in Rural Meghalaya is changing, *Human Development & Sustainability: Challenges & Strategies*, A.K.Sarkar and P.K.Ghosh (eds.), Atlantic Publishers andDistributors Pvt. Ltd, New Dehi, ISBN: 978-81-269-2307-6.

4. Ghosh, B. N.: A Non-governmental Organisation's Effort at Empowerment of Sex- workers in Kolkata, *Health and Gender and Development: Multi-Disciplinary Perspectives*, S. Siva Raju and T.V. Sekher (eds.), Indian Association for Social Sciences and health (IASSH) in association with B.R. Publishing Corporation, New Delhi, 283-294, 2017, ISBN 9789350502594.

5. Ghosh, B. N.: Empowerment of Women with special reference to Khasi Community in Meghalaya, India, *Image of Gender Rights: Realities and Rhetoric*, A.Firowz Ahmed, S.As Saber and M. Kamal (eds.), Osder Publications, Bangladesh, 19-32, 2017, ISBN: 978-984-92653-0-6.

Economics and Planning Unit, Delhi

1. Farzana,A. and Barooah, B.: Educational Attainment and Learning in India, 2004-12, *Regional Growth and Sustainable Development in Asia*, Batabyal and Nijkamp (eds.), **221-236,** Springer, 2017.

2. Ghate, C. and Kenneth, K. (UCSC): Introduction (Chapter 1), *Monetary Policy in India: A Modern Macroeconomic Perspective,* C. Ghate and K. Kenneth (UCSC) (eds.), Springer Verlag, India, 3 – 27, 2016.

3. Ramaswami, B.: Hunger and Food Security Concerns for India, *India and Sustainable Development Goals, The Way Forward*, Research and Information Systems, New Delhi, 13-21, 2016.

Economic Analysis Unit, Bangalore

1. Ramachandran, V. K.: Socio-Economic Classes in the Three Villages, *Socio-Economic Surveys of Three Villages in Karnataka: A Study of Agrarian Relations*, M. Swaminathan and A.Das (eds.), Tulika Books, New Delhi, 69-85, 2017, ISBN 9789382381884.

2. Swaminathan, M. and Das. Y. : Features of Asset Ownership in Three Villages of Karnataka, *Socio-Economic Surveys of Three Villages in Karnataka*, M. Swaminathan and A.Das (eds.), Tulika Books, New Delhi, 140-161, 2017, ISBN 9789382381884.

Statistical Quality Control and Operations Research Division

SQC & OR Unit, Kolkata

1. Basak, I. and Chakraborty, A.K.: Assessment of Classical and Bayesian approach for Estimation of Structural changes in Panel Data, *New Trends in Stochastic Modeling and Data Analysis*, R. Manca, S.McClean and C.H. Skiadas (eds.), Stochastic Modeling Techniques and Data Analysis (SMTDA), 243-255, 2016.

Centre for Soft Computing Research, Kolkata

1. Banerjee, R. and Pal, S. K.: A machine-mind architecture and Z*-numbers for real-world comprehension, *Pattern Recognition and Big Data*, S.K. Pal and A. Pal (eds.), World Scientific, Singapore, 807-844, 2017.

Publications

2. Das, S. K., Bera, S., Misra, S. and Pal, S. K.: Introduction to Wireless Sensor Networks, Soft Computing Applications in Sensor Netwroks, *Soft Computing Applications in Sensor Networks*, S. Misra and S. K. Pal (eds.), Chapman & Hall/CRC, Boca Raton, Florida, 3-20, 2017.

3. Ganivada, A., Ray, S. S. and Pal, S. K.: Fuzzy Rough Granular Neural Networks for Pattern Analysis, *Pattern Recognition and Big Data*, A. Pal and S.K. Pal (eds.), World Scientific, Singapore, 487-512, 2017.

4. Jr. D. M., Lopes, F. M. and Ray, S. S.: Inference of Gene Regulatory Networks by Topological Prior Information and Data Integration, *Emerging Research in the Analysis and Modeling of Gene Regulatory Networks*, I. V. Ivanov, X. Qian and R. Pal (Eds.), IGI Global, Hershey, Pennsylvania, 1-51, 2016.

5. Pal, A. and Pal, S. K.: Pattern Recognition: Evolution, Mining and Big Data, *Pattern Recognition and Big Data*, A. Pal and S.K. Pal(eds.), World Scientific, Singapore, 1-36, 2017.

6. Pal, S. K. and Kundu, S.: Granular social network: model and applications, *Handbook of Big Data Technologies,* A. Zomaya and S. Sakr (eds.), Springer, 617-651, 2017.

7. Pal, S. K.: Playing with fuzziness and ambiguity in patterns - challenges and achievements, *The Mind of an Engineer*, P. Ghosh and B. Raj (eds.), Springer, Singapore, 363-374, 2016.

8. Subudhi, B. N., Ghosh, S., and Ghosh, A.: Moving Object Detection using Multi-layer Markov Random Field Model, *Pattern Recognition And Big Data*, A. Pal and S. Pal (eds.), World Scientific, 687-711, 2017.

7. VISITING SCIENTISTS, HONOURS AND AWARDS

VISITING SCIENTISTS

A number of distinguished scientists from India and abroad participated in the research, training and other scientific activities of the Institute during the year. Some of them came to the Institute on invitation and spent fairly long periods in the Institute to assist in the regular research and teaching programmes, while others came for short periods and gave lectures and seminars. Most of them were available for consultation by the faculty members of the Institute. Names of the visiting scientists are given below.

Theoretical Statistics and Mathematics Division

Stat-Math Unit, Kolkata

1. Adhikari, Kartick, Dept. of Mathematics, IISc. Bangalore, October 19, 2016- March 31, 2017.
2. Asanuma, T., Retd. From University of Toyama, Japan, February 15, 2017- March 15, 2017.
3. Bagchi, Sayan, Dept. of Mthematics, IISc, Bangalore, September 05, 2015- September 30, 2016.
4. Banerjee, Moulinath, University of Michigan, July 01, 2016- July 31, 2016.
5. Bikram, Panchugopal, Dept. of Mathematics, Ben-Gurion University of the Negev, Isreal, April 04, 2015- October 01, 2016.
6. Chakraborty, Partha Sarathi, IMSc., Chennai, August 25 - September 04 and November 09 - December 02, 2016.
7. Chakraborty, Sagnik, School of Mathematics, TIFR, Mumbai, September 01, 2015- June 30, 2016.
8. Chandgotia, Nishant, Tel Aviv University, October 24, 2016- November 07, 2016.
9. Choudhuri, Monoj, Centre for Applicable Mathematics, TIFR, Bangalore, May 25, 2015- August 29, 2016.
10. Dashiell, Fred, Chapan College & UCLA, November 20, 2016- December 20, 2016.
11. Datta, Basudeb, IISc. Bangalore, May 08, 2016- May 22, 2016.
12. De, Shyamal Krishna, NISER, Bhubaneshwar, November 18, 2016- November 22, 2016.
13. Giri, Sumit, Tel Aviv University, October 17, 2016- October 21, 2016.
14. Hemant, Vishe Pankaj, Durham University, September 04, 2016- September 07, 2016.
15. Jahan, Qaiser, IIT, Kanpur, July 22, 2016- July 30, 2016.
16. Jha, Somnath, IIT, Kanpur, May 16, 2016- May 25, 2016.

17. Joardar, Soumalya, JNCASR, Bangalore, October 06-26, 2016 and December 30, 2016- January 22, 2017.

18. Johnstone, Ian, Dept. of Stanford University, USA, January 25, 2017- February 07, 2017.

19. Khurana, Divya, IIT, Kanpur, June 01, 2016- October 02, 2016.

20. Krishna, Amalendu, School of Mathematics, TIFR, Mumbai, September 26, 2016.

21. Kulkarni, Dheeraj, Dept. of Mathematics, Ramakrishna Mission Vivekananda University, March 01, 2016- February 28, 2017.

22. Lokhande, Swapnil Ashok, IIIT, Vadodara, May 30 - June 30, 2016.

23. Malaviya, Soumya, Department of Sociology, Delhi School of Economics, April 24 – May 06, 2016.

24. Parekh, Sandeepan, Vanderbilt University, July 15, 2016- August 16, 2016.

25. Patil, Alpesh Avinash, IISER, Pune, October 17, 2016- November 15, 2016.

26. Prathamesh, T.V.H., IMSc, Chennai, September 05, 2016- October 02, 2016.

27. Pusti, Sanjoy, Department of Mathematics and Statistics, IIT, Kanpur, December, 18-24, 2016.

28. Quddus, Safder, NISER, Bhubaneswar, February 14-16, 2017.

29. Saha, Kumarjit, TIFR CAM, Bangalore, October 03 -07, 2016.

30. Sathaye, Avinash, University of Kentucky, USA, June 02 - 28, 2016.

31. Sen, Bodhisattva, Columbia University, December 21, 2016- February 03, 2017.

32. Sengupta, Jyotirmoy, TIFR, Mumbai, January 24- 29, 2017.

33. Singh, Saurabh Kumar, School of Mathematics, TIFR, Mumbai, November 05, 2015- June 30, 2016.

34. Sinha, K.B., JNCASR, Bangalore, October 24-26, 2016.

35. Urroz, Jorge Simenge, Universidad Politecnica De Catacuna, February 15-18, 2017.

36. Yamashita, Makoto, Ochnomizu University, February 12-17, 2017.

37. Zinna, Md. Ali, Department. of Mathematics, IIT, Bombay, September 01, 2016-March 31, 2017.

Stat-Math Unit, Delhi

1. Ali, Patrick, Chancellor College, Univesrity of Malawi, March 1- 31, 2017.

2. Azimi, Ali, Ferdowsi University of Mashhad, March 10– April 9, 2017.

3. Bose, Anirban, I.M.Sc.,December 2-11, 2016.

4. Chakraborty, Debopam, IIT, Guwahati, November 10, 2016 – March 31, 2017.

5. Chi, TRAN Viet, LILLE 1 University - Science and Technology, December 11- 14, 2016.

6. Deshouillers, Jean-Marc, University of Bordeauz, September 20-24, 2016 and October 16- 20, 2016.

7. Devi, A.R. Usha, Bangalore University, July 17– August 8, 2016; August 28- October 15, 2016; November 3- 22, 2016; December 25, 2016 – January 31, 2017 & February 16- March 31, 2017.

8. Dey, Pallab Kanti, HRI Allahabad, May 30- June 4, 2016; October 19, 2016 – till October 18, 2017.

9. Estaji, Ehsan, Hakim Sabzevari University, March 10-April 9, 2017.

10. Ganesan, Ghurumuruhan, NYU, Abu Dhabi, March 9-12, 2017.

11. Giri, Sumit, Tel Aviv University, October 24-27, 2016.

12. Jha, Somnath, IIT Kanpur, May 1-14, 2016.

13. Kapoor, Girish, Government Degree College Shimla, February 6- 16, 2017.

14. Khoshnevisan, Davar, Univeristy of Utah, November 24- 30, 2016.

15. Maity, Chandan, IMSc, Chennai, February 15- March 15, 2017 & March 16, 2017– till March 15, 2018.

16. Majhi, Bibekananda, HRI Allahabad, May 30- June 4, 2016; December 19-26, 2016.

17. Manda, Srikanth S., LifeBytes, November 6-13, 2016.

18. Mishra, Manish, IISER-Pune, December 6-13, 2016.

19. Murty, Ram, Queens University Canada, September 4-6, 2016.

20. Niknejad, Amir, College of Mount Saint Vincent, New York, USA, December 1-31, 2016.

21. Ramare, Olivier, CNRS and University of Marseilles, France, February 5-12, 2017.

22. Rout, Sudhansu Sekhar, HRI Allahabad, May 30- June 4, 2016.

23. Saha, Kumarjit, TIFR CAM. December 7- 14, 2016.

24. Saikia, Neelam, IIT, Delhi. May 24- November 10, 2016.

25. Saradha, N., TIFR, Mumbai, September 1- 15, 2016.

26. Saurabh, Bipul, IMSc, Chennai. May 22- 24, 2016.

27. Sekhar, Sudhansu, HRI Allahabad. December 19- 30, 2016.

28. Setghuram, Sunder, University Arizona, July 11- 15, 2016.

29. Sharma, Rajesh, HP University, Shimla, April 25-May 13, 2016 and February 6- 16, 2017.
30. Sharma, Vikas, HP University, Shimla, April 25- May 13, 2016.
31. Sinha, Bimal, University of Maryland, May 7- 10, 2016.
32. Sinha, Sneh Bala, Harish Chandra Research Institute, Chhatnag, Jhansi, April 4, 2016 – October 3, 2017.
33. Singh, Maibam Ranjit, Manipur University, October 20- 23, 2016.
34. Sivaramakrishnan, S., Indian Institute of Technology Bombay, September 10- 19, 2016.
35. Srinivasan, Anita, Saint Louis University, Madrid Campus, July 31- August 6, 2016.
36. Thangadurai, R., HRI Allahabad, December 26- 27, 2016.
37. Timar, Adam, Renyi Institute, Budapest, Hungary, January 10- 13, 2017.
38. Upadhyay, Jalaj, Penn State University, May 31- June 2, 2016.
39. Waldschmdit, Michel, University of Paris, Jussieu, France. September 10- 12, 2016.

Stat-Math Unit, Bangalore

1. Ambily A.A, CUSAT, Cochin, May 16–June 17, 2016.
2. Banerjee, Kalyan, ISF-UGC visiting scientist, September 30, 2015 – February 8, 2017.
3. Banerjee, Tathagata, Post-doctoral visiting scientist, January 1 – March 31, 2017.
4. Basak, Biplab, NBHM Post-doctoral fellow, September 1, 2015 – December 31, 2016.
5. Chakraborty, Prateep, NBHM Post-doctoral fellow, November 2, 2015 – October 27, 2016.
6. Chattopadhyay, Pratyusha, INSPIRE Faculty Fellow, November 1, 2013 – till date.
7. Das, Bata Krishna, IIT Bombay, August 13-17, 2016.
8. De, Sandipan, Post-doctoral visiting scientist from August 8, 2016 – till date.
9. Dolai, Dhriti Ranjan, Post-doctoral visiting scientist, February 20 – March 31, 2017.
10. Dutta, Sudipta, IIT Kanpur, June 14 - 15, 2016.
11. Ganesan, G., ISF-UGC visiting scientist, January 1 – July 19, 2016.
12. Gopalaswamy, Arjun, University of Oxford, UK, 1 July 2016–till date.
13. Haria, Kalpesh, INSPIRE Faculty Fellow, June 18, 2015–till date.
14. Johnstone, Iain M., Stanford University, USA, February 1-3, 2017.

15. Joseph, Mathew, University of Sheffield, UK, July 30– August 6, 2016.
16. Kannappan, S., University of Michigan, June 14-July 15, 2016.
17. Kasilingam, Ramesh, INSPIRE Faculty Fellow, September 24, 2015–till date.
18. Keshari, Dinesh Kumar, INSPIRE Faculty Fellow from April 1, 2015–December 23, 2016.
19. Kumar, Neeraj, IMSc., Chennai, June 20–September 30, 2016.
20. Kumari, Rani, IIT Kanpur, since December 1, 2015 – July 30, 2016.
21. Maji, Amit, NBHM Post-doctoral fellow, October 1, 2015 – till date.
22. Majumder, Souradeep, ISF-UGC visiting scientist, July 31, 2015 – till date.
23. Maldeghem, Hendrik Van, University of Ghent, Belgium, April 5-17, 2016.
24. Mytnik, Leonid, Technion Institute of Technology, Israel, August 20-26, 2016.
25. Owada, Takashi, Technion-Israel Institute of Technology, June 13-18, 2016.
26. Penrose Mathew, University of Bath, UK, January 18-20, 2017.
27. Rajendran, Dhanya, INSPIRE Faculty Fellow, April 20, 2016 – till date.
28. Reddy, Harish, Visiting scientist (ISF-UGC), November 17, 2016 – till date.
29. Reddy, Tulasi Rama, ISF-UGC visiting scientist, March 1 – September 30, 2016.
30. Sahasrabudhe, Neeraja, IIT Bombay, October 23 – 29, 2016.
31. Sahoo, Binod Kumar, NISER Bhubaneswar, June 20 – July 16, 2016.
32. Sahu, Bikramaditya, NISER, Bhubaneswar, May 16 - June 18, 2016.
33. Sarkar, Barun, ISF-UGC Visiting Scientist, July 18, 2016 – March 31, 2017.
34. Sarkar, Santanu, INSPIRE Faculty Fellow, October 31, 2016 – till date.
35. Schepper, Anneleen de, University of Ghent, Belgium, April 5-17, 2016.
36. Shekhar, Atul, ISF-UGC visiting scientist, May 30, 2016 – till date.
37. Srivastava, Sachi, University of Delhi, August 8-9, 2016.
38. Tappe, Stefan, University of Hannover, Germany, September 26 – 30, 2016.
39. Thakur, Ajay Singh, INSPIRE Faculty Fellow, since January 31, 2014 – February 3, 2017.
40. Tripathi, Amit, NISER, Bhubaneswar, June 06 - July 07, 2016.
41. Trivedi, Harsh, IIT Bombay, April 01 - June 27, 2016.
42. Vaish, Vaibhav, INSPIRE Faculty Fellow, since January 4, 2016 – till date.

43. Varadhan S.R.S., Courant Institute of Mathematical Sciences, USA, January 23-27, 2017.

Applied Statistics Division

Applied Statistics Unit, Kolkata

1. Basak, Indrani, Department of Mathematics and Statistics, the Pennsylvania State University, Altoona, USA, June 1, 2016-December 31, 2016.

2. Basak, Prasanta, Department of Mathematics and Statistics, the Pennsylvania State University, Altoona, USA, June 1, 2016-December 31, 2016.

3. Sharma, Amit Kumar, NBHM Post-doctoral fellow, June 1, 2016- March 31, 2017.

Interdisciplinary Statistical Research Unit, Kolkata

1. Dasgupta, Shibasish, Department of Mathematics & Statistics, University of South Alabama, U.S.A., August 8, 2016 – October 31, 2016.

2. Dharmani, Bahveshkumar C, DAIICT, Gandhinagar, May 1, 2016 – December 29, 2016.

3. Mukhopadhyay, Minerva, Department of Statistics, Bethune College, Kolkata, November 4, 2016 – December 30, 2016.

4. Pal, Satyabrata, Bidhan Chandra Krishi Viswa Vidyalaya, April 1, 2016 – March 31, 2017.

Applied Statistics Unit, Chennai

1. Sreelakshmi, N, N-PDF, SERB, DST, Govt. India, April 1, 2016- March 31, 2017.

Computer and Communication Sciences Division

Advanced Computing and Microelectronics Unit, Kolkata

1. Chakraborty, Goutam, Iwate Prefectural University, Japan, March 03-18, 2017.

2. Dutta, Kunal, Post Doctoral Researcher, INRIA, Sophia-Antipolis, France, January 18-February 10, 2017.

3. Ho, Tsung-Yi, Depertment of Computer Science, National Tsing Hua University (NTHU), Taiwan, March 14-17, 2017.

4. Molla, Anisur Rahaman, Inspire Faculty, Post Doctoral Researcher, Department of Computer Science, University of Freiburg, Germany, November 01, 2016-February 28, 2017.

5. Pandit, Supantha, Department of Computer Science, IIT, Ropar, June 03, 2016-January 31, 2017.

6. Paul, Subhabrata, Assistant Professor, IIIT Guwahati, December 06-30, 2016.

Computer Vision and Pattern Recognition Unit, Kolkata

1. Chakraborty, Neloy, Free University Berlin, April 01, 2016–March 31, 2017.

2. Majumder, Prasenjit, Dhirubhai Ambani Institute of Information and Communication Technology, India, December 01-31, 2016.

3. Roy, Partha Pratim, IIT, Roorkee, December 15-31, 2016.

4. Shivakumara, P., University of Malaya, August 01-20, 2016.

Electronics and Communication Sciences Unit, Kolkata

1. Majumder, Angshul, Indraprastha Institute of Information Technology, Delhi, May 16-July 16, 2016.

2. Wang, Jiang, China University of Petroleum, China, March 01-30, 2017.

Documentation, Research and Training Centre, Bangalore

1. Amin, Saiful, Library Systems Specialists, Semantic Consulting Services Pvt. Ltd., July 20-November 30, 2016 and January 9-March 31, 2017.

2. Giunchiglia, Fausto, Professor of Computer Science, University of Trento, Italy, February 27-March 5, 2017.

3. Prasad, Arun, Founder and CEO, 1-Enterprise, Bangalore, January 10–March 31, 2017.

4. Sangam, S.L., Professor (Retd.), Karnataka University, Dharwad, September 1–November 30, 2016.

5. Satija, M.P., Professor (Retd.), Dept. of Lib. & Inf. Sc., Guru Nanak Dev University, Amritsar, September 19–October 13, 2016.

Systems Science and Informatics Unit, Bangalore

1. Nair, Jaya, International Institute for Information Technology (IIIT), Bangalore, June 1-30, 2016.

2. Rosen, Paul A., Jet Propulsion Laboratories (JPL), NASA-Caltech, August 05, 2016.

Computer Science Unit, Chennai

1. Chacko, Daphna, Research Scholar, National Institute of Technology, Calicut, November 6-30, 2016.

Cryptology and Security Research Unit, Kolkata

1. Bhattacharya, Soumya, Visiting Scientist, April 01, 2016-March 31, 2017.
2. Bhattacharya, Srimanta, Visiting Scientist, April 01, 2016-March 31, 2017.
3. Ghosh, Bappaditya, Visiting Scientist, June 27, 2016-March 31, 2017.
4. Gueron, Shay, Honorary Visiting Professor, University of Haifa, Israel, September 15-25, 2016.
5. Karati, Sabyasachi, Visiting Scientist, April 01-May 31, 2016.
6. Mihaljevic, Miodrag, Research Professor, Mathematical Institute, Serbian Academy of Sciences and Arts, Belgrade, Serbia, September 14-23, 2016.
7. Minematsu, Kazuhiko, Honorary Visiting Professor, NEC Corporation, Japan, September 15-25, 2016.
8. Orlandi, Claudio, Aarhus University, Denmark, December, 2016.
9. Stanica, Pantelimon, Professor, Naval Post-Graduate School, USA, September 14-23, 2016.

Physics and Earth Sciences Division

Geological Studies Unit, Kolkata

1. Basilici, Georgio Basilici, Institute of Geosciences, University of Campina, Sao Paulo, Brazil, November 4-December 9, 2016.
2. Beukes, N.J., DST-NRF Centre of Excellence for Integrated Mineral and Energy Resource Analysis (CIMERA), Department of Geology, University of Johannesburg, South Africa, January 9 - 26, 2017.
3. Bowden, L.L., DST-NRF Centre of Excellence for Integrated Mineral and Resource Analysis (CIMERA), Department of Geology, University of Johannesburg, South Africa, January 9-17, 2017.
4. Soares, Marcus V.T., Institute of Geosciences, University of Campina, Sao Paulo, Brazil, November 4-December 9, 2016.
5. Shanmugam G., University of Texas at Arlington, USA, and consultant for Exxon Mobil Oil Company, USA., November 9 -12, 2016.
6. Wabo, Herve H., DST-NRF Centre of Excellence for Integrated Mineral and Resource Analysis (CIMERA), Department of Geology, University of Johannesburg, South Africa, January 9-26, 2017.

Physics and Applied Mathematics Unit, Kolkata

1. Banerjee, R., SoET-Mathematics, BML Munjal University, Gurgaon, Haryana, June 20-26, 2016.

2. Rahaman, R., Department of Mathematics, Allahabad University, June 20 – July 01, 2016.

Biological Sciences Division

Agricultural & Ecological Research Unit, Kolkata

1. Fuwa ,Nobu Hiko, Tokyo University, Japan, February 08 –18, 2017.

Human Genetics Unit, Kolkata

1. Datta, Shalini, Visiting Scientist, July 01– September 30, 2016.

Social Sciences Division

Economic Research Unit, Kolkata

1. Bhattacharya, Sourav, Department of Economics, Royal Holloway University of London, 305, Horton Building, Egham, Surrey TW20 0EX, UK, May 2 – August 31, 2016.

2. Bhowmik, Anuj, Department of Economics, School of Humanities and Social Sciences, Shiv Nadar University, October 3-18, 2016; December 19, 2016 - January 2, 2017 and March 10 - 20, 2017.

3. Bradford, Charles, Scott, Department of Economic, Brigham Young University, Provo, LJT 801-422-8358, USA, January 5-11, 2017.

4. Chatterjee, Arpita, Australian School of Business, School of Economics, University of New South Wales, Australia, September 26 – October 5, 2016.

5. Chakraborty, Bikas, K., Centre for Applied Mathematics & Computational Science, Saha Institute of Nuclear Physics, Kolkara, Since August, 2016.

6. Chatterjee, Kalyan, Department of Economics, The Pennsylvania State University, University Park, PA 16802, USA, June 13 – July 4, 2016 and December 19, 2016 - January 5, 2017.

7. Ghosh, Arghya, School of Economics, UNSW Business School, University of New South Wales, Sydney, NSW 2052, Australia, July 13 – 22, 2016.

8. Goonj, Mohan, 305, Golden Next Apartment, Adugodi, Bangalore, Karnataka – 560030, January 20 – February 6, 2017.

9. Mallik, Girijasankar, School of Business, Locked Bag 1797, Penrith South DC, NSW 1797, Australia, December 7, 2016 - January 30, 2017.

10. Mazumder, Chiranjit, Division of Agricultural Economics, ICAR – Indian Agricultural Research Institute, New Delhi – 110012, December 5, 2016 - March 5, 2017.

11. Mondal, Debasis, Department of Humanities & Social Science, Indian Institute of Technology, New Delhi – 110 016, June 1 – 30, 2016.

12. Mukherjee, Debasri, Department of Economics, Western Michigan University, Kalamazoo, MI 49008, USA, July 12 – August 12, 2016.

13. Sarkar, Jyotirmoy, Department of Economics, Purdue University, Indianpolis, USA, June 15– July 24, 2016 and January 1– till July 31, 2017.

14. Sinha, Bhanu Uday, Department of Economics, Delhi School of Economics, University of Delhi, Delhi – 110 007, June 1 – 21, 2016.

Linguistic Research Unit, Kolkata

1. Baman, Tapan, Director, Mihup Communications Private Limited, Kolkata, India, October 26, 2016.

2. Bhattacharya, Anupam, Scientist, Mihup Communications Private Limited, Kolkata, India, February 10, 2017.

3. Ehsanul Kabir, Muhammad, Mitcham Institute, Victoria, Australia, September 7-8, 2016.

4. Jana, Ujjwal, Department of English, Pondicherry University, Pondicherry, India, January 4-5, 2017.

5. Sengupta, Tiyasa, Department of language and Communication, University of Denmark, January 9, 2017.

Population Studies Unit, Kolkata

1. Pasupuleti,Samba Siva Rao, Alfred Deakin Research Institute, Deakin University, Geelong Waterfront Campus, Geelong, Australia, since April 01, 2016 – August 31, 2016.

Psychology Research Unit, Kolkata

1. Aruru, Meghana V, IIPH Hyderabad, February 9, 2017.

2. Biswas, Gopal Ch, Dy. Director, Non-Communicable Diseases, Govt. of West Bengal, Sasthya Bhawan, March 1, 2017.

3. Das, Koel, Department of Mathematics and Statistics, Department of Biological Sciences, Indian Institute of Science Education and Research (IISER), Kolkata, May 30, 2016.

4. Halder, Santoshi, Department of Education, University of Calcutta. May 30, 2016.

5. Hariharan, Meena, Head, Department of Health Psychology, Central University of Hyderabad, February 9, 2017.

6. Indelicato, Joseph, Touro College School of Health Sciences, New York, USA, March 1, 2017.

7. Kumar, Anand, Indian Academy of Health Psychology, Varanasi, March 1, 2017.
8. Mukherjee, S.P, Centenary Professor of Statistics at the University of Calcutta, August 11, 2016.
9. Mukhopadhyay, Pritha, Department of Psychology, University of Calcutta, May 30, 2016.
10. Mustafi, Joy, Microsoft Artificial Intelligence and Research, Hyderabad, February 9, 2017.
11. Pathak, Pramod, Department of Management Studies, Indian Institute of Technology (Indian School of Mines), Dhanbad, Jharkhand, March 29, 2017.
12. Pyne, Saumyadipta, Indian Institute of Public Health, Hyderabad, August, 12, 2016 and February 8, 2017.
13. Ray, Anjali, Department of Applied Psychology, University of Calcutta, May 30, 2016.
14. Rai, Ravindra Nath, Centre for Distance Education, NEHU (Bijni Campus), May 30, 2016.
15. Sarkar, Pritha, Department of Health & FW & Project Director, WBSAP & CS, Govt. of West Bengal, Sasthya Bhawan, March 1, 2017.
16. Sarkar, Vyjayanthir, Ashoka Fellow, Centre for Science of Student Learning, February 9, 2017.
17. Sinha, Anirban, Department of Endocrinology, Medical College, Kolkata, March 1, 2017.
18. Singh, Gurudeep, Hazaribagh University, Jharkhand, March 29, 2017.
19. Sitamma, M., BS Hyderabad (IFHE, Deemed University), February 8, 2017.

Sampling and Official Statistics Unit, Kolkata

1. Alam, Moneer, Institute of Economic Growth, New Delhi, April 4-6, 2016.
2. Barman, R.B., Chairman, National Statistical Commission, New Delhi, October 19, 2016.
3. Bhattacharjee, Kaushik, TAPMI Manipal, April 18 - June 15, 2016.
4. Chatterjee, Kiranmoy, Bidhannagar College, Kolkata, November, 2016 - June 2016.
5. Gradin, Carlos, Universidade de vigo Spain, June 4-19, 2016.
6. Jha, Chandan Kumar, Department of Economics, Le Moyne College, June 28, 2016.
7. Sen Gupta, Indranil, Department of Mathematics, North Dakota State University, November 15-December-15, 2016.

Sociological Research Unit, Kolkata

1. De, Utpal Kumar, Head and Professor of Economics, North Eastern Hill University, Shillong, January, 2017.

Economics and Planning Unit, Delhi

1. Aggarwal, Nidhi, IGIDR, March 06, 2017.
2. Agnieszka, Wiszniewska-Matyszkiel , Institute of Applied Mathematics and Mechanics, University of Warsaw , January 17, 2017.
3. Anand, Abhinav, University College Dublin, December 9, 2016 and January 17, 2017.
4. Azariadis, Costas , Washington University, December 16, 2016.
5. Banerjee, Ritwik, IIM, Bangalore, November 25, 2016.
6. Banerjee, Shesadri, (NCAER), December 12- 17, 2016.
7. Barua, Rashmi, JNU, September 30, 2016.
8. Basu, Parantap, Durham University, December 13- 21, 2016.
9. Basu, Sujata, Jawaharlal Nehru University, April 7, 2016.
10. Bhaskar, Umang, TIFR, October 28, 2016.
11. Bhattacharya, Prasad , Deakin University, July 1- December 31, 2016.
12. Borah, Abhinash, Ashoka University, August 12, 2016.
13. Bradford, Scott, Brigham Young University, July 24- December 31, 2017.
14. Chaithanya, Jayakumar, University of Siena, June 1, 2016.
15. Chakraborty, Tanika, IIT Kanpur, September 16, 2016.
16. Swarnendu, Chatterjee., Maastricht University, March 15, 2017.
17. Coffey, Diane, RICE, July 1, 2016- July 30, 2017.
18. Das, Piyali, Indiana University, Bloomington, August 19, 2016 and November 1- 30, 2016.
19. Dasgupta, Amlan, New Delhi, July 1- December 31, 2016.
20. Dasgupta, Kunal, University of Toronto, January 15- April 30, 2017.
21. Datt, Gaurav, Monash University, April 1, 2016.
22. Desai, Sonalde, University of Maryland, March 3, 2017.
23. Dubey, Ram Sewak, Montclair State University, July 22, 2016.
24. Dutta, Prajit K., Columbia University, New York, January 16, 2017.
25. Girish Bahal, national council of applied economic research, March 08, 2017.
26. Gopalakrishnan, Pawan, RBI, Mumbai, May 1- 5, 2017.

27. Gupta, Abhimanyu, University of Essex, April 29, 2016.
28. Jha, Chandan Kumar, Le Moyne College, July 27, 2016.
29. Jha, Nikhil, University of Melbourne, October 14, 2016.
30. Kakar, Venoo, San Francisco State University, January 11, 2017.
31. Khera, Purva, December 19- 21, 2016.
32. Kohlin, Gunnar, Environment for Development initiative, March 8- 11, 2017.
33. Kumar, Alok, University of Victoria, Canada , March1- 31, 2017.
34. Kunimoto , Takashi, Singapore Management University, February 23, 2017.
35. Lahiri, Abhinaba, Maastricht University, March 10, 2017.
36. Majumdar, Dipjyoti, Concordia University, Canada, July 26-August 2, 2016.
37. Malick, Debdulal, Deakin University, December 18- 27, 2016.
38. Paramanik, Anup, Osaka University, February 1-16, 2017.
39. Patnaik, Megha, Stanford University, March 07, 2017.
40. Ranjan, Priya, UC Irvine, July 21, 2016.
41. Serizawa, Shigehiro, Osaka University, February 06, 2017.
42. Sethi, Rajiv, Columbia University, September 12- December 12, 2016.
43. Shabana, Mitra, Indian Institute of Management Bangalore, March 17, 2017.
44. Sharma, Anisha, Ashoka University, February 10, 2017.
45. Singh, Gurbachan, Visiting Scientist, January 1- April 30, 2017.
46. Sinha, Rishabh, World Bank, August 5, 2016.
47. Soundararajan, Vidhya, IIM Bangalore, March 31, 2017.
48. Spears, Dean, RICE, November 18, 2016.
49. Tuteja, Divya, Delhi School of Economics, December 13, 2016.
50. Wadhwa, Wilima, Visiting Scientist, July 25 to November 24, 2016.
51. Yadav, Sonal, University of Padova, Italy, August 1- 20, 2016 and December 7-January 17, 2017.

Economic Analysis Unit, Bangalore

1. Athreya, Venkatesh, February – March, 2017.

2. Bakshi, Aparajita, Tata Institute of Social Sciences, Mumbai, August 16 – 30, 2016.
3. Chavan, Pallavi, Reserve Bank of India, Mumbari, September 27–October 3, 2016.
4. Dhar, Niladri Sekhar, Tata Institute of Social Sciences, Tuljapur, July 29–August 13, 2016.
5. Goli, Srinivas, JNU, New Delhi, October 5-6, 2016.
6. Guha, Puja, Azim Premji University, Bangalore, October 01– March 2017.
7. Herring, J. Ronald, Cornell University, Itacha, New York, January 23-28, 2017.
8. Pais, Jesim, Institute for Studies in Industrial Development, New Delhi, July 3-13, 2016.
9. Panda, Sitakanta, Indian Institute of Technology, New Delhi, October 20–February 20, 2017.
10. Reddy, Bheemeshwar A, Tata Institute of Social Sciences, August 25, 2016.
11. Thomas, Jayan Jose, Indian Institute of Technology, New Delhi, August 28-30, 2016.
12. Vishwanathan, Brinda, Madras School of Economics, March 28-31, 2017.

Statistical Quality Control and Operations Research Division

SQC & OR Unit, Delhi

1. Bartl, David, University of Ostrava, Czech Republic, August 29 - September 25, 2016.
2. Raghavan, T.E.S., University of Illinois at Chicago, USA, January 8-11, 2017.

SQC & OR Unit, Mumbai

1. Asokan, M V, Department of Mathematics and Statistics, Memorial University of Newfoundland, Canada, October 6-7, 2016.

Center for Soft Computing Research, Kolkata

1. Tsutsui, Shigeyoshi, Hannan University & Osaka Prefecture University, Japan, January 10, 2017 – January 13, 2017.

HONOURS AND AWARDS

Theoretical Statistics and Mathematics Division

Stat-Math Unit, Kolkata

Gupta, Neena
Awarded: B. M. Birla Science Prize in Mathematics.

Stat-Math Unit, Delhi

Bandyopadhyay, Antar:
Awarded: IISA 2016 Young Researcher Award in the Theory category from the Indian International Statistical Association (IISA), 2016.

Bhatia, Rajendra
Awarded: The Hans Schneider Prize 2016, The International Linear Algebra Society.

Stat-Math Unit, Bangalore

Bhat, B.V. Rajarama
Awarded: J C Bose Fellowship.

Sarkar, Jaydeb
Awarded: NASI-Scopus Young Scientist Awards, 2016.

Roy, Parthanil
Appointed: Youth Representative of Bernoulli Society.
Appointed: Member of Scientific Committee and Heavy Tails and Long Range Dependence Conference.

Dhandapani, Yogeshwaran
Selected: Associate of the Indian Academy of Sciences, July 2016.

Applied Statistics Division

Interdisciplinary Statistical Research Unit, Kolkata

Ghosh, Abhik
Awarded: International Society for Clinical Biostatistics (ISCB) Conference Awards for Scientists (CASc) for biostatisticians from the countries underdeveloped in clinical biostatistics, 2017.

Computer and Communication Sciences Division

Advanced Computing and Microelectronics Unit, Kolkata

Bhattacharya, B.B.
Awarded: INAE Chair Professorship, by Indian National Academy of Engineering, June 2016 - May 2018.

Computer Vision and Pattern Recognition Unit, Kolkata

Garain, Utpal
Awarded: JSPS Fellowship (invitational), Japan, 2016-17.

Electronics and Communication Sciences Unit, Kolkata

Mukherjee, Dipti Prasad
Awarded: Best paper award, 10th Indian Conference on Computer Vision, Graphics and Image Processing (ICVGIP), 2016.

Pal, Nikhil Ranjan
Elected: Fellow of The World Academy of Sciences (TWAS), 2016.

Paul, Angshuman
Awarded: Best paper award, 10th Indian Conference on Computer Vision, Graphics and Image Processing (ICVGIP), 2016.

Machine Intelligence Unit, Kolkata

Bandyopadhyay, S.
Awarded: J.C. Bose Fellowship, Engineering Sciences, Department of Science and Technology, Govt. of India, 2017-2022.
Fellow: Institution for Electrical and Electronic Engineers (IEEE), 2016;
Indian National Science Academy (INSA), 2016.

De, Rajat K.
Awarded: Fulbright-Nehru Academic and Professional Excellence Fellowship (Flex Award), 2016- 2018.

Maji, P.
Awarded: Sri Visvesvaraya Young Faculty Research Fellowship, Department of Electronics and Information Technology (DeitY), Government of India.
Elected: Senior Member, IEEE, USA, 2016.

Mitra, S.
Fellow: International Association for Pattern Recognition (IAPR).

Physics and Earth Sciences Division

Physics and Applied Mathematics Unit, Kolkata

Pal, Supratik
Awarded: Alexander von Humboldt Fellowship (Alumni Support Grant), Alexander von Humboldt Foundation, Germany, 2016.

Social Sciences Division

Sampling and Official Statistics Unit, Kolkata

Mitra, Sandip
Awarded: Visiting Fellowship, Manchester University, 2017.

Sociological Research Unit, Kolkata

Chakraborty, Sonali
Selected for: Dr. K. Srinivasan award jointly with Dr. Molly Chattopadhyay from Indian association for study of Population, 2017.

Economics and Planning Unit, Delhi

Bishnu, Monisankar
Awarded: Visiting Fellowship from the Australian National University, 2016.
Ghate, Chetan
Appointed: Monetary Policy Committee of the Reserve Bank of India (for a four-year term), Ministry of Finance, Government of India
(Contribution to research in Indian macroeconomics).

Roy Chowdhury, Prabal
Invited: Panelist in the session on Role of Economics and Economists in Competition Law Enforcement, National Conference on Economics of Competition Law and the Economists' Conclave, April, 2018, Competition Commission of India.

Sen, Arunava
Elected: Economic Theory fellow, Society for Advancement of Economic Theory, 2016.

Economic Analysis Unit, Bangalore

Ramachandran, V.K.
Appointed: Vice Chairman of Kerala State Planning Board, Trivandrum.

Statistical Quality Control and Operations Research Division

SQC & OR Unit, Bangalore

Boby, John
Awarded: Best Paper, 3rd International Conference on Robust Quality Engineering (ICRQE-2017), 2017.

Center for Soft Computing Research, Kolkata

Pal, S.K.
Awarded: Jawaharlal Nehru Birth Centenary Lecture Award in Physical Sciences, INSA; IEEE Tencent Rhino-Bird International Academic Expert, 2017-2018.

Das, S.
Awarded: Young Scientist Award, URSI Asia-Pacific Radio Science Conference, Seoul, South Korea, 2016.

Ghosh, A.
Fellow: West Bengal Academy of Science and Technology (WAST) Senior Member, IEEE, USA, 2016.

8. EDITORIAL AND OTHER SCIENTIFIC ASSIGNMENTS

EDITORIAL ASSIGNMENTS

Theoretical Statistics and Mathematics Division

Stat-Math Unit, Kolkata

Basak, G.K. (Editor): *Sankhya Series A*, Indian Statistical Institute.

Bose, Arup (Associate editor): *Statistical Methodology*, 2016.

Chaudhuri, Probal (Editor): *International Statistical Review* and *Stat* published by International Statistical Institute.

Maulik, Krishanu (Associate Editor): *Sankhya*.

Stat-Math Unit, Delhi

Bandyopadhyay, Antar (Associate Editor): *Sankhya Series A*, published by Springer and Indian Statistical Institute; (Associate Editor): *Journal of Statistical Planing and Inference (JSPI)*, Elsevier; (Member of the Scientific Committee & the Editorial Board): *Colombian Journal of Statistics (Revista Colombiana de Estadistica, RCE)*, Universidad Nacional de Colombia, Colombia; (Member Editorial Board): *Little Mathematical Treasures*, Ramanujan Mathematical Society (RMS) and Universities Press.

Bhatia, Rajendra (Senior Editor): *Linear Algebra and Its Applications*; (Associate Editor): *Journal of the Ramanujan Mathematical Society*; (Editor): *Operators and Matrices*; (Correspondent): *Mathematical Intelligencer*.

Dewan, Isha (Associate Editor)*: Journal Indian Statistical Association*.

Stat-Math Unit, Bangalore

Athreya, Siva (Associate editor): *Journal of Ramanujan Mathematical Society*.

Bhat, B. V. Rajarama (Chief Editor): *Proceedings of the Indian Academy of Sciences, Mathematics*;

Rajeev, B. (Associate editor), *Sankhya A*.

Ramasubramanian, S. (Associate editor): *Sankhya, Series A, 77*, 2015.

Roy, Parthanil (Associate Editor): *Sankhya Series A*.

Sury, B. (Editor):*Proceedings of the Indian Academy of Sciences - Mathematical Sciences; Indian Journal of Pure and Applied Mathematics; Mathematics Student; Resonance- journal of undergraduate science education; The Mathematics Newsletter of the Ramanujan Mathematical Society.*

Applied Statistics Division

Applied Statistics Unit, Kolkata

Biswas, A. (Associate Editor): *Statistics & Probability Letters,* Elsevier, since July 2011; (Associate Editor): *Sequential Analysis,* since June 2003; (Associate Editor): *Communications in Statistics, Theory and Methods*, since January 2007; (Associate Editor): *Communications in Statistics, Simulation and Computation*, since January 2007; (Associate Editor): *Sri Lankan Journal of Applied Statistics,* since January 2013.

Dewanji, A. (Associate Editor): *Journal of Statistical Planning and Inference*, Elsevier; (Special Invited Editor) *Calcutta Statistical Association Bulletin,* Sage Publications.

Interdisciplinary Statistical Research Unit, Kolkata

Basu, Ayanendranath (Associate Editor): *Computational Statistics*, Springer; (Member, Editorial Advisory Board): *Journal of Applied Statistics.*

Bose, Smarajit (Associate Editor): *Sankhya.*

SahaRay, Rita (Associate Editor): *Sankhya A,* Springer, (Associate Editor): *Journal of Indian Society of Agricultural Statistics;* (Editor): *Archives of Phytopathology and Plant Protection*.

Applied Statistics Unit, Chennai

Sen, Rituparna (Associate Editor): *Applied Stochastic Models in Business and Industry*, Wiley; *Sankhya Series B*, Springer.

Computer and Communication Sciences Division

Advanced Computing and Microelectronics Unit, Kolkata

Bhattacharya, B.B. (Editor): *Journal of Electronic Testing: Theory and Applications*, Springer; *Computer Methods in Biomechanics and Biomedical Engineering: Imaging & Visualization*, Taylor & Francis.

Sur-Kolay, S. (Associate Editor): *ACM Transactions on Embedded Computing Systems*, ACM.

Computer Vision and Pattern Recognition Unit, Kolkata

Chatterjee, Garga (Review Editor): *Frontiers in Psychology* (*Cognition Section*).

Garain, Utpal (Associate Editor): *International Journal of Document Analysis and Recognition*, Springer.

Pal, Umapada (Associate Editor): *Pattern Recognition*, Elsevier, since 2016; *Pattern Recognition Letters*, Elsevier, since 2014; *ACM Transactions on Asian and Low-Resource Language Information Processing* (*TALLIP*), ACM, since 2012; *Electronic Journal on Computer Vision and Image Analysis*,

Editorial and other Assignments

CVC Press, since 2010; *International Journal of Document Analysis and Recognition*, Springer, since 2015.

Electronics and Communication Sciences Unit, Kolkata

Mukherjee, Dipti Prasad (Associate Editor): *IEEE Transactions on Image Processing*, since November 2014; *IET Image Processing*, since February 2016; *SADHANA, Academy Proceedings in Engineering Sciences*, Springer, since June 2014.

Pal, Nikhil R. (Associate Editor): *IEEE Transactions on Fuzzy Systems*, IEEE, 2016; *IEEE Transactions on Cybernetics*, IEEE, 2016; *International Journal of Approximate Reasoning*, Elsevier, 2016; *Fuzzy Information and Engineering*, Elsevier, 2016; *Journal of Neuroscience and Neuroengineering***,** American Scientific Publishers, 2016.

Machine Intelligence Unit, Kolkata

Bandyopadhyay, S. (Associate Editor): *IEEE Transactions on Systems, Man, Cybernetics: Part A*; (Associate Editor): *BioSystems*, Elsevier.

De, R.K. (Associate Editor): *Sadhana.*

Ghosh, A. (Associate Editor): *IET Computer Vision.*

Mitra, S. (Editor): *IEEE/ACM Trans. On Computational Biology and Bioinformatics*, IEEE; *Wiley Interdisciplinary Reviews: Data Mining and Knowledge Discovery*; *Information Sciences*; *Neurocomputing*; *INAE Letters.*

Systems Science and Informatics Unit, Bangalore

Daya Sagar*,* B.S. (Editorial Advisory Board Member): *Computers & Geosciences*; (Review Editor): *Frontiers: Environmental Informatics*; (Guest Editor): *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*; (Lead Editor): *Handbook of Mathematical Geosciences: Fifty Years of IAMG,* Springer.

Physics and Earth Sciences Division

Geological Studies Unit, Kolkata

Patranabis-Deb, S. (Executive Editor): *Geological Journal*, Wiley-Blackwell Group, UK, since 2014.

Saha, D. (Editor): *Indian Journal of Geology*; (Section Editor): *Current Science*; (Editorial Advisory Board Member): *Indian Journal of Geosciences*.

Social Sciences Division

Economics Research Unit, Kolkata

Chakravarty, Satya R. (Associate Editor): *Social Choice and Welfare*, Springer Verlag, 2016.

Majumder, Amita (Associate Editor): *International Econometric Review*, Econometric Research Association, since 2009.

Sarkar, Nityananda (Associate Editor): *Indian Growth and Development Review*, Emerald Group Publishing Limited since 2008; *International Econometric Review*, Econometric Research Association, since 2009.

Linguistic Research Unit, Kolkata

Dasgupta, Probal (Editor: with István Ertl, Suso Moinhos, Jesper Lykke Jacobsen): *Beletra Almanako.* New York: Mondial.

Dash, Niladri Sekhar (Editor-in-Chief): *Journal of Advanced Linguistic Studies* [ISSN: 2231-4075].

Population Studies Unit, Kolkata

Pathak, Prasanta (Assistant Editor): *Indian Journal of Regional Science.*

Sociological Research Unit, Kolkata

Jana, Rabindranath (Statistical Editor): *Indian Journal of Dermatology*, since 2012.

Economics and Planning Unit, Delhi

Mishra, Debasis (Associate Editor): *Mathematical Social Sciences, Social Choice and Welfare*, *Journal of Mechanism and Institution Design,* Since 2016.

Ghate, Chetan (Policy Editor): *Indian Growth and Development Review*, Since 2008.

Somanathan, E. (Editor): *Environment and Development Economics*, Cambridge University Press Journal. Since January 2015.

Statistical Quality Control and Operations Research Division

SQC & OR Unit, Chennai

Ravindran, G.: (Guest Editor) *Annals of Operations Research*; *Recent Advances in Game Theory, Optimization Theory and Applications*, Special Volume (2016-2017).

Centre for Soft Computing Research, Kolkata

Editorial and other Assignments

Ghosh. A. (Associate Editor): *IET-Computer Vision*.

Pal S.K. (Associate Editor): *Information Sciences* (Elsevier); *Fuzzy Sets and Systems* (Elsevier); *Fundamenta Informaticae* (IOS Press); *Int. J. Pattern Recognition and Artificial Intelligence* (World Scientific); *Int. J. Computational Intelligence and Applications* (World Scientific); *IET Image Processing* (IEE Press); *LNCS Trans. on Rough Sets* (Springer); (Editor-in-Chief): *International Journal of Signal Processing, Image Processing and Pattern Recognition*, SERSC, Korea; (Executive Advisory Editor): *International Journal of Approximate Reasoning*; *International Journal of Computational Science and Engineering; International Journal of Image and Graphics*; *International Journal of Business Intelligence and Data Mining; International Journal of Machine Intelligence and Sensory Signal Processing; (*Guest Editor): *Pattern Recognition Letters; IET Image Processing*, *Natural Computing* (Springer); (Book Series Editor): *Frontiers in Artificial Intelligence and Applications (FAIA)*, IOS Press, Netherlands; *Statistical Science and Interdisciplinary Research,* World Scientific, Singapore; (Book Editor): *Pattern Recognition and Big Data, World Scientific Press*; *Soft Computing Applications in Sensor Networks*, CRC (Taylor & Francis) Press.

SCIENTIFIC ASSIGNMENTS/ACADEMIC VISITS ABROAD

Theoretical Statistics and Mathematics Division

Stat-Math Unit, Kolkata

Basak, G K.:
(1) International Center for Mathematical Sciences, Edinburgh, UK, June 5-10, 2016; (2) Department of Economics, Hariet-Watt University, May 31-June 4, 2016.

Bose, Arup:
(1) University of Minnesota, May 03, 2016-May17, 2016; (2) The 4th Institute of Mathematical Statistics Asia Pacific Rim Meeting, The Chinese University of Hongkong, June 27--30, 2016, Invited speaker, Also chaired a session; (3) Waseda International Symposium on High Dimensional Statistical Analysis for Time Spatial Processes, Quantile and Empirical Likelihood Analysis for Time Series, Waseda, Japan, October 24-26, 2016, Invited speaker, Also chaired a session; (4) Hokkaido International Symposium on Recent Developments in Statistical Theory in Statistical Science, Sapporo, Japan, October 27-29, 2016, Invited speaker; (5) Simposio de Inferencia y Modelaci'on Estadistica, CIMAT, Guanajuato, Mexico, November 21-23, 2016, Invited speaker for a short course (approx four hours) on Random matrices and high dimensional time series; (6) Professor Debashis Pal, University of Cincinnati, Ohio, USA, November 23, 2016—December 02, 2016 to work on collaborative Research, Also delivered a lecture on, White noise test under weak conditions.

Chakraborty, Arijit:
Cornell University, U.S.A., from September 5-9, 2016.

Chaudhuri, Probal:
(1) 2nd Indo-Russian Conference, St. Petersburg, Russia, May 30 - June 3, 2016; (2) International Workshop on New Developments in Econometrics and Time Series,University of Carlos III, Madrid, Spain, October 6-7, 2016; (3) International Workshop on Statistics for High-Dimensional & Complex Data, King Abdullah University of Science and Technology, Saudi Arabia, November 6-9, 2016.

Ghosh, Anil, K.:

(1) Department of Statistics and Applied Probability, National University of Singapore, March 21-24, 2017.

Maulik, Krishanu:
(1) Steklov Mathematical Institute, Moscow, May 25-29, 2016; (2) Euler International Mathematical Institute, St Petersburg, May 30 - June 3, 2016; (3) University of Twente, Twente, the Netherlands, June 6-7, 2016; (4) Eindhoven University of technology, Eindhoven, the Netherlands, 7-11 June 2016; (5) Concluding International RARE Conference, La Baule, France, July 3-8, 2016.

Mukherjee, Goutam:
University of Sheffield, U.K during August 7-20, 2016.

Stat-Math Unit, Delhi

Bandyopadhyay, Antar:
International Centre for Mathematical Sciences (ICMS), Edinburgh, UK, April 2016.

Bapat, R.B.:
(1) Shanghai Jiao Tong University, China, May 10-19, 2016; (2) Binghamton University, New York, USA, November 14-22, 2016.

Bhatia, Rajendra:
(1) University of Como, Italy, May 23-27, 2016; (2) GIPSA Labs, Grenoble France, June 1-8, 2016; (3) INRIA, France, June 9-30, 2016; (4) Shanghai University, China 9 December, 2016 - 7, January, 2017.

Laishram, Shanta:
(1) University of Bordeaux, France, 30 June - 12 July 2016; (2) University of Saint-Etienne, France, June 26-29, 2016; (3) University of Marseilles, France, June 18-25, 2016; (4) Leuca2016 Celebrating Michel Waldschmidt's 70th birthday, Marina di San Gregorio, Patu(Lecce), Italy, June 13-17, 2016.

Sarkar, Deepayan:
(1) Russian-Indian Joint Conference, St. Petersburg, Russia, May 30 – June 3, 2016; (2) DSC 2016 at Stanford University, Palo Alto California, June 29 – July 4, 2016.

Stat-Math Unit, Bangalore

Athreya, Siva:
(1) Bernoulli World Congress in Probability, Toronto, July 11-15, 2016; (2) National University of Singapore, Singapore from March 3-March 10, 2017; (3) Technion, Israel Institute of Technology, Haifa Israel, December 15- 23, 2016.

Bhat, B. V. Rajarama:
(1) 37th International Conference on Quantum Probability and Related Topics, International Islamic University Malaysia (IIUM), Kuantan, Pahang, Malaysia, August 22 – 26, 2016; (2) International conference `Quantum Information Theory and Related Topics, 2016, Ritusmeikan University, Japan, September 7-11, 2016; (3) Prof. Daniel Markiewicz of the Dept. of Mathematics, Ben Gurion University of the Negev, Israel, through the Indo-Israel Joint Project and gave a lecture in a joint seminar of this University with neighbouring Universities, February 17-27, 2017.

Raja, C.R.E.:
(1) University of Newcastle, Australia, July 9-16, 2016; (2) University of Sydney, Australia, July 17-22, 2016.

Editorial and other Assignments

Rajeev, B.:
(1) Institute for Stochastics, University of Hannover, November 7-11, 2016; (2) Dept. of Math., University of Oslo, November 13-15, 2016.

Rao, T.S.S.R.K:
(1) Co-organizer (with Professor Fernanda Botelho of the Department of Mathematical Sciences, University of Memphis), special secession on Geometry of Banach spaces, Southern Sectional Meting, American Mathematical Society, October 17-18, 2015; (2) Department of Mathematical Sciences, University of Memphis, September 2015 - May 2016.

Sarkar, Jaydeb:
(1) SUMIRFAS (Workshop in Analysis and Probability), Texas A&M University, USA, July 2016; (2) International Workshop on Operator Theory and its Applications (IWOTA), University at St. Louis, St. Louis, USA , July 2016; (3) Bologna University, Bologna, Italy, March 2017; (4) University of Roma Tor Vergata, Rome, Italy, March 2017.

Sury, B.:
(1) Midrasha conference on Group theory on the occasion of 60th birthday of Alex Lubotzky, Israel Institute for Advanced Studies, Hebrew University Jerusalam, Israel, November 6-11, 2016; (2) International Mathematical Olympiad 2016, Hong Kong University of Science and Technology, July 6-16, 2016.

Yogeshwaran, D:
(1) Workshop on Geometry and Stochastics of Nonlinear, Functional and Graph Data at Bornholm, Denmark, August 15 - 19, 2016; (2) Conference Stochastic Models V at Bedlewo, Poland, September 11 - 17, 2016; (3) Research visit for discussion with Prof. Robert J. Adler and his group, Technion, Haifa, Israel, December 27, 2016 - January 4, 2017.

Applied Statistics Division

Applied Statistics Unit, Kolkata

Chaudhuri, P. P.:
(1) Purdue University, Dept. of Chemistry, USA, May 24-27, 2016; (2) Tohoku University and delivered lecture, December 7-8, 2016; (3) Iwate Prefecture University, December 9-11, 2016; (4) 5th International TPNC conference, December 12-13, 2016.

Dewanji, A.:
(2) R Samuel McLaughlin Centre for Population Risk Assessment within the Institute of Population Health, University of Ottawa, Canada, during September 2016; (2) , International Conference on Analysis of Repeated Measures Data, Dhaka, Bangladesh, November 25-26, 2016, organized by the department of Applied Statistics, East West University; (3) Duke-NUS Medical School, Singapore, January 23-27 2017.

Sengupta, D:
(1) University of California, Santa Barbara, September-December, 2016; (2) University of California, Davis, October 16, 2016.

Interdisciplinary Statistical Research Unit, Kolkata

Basu, Ayanendranath:
(1) Department of Statistics, Ankara University, Ankara, Turkey, May 14-17, 2016; (2) International Conference on Information Complexity and Statistical Modelling in High Dimensions, A Festschrift in Honor of Dr. Hamparsum Bozdogan, Cappadocia, Turkey, May 18-21, 2016; (3) International Conference on Robust Statistics (ICORS 2016), Geneva, Switzerland, July 4-8, 2016.

Bose, Smarajit:
(1) 1st International Conference on Bioinformatics and Computing Technologies (ICBCT 2017), Hong Kong, January 6-8, 2017.

Pal, Amita:
(1) 1st International Conference on Bioinformatics and Computing Technologies (ICBCT 2017), Hong Kong, January 6-8, 2017.

SahaRay, Rita:
(1) Interenational Scientific Research and Experimental Development, 18th International Conference on Statistics and Applications, Singapore, World Academy of Science, Engineering and Technology (WASET), November 21-22, 2016; (2) Department of Statistics and Applied Probability, National University of Singapore, Singapore, November 22-26, 2016; (3) Demography and Health Statistics, The International Conference on Bioinformatics and Biostatistics for Agriculture Health and Environment, University of Rajshahi, Bangladesh, January 20-23, 2017.

Applied Statistics Unit, Chennai

Sen, R.:
Joint Statistical Meetings, Chicago, July 30-August 4, 2016.

Sreelakshmi, N.:
LINSTAT-2016, Istanbul, Turkey, 22-25 August, 2016.

Sudheesh, K K:
LINSTAT-2016, Istanbul, Turkey, 22-25 August, 2016.

Applied and Official Statistics Unit, Tezpur

Chungkham, H.S.:
(1) Dr. Linda Magnusson Hanson, Division of Epidemiology, Stress Research Institute, Stockholm University, Stockholm, Sweden, October 16-22, 2016; (2) International Conference on Sequence Analysis and Related Methods (LaCOSA II), University of Lausanne, Switzerland, June 08-10, 2016.

Jyethi, Darpa Saurav:
(1) International Society for Exposure Science (ISES) Annual Meeting, Utrecht, The Netherlands, October 9-13, 2016.

Computer and Communication Sciences Division

Advanced Computing and Microelectronics Unit, Kolkata

Banerjee, A.:
(1) National Tsing Hua University (NTHU), Taiwan, November 18-December 1, 2016; (2) Chinese University of Hong Kong (CUHK), Hong Kong, December 2-8, 2016; (3) International Conference on

Web Services, San Francisco, June 27-July 2, 2016; (4) University of Texas at Arlington, USA, July 2-7, 2016; (5) Faculty Summit, Microsoft Seattle, July 13-15, 2016.

Bhattacharya, B.B.:
University of Bremen, Germany, November 23-December 2, 2016.

Ghosh, A.:
Data Shape Group, INRIA, France, April 5-22, 2016, November 8-25, 2016, February 13-24, 2017.

Ghosh, S.C.:
(1) 31st IEEE International Conference on Advanced Information Networking and Applications (IEEE AINA 2017), Taipei, Taiwan, March 27-29, 2017.

Mukhopadhyaya, K.:
WALCOM 2017, Taiwan, March 25-April 03, 2017.

Roy, S.:
Tel Aviv University, Israel, April 4-21, 2016.

Sur-Kolay, S.:
(1) Group of Computer Architecture, University of Bremen, Germany, April 18-July 15, 2016; (2) Johannes Kepler University, Austria, April 25-26, 2016; (3) TU Munich, Germany, April 28-May 2, 2016; (4) Institute of Microelectronic Systems, Leibniz Universität Hannover, Germany, July 6, 2016.

Computer Vision and Pattern Recognition Unit, Kolkata

Bhattacharya, Ujjwal:
(1) 23rd International Conference on Pattern Recognition, Cancun, Mexico, December 4-8, 2016.

Chatterjee, Garga:
(1) University of Liberal Arts, Dhaka, Bangladesh, March, 2017; (2) NTU, Singapore, September, 2016; (3) Wellesley College, USA, December, 2016; (4) European Conference on Visual Perception, Barcelona, Spain.

Garain, Utpal:
(1) Osaka Prefecture University, Japan, February 02-March 31, 2017.

Pal, Umapada:
(1) International Conference on Pattern Recognition, Cancun, Mexico, December 4-8, 2016; (2) 15th International Conference on Frontiers in Handwriting Recognition, Shenzhen, China, October 23-26, 2016; (3) Dept. of Computer Science, University of Otago, New Zealand, March 26-31, 2017.

Parui, Swapan K.:
(1) 15th International Conference on Frontiers in Handwriting Recognition, Shenzhen, China, October 23-27, 2016.

Electronics and Communication Sciences Unit, Kolkata

Chanda, B.:
23rd International Conference on Pattern Recognition (ICPR), Cancun, Mexico, December 4-8, 2016.

Das, Swagatam:

(1) 15th International Conference on Artificial Intelligence and Soft Computing (ICAISC 2016), Zakopane, Poland, June 12-16, 2016; (2) 3rd International Conference on the Harmony Search Algorithm (ICHSA 2017), Bilbao, Spain, February 22-24, 2017; (3) Dept. of Computer Science and Artificial Intelligence, University of Granada, Spain, February 16-22, 2017; (4) School of Electronics Engineering, Kyungpook National University, Daegu, Korea, September 7-13, 2016; (5) School of Computer Science and Software Engineering, East China Normal University, Shanghai, September 5-6, 2016.

Mukherjee, D.P.:
(1) IEEE International Conference on Image Processing (ICIP), Phoenix, USA, September 25-28, 2016; (2) Editorial Board Meeting, IEEE Transactions on Image Processing, Phoenix, USA, September 27, 2016; (3) Department of Computer Science, University of Nebraska, Omaha, USA, September 30, 2016; (4) CIMAT, Guanajuato, Mexico, October 6, 2016.

Pal, N.R.:
(1) First International Conference on Hybridized Agriculture (HA 2016), Sojo University, Kumamoto, Japan, October 21-24, 2016; (2) 12th International FLINS Conference (FLIN 2016), Roubaix, France, August 24-26, 2016; (3) IEEE International Conference on Fuzzy Systems, and IEEE World Congress on Computational Intelligence (WCCI 2016), Vancouver, Canada, July 24-29, 2016; (4) IEEE Computational Intelligence Summer School, Universidad de los Andes, Santiago, Chile, December 14-16, 2016; (5) Malaysia Chapter of the IEEE Computational Intelligence Society and Tunku Abdul Rahman University College, Kuala Lumpur, Malaysia, November 1, 2016; (6) Brain Research Center, National Chiao-Tung University, Taiwan, September 17-October 21, 2016.

Machine Intelligence Unit, Kolkata

Bandyopadhyay, S.:
(1) University of Ljubljana, Slovenia, November 2016; (2) University of Gottingen, Germany, May 2016.

De, Rajat K.:
(1) Biotechnology World Convention, São Paulo, August 15-17, 2016; (2) Department of Medicine, University of California, San Diego, USA, February 06-May 05, 2017.

Ghosh, Ashish:
(1) Kings Monkut's University of Technology, Thonburi, Thailand, March 10-April 18, 2016.

Maji, Pradipta:
(1) 10th IEEE International Conference on Bioinformatics and Biomedicine (BIBM2016), Shenzen, China, December 2016.

Mitra, Sushmita:
(1) Dept. of Computer Science, Meiji University, Kawasaki, Japan, February 28-March 12, 2017; (2) Autonomous University of Queretaro, Mexico, December 9-10, 2016; (3) Pontifical Catholic University, Rio de Janeiro, Brazil, June 24, 2016; (4) IEEE ARGENCON Congress, Buenos Aires, Argentina, June 17, 2016; (5) Universidad Tecnologica Nacional, Buenos Aires, Argentina, June 16, 2016.

Documentation Research and Training Centre, Bangalore

Dutta, Biswanath:
(1) Stanford University School of Medicine, Stanford, USA, February 2-3, 2017; (2) 11th IEEE International Conference on Semantic Computing (IEEE ICSC 2017) and International Workshop on Semantics for Engineering and Robotics (IWSER 2017), San Diego, CA, USA, January 31-February 1,

Editorial and other Assignments

2017.

Krishnamurthy, M.:
(1) University de Lille, France, July 11-13, 2016.
Madalli, Devika P.:
(1) Department of Information Engineering and Computer Science (DISI), University of Trento, Italy, May 2-13, 2016; (2) UNFAO, AGRONKNOW, Crete, Greece, May 18-20, 2016; (3) SciDataCon 2016, Denver, USA and GODAN Summit 2016, New York, USA, September 11-17, 2016; (4) OECD, Paris, France, November 2-5, 2016; (5) Research Management Centre, Universiti Putra Malaysia, Malaysia, November 14-15, 2016; (6) Academy of Science of South Africa (ASSAF), ICC CSIR, Pretoria, South Africa, December 7-9, 2016; (7) Technical Centre for Agricultural and Rural Cooperation (CTA), Wageningen, Netherlands, March 7-8, 2017; (8) Organisation for Economic Co-operation and Development (OECD), Brussels, March 28-31, 2017.

Prasad, A.R.D.:
(1) Department of Information Studies, Nanyang Technological University (NTU), Singapore, August, 2016; (2) Centre for Scientific Documentation and Information, Indonesia Institute of Science (PDII – LIPI), Jakarta, Indonesia, August 8-14, 2016; (3) Research Management Centre, Universiti Putra Malaysia, Malaysia, November 14-15, 2016; (4) Academy of Science of South Africa (ASSAF), ICC CSIR, Pretoria, South Africa, December 9-14, 2016; (5) Mahasarakham University, Thailand, March 6-10, 2017; (6) Department of Information Engineering and Computer Science (DISI), University of Trento, Trento, Italy, March 29-30, 2017.

Systems Science and Informatics Unit, Bangalore

Sagar, B.S.D.:
(1) University of Cape Town, Cape Town, South Africa, August 27-31, 2016.

Computer Science Unit, Chennai

Chakraborty, Prabuddha:
(1) American Physical Society March Meeting, New Orleans, USA, March 13-17, 2017.

Francis, Mathew C.:
(1) School of Computing, Simon Fraser University, Canada, June 10-July 10, 2016.

Ghosh, Sujata:
(1) CADILLAC Workshop, Copenhagen, Denmark, May 23-25, 2016; (2) University of Groningen, Groningen, The Netherlands, May 30-July 15, 2016.

Karthick, T.:
(1) 22nd International Computing and Combinatorics Conference (COCOON 2016), Ho-Chi Minh City, Vietnam, August 2-4, 2016.

Cryptology and Security Research Unit, Kolkata

Paul, Goutam:
(1) Institute of Industrial Science (IIS), University of Tokyo, Japan, August 6-12, 2016.

Physics and Earth Sciences Division

Geological Studies Unit, Kolkata

Ghosh, Parthasarathi:
(1) 32nd International Association of Sedimentologists: International Meeting of Sedimentology, Marrakech, Morocco, May 23-25, 2016.

Patranabis-Deb, S.:
(1) 35th International Geological Congress (IGC), Cape Town, South Africa, August 27 - September 4, 2016; (2) Department of Geology (CIMERA Lab), University of Johannesburg, South Africa, September 5 - 29, 2016.

Saha, Dilip:
(1) 35th International Geological Congress Cape Town, South Africa, August 2 -September 4, 2016; (2) University of Johannesburg, Department of Geology (CIMERA Lab), September 5-23, 2016.

Sengupta, Dhurjati Prasad:
IIV Annual meeting of European Association of Vertebrate Paleontologists, Haarlem, Netherland July 6- 10.

Physics and Applied Mathematics Unit, Kolkata

Basu, Banasri :
(1) Jozef Stefan Institute, Ljubljana, Slovenia, August 23-26, 2016; (2) International Centre for Theoretical Physics, August 29 - September 01, 2017; (3) University of Silesia, Katowice, Poland, September 04-08, 2016.

Ghosh, Subir:
(1)International Centre for Theoretical Physics (ICTP), Italy; (2) South American Institute for Fundamental Research (SAIFR), Sao Paulo, Brazil, October 5 – December 16, 2016.

Ghosh, Dibakar :
(1)Saratov State Technical University in Russia, October 17 – November 1, 2016; (2) Nizhny Novgorod State University, Nizhny Novgorod, Russia, October 21-27, 2016.

Maiti, K. Santanu:
(1) Kwansei Gakuin University, Japan, November 17 – December 17, 2016.

Pal, Supratik:
(1) Max-Planck Institute Astrophysics in Garching, Germany, July 5 – September 30, 2016.

Roy, Barnana:
(1) Cinvestav in Mexico City, Mexio, September 19 – October 10, 2016.

Roy, Pinaki:
(1) National Polytechnic Institute (IPN), Mexico City, Mexico, September 18 – October 11, 2016; (2) INFN Sezione di Perugia, Italy, November 20 – December 24, 2016.

Sarkar, Sankar:
(1) Politecnico di Milano, Italy, March 31 – May 28, 2016.

Editorial and other Assignments

Biological Sciences Division

Biological Anthropology Unit

Mukhopadhyay, Barun:
5th International Conference on Geriatric Medicine and Gerontology, Atlanta,Georgia, USA, November 14-16, 2016.

Human Genetics Unit, Kolkata

Ghosh, Saurabh:
(1) European Mathematical Genetics Meeting, Newcastle, UK, May 11-13,2016; (2) International Biometric Conference, Victoria, Canada, July 9-14, 2016; (3) International Genetic Epidemiology Society Meeting, Toronto, Canada, October 24-25, 2016; (4) Genetic Analysis Workshop 20, San Diego, USA, March 5-8, 2017.

Mukhopadhyay, Indranil:
(1) American Society of Human Genetics Meeting, Vancouver, Canada, October 18-22, 2016; (2) International Genetic Epidemiology Society Meeting, Toronto, Canada, October 24-25, 2016; (3) Genetic Analysis Workshop 20, San Diego, USA, March 5-8, 2017.

Social Sciences Division

Economic Research Unit, Kolkata

Banerjee, Priyadarshi:
(1) EEA-ESEM 2016 Congress in Geneva, Switzerland, July 8 -16, 2016; (2) 6th Xiamen University International Workshop on Experimental Economics in Xiamen, Fujian, China, December 15 - 19, 2016.

Kabiraj, Tarun:
(1) EcoMod Conference at Universidade de Lisboa, Lisboa, Portugal, July 6-8, 2016; (2) Department of Economics, ISEG, Universidade de Lisboa, Portugal, July 9 -11, 2016; (3) 11th Asia-Pacific Conference on `Global Business, Economics, Finance and Business Management', held in Bangkok, Thailand, February 16 – 18, 2017.

Majumder, Amita:
(1) The 3rd Conference of the Economic and Social Measurement (SEM), Thessaloniki, Greece, July 6 - 8, 2016.

Mitra, Manipushpak:
(1) Seoul National University, Seoul, South Korea. February 27 –March 10, 2017; (2) Cardiff Business School, Cardiff University, Cardiff, Wales, 28 November 28 – December 7, 2016; (3) National University of Singapore University, Singapore, August 29 – September 1, 2016; (4) Seoul National University, Seoul, South Korea, July 4 – August 16, 2016.

Munshi, Soumyanetra:
(1) Rutgers University, February 22 - 29, 2017; (2) Eastern Economic Association Conference in New York, February 23 - 26, 2017; (3) Economics Department, UC Berkeley, March, 2017, (4) UC Irvine, March 9, 2017; (5) Auburn University, Alabama, March 24, 2017.

Pal, Manoranjan:

(1) Eötvös Loránd University (ELTE), Department of Health Policy and Health Economics Institute of Economics, Faculty of Social Sciences, Budapest, Hungary on July 15, 2016; (2) Central Bank of Sri Lanka, March 31, 2017.

Sarkar, Abhirup:
UECE Lisbon Meetings 2016: Game Theory and Application in Lisbon, Portugal, November 2 – 7, 2016.

Roy, Souvik:
(1) The 13th Meeting of the Society for Social Choice and Welfare, Lund University, Sweden, May 31 – July 2, 2016; (2) Department of Quantitative Economics of Maastricht University, The Netherlands, November 20 – December 15, 2016,

Linguistic Research Unit, Kolkata

Dasgupta, Probal
(1) 'Originala literaturo Esperanta de azianoj', Interlinguistics Programme, AMU [Adam Mickiewicz Univesity], Poznan, Poland, September 22, 2016; (2) 'Getting the identical infinitives filter under control', Department of General Linguistics, AMU, Poznan, Poland, September 18-23, 2016; (3) 'Universaligi la kulturan suverenecon: la tradukado kaj la esperantismo', ArKonEs, Poznan, Poland, September 23-25, 2016; (4) 'Arbitrariness at the agreement-classifier boundary', Department of Linguistics, Leiden University, Netherlands, September 30, 2016; (5) 'The speech community and Akademio de Esperanto', Esperanto Section, Department of General Linguistics, University of Amsterdam, Netherlands, October 4, 2016.

Population Studies Unit, Kolkata

De, Partha:
(1) Universitas Indonesia, Faculty of Social and Political Sciences, Bali, Indonesia, October 17-22, 2016.

Psychology Research Unit, Kolkata

Dutta Roy, D.:
(1) Heriot – Watt- University**,** Dubai, October 22, 2016.

Sampling and Official Statistics Unit, Kolkata

Kar, Aloke:
(1) Food and Agricultural Organization (FAO) and BPS-Statistics Indonesia, Jakarta, Indonesia October 10 - 21, 2016.

Mitra, Sandip:
(1) Monash University, Australia, February 5-13, 2017; (2) Manchester University, March 5-21, 2017.

Sociological Research Unit, Kolkata

Bharati, Susmita:

Editorial and other Assignments

(1) Economics and Human Biology conference, Tubingen, Germany, October 15-16, 2016; (2) Rajshahi University, Bangladesh, January 20-23, 2017; (3) University of Ruhuna, Sri Lanka, March, 28-29, 2017.

Chakraborty, Sonali:
(1) Rajshahi University, Bangladesh, January 20-23, 2017.

Ghosh, Bhola Nath:
(1) The 3rd ISA Forum of Sociology, Vienna University, Vienna, Austria, July 10-14, 2016; (2) International Conference on Social and Political Sciences, University of Indonesia, Bali, Indonesia, October 19- 20, 2016; (3) International Conference on Development Governance and Transformation at BARD, University of Dhaka, Bangladesh; (4) Ruhuna University International Conference on Humanities and Social Sciences, University of Ruhuna, Sri Lanka, March, 28-29, 2017; (5) International Conference on "Bioinformatics and Biostatistics for Agriculture, Health and Environment", jointly organized by the Department of Statistics, University of Rajshahi & Bangladesh Bioinformatics and Computational Biology Association (BBCBA), January 20-23, 2017; (6) Special Lecture on "Authority of Khasi Tribal women in Meghalaya" in the Department of Anthropology, Rajshahi University, January 23, 2017; (7) Eotvos Lorand University, Budapest Hungary**,** Dept. of Health, Policy and Health Economics, Faculty of Social Sciences, July 15, 2016.

Ghosh, Tirthankar:
(1) International Conference on Social and Political Issues (ICSPI) 2016, Universitas Indonesia (Sanur Pradise Plaza Hoel), Bali, Indonesia, October 19-20, 2016.

Jana, Rabindranath:
(1) International Conference on Social and Political Issues (ICSPI) 2016, Universitas Indonesia, Bali, Indonesia, October 19-20, 2016.

Shome, Suparna:
(1) Economics and Human Biology Conference, University of Tubingen, Germany, October 15-16, 2016.

Economics and Planning Unit, Delhi

Afridi, Farzana:
(1) IGC-EPoD Regional Dialogue on Women's Empowerment – Panel discussant, Kathmandu, Nepal, March 23- 24, 2017.

Ghate, Chetan:
(1) Faculty of Business and Law, Deakin University, Melbourne, Australia, June 6- 28, 2016; (2) International Leaders program, Kuala Lampur, February 22- 23, 2017.

Kapoor, Mudit:
(1) Brookings Institution, Washington DC, USA, June 7- 28, 2016; (2) Universidad de Concepcion, Chile, November 7- 16, 2016.

Mukhopadhyay, Abhiroop:
(1) Heidelberg University, World Institute for Development Economics Research, United Nations University, Wider and University of Oslo, June 2- 15, 2016; (2) University of Connecticut, USA, December 5- 15, 2016.

Mishra, Debasis:

(1) Institute of Social and Economic Research, Osaka University, Japan, May 11- June 24, 2016; (2) Lund University, Sweden, June 27- July 1, 2016; (3) World congress of the game theory society, Maastricht, The Netherlands, July 25- 27, 2016; (4) Vanderbilt University, USA, September 16-20, 2016; (5) Singapore Management University, December 14-16, 2016

Sen, Arunava:
(1) Vanderbilt University, USA, September 16-20, 2016; (2) Singapore Management University, Singapore, December 13-16, 2016.

Somanathan, E.:
South Asian Network for Development and Environmental Economics (SANDEE), USA, July 1, 2015 - July 31, 2017.

Economics Analysis Unit, Bangalore

Swaminathan, Madhura:
(1) Oxford India Centre for Sustainable Development, Somerville College, Oxford, July 12-13, 2016; (2) World Foodprize Dialogue, Des Moines, USA, October 12-14, 2016.

Statistical Quality Control and Operations Research Division

SQC & OR Unit, Delhi

Neogy, S. K.
5th World Congress of the Game Theory Society, Maastricht University, The Netherlands, July 24-28, 2016.

SQC & OR Unit, Bangalore

Ray, Sanjit:
(1) Emirates Integrated Telecommunication Company, Dubai, April 18-22, 2016, May 5- 20, 2016, June 27-July 1, 2016, August 29-September 2, 2016, October 17-21, 2016, November 5-11, .2016 and March 13-17, 2017.

SQC & OR Unit, Hyderabad

Subhani, S M:
University of Berkley (International Association of Engineers), San Franscisco, USA, October 19-21, 2016.

SQC & OR Unit, Mumbai

Sarkar, Ashok:
(1) G S College of Commerce and Economics, November 18-19, 2016; (2) International conference on Robust Quality Engineering, January 19-21, 2017; (3) International conference on Robust Quality Engineering, January 19-21, 2017.

Editorial and other Assignments

Center for Soft Computing Research, Kolkata

Das, S.:
URSI Asia-Pacific Radio Science Conference Seoul, South Korea, August 18-27, 2016.

Ghosh, A.:
(1) Kings Monkut's University of Technology, Thonburi, Thailand, March, 10 – April, 18, 2016.

Ghosh, K.:
23rd International Conference on Neural Information Processing (ICONIP 2016), Kyoto, Japan, October 16-21, 2016.

Pal S. K.:
(1) 5th International Conference on Informatics, Electronics & Vision (ICIEV'16), Dhaka, Bangladesh, May 11-15, 2016; (2) Santander Bank, United Kingdom, June 07-20, 2016; (3) International Joint Conference on Rough Sets (IJCRS 2016), Universidad de Chile, Santiago, Chile, October 05-13, 2016; (4) 27th TWAS General Meeting, Kigali Convention Centre, Kigali, Rwanda, November 11-19, 2016; (5) 1st Mediterranean Conference on Pattern Recognition and Artificial Intelligence (MedPRAI 2016), Tebessi University, Tebessa, Algeria, November 20-24, 2016; (6) International Conference on Imaging, Vision and Pattern Recognition (icIVPR2017), University of Dhaka, Dhaka and the International Conference on Electrical, Computer and Communication Engineering (ECCE-2017), Chittagong University of Engineering & Technology (CUET), Cox Bazar Bangladesh, February 12-21, 2017; (7) Workshop on Big Data Analysis, La Trobe University, Melbourne, March 10-18, 2017.

Administrative Division

Printing and Publication Unit, Kolkata

Bhattacharya, Chinmay:
(1) Asian Symposium Printing Technology, Jakarta International Expo, Kemayoran, Jakarta, Indonesia, October 7, 2016.

SCIENTIFIC ASSIGNMENTS/ ACADEMIC VISITS IN INDIA

Theoretical Statistics and Mathematics Division

Stat-Math Unit, Kolkata

Bose, Arup:
(1) North-East Summer Workshop in Analysis and Probability, Rajib Gandhi University, May 31--June 04, 2016; (2) TIMC-AMS conference, Benaras Hindu University, December 14--17, 2016; (3) Workshop on Applied Probability, TIFR, Mumbai, India March 31-April 02, 2017.

Chaudhuri, Probal:
(1) UGC-sponsored National Level Seminar on "Recent Developments in Mathematics and Its Applications", Ramakrishna Mission Vidyamandira, September 26-27, 2016; (2) Workshop on "Big Data, Economics and Finance", Presidency University, October 20-26, 2016; (3) International

Conference on "Recent Trends in Science and Technology", Christ College, Rajkot, February 26-27, 2017; (4) Workshop on "Quantitative Methods in Social Science Research", Indian Institute of Technology, Kharagpur, March 20-24, 2017.

Dutta, Amartya:
(1) Ramakrishna Mission Institute of Culture, April-May, 2016; (2) Conference on zero and related topics in number theory, Indian Institute of Science, Bangalore, July 25-26, 2016; (3) Seminar on History of Zero at Ramakrishna Mission Residential College, Narendrapur, August 30, 2016; (3) Calcutta Mathematical Society on its Foundation Day, September 6, 2016; (4) Camp on Mathematics Training for Undergraduate Statistics Students, Department of Statistics, University of Calcutta, October 25, 2016; (5) Department of Pure Mathematics, University of Calcutta, 21 March, 2017.

Ghosh, Anil, K.:
(1) Department of Mathematics and Statistics, Indian Institute of Technology, Kanpur, August, 2016; (2) Department of Mathematics, Indian Institute of Technology, Guwahati, February, 2017.

Gupta, Neena:
(1) 82nd Annual Conference of the Indian Mathematical Society at the University of Kalyani, West Bengal, December 27-30, 2016

Maulik, Krishanu:
(1) Department of Mathematics, NISER, Bhubaneswar, Odisha, October 27, 2016; (2) INSPIRE training camp, KIIT, Bhubaneswar, Odisha, October 28, 2016; (3) INSPIRE training camp, KIIT, Bhubaneswar, Odisha, November 14, 2016; (4) Faculty Development Programme under TEQIP-II, Govt College of Engineering, Cherthala, Kerala, February 3, 2017.

Ray, Swagato K.:
(1) Dept. of Mathematics and Statistics, IIT Kanpur, October, 20-22, 2016; (2) Bhaskaracharya Pratishthana, Pune, Nobember, 14-19, 2016; (3) Kerala School of Mathematics, Kozhikode, December 12-17, 2016; (4) Department of Mathematics, IIT Patna, February, 16-18, 2017.

Stat-Math Unit, Delhi

Bhatia, Rajendra:
(1) Advanced Instructional School on Matrix Analysis, National Board for Higher Mathematical, Shiv Nadar University, NOIDA, May 2-21, 2016; (2) IISER, Pune, August 18-20, 2016; (3) Indian Academy of Sciences Discussion Meeting on Linear Analysis, Orange County, November 27–December 1, 2016 ; (4) Jammu & Kashmir Science Congress, March 2-4, 2017.

Dewan, Isha:
(1) IISER Pune, Research Collaboration, June 21-25, 2016 and February 16-18, 2017; (2) Chennai Mathematical Institute, Research Collaboration, Septmber 19-21, 2017; (3) Workshop on Relibility and Survival Analysis, University of Pune, November 3-5, 2016.

Jain, Tanvi:
(1) National Seminar on Algebra and Allied Fields, Department of Mathematics & Statistics, Himachal Pradesh University, March 24-25, 2017; (2) National Symposium on Mathematics and Women in Mathematics, NES Ratnam College, University of Mumbai, January 27-28, 2017; (3) National Conference on Algebra, Analysis, Coding and Cryptography, Department of Mathematics, University of Delhi, October 14-15, 2016 ; (4) Department of Mathematics, IIT Delhi, September 26, 2016; (5) Annual conference of Indian Women in Mathematics, Hyderabad University, June 29 - July 1, 2016; (6) Advanced Instructional School on Matrix Analysis, Shiv Nadar University, May 16-21, 2016.

Laishram, Shanta:

Editorial and other Assignments

(1) Combinatorics and Number Theory Meet, Harish-Chandra Research Institute, Allahabad, February 19-23, 2017; (2) International Conference on Number Theory, Kerala School of Mathematics, Kozhikode, January 9-13, 2017; (3) Conference of the Indian Mathematics Consortium (TIMC) in co-operation with the American Math Society (AMS), Banaras Hindu University (BHU), December 14-17, 2016; (4) Indocrypt 2016, ISI Kolkata, December 11-14, 2016; (5) History of Mathematical Sciences (CHMS) 2016, Conference of the Indian Society for History of Mathematics (ISHM), National Institute of Technology Manipur, Imphal, November 18-20, 2016; (6) Refresher Course in Mathematics, UGC – Human Resource Development Centre, University of Hyderabad, October 3, 2016; (7) MTTS 2016, Shiv Nadar University, Greater Noida, May 30- June 10, 2016; (8) IMO Training Camp, HBCSE, TIFR Mumbai, April 20-23, 2016.

Pal, Arup K :
(1) Institute of Mathematical Sciences, Chennai, September 18-23, 2016.

Thakur, Maneesh:
(1) Conference on Group Theory, I.C.T.S. Bangalore, November 11-15; (2) ISI-Bangalore, November 15-November 18; (3) Lecture Workshop on Algebra and Geometry, Department of Mathematics, Central University of Jammu, March 24- 25.

Stat-Math Unit, Bangalore

Bhat, B. V. Rajarama:
(1) RV College of Eng., Bangalore; (2) North-East Summer Workshop in Analysis and Probability (NE-SWAP) , Rajeev Gandhi University, Arunachal Pradesh, May 31-June 4, 2016; (3) DST-INSPIRE INTERNSHIP SCIENCE CAMP, Shri Ganambika Degree College , Madanapalli, Chittoor Dist, Telangana, October 15-19, 2016; (4) National Science (Vijyoshi) Camp 2016,J N Tata Auditorium, I.I.Sc Bangalore, December 3 – 5, 2016; (5) National Seminar on Functional Analysis and Harmonic Analysis 2017, Sardar Patel University, Vallabh Vidyanagar, Gujarat, January 16-18, 2017; (6) National seminar on Algebra and allied fields, Dept.of Mathematics, Himachal Pradesh Universiy, Shimal, March 24-25, 2017; (7) Dept. Of Mathematics, University of Delhi, South Campus, February 28, 2017.

Kasilingam, Ramesh:
(1) North-Eastern Hill University, Shillong, March 14-16, 2017; (2) Annual Foundation Schools (AFS-I), School of Math-ematics, IISER, Thiruvananthapuram, December 5- 31, 2016.

Raja, C. R. E.:
(1) conference ICTIMC-AMS, BHU, Varanasi, December 14- 17, 2016.

Rajeev, B.:
(1) Dept. of Mathematics, IIT Mumbai, September 11-16, 2016, (2) conference on `stochastic processes and coding theory', University College, Thiruvanantapuram, March 9-10, 2016; (3) conference on `stochastic control and related topics', IIT Mumbai, March 11; (4) Math Dept., IISER, Pune January 19.

Sarkar, Jaydeb:
(1) Department of Mathematics, Manipur University, India. February 2017; (2) National Seminar on Functional Analysis and Harmonic Analysis, Sardar Patel University, India. January 2017; (3) International Conference on Mathematical Analysis and its Applications (ICMAA-2016), I.I.T. Roorkee, India, November-December, 2016;(4) Stat-Math Unit, ISI Kolkata, India, November 2016; (5) National Seminar on Recent Developments in Complex Analysis, Operator Theory and Related Areas, Jammu University, India, October 2016; (6) Stat-Math Unit, ISI Delhi, India, September 2016; (7) Department of Mathematics, IISc, Bangalore, India, August 2016.

Sury, B.:
(1) Factorization in domains and zero-sum problems, Conference on zero and related topics, Indian Institute of Science, Bengaluru, July 25-26, 2016; (2) Mathematical Puzzles and analogy as an aid to teaching, NBHM National Conference on algebra, Department of Mathematics, Maris Stella College, Vijayawada, February 17-18, 2017; (3) Matrix groups over rings, Annual conference of the Ramanujan Mathematical Society, National College Tiruchirapalli, June 21, 2016; (4) Undergraduate mathematics curriculum, its practice and students' queries, Symposium on mathematics education, National College Tiruchirapalli, June 20, 2016; (5) Mathematicians turn coffee into probably tea in groups, Science Academies'workshop on Analysis and Probability, Vijaya College, Bengaluru, March 6-7, 2017; (6) Polynomials, Primes, Progressions and Puzzles, APU-RMS workshop, Jain University Bengaluru, December 9, 2016; (7) Six Lectures on K-theory, School on K-theory and applications, ISI Bengaluru, December 26 - January 7, 2017.

Yogeshwaran, D.:
(1) TG/IEEE ITSoc Summer School 2016, IISc, Bangalore, June 27 - July 1, 2016.

Applied Statistics Division

Applied Statistics Unit, Kolkata

Dewanji, A:
(1) International Conference of The Indian Mathematics Consortium, Benaras Hindu University (BHU), December 14-17, 2016.

Applied Statistics Unit, Chennai

Sen, Rituparna:
(1) Training program on Big Data Analytics, Velammal Institute of Technology, April 28-29, 2016; (2) Mathematics Department colloquium, IIT Madras, November 3, 2016; (3) Conference, Statistical Methods in Finance, Chennai Mathematical Institute, December 18-22, 2016; (4) Utkal University, January 13, 2017; (5) National Workshop on Big Data analytics Tools, SRM Unviersity, February 23-27, 2017; (6) National Workshop on Computational Mathematics, Anna University, Chennai, March, 2-15, 2017.

Sudheesh, K.K.:
(1) Advance training on R at symposium in Research and Data Analysis with Statistical Advanced Tools-RADSAT 2017, Bharathidasan University, Trichi, Tamil Nadu, India, March 28, 2017; (2) VIT Chennai, India, March 07, 2017; (3) Faculty Development Programme on Statistical Computing and R programming, College of Engineering, Cherthala, Kerala, India, February 28, 2017; (4) National conference, St. Thomas College, Thrissur, Kerala, India, 27-28 February 2017; (5Anna University Campus, Trichy, India, July 16 2016; (6) K. L. N. College of Information Technology, Madurai, India, June 25, 2016; (7) Rajalakshmi Engineering College, Chennai, India, June 8-9, 2016; (8) PSNA College of Engineering and Technology, Dindigul, India, May 26 2016; (9) Sathyabama University, Chennai, India, May 1, 2016; (10) Velammal Institute of Technology, Chennai, India, April 29, 2016.

Applied and Official Statistics Unit, Tezpur

Athe Ramesh:

Editorial and other Assignments

(1) 19th Annual National Conference of Society of Statistics, Computer and Applications SKUAST, Jammu, March 06-08, 2017.

Chungkham, H.S.:
(1) LGB Regional Institute of Mental Health, Tezpur, February 13-28, 2017.

Jyethi, Darpa Saurav:
61st Annual National Conference of Indian Public Health Association (IPHA), AIIMS, Jodhpur, February 24-26, 2017.
Maitra, Sanjit:
(1) 4th International Conference on Signal Processing and Integrated Networks, Amity University, Noida, February 2-3, 2017.

Mehta, Vishal:
(1) National Conference on Computational Sciences (NCCS-2017), Department of Computer Science, Govt. Holkar Science College, Indore, Madhya Pradesh, March 30-31, 2017.

Yadav, Raj Bhawan:
(1) International Conference on Mathematical Analysis & its Applications (ICMAA-2017), Maharashtra, March 5-9, 2017.

Computer and Communication Sciences Division

Advanced Computing and Microelectronics Unit, Kolkata

Bhattacharya, B.B.:
(1) GIAN lectures, Department of Computer Science and Engg., National Institute of Technology, Meghalaya, Shillong, August 8-12, 2016; (2) Inaugural keynote speech, 4th International Conference on Advanced Computing, Networking and Informatics (ICACNI), National Institute of Technology, Rourkela, September 22-24, 2016.

Das, N.:
(1) 18th International Conference on Distributed Computing and Networking (ICDCN 2017), IDRBT Hyderabad, January 4-7, 2017; (2) IEEE International Conference on Advanced Networks and Telecommunications Systems (ANTS), IISc, Bangalore, November 6-9, 2016; (3) NIT Patna, June 1-5, 2016.

Mukhopadhyaya, K.:
(1) ICDCN 2017, Hyderabad, January 4-7, 2017; (2) CALDAM 2017, Goa, February 13-17, 2017.

Sur-Kolay, S.:
(1) Steering Committee member and paper presentation, 30th International Conference on VLSI Design, Hyderabad, January 9-11, 2016; (3) Workshop on Computation, Sciences and Society, INFOSYS Mysore Campus, Mysore, January 14-15, 2017; (4) Founding Chair, All India Chapter of IEEE Council on Electronic Design Automation.

Computer Vision and Pattern Recognition Unit, Kolkata

Bhattacharya, Ujjwal:

(1) 10th Indian Conference on Computer Vision, Graphics and Image Processing, IIT Guwahati, December 18-22, 2016; (2) 2nd Workshop on Computer Vision Applications, IIT Guwahati, December 19, 2016; (3) 4th ISI Workshop on Pattern Analysis and Applications, Sikkim Manipal Institute of Technology, Majitar, Rangpo, Sikkim, February 6-10, 2017.

Chatterjee, Garga:
(1) Invited talk, Ahmedabad University, Ahmedabad; (2) Invited talk, Jadavpur University, Kolkata; (3) Invited talk, Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore; (4) Invited talk, TA Pai Management Institute, Manipal.

Garain, Utpal:
(1) External examiner, PhD viva voce examination, Department of Computer Science and Engineering, IIT Kharagpur, July, 2016; (2) External examiner, MTech viva voce examination, Department of Computer Science and Engineering and Department of Electronics and Electrical Communication Engineering, IIT Kharagpur, May 2-3, 2016; (4) Invited talk, TCS, Chennai, July 21-22, 2016; (5) External expert for reviewing an application for PhD in Engg, Dept. of Computer Science and Engineering, Jadavpur University, January 9, 2017; (6) External expert, Progress Review Committee for a PhD scholar, Dept. of Electrical Engineering, Jadavpur University, January 10, 2017.

Mitra, Mandar:
(1) Invited talk, IIEST, Shibpur, September 3, 2016; (2) Invited talk, School of Mobile Computing, Jadavpur University, Kolkata, September 3, 2016; (3) External examiner, PhD viva-voce examination, Department of Computer Science and Engineering, IIT, Kharagpur, September 14, 2016.

Pal, Umapada:
(1) 4th ISI Workshop on Pattern Analysis and Applications, Sikkim Manipal Institute of Technology, Majitar, Rangpo, Sikkim, February 6-10, 2017; (2) External examiner, PhD viva voce examination, Jadavpur University, 2016; (3) Invited talk, NIT, Durgapur, March 5, 2017.

Electronics and Communication Sciences Unit, Kolkata

Chanda, B.:
(1) Invited lecture, International Conference on Advances in Engineering and Technology (ICAET-2016), Govt. College of Engineering & Ceramic Technology, Kolkata, April 4-5, 2016; (2) Invited lecture, DST Sponsored STTP on Video and Image Analysis: Fundamentals and Advances, NIT Goa, May 30-June 4, 2016; (3) Plenary talk, India International Conference on Information Processing (IICIP-2016), Delhi Technological University, New Delhi, August 12-14, 2016; (4) Invited lecture, IAPR Summer School on Document Analysis: Document Informatics, Jaipur, January 23-28, 2017; (5) Invited lecture, Second Workshop on Computing: Theory and Application, Tezpur, February 20-24, 2017; (6) Invited lecture, 2nd National Workshop on Medical Imaging, IASST Guwahati, March 8-9, 2017; (7) Invited lectures, Workshop on Computational Information Processing, SMIT Sikkim, Rangpo, March 23-25, 2017.

Das, S.:
(1) Keynote lecture, IEEE International Conference on Intelligent Techniques in Control, Optimization and Signal Processing (INCOS ’17), Kalasalingam University, March 23-25, 2017; (2) Keynote lecture, ETAEERE 2016, Sikkim Manipal Institute of Technology, December 17, 2016.

Mohanta, P.P.:
(1) Invited lecture, 19th Workshop on Computational Information Processing, Sikkim Manipal Institute of Technology (SMIT), Rangpo, Sikkim, March 23-25, 2017.

Mukherjee, D.P.:

Editorial and other Assignments

(1) Random Forest and its application in medical imaging, NIT, Durgapur, March 14, 2017; (2) Image Processing, GE Aviation, Bengaluru, March 11, 2017; (3) Image Processing using Computational Intelligence Technique, CIS Winter School on Computational Intelligence, VIT, Chennai, January 5, 2017; (4) Affective Computing: Recognizing Actions and Emotions from Video, Workshop on Advanced Applications of Algorithms, IIEST, Shibpur, December 23, 2016; (5) Can we make a sheep as intelligent as a human being? CII Manufacturing Excellence Meet, Hotel Gateway, December 17, 2017; (6) Can a Computer See? IEEE Student Section, SOA University, Bhubaneswar, September 10, 2016; (7) Research Methodology, Department of Computer Science and Engineering, Jadavpur University, September 1, 2016; (8) Research Methodology, Computer Society of India, Kolkata Chapter, July 30, 2016; (9) Machine Learning and Image Processing, TCS, Chennai, July 21-22, 2016; (10) Research Methodology, Murshidabad College of Engineering and Technology, Berhampur, July 16, 2016; (11) Few Applications of Medical Imaging Research, Machine Learning Workshop, Centre of Excellence in Systems Biology and Biomedical Engineering, University of Calcutta, July 11, 2016.

Machine Intelligence Unit, Kolkata

Bandyopadhyay, S.:
(1) Keynote lecture, National Seminar on Women Leadership in S & T: Opportunities & Challenges, New Delhi, March 9, 2017; (2) Plenary lecture, Soft Computing: Theories and Applications, Amity University, Rajasthan, December 28, 2016; (3) Keynote lecture, 15th International Conference on Information Technology (ICIT 2016), IIIT, Bhubaneshwar, December 22, 2016.

Choudhury, Swati:
(1) Speaker, ISI-MZU School on Soft Computing Techniques: Theory and Applications, Mizoram University, Aizawl, Mizoram, March 20-24, 2017.

Ghosh, Ashish:
(1) Member, Board of Studies, Department of Computer Science & Engineering, C.V. Raman College of Engineering, Bhubaneswar; (2) Chairman, IEEE Geoscience and Remote Sensing, Kolkata Chapter; (3) Member, DST PAC meeting held at IIT, BHU and Jamia Milia University; (4) PhD viva voce examiner, Anna University, Chennai, July 26-27, 2016; (5) Invited lectures, IDBRT June 6-10, 2016, South Asian University, Delhi, August 19-22, 2016, February 24-27, 2017; (6) Invited talk, SJS College of Engineering, Bangalore, January 22-25, 2017; (7) Summer School on Soft Computing Paradigm and Machine Learning Techniques, Assam Don Bosco University, Guwahati, Assam, July 2016; (8) Recent Trends in Communication, Signal Processing and VLSI, NIT, Silchar, February 17-18, 2017; (9) One week workshop on Application in Machine Learning, NIT, Silchar, March 22-23, 2017; (10) ISI-MZU School on Soft Computing Techniques: Theory and Applications, Mizoram University, Aizawl, Mizoram, March 19-21 2017.

Ghosh, Kuntal:
(1) Invited lecture, Department of Applied Sciences, Indian Institute of Information Technology, Allahabad, April 8, 2016; (2) Judge, KVS National Children Science Congress 2016, November 28-December 1, 2016; (3) Speaker, Winter School on Basic Mathematics for College Students of North Eastern States, ISI NE Center, Tezpur, Assam, December 26, 2016-January 3, 2017; (4) Technical Program Committee member, 8th International Conference on Intelligent Human Computer Interaction (IHCI), CSIR-CEERI and BITS, Pilani, December 12-13, 2016.

Maji, Pradipta:
(1) Invited talk, Workshop on IoT and Data Mining, Jadavpur University, Kolkata, March 2017; (2) Invited talk, ISI-MZU School on Soft Computing Techniques: Theory and Applications, Mizoram University, Aizawl, Mizoram, March 20-22, 2017; (3) Invited talk, National Level Faculty Development Program under TEQIP-II on Advanced Data Mining for Big Data Analysis, RCC Institute of Information Technology, Kolkata, West Bengal, March, 2017; (4) Invited talk, Summer School on Soft Computing

Paradigm and Machine Learning Techniques, Assam Don Bosco University, Guwahati, Assam, July, 2016.

Mitra, Sushmita:
(1) Member, Board of Studies, Dept. of Computer Science & Engineering, Tezpur University; (2) Member, Board of Studies, Dept. of Information Technology, Govt. College of Engineering and Ceramic Technology, Kolkata (autonomous); (3) Invited talk, MAKAUT sponsored seminar, Govt. College of Engineering & Ceramic Technology, Kolkata, March 28, 2017; (4) Invited talk, First International Conference on Computational Intelligence, Communications & Business Analytics, Calcutta Business School, Kolkata, March 25, 2017; (5) Invited talk, TEQIP II Seminar, Maulana Abul Kalam Azad University of Technology, Kolkata, March 21, 2017; (6) Invited talk, IEEE CIS Kolkata Chapter sponsored One Day Symposium, Visva-Bharati University, Santiniketan, February 25, 2017; (7) Invited talk, TEQIP II Short Term Course, College of Engineering and Management, Kolaghat, January 24, 2017; (8) Invited talk, TEQIP Workshop, Jadavpur University, October 20, 2016; (9) Keynote lecture and panel member, IEEE Students' Technology Symposium, IEEE Kharagpur Section and IEEE Women in Engineering Affinity Group, Kharagpur, September 30, 2016.

Documentation, Research and Training Centre, Bangalore

Dutta, Biswanath:
(1) National Institute of Technology, Durgapur, April 4-8, 2016.

Madalli, Devika P.:
(1) INFLIBNET, Gandhinagar, Gujarat, July 14-15 and August 4, 2016; (2) BMS Institute of Technology & Management, Bangalore, January 18, 2017.

Krishnamurthy, M.:
(1) Department of Library Science, Bharathidasan University, Tiruchirappalli, June 1, 2016; (2) Karnataka State Women's University, Vijayapura, July 5, 2016; (3) Library and Information Centre, PES College of Engineering, Mandya, July 25-26, 2016; (4) Bharathiar University, Coimbatore, August 16 and November 15, 2016; (5) Goa University, October 3-4, 2016; (6) Sri Devaraj Urs Academy of Higher Education and Research, Kolar, October 26, 2016 and February 17, 2017; (7) Periyar University, Salem, November 3, 2016 and February 15, 2017; (8) Dept. of Library and Information Science, Mangalore University, January 2 and March 13-15, 2017; (9) Dr. Ambedkar Institute of Technology, Bangalore, February 27-28, 2017; (10) NPC IT Groups residential training programme, Kanyakumari, March 6-9, 2017.

Prasad, A.R.D.:
(1) Centre for Library and Information Management Studies, Sir Dorabji Tata Memorial Library, Tata Institute of Social Science, Mumbai, May 16-18 and July 29, 2016; (2) IGNOU, Delhi, June 28-July 1, 2016; (3) Dept. of Computer Application, School of Computer Science and Engg., Bharathiar University, Coimbatore, July 11, 2016; (4) University of Calcutta, Kolkata, August 22-23, 2016; (5) Vellore Institute of Technology, Vellore; (5) UNESCO's International Day for Universal Access to Information, The Viceroy Hall, The Claridges Hotel, New Delhi, September 29, 2016; (6) NACLIN, Delhi, October 26-28, 2016; (7) NVLI Meeting (IGNOU), RRLF, Kolkata, January 16-17, 2017; (8) Malayalam University, Cochin, February 8-9, 2017; (9) DELNET, New Delhi, February 14, 2017; (10) Department of Meteorology & Oceanography, Andhra University, Visakhapatnam, February 21-28, 2017; (11) Department of Library and Information Science, Banaras Hindu University, Varanasi, March 20-22, 2017.

Systems Science and Informatics Unit, Bangalore

Majumdar, K.K.:

Editorial and other Assignments

1) A novel interpretation of one dimensional time domain signals, Computer and Data Science, Indian Institute of Science, April 1, 2016; (2) Cortical rhythms in health and disease, IEEE Conference on Norbert Wiener in the 21st Century, National Institute of Advanced Studies, Bangalore, April 22-23, 2016; (3) Dept. of Electrical Engineering, IIT, Delhi, July 12-15, 2016.

Meher, S.K.:
(1) Tutorial talk on "Information Granulation for Neural Network: An approach to Natural Computing Paradigm", Training Programme on Advances in Statistical Modeling and Forecasting in Agriculture, Indian Agricultural Statistics Research Institute (IASRI), New Delhi, December 23, 2016-January 12, 2017; (2) Tutorial talk on "Trends, scope and opportunities in Signal Processing", HKBK College of Engineering, Bangalore, October 24-25, 2016; (3) Tutorial talk on "An Inevitable Bonding of Machine Learning with Big Data", IEEE Bhubaneswar Sub-section and Sophitorium group of institutions, SCE College, Bhubaneswar, August 20, 2016; (4) Tutorial talk on "Granular Neural Networks: Theory and Applications", IEEE CIS Summer School on Advanced Topics in Computational Intelligence – Theory and Applications, PES University, Bangalore, August 8-12, 2016; (5) Tutorial talks on "Granular Pattern Recognition: Application of remote sensing images", Short Term Training Program on Soft Computing: Machine Learning, Parul University, Vadodara, May 16-20, 2016; (6) Tutorial talk on "Machine Learning and Big Data: An ENVIABLE bonding", International Workshop On Machine Learning & its Applications, South Asian University, New Delhi, April 29-30, 2016; (7) Tutorial talk on "Granular Neural Networks for Land Use/Cover Classification of Hyperspectral Images", National Seminar on Techniques and Applications of Hyperspectral Image Analysis, Amrita University, Coimbatore, Tamil Nadu, April 10-11, 2016.

Sagar, B.S.D.:
(1) Member, Doctoral Committee, Indian Institute of Technology, Bombay, 2017; (2) Member, Doctoral Committee, University of Hyderabad, 2017; (3) Member, Examination Committee, Masters by Research, Multimedia University, Malaysia, 2017; (4) Keynote Address on "Overview on Mathematical Morphology and its Applications with Emphasis on Morphological Interpolations", International Multi-Conference on Information Processing–2016, Capitol Hotel, August 21, 2016; (5) Six lectures on "Mathematical Morphology and Image Analysis", One Week Faculty Development Programme on "Recent Trends in Signal and Image Processing", PSG College of Technology, Coimbatore, June 06-12, 2016; (6) Three lectures on "Mathematical Morphology", Amrita University, Coimbatore, April 20, 2016; (7) Lecture on "Applications of Mathematical Morphology in Remote Sensing and Geosciences: An Overview", IIT Bombay, April 17-18, 2016.

Computer Science Unit, Chennai

Chakraborty, Prabuddha.:
Harishchandra Research Institute, Allahabad, November, 2016.

Francis, Mathew C.:
(1) Faculty Development Programme, LBS Institute of Technology for Women, Trivandrum, June 6-7, 2016; (2) External examiner, MSc thesis, Department of Computer Science and Engineering, IIT, Madras; (3) Member, Doctoral Committee of PhD student, IMSc, Chennai; (4) Poster presentation, DST-INSPIRE Faculty Monitoring-cum-Interaction Meet, SSN College of Engineering, Kalavakkam, January 22-23, 2017.

Ghosh, Sujata:
(1) Tutorial on 'Modelling strategic reasoning', 6th Indian School on Logic and its Applications (Part II), Kolkata, August 22-27, 2016; (2) Program Co-chair, 7th Indian Conference on Logic and its Applications (ICLA 2017), Kanpur, January 5-7, 2017; (3) Program Co-chair, 9th Workshop on Methods for Modalities (M4M), Kanpur, January 8-9, 2017; (4) Co-organizer, Symposium on Logic, International Conference of The Indian Mathematics Consortium (TIMC) in cooperation with American

Mathematical Society (AMS), Varanasi, December 14-17, 2016; (5) Secretary, Association for Logic in India.

Karthick, T.:
(1) Invited talk, Workshop on Graph Theory and its applications, SRM University, Ramapuram, Chennai, April 12, 2016; (2) Invited talks, Faculty Development Programme, LBS Institute of Technology for Women, Trivandrum, June 6-11, 2016; (3) Invited talk, Department of Mathematics, IIT, Madras, August 24, 2016; (4) Invited talk, International Conference on Theoretical Computer Science and Discrete Mathematics (ICTCSDM 2016), Kalasalingam University, Krishnan Koil, Tamil Nadu, December 19-21, 2016.

Venkateswarlu, Ayineedi:
(1) FORAYS 2017, Department of Mathematics, IIT, Madras, January 28, 2017.

Physics and Earth Sciences Division

Geological Studies Unit, Kolkata

Bandyopadhyay, S.:
(1) Department of Geology and Geophysics, IIT, Kharagpur, October 21-23, 2016;

Mukherjee, Debarati:
(1) Department of Geology and Geophysics, IIT, Kharagpur, October 21-23 2016.

Patranabis-Deb, S.
(1) Department of Geology and Geophysics, IIT, Kharagpur, October 21-23 2016.

Physics and Applied Mathematics Unit, Kolkata

Ghosh, Dibakar:
(1) IISER, Kolkata, India, December 16-18, 2016.

Kar, Guruprasad:
(1) Institute of Mathematical Sciences (IMSc), Chennai, June 8 – 17, 2016; (2) International Conference on “Quantum Foundations 2016 (ICQF16), National Institute of Technology, Patna, October 17 – 21, 2016; (3) School in the Institute of Mathematical Sciences (IMSc), Chennai December 5 – 12, 2016.

Maiti, Santanu, K.:
(1) Hans Raj Mahila Maha Vidyalaya, Jalandhar, Punjab April 25 – May 01, 2016; (2) RCC Institute of Information Technology, Kolkata, July 11-15, 2016; (3) DAV College Jalandhar, Punjab, September 29 – October 5, 2016.

Pal, Supratik:
(1) Astronomical Society of India, Jaipur, March 6-10, 2017; (2) The Asiatic Society, Kolkata, February 15-16, 2017; (3) IACS, Kolkata, January 30 - February 01, 2017; (4) Jadavpur University, January 11, 2017; (5) Techno India-Batanagar, October 20, 2016; (6) IACS, Kolkata, March 25, 2017; (7) Saha Institute of Nuclear Physics, Kolkata, January 16-20, 2017.

Editorial and other Assignments

Biological Sciences Division

Human Genetics Unit, Kolkata

Chatterjee, Raghunath:
(1) Translational Health Science And Technology Institute (THSTI), Faridabad, Haryana, March 30-31, 2017; (2) 18th International Congress on Oral Pathology and Medicine (IAOP) and the XXV National Conference of the Indian Association of Oral and Maxillofacial Pathology (IAOMP), Chennai, India, September 8 - 11, 2016: "Genome wide DNA methylation profile identified a distinct set of differentially methylated CpGs in Oral squamous cell carcinoma patients of India"; (3) Faculty Development Programme on Statistical Tools in Biological Data Analysis, TEQIP-II, Department of Biotechnology, Heritage Institute of Technology, Kolkata, July 8-25, 2016: "Next generation sequencing and epigenetics".

Mukhopadhyay, Indranil:
(1) 15th International Symposium on Mathematical and Computational Biology, Rourkee, India, October 2015.

Social Sciences Division

Economic Research Unit, Kolkata

Chakravarty, Satya R.:
(1) Workshop on Official Statistics, Pachhunga University College Aizawl, Mizoram, November 7–11, 2016, (2) Birla Institute of Technology and Science, Goa, Economics Conclave, March 20 – 21, 2017.

Kabiraj, Tarun:
(1) Economics Department, Calcutta University, January-March, 2017, (2) Coal India Limited, September– November, 2016.

Majumder, Amita:
(1) Meeting of the Expert Committee for Syllabus review in the area of Econometrics, IGIDR, Mumbai, July 25, 2016.

Munshi, Soumyanetra:
(1) IIT, Madras, December 21, 2016.

Sarkar, Nityananda:
(1) Summer School on Research Methodology: Applications of Econometrics and Statistics, National Institute of Technology Durgapur, May 25-27, 2016; (2) Workshop on Some Statistical Tools for Social Science Research, Department of Business Administration, Tezpur University, September 28 - 29, 2016; (3) International Conference on Computational Mathematics and Statistics, Banasthali University, January 24, 2017.

Linguistic Research Unit, Kolkata

Dasgupta, Probal:
(1) Workshop on Cognitive and Computational Linguistics, Manipur Univ, Imphal, October 11, 2016; (2) Seminar on 225 years of German translation of Kalidasa's drama *Abhijnanasakuntala* and the science of comparative philology, Asiatic Society, Kolkata, December 7, 2016; (3) Seminar on

Multilingualism as a resource, Asiatic Society, Kolkata, January 12, 2017; (4) Seminar on Traversing the margin, IIT Madras, February 4, 2017; (5) Seminar on the Indian Grammatical Tradition, Asiatic Society, Kolkata, February 20, 2017; (6) Seminar on Problems and prospects of lexicographic studies in Bangla, Kolkata University, February 22, 2017; (7) Workshop on Cognitive and Computational Linguistics, ISI Tezpur and Tezpur Univ, Tezpur, March 9, 2017.

Dash, Niladri Sekhar:
(1) Dept. of Linguistics, Manipur University, Imphal, Manipur, India, October 17-21, 2016; (2) Kuvempu Bhasha Bharathi Pradhikara, Bangalore 560056, India, April 29-30, 2016; (3) Dept. of English, Vidyasagar University, Medinipur, West Bengal, India, April 28-29, 2016; (4) Central Institute of Indian Languages, Mysore, Ministry of HRD, Govt. of India, June 28 - July 18, 2016; (5) National Translation Mission, Central Institute of Indian Languages, Mysore, Ministry of HRD, Govt. of India, November 23–December 13, 2016; (6) Dept. of Mizo, Mizoram University, Aizawl, India, November 1-21, 2016; (7) Dept. of Computer Science and Applications, Utkal University, Bhubaneswar, India, October 24-26, 2016; (8) International Conference on Information Science 2016, Dept. of Computer Science & Engineering, College of Engineering Cherthala, Kerala, August 12-13, 2016; (9) School of Languages and Linguistics, Jadavpur University, Kolkata, October, 2016; (10) International Student Workshop-cum-Seminar on Process in Language Formation, Change, Variation: Their Motivation in Linguistic Theories: Dept. of Linguistics, Osmania University, Hyderabad, India, December 8-12, 2016; (11) Dept. of English and Foreign Languages, Centre for Endangered Languages, Tezpur University, Assam, July 27-29, 2016; (12) Ali Yavar Jung National Institute for the Hearing Handicapped, Eastern Regional Centre, B.T. Road, Bon Hooghly, Kolkata-700090, May-July, 2016; (13) UGC E-PG Pathshala (MOOC) Programme, Dept. of Linguistics, JNU, New Delhi, August 31- September 02, 2016; (14) Department of Linguistics, Central University of Kerala, Vidyanagar (PO), Kasaragod (DT), Kerala, India, September, 2016; (15) Office of the Registrar General-India (ORGI), Language Division, Ministry of Home Affairs, Govt. of India, January, 2016; (16) Dr. Hanne-Ruth Thompson of the School of Oriental and African Studies (SOAS), University College London, United Kingdom and published by Hippocrene Books Inc. New York, USA; (17) 13th International Conference on Natural Language Processing (ICON-2016), Department of Computer Science & Engineering, IIT (BHU), Varanasi, Uttar Pradesh, December 17-20, 2016; (18) 26th International Conference on Computational Linguistics (COLING-2016), Osaka, Japan, December 11-16, 2016; (19) 38th International Conference of the Linguistic Society of India (38 ICOLSI), Indian Institute of Technology-Guwahati, Assam, India, November 10-12, 2016; (20) 3rd Workshop on Indian Language Data, Resources and Evaluation (WILDRE-3), Grand Hotel Bernardin Conference Center, Portorož, Slovenia, May 24, 2016 (Organized under LREC-2016, 23-28 May 2016); (21) 3rd PRSG meeting of the ILCI-2 at the DeitY, MCIT, Electronics Niketan, CGO Complex. Lodhi Road, New Delhi, India, Govt. of India, May 6, 2016; (22) National Seminar on Coloniality and Post-Coloniality: Adivasi Society and Culture in Transition, Humanities and Social Sciences, Vidyasagar University, Midnapore, India, April 27-28, 2016; (23) International Conference on Information Science 2016 (ICIS'16), Department of Computer Science & Engineering, College of Engineering Cherthala, Kerala, August 12- 13, 2016; (24) Modern Perspective of NLP for Hindi and other Indian Languages, Centre for Technology Studies and Computational Linguistics, School of language, MGAHV, Wardha, August 17-19, 2016; (25) National Seminar on Bangla Bhasa o Sahitye Prayuktigata Sambhabana (BLLTP-1), School of Languages and Linguistics, Jadavpur University and Sarsuna College, Kolkata, November 25-26, 2016; (26) 5th International Conference on Advances in Computing, Communications, and Informatics (ICACCI-2016), LNM Institute of Information Technology, Jaipur, Rajasthan, India, September 21-14, 2016; (27) Advanced Academic Programme (Linguistics) for the North Eastern States (AAP(L)NES 2017), ISI North East Centre, and Dept. of English and Foreign Languages, Tezpur University, Assam, March 09-11, 2016; (28) Seminar on Problems and Prospects of Lexicographic Studies in Bangla: Dept. of Linguistics, University of Calcutta, Kolkata, February 22, 2017; (29) Centre for Applied Linguistics and Translation Studies, Central University, Hyderabad, India, March 17-18, 2017; (39) National Conference on Indian Language Computing, Dept. of Computer Applications, Cochin University of Science and Technology, Kerala, India, February 17-18, 2017; (31) Medinipur, West, Bengal, India, March 22-24, 2017; (32) National Workshop on Basics to Insights into Linguistics and Phonetics, Dept. of English, Panshkura, Banamali College, West Medinipur, WB, India, January 6, 2017; (33) UGC-

Editorial and other Assignments

SAP Seminar on Dalit and Tribal Identities- The Nation and Globalization, Dept. of English, Vidyasagar University, Medinipur, West, Bengal, India, March 28-30, 2017; (34) National Seminar on Changing Contours of Adivasi Society and Culture: Crises and Negotiations, UGC sponsored Innovative Research Project, Humanities and Social Sciences Departments, Vidyasagar University, Medinipur, West, Bengal, India, March 22-24, 2017; (35) 23 Himalayan Languages Symposium (HLS-23), Department of English and Foreign Languages, School of Humanities & Social Sciences (HSS), Tezpur University, Tezpur, Assam, India, July 5-7, 2017; (36) e-PG Pathshala Programme in Linguistics: UGC, Ministry of HRD, Govt. of India, February 27-28, 2017; (37) 5th International Endangered and Lesser-known Languages Conference, Centre for Tribal Folklore, Language and Literature, Central University of Jharkhand, Ranchi, India, February 24 – 26, 2017; (38) National Workshop on Basics to Insights into Linguistics and Phonetics, Dept. of English, Panshkura, Banamali College, West Medinipur, WB, India, January 6, 2017; (39) National Conference on Indian Language Computing (NCILC-2017), Dept. of Computer Applications, Cochin University of Science and Technology, Kerala, India, February 17-18, 2017.

Psychology Research Unit, Kolkata

Bhattacharya, Himani:
(1) International Conference on Contemporary Trends in Clinical Psychology Training, Research and Practice (ICCTCP), Bengaluru (NIMHANS), November 17-19, 2016; (2) Golden Jubilee celebration of Department of Applied Psychology, University of Calcutta, March 3, 2017.

Dutta Roy, D.:
(1) 3rd International Conference by the Department of Applied Psychology of the Pondicherry University and 6th InSPA international conference, Department of Applied Psychology, Pondicherry University, October 13-15, 2016; (2) 2nd International Conference of the Indian Academy of Health Psychology, Gautam Buddha University, Yamuna Expressway,Greater Noida ,U.P., December 16-18, 2016; (3) Golden Jubilee celebration of Department of Applied Psychology, University of Calcutta, March 3, 2017; (4) Annual Seminar of Department of Instrumental Music, Rabindra Bharati University, March 9-10, 2017.

Sampling and Official Statistics Unit, Kolkata

Chakraborty, Asit Baran:
(1) Member of the Advisory Committee on National Accounts Statistics constituted by the Govt. of India, Ministry of Statistics and Programme Implementation (MOSPI); (2) Member of the Working Group on Producer Price Index set up by the Govt. of India, Ministry of Commerce and Industry.

Chattopadhyay, Nachiketa:
(1) Member of the Working group for the 73rd round of NSS, NSSO since 2014.

Chaudhury, Prabir:
(1) Member of the Working Group for the 75thRound of NSS, NSSO, MoSPI.

Dihidar, Kajal:
(1) Institute of Engineering and Management (IEM), IEM Gurukul Campus, Kolkata, February 02-08, 2017.

Kar, Aloke:
(1) Member of the Committee on Rural Sector Statistics constituted by the National Statistical Commission; (2) Member of the Working Group on NSS 73rd Round of Ministry of Statistics and Programme Implementation (MoSPI), GoI; (3) Member of the Working Group on NSS 74th Round (MoSPI), GoI,

Mukherjee, Diganta:
(1) Member of the Core group within the Working group for the 74th round of NSS, NSSO, since 2015; (2) Member of Survey Monitoring Committee of SEBI, 2014 – 16; (3) Member of the Expert Committee on Disclosure Control, NSSO since 2015.

Sociological Research Unit, Kolkata

Ghosh, Bhola Nath:
(1) UGC Sponsored National Seminar on Signifying Values-A Realm of Socio-Pilosophical Understanding, Prasanta Chandra Mahalanobis Mahavidyalaya, Kolkata in collaboration with Hiralal Mazumdar Memorial College for women, Kolkata, December 9, 2016; (2) Indian Association for Social Sciences and Health (IASSH), Gokhale Institute of Politics and Economics, Pune, September 23 -25, 2016; (3) 4th Indian Social Work Congress 2016, jointly organised by National Association of Professional Social workers in India (NAPSWI) and Mahatma Gandhi Kasi Vidyapith, Varanasi, October 22-24, 2016; (4) Department of Sociology, Rabindra Bharati University; (5) National Seminar on Marginalization and Development: Issues and Concerns, Dept. of Anthropology, Sambalpur University, Jyoti Vihar, Orissa, March 2-3, 2016; (6) ICSSR sponsored Two Days National seminar on Indigenous Ethnography, Emic Perspective and National Cultural Heritage: Focusing North East India, Department of Anthropology, Assam University (A Central University), Diphu Campus, Diphu, Karbi Anglong, Assam, January 6-7, 2016; (7) ,Consultation on Situational Analysis for Women and Children in West Bengal, in preparation for GoI-UNICEF Country Programme 2018-22, May 16, 2016; (8) Sociology Department in Rastraguru Surendra Nath Mahavidyalaya, Barrackpore, North 24-Parganas, March 9, 2016; (9) Prasanta Chandra Mahalanobis Mahavidyalaya, 111/3, B.T. Road, Kolkata, September 7, 2016.

Sociological Research Unit, Giridih

Behera, Hari Charan:
Dept. of Humanities & Social Sciences, National Institute of Technology, Rourkela in the two-day National Conference on “Development, Dispossession and Resistance”, November 14-15, 2016.

Economics and Planning Unit, Delhi

Afridi, Farzana:
(1) SERI, IFPRI, Delhi, July 9- 10, 2016; (2) Janki Devi Memorial College Annual Lecture series, September 27, 2016; (3) JNU (CITD), September 28, 2016; (4) Ashoka University, November 16, 2016; (5) IGC Jadavpur – ISI Conference, Kolkata December 28- 29, 2016; (6)Annual Economics Symposium (Delhi), January 9, 2017; (7) IEG, February 6, 2017; (8)DSE-ISI-Gothenburg conference, Delhi, March 9, 2017; (9)DSE, March 31, 2017.

Ghate, Chetan:
(1) IISER, Bhopal, April 4, 2016; (2) IGIDR, Mumbai, July 25, 2016; (3) Reserve Bank of India (RBI), Mumbai, July 15; (4) IIM Indore, August 1, 2016; (5) Reserve Bank of India (RBI), Mumbai, October 3 - 4, 2016; (6) IGIDR, Mumbai, November 9, 2016 (7) Shiv Nadar University, November 24, 2016; (8) Reserve Bank of India (RBI), Mumbai, November 28- December 3, 2016; (9) Reserve Bank of India (RBI), Mumbai, December 5- 7, 2016, (10) Reserve Bank of India (RBI), Mumbai, January 30, 2017; (11) Reserve Bank of India (RBI), Mumbai, February 6-8, 2017;

Kapoor, Mudit:
(1) ISB, Hyderabad, April 25- 27, 2016; (2) Cecfee, Ranthambhore, October 15- 16, 2016; (3) Collaborative research with AIIMS, March 1, 2017- February 28, 2018.

Editorial and other Assignments

Mukhopadhyay, Abhiroop:
(1) IIM, Bangalore, May 4- 20, 2016; (2) Central University of Tamil Nadu, November 28- 30, 2016.

Mishra, Debasis:
IIM Bangalore, January 12, 2017.

Ray, Tridip:
(1)Indian Institute of Management, Ahmedabad, June 27-28, 2016; (2) IGIDR, Mumbai, July 9-10, 2016; (3) NUEPA, New Delhi, February 16, 2017; (4) Ashoka University, Sonepat, Haryana, March 29, 2017.

Ramaswami, Bharat:
Ashoka University, January 1, 2016- June 30, 2017.

Economic Analysis Unit, Bangalore

Swaminathan, Madhura:
(1) University of Mumbai, Youth Science Congress, February 16, 2016; (2) Centre for Budget and Policy Studies on Food Security and Agriculture: Implications of current policy and budget, Bangalore, April 21, 2016; (3)Vidhan Soudha, Govt. Of Karnataka, Bangalore, June 15, 2016; (4) India International Centre, Indian Perspectives on Social Sector: Issues and Sustainable Development Goals (SDGs), Delhi, July 15-16, 2016; (5) Workshop on Scientific Achievements for Independent India: A Historical Approach Talk. The Green Revolution and after at IISER, Pune, August 12-13, 2016.

Statistical Quality Control and Operations Research Division

SQC & OR Unit, Kolkata

Anis, M.Z.:
Statistics Dept., Aligarh Muslim University, March 28, 2017.

Bandyopadhyay, A.:
Chairman of the Expert Committee formed by NeST for Development of Standards for “Quality, Documentation, and Project Management” for e Governance Projects taken up by central and state governments, 2016.

Chakraborty, A. K.:
(1) Platinum Jubilee International Conference on Applications of Statistics, Department of Statistics, Calcutta University, December 21-23, 2016; (2) National Conference on Recent Advances in Statistics and their Applications to Society, Department of Statistics and Centre for Advanced Studies, Savitribai Phule Pune University, March 23-25, 2017; (3) National Institute for Orthopedically Handicapped for their Master’s students, 2017.

Das, A. K.:
(1) Conference on Game Theory and Optimization held in Indian Institute of Technology Madras, Chennai Centre, June 9 -10, 2016; (2) Third International Conference on Mathematics and Computing (ICMC 2017), Haldia Institute of Technology, January 17-21, 2017; (3) International Conference on Mathematical Analysis and its Applications (ICMAA-2017), Dayanand Science College, Latur, Maharashtra, March 5-9, 2017.

Das, P.:
(1) International Conference on Mathematical Techniques in Engineering Application (ICMTEA-16), Graphic Era University, Dehradun, Uttarakhand, April, 2016; (2) Seminar on Uncertainty in Measurement, Indian Chamber of Commerce, Kolkata, May, 2016; (3) Workshop on AMME, SMIT, Sikkim, June, 2016; (4) Workshop on Role of Statistics in Engg. Research, Assam University, Silchar, September, 2016.

Gupta A..:
Workshop on AMME, SMIT, Sikkim, June, 2016.

Mukhopadhyay, A. R.:
(1) Ordnance Factory, Dum Dum, November 19, 2016; (2) IAPQR, 2017.

SQC & OR Unit, Bangalore

Boby John:
(1) Training program on Big Data Analytics, Vellore Institute of Technology, Vellore, June 21 - 22, 2016; (2) International Conference on Recent Advances in Engineering Sciences, M.S. Ramaiah Institute of Technology, Bangalore, September 8 - 9, 2016; (3) International Conference on Advanced Materials, Manufacturing, Management and Thermal Sciences, Siddaganga Institute of Technology, Tumkur, September 23 - 24, 2016; (4) Workshop on Analytics using R, K.P.R. Institute of Engineering and Technology, Coimbatore, September 29 - 30, 2016; (5) Faculty Development program on Process Modeling and Optimization using Design of Experiments, B. M. S. College of Engineering, Bangalore, December 22, 2016; (6) Workshop on Applications of Design of Experiments in Biotechnology, B.V.B. College of Engineering and Technology, Hubli, January 05 - 07, 2017; (7) 3rd International Conference on Robust Quality Engineering, National Institution for Quality and Reliability, Mumbai, January 19 - 20, 2017; (8) Symposium on Quality Improvement Methodology, Indian Statistical Institute, Mumbai, February 27, 2017; (9) Workshop on Demand Forecasting, Indian Machine Tool Manufacturer's Association, Bangalore, March 10, 2017.

Chowdhury, K.K.:
Faculty Development Program on Advances in Engineering Mathematical Models, BMS Institute of Technology and Management, BMSIT&M Innovation Centre, Bangalore, January 13, 2017.

Gijo, E.V.:
(1) National Workshop on Statistical Computing, Kerala University, Trivandrum, November 17, 2016; (2) International Conference on Statistics for Twenty-first Century – 2016, Kerala University, Trivandrum, December 21-23, 2016; (3) National Conference on Advances in Statistical Sciences, Kannur University, Kannur, February 17-18, 2017; (4) Symposium on Quality Improvement Methodology, Indian Statistical institute, Mumbai, February 27, 2017.

Perumallu, P.K.:
International Conference on Statistics for Twenty-first Century – 2016, Kerala University, Trivandrum, December 21-23, 2016;

SQC & OR Unit, Hyderabad

Murthy: GSR:
(1) AIS Mathematical Programming, 2016; (2) Workshop and Conference, IIT, Madras; (3) TSERC, Hyderabad, August 10, 2016.

Rao, G Murali:
4th International Conference on Business Analytics and Intelegence, IISC, Bengalore, December 19-21, 2016.

Editorial and other Assignments

Subhani, S M:
(1) Six Sigma & FMEA, National Remote Sensing Centre to the Scientists, November 30, 2016; (2) Six Sigma to the R & D Scientists, Inogent Laboratories, January 17, 2017; (3) Veljan Hydrair Ltd, January 11, 2017; (4) Heads of Departments, AGI Glass, Bhongir, February 21, 2017.

Center for Soft Computing Research: A National Facility, Kolkata

Das, S.:
(1) Summer School on Soft Computing, Assam Don Bosco University, July 7-11, 2016; (2) Meghnad Saha Institute of Technology, Kolkata, July 27-30, 2016; (3) National Workshop on Machine Learning and Remote Sensing, Siksha O Anusandhan University, Bhubaneswar, March 14, 2017; (4) ISI-MZU School on Soft Computing Techniques: Theory and Applications, Mizoram University, March 20-24, 2017; (5) National Conference on Machine Learning and Data Science in Internet of Things, Fakir Mohan University, Balasore, March 25-26, 2017.

Ghosh, A.:
(1) Department of Computer Science & Engineering, C. V. Raman College of Engineering, Bhubaneswar; (2) IEEE Geoscience and Remote Sensing, Kolkata Chapter ; (3) IDBRT, June 6-10, 2016; (4) South Asian University, Delhi, August 19-22, 2016; (5) Anna University, Chennai, July 26-27, 2016; (6) Summer School on Soft Computing Paradigm and Machine Learning Techniques, Assam Don Bosco University, Guwahati, Assam, July, 2016; (7) DST PAC meeting, IIT BHU, September 27, 2016; (8) SJS College of Engineering, Bangalore, January 22-25, 2017; (9) DST PAC meeting, Jamia Milia University, February 02, 2017; (10) Short Term Course on Recent Trends in Communication, Signal Processing and VLSI, NIT Silchar, February 17-18, 2017; (11) South Asian University, Delhi, February 24-27, 2017; (12) National Workshop on Machine Learning and Remote Sensing Siksha Anusandhan Kendra, March 13-14, 2017; (13) Winter School on Soft Computing Techniques: Theory and Applications, Mizoram University, Aizawl, Mizoram, March 19-21, 2017; (14) Workshop on Big Data Analytics (WBDA), Jawaharlal Nehru University, March 18, 2017; (15) Workshop on Application in Machine Learning, NIT Silchar, March 22-23, 2017.

Ghosh, K.:
(1) ISI-ADBU Summer School on Soft Computing and Machine Learning, Guwahati, Assam, July 07-11, 2016.

Pal, S.K.:
(1) NIT, Patna, April 25-27, 2017; (2) 22nd BOG Meeting, IPDPM IIITDM, Jabalpur, Madhya Pradesh, May 19-20, 2016; (3) Promotion and Assessment Committee Meeting, IISc, Bangalore, June 23-25, 2016; (4) North-East Workshop, July 06-09, 2016; (5) Cochin University of Science and Technology, Cochin, July 14-16, 2016; (6) NASI meeting, NASI, Allahabad, July 21-23, 2016; (7) Festschrift volume function of Prof. MGK Menon, INSA, New Delhi, August 26-27, 2016; (8) 23rd BOG meeting and 8th Convocation at PDPM-IIITDM, Jabalpur, Madhya Pradesh, August 31- September 03, 2016; (9) Workshop on Fuzzy and Rough Sets (WFRKD'16), JNU, New Delhi, September 04-05, 2016; (10) 64th CSIR-CEERI Foundation Day ceremony, CSIR-CEERI, Pilani, Rajasthan, September 20-22, 2016; (11) Dept. of Statistics, University of Mumbai, November 19, 2016; (12) 24th BOG Meeting, IPDPM IIITDM, Jabalpur, Madhya Pradesh, December 05-06, 2016; (13) IEEE WIECON-ECE 2016, AISSMS Institute of Information Technology, Pune, December 19-21, 2016; (14) PAC meeting, IISc, Bangalore, December 23-24, 2016; (15) Council Meeting, NASI, Allahabad, January 22-24, 2017; (16) Dept. of E&TC Engg., IIEST Shibpur, February 22, 2017; (17 PRAGYAN'17, NIT-Trichy, Tamil Nadu, March 02-04, 2017; (18) PAC meeting, IISc, Bangalore, March 23-24, 2017; (19 First International Conference On Computational Intelligence, Communications, and Business Analytics (CICBA - 2017), Calcutta Business School, Kolkata, March 25, 2017.

9. REGIONAL MATHEMATICAL OLYMPIAD 2016 AND INDIAN NATIONAL MATHEMATICAL OLYMPIAD 2017

Mathematical Olympiad Programme in India and Indian Statistical Institute, Kolkata

Regional Mathematical Olympiad 2016-17 in West Bengal was organized by Indian Statistical Institute, Kolkata, and Homi Bhabha Centre for Science Education (HBCSE), on behalf of the National Board for Higher Mathematics (NBHM) of the Dept. of Atomic Energy (DAE), Govt. of India. Prior to RMO 2016, West Bengal held a Pre-RMO examination to select students to appear for RMO. The format of Pre-RMO 2016 paper and the criteria for selecting students for RMO 2016 were at the sole discretion of the Regional Coordinator of West Bengal, decided based on the inputs from the RMO Committee at Indian Statistical Institute, Kolkata. Pre-RMO 2016 in West Bengal was conducted at seven centres across the State -- Baharampur, Bankura, Bardhaman, Kharagpur, Kolkata Central, Kolkata North, and Siliguri -- on 11 September 2016. Participation was based on an online application process (there was no offline application channel this year), and 1137 candidates applied for the test. Finally, 1011 candidates appeared for Pre-RMO 2016, and after a careful grading of the objective answers, 201 candidates were deemed qualified to appear for RMO 2016-17. The total marks for Pre-RMO was 80, equally distributed over 16 problems, and the RMO Committee decided the cut-off to be 30. Out of the 201 candidates selected to appear for RMO, 191 candidates appeared for the test held at Indian Statistical Institute, Kolkata, on 16 October 2016. The RMO Committee at the Institute graded the papers for RMO 2016, scrutinized and re-graded upon requests for re-evaluation, and selected top 30 plus 2 girl candidates to appear for INMO 2017 from West Bengal. This decision was communicated to HBCSE, and the final results were declared centrally. The highest score from West Bengal in RMO 2016 was 68 (out of 102), and the top 30 candidates got greater than or equal to 40. There were 5 candidates from Class IX, 13 from Class X, and 12 from Class XI, in the top 30, with a boy to girl ratio of 28:2. In addition, two girls scoring 36 and 32 were included in the list of candidates selected to appear for INMO 2017. These candidates were invited to take part in a week-long INMO-TC at Indian Statistical Institute, Kolkata, held during 3 to 7 January 2017, where the students were exposed to advanced problem solving skills by ISI Kolkata faculty members and eminent IMO-TC instructors. Finally, 32 candidates from West Bengal participated in INMO 2017, including former INMO awardees, and 2 became INMO awardees in 2017. In addition, 2 girls from West Bengal were qualified to compete for EGMO 2018.

Regional Mathematical Olympiad (RMO) 2016: *Karnataka Region*

The mathematical Olympiad activity in Karnataka has been coordinated by the Bangalore Centre of ISI for several years with Dr. Manish Kumar as the regional coordinator for Karnataka. In 2016, the number of Students registered for the Regional Mathematical Olympiad (RMO), Karnataka region was 2486. The exam was held **on 16th October, 2016**, in **22** centres across the state. With the help of some faculty members at ISI Bangalore, some post-doctoral fellows and research scholars, 1475 answer scripts of RMO were evaluated at ISI Bangalore. Forty-five students qualified to write the national level test Indian National Mathematical Olympiad (INMO). A week long training camp was organized at ISI Bangalore for a total of 59 Students, to make them familiar with advanced problem solving techniques before they appear for the INMO. Several distinguished speakers were invited for this purpose. Participants were provided with food and accommodation at ISI Bangalore. The INMO was held on 15th January, 2017 at the Bangalore centre.

The Madhava mathematics competition for undergraduate students is held in various parts of India. This year also, ISI Bangalore coordinated the activities. Prof. B. Sury was the coordinator. The exam was held **on 8th of January, 2017** across **4** centres in Bangalore. Nearly 188 college students from Bangalore registered for the exam. Again with the assistance of postdoctoral fellows and research scholars, the scripts were evaluated and sent to the national coordinator. Subsequently 7 of the 12 winners at the national level were from Bangalore.

PART II. ADMINISTRATION AND OFFICE BEARERS

10. GENERAL ADMINISTRATION

Administrative Services Division

1. 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 science units. They are, by and large, 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.	Import & Travel Cell
2.	Audio-Visual Unit	18.	Internal Audit Cell
3.	Binding Unit	19.	Legal Cell
4.	Canteen	20.	Medical Expenses Reimbursement Unit
5.	Cash	21.	Medical Welfare Unit
6.	CE (A & F)'s Office	22.	Personnel Unit
7.	Central Office & Despatch Unit	23.	Provident Fund Unit
8.	Central Stores & Tailoring Unit	24.	Public Relations Unit
9.	Council Section	25.	Printing and Publication Unit
10.	Director's Office	26.	Official Language Cell
11.	Electrical Maintenance Unit	27.	Retirement Benefit Cell
12.	Engineering Unit	28.	Sankhya Office
13.	Estate Office	29.	Security Unit
14.	Guest House	30.	Telephone Unit
15.	Hostels	31.	Transport Unit
16.	House Building Advance Cell	32.	SC / ST / OBC Cell

2. 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.

3. **Office bearers of the Institute Administration during the year:**

Director	: Prof. Sanghamitra Bandyopadhyay
Professors-in-Charge of Scientific Divisions	: Prof. Arup Bose (Theoretical Statistics & Mathematics)
	Prof. Ayanendranath Basu (Applied Statistics)

	Prof. Arunava Sen (Social Sciences)
	Prof. Tapan Chakraborty (Physics & Earth Sciences)
	Prof. Pabitra Banik (Biological Sciences)
	Prof. Susmita Sur-Kolay (Computer & Communication Sciences)
Head, SQC & OR	: Shri Somnath Ray
Head, Delhi Centre	: Prof. Abhay G. Bhatt
Head, Bangalore Centre	: Prof. T.S.S.R.K. Rao
Acting Head, Chennai Centre	: Prof. S. Ponnusamy
Chairman, Committee for ISI North-East Centre, Tezpur	: Prof. Nityananda Sarkar
Dean of Studies	: Dr. Amita Pal
Chief Executive (A & F)	: Col. S. Chakraborty

4. List of workers joined/ retired/ voluntarily retired/ resigned/ terminated/ died during the year

A. Appointments

(i) Non-Scientific Workers

Srl. No.	Name
1.	Bijay Singh
2.	Md. Abdul Zahangir
3.	G. Purushothamam
4.	Nakul Behera
5.	Bhaskar Sahu

B. Retirement/ Voluntary Retirement:

(i) Scientific & Technical Workers

Srl. No.	Name		Srl. No.	Name
1.	Rumki Gupta		9.	Swapan Chakraborti
2.	Bhomra Chatterji		10.	Narayan Mahato
3.	Krishna Bhattacharya		11.	Kajal De

Administration

4.	Subhendu Chakrabarti
5.	Nirmal Das
6.	Kasturi Basu
7.	Premananda Bharati
8.	Ramesh C. Satija
9.	N.S. Narasimha Sastry
10.	Satya P. Das

12.	Sukumar Chandra Paramanik
13.	Kishori Roy
14.	B. Mohan Reddy
15.	Arup Roy Choudhury
16.	Subrata Ghosh
17.	S. Ramasubramanian

(ii) Non-Scientific Workers

Srl. No.	Name
1.	Bala Krishnan
2.	Kausalya Devi
3.	Churamoni Behara
4.	Zaheed Hussain
5.	Guru Charan
6.	Pran Krishna Das
7.	Neli Beharani
8.	Dilip Das
9.	M. Gopala
10.	N. Ramesha
11.	Ram Dev Mourya
12.	Megh Singh Balmiki
13.	Sankar Nath Bera
14.	Aparesh Chattopadhyay
15.	Nipen Chandra Biswas

Srl. No.	Name
16.	Munni Devi Balmiki
17.	Ramadhar Bhagat
18.	Sumit Karmakar
19.	Ratan Chandra Das
20.	Maheswari Pasi
21.	Bil Bahadur Machkoti
22.	Ram Pujan Singh
23.	Govinda Kushari
24.	Kabita Das
25.	Chhaya Biswas
26.	Somaria Debi
27.	Gopa Goswami (Roy)
28.	Rita Ghosh
29.	Putul Rani Mallick

C. **Resignation/ Discontinuation of Deputation**

(i) Scientific Worker

Srl. No.	Name
1.	Mainak Paddar
2.	Regil Nadh CM

(ii) Non - Scientific Worker

Srl. No.	Name
1.	Arindam Mukherjee
2.	Narendra Rn. Mukherjee
3.	Sushil Bholanath Pakhide
4.	Sibdas Sikdar

D. **Death**

(i) Scientific Worker

Srl. No.	Name
1.	Jayanta Kumar Sinha

(i) Non - Scientific Worker

Srl. No.	Name
1.	Alpana Das
2.	Sankar Kr. Gayen

5. Number of workers in the Institute as on 31st March 2017

Number of workers in the Institute as on 31st March 2017:

(i)	Scientific and Technical Workers	-	392
(ii)	Non-Scientific Workers	-	471
	Total	:	863

6. Breakup of manpower by Gender, Social Category and Disability group as on 31st March 2017

Total Strength		Persons with Disabilities (PWD)	Scheduled Caste (SC)	Scheduled Tribe (ST)	Other Backward Classes (OBC)	Minorities
Male	735	04	92	24	66	20
Female	128	Nil	13	01	03	02
Total	863	04	105	25	69	22

7. Annual Return on Cases of Sexual Harassment

1.	Number of complaints of sexual harassment received in the year	Nil
2.	Number of complaints disposed off during the year 2016-17	Nil
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	Nil
5.	Nature of action	NA

8. Applications received and action taken by the Institute under RTI Act, 2005

Name of the Appellate Authority : Prof. Sanghamitra Bandyopadhyay, Director, ISI Kolkata

Name of Central Public Information Officer: Shri A.K. Biswas, Dy. Chief Executive (Admn.), ISI Kolkata

Administration

The summary statement in this regard for the year 2016-17 is given below: -

No. of Appli-cations recei-ved	No. of cases accep-ted	Decisions where requests were fully or partially rejected		No. of decisions from Appe-llate Autho-rity	C I C decision			Amount collected (Rs.)		
		Fully rejec-ted	Partia-lly rejec-ted		No. of deci-sions recei-ved	Penalty impo-sed	Disci-plinary action, if any	Fee	Other Char-ges	Penalty amount
107	107	Nil	Nil	13	3	NIL	NIL	570	4442	NIL

9. **Budget and Finance**

For the year 2016-2017, Section 8(1) Committee recommended Rs.21636.00 lakhs (Government Grant Rs.21186.00 lakhs and ISI internal receipt Rs.450.00 lakhs) under Non-Plan (BE) and Rs.21145.06 lakhs under Plan (BE). The Government approved a sum of Rs.18881.10 lakhs and of Rs.8000.00 lakhs for Non-Plan and Plan expenditure respectively. At the revised estimate stage, the Institute sought for a grant of Rs.20369.86 lakhs and Rs.11800.00 lakhs under Non-Plan and Plan respectively, which was also recommended by the Section 8(1) Committee. The Government sanctioned a grant of Rs.16715.52 lakhs (including the negative balance of Rs.10.98 lakhs during the financial year 2015-2016) under Non-Plan and the Plan RE allocation was fixed at Rs.6089.85 lakhs (including the amount of Rs.1160.15 lakhs expenditure over income during the financial year 2015-2016). The non-plan expenditure was less by Rs.618.69 lakhs from the fund allotted by the Ministry and Miscellaneous receipt. Plan Expenditure was Rs.813.46 Lakhs over the fund allotted. The Audited Annual Accounts of the Institute for the year 2016-2017 has been furnished in Part IV of this report.

10. **Major Construction / Repair works taken up by the Institute during 2016-2017**

A. **Kolkata**

R. C. Bose Centre for Cryptology and Security

The centre is located at Gupta Niwas campus of the Institute. Planning, Design-Engineering, Execution and overall Project Management for construction of buildings and other infrastructure of the campus was awarded to M/s NBCC as deposit work. Construction activity started in May, 2015. Construction of the Cryptology Centre (G+7), Hostel Building (G+7) and two Residential Blocks (G+10 & G+4) is in progress. Structure of the buildings is almost completed and different services have started. Estimated project cost is about Rs.80 crore and during the year 2016-17 Rs.13 crore was deposited to NBCC. The work-progress has been adversely affected due to inadequate flow of fund.
Following major construction & repair-renovation works have been undertaken as deposit work through M/s Bridge & Roof Co. (India) Ltd which is the implementing agency:

- Construction of New Academic Building and New Students' Hostel – Concept Plan of Academic Building has been finalised by the empowered committee after a number of reiteration.
- Repair, Renovation & Restoration work of R. A. Fisher Bhavan & S.N. Bose Bhavan – Work awarded through tendering and started from January, 2017. Repair work is in progress in both the buildings.

- Augmentation & Distribution of Electric Power – Survey completed; Project Report and cost estimate under preparation. Rs.75 lakh (approx) has been deposited (for the whole package) as per the provision of agreement of the Institute with the implementing agency.

B. **Delhi**

Civil works

(i)	Repair & Renovation Works of the Community Hall in ISI Delhi Centre, New Delhi-110016	- Rs.12,36,000
(ii)	Replacement of old Windows in C- Block in ISI Delhi Centre, New Delhi-110016	- Rs.12,37,718
(iii)	Repair and Renovation Works of 6 Nos of D- Block qtrs. in ISI Delhi Centre, New Delhi-110016	- Work in progress
(iv)	Reports of Condition Assessment using NDT Test of New PJH Building in ISI Campus Delhi Centre New Delhi-110016	- Rs.3,00,000
(v)	WAC Meeting held at ISI Delhi Centre dated 08/07/2016 discuss and finalize the revised proposal / estimates submitted by CPWD.	-

Electrical Works

(vi)	Automatic Switchgear for substation	- Rs.9,00,000 approximately

C. **Bangalore**

Major construction / renovation works completed / undertaken by the Bangalore Centre during the FY 2016 -2017

(i) Construction of rain water harvesting structures and aquifer measures (Phase-01): The work has been fully completed.

(ii) Construction of biogas plant: the construction of biogas plant was completed and commissioned successfully.

(iii) Construction of first floor of gymnasium: The work was fully completed and opened for use.

(iv) Construction of second floor of guest house: The construction work was awarded to the NPCC Ltd.

(v) Construction of 5-Storey new academic block: Plan budget proposal is placed to take up project in the F.Y. 2017-18. The necessary ground work such as identification of location, preparation of preliminary plan, estimates and other works were undertaken.

(vi) Extension of canteen building: Plan budget proposal was placed to take up project in the F.Y. 2017-18. The necessary ground work such as identification of location, preparation of preliminary plan, estimates and other works were undertaken.

Administration

Other Activities:

(i) Swacch Bharat Campaign was observed from 16th to 31st May 2016.

D. **Chennai**

Construction:

(a) **Boundary Wall:** Government of Tamil Nadu allotted 8 acres of cost free land to ISI Chennai Centre in Karapakkam. Construction of Boundary wall on the said land for "New proposed campus of ISI- Chennai Centre at Karapakam", has been completed successfully. This construction project for estimate of Rs.5,76,94,409/- (Rupees five crore, seventy six lakhs ninety four thousand four hundred and nine only). was handed over to National Buildings Construction Corporation Ltd. (NBCC).

(b) **Earth Filling:** ISI, Chennai Centre signed a MOU with CPWD for the earth filling at low lying land at Karapakkam. Earth filling project for an estimate of Rs. 6,16,80,000/- (Rupees six crores, sixteen lakhs eighty thousand only) was signed.

(c) **Master Plan:** The draft master plan for the proposed ISI Campus at Karapakkam has been prepared.

Other Activities:

The Centre Head and faculty members visited various Institutes and colleges to create awareness about the importance of ISI. Encouraged and motivated students to participate in the admission test of the Institute. Explained the activities of the Institute as they are not so much familiar with the Institute in the southern part of our country.

E. Tezpur

The construction of the campus of the North-East Centre of the Institute started at the Institute's own site during the last quarter of 2016-17.

11. Society Type Activities

A. Membership: April 2016 – March 2017

During the period 28 persons enrolled as Ordinary Members of the Institute and 15 Ordinary Members became Life Members of the Institute.

The membership position as on 31 March, 2017 is as follows:

Ordinary Members	-	269
Life Members	-	1026
Institutional Members	-	04
Total	-	1299

B. Finance Committee Meeting: The Finance Committee met on 19th October, 2016. Besides the decisions taken on various financial matters, the Finance Committee recommended RE 2015-16 and BE 2016-17 (both Plan and Non-Plan) in this meeting held on 19th October, 2016. The Annual Report including Audited Statement of Accounts for the year 2015-2016 was considered and also recommended in this meeting.

C. Council Meetings: During the period under Report (2016-17), the Council met seven times on 22nd April, 2016, 30th June, 2016 (adjourned), 15th July, 2016 (subsequently), 9th September, 2016, 14th October, 2016, 2nd November, 2016 and 18th February, 2017 to take decisions on various academic and administrative matters of the Institute. The Budget Proposals of the Institute both for Plan and Non-Plan (RE 2016-17 and BE 2017-18) were considered in the meeting of the Council held on 2nd November, 2016, as recommended by the Finance Committee in its meeting held on 19th October, 2016. The Annual Report including the Audited Statement of Accounts for the year 2015 – 2016 was considered and approved by the Council in its meeting held on 2nd November, 2016.

Please refer to the Back Cover Page and Chapter 12 for details regarding composition of the Council and different committees constituted by the Council.

D. Annual General Meeting: During the period under Report (2016-17), the Annual General Meeting was held on 30th November, 2016. The Annual Report of the Institute for the year 2015-2016 and Audited Statement of Accounts for the year 2015-2016 together with the Auditor's comments and replies of the Administration thereto were adopted in the meeting of the General Body held on 30th November, 2016.

12. **Awareness programmes conducted by Medical Welfare Unit**

Medical Welfare Unit of the Institute organized various awareness programmes throughout the year for the welfare of the workers and students. A large number of workers and students participated in the following seminar and workshop:

(i) Coping with Stress, held on 19th April 2016

Speakers: Dr Jyotirmoy Samajder
Mr Mohit Ranadip
Ms Swati Mitra

(ii) Seminar on Cancer Awareness, held on 18th November 2016

Speaker: Dr Arnab Gupta

(iii) Alcohol to Facebook: Danger of Dependence, held on 07th February 2017

Speakers: Ms Swati Mitra
Mr Mohit Ranadip
Dr Jyotirmoy Samajder

13. **Training Programme on Comprehensive end-to-end e-Procurement**

Central Stores of the Institute organized one-day e-procurement training programme on 18th July 2016, for the workers of the Institute who are involved in public procurement.

Speaker: Mr. Paul Mathai

14. **Celebration of Hindi Diwas & Hindi Pakhwada**

The Official Language Cell of the Institute organized various events including essay writing competitions, extempore, recitation etc. from 14.09.2016 to 28.09.2016 to celebrate Hindi Diwas and Hindi Pakhwada. The Institute recognized the participants and awarded prizes to them for their performance in the said competition.

11. LIST OF MEMBERS OF THE ACADEMIC COUNCIL AND OTHER COMMITTEES OF THE INSTITUTE AS ON 31 MARCH 2017

1. Academic Council

Sanghamitra Bandyopadhyay, Director (Chairman)

Amita Pal, Dean of Studies (Convener)

A. Theoretical Statistics and Mathematics Division

T.S.S.R.K. Rao, B.V. Rajarama Bhat, N.S. Narasimha Sastry, Bhaskar Bagchi, S. Ramasubramanian, K. Ramamurthy, Mohana Delampady, Sunanda Bagchi, B. Rajeev, V. Pati, B. Sury, V.R. Padmawar, Siva Athreya, C. Robinson Edward Raja, S.M. Srivastava, Probal Chaudhuri, Rana Barua, Alok Goswami, Arup Bose, Goutam Mukherjee, Ratan Dasgupta, Gopal Krishna Basak, Pradipta Bandyopadhyay, Amartya Kumar Dutta, Debashish Goswami, Rudra Pada Sarkar, Mahuya Datta, S. Pannusamy, Rajendra Bhatia, Rahul Roy, R.B. Bapat, Abhay Gopal Bhatt, Arup Kumar Pal, Isha (Bagai) Dewan, Anish Sarkar, Swagato Kumar Ray, Ritabrata Munshi, Ramesh Sreekantan, Rajat Subhra Hazra.

B. Applied Statistics Division

Sushama M. Bendre, Bimal Kr. Roy, Debasis Sengupta, Anup Dewanji, Mausumi Bose, Palash Sarkar, Ashis SenGupta, Debapriya Sengupta, Tapas Samanta, Atanu Biswas, Subhamoy Maitra, Pabitra Pal Choudhury, Ayanendranath Basu, Tapas Kumar Chandra, Subir Kumar Bhandari, Smarajit Bose, Rita Saha Ray, Arun Kumar Adhikary, Sumitra Purkayastha, Mridul Nandi, Kiranmoy Das.

C. Social Sciences Division

V.K. Ramachandran, Madhura Swaminathan, Satya Ranjan Chakravarty, Amita Majumder, Abhirup Sarkar, Nityananda Sarkar, Manash Ranjan Gupta, Tarun Kabiraj, Monoranjan Pal, Manipushpak Mitra, Indraneel Dasgupta, Arunava Sen, Bharat Ramaswami, Satya P. Das, E. Somanathan, Prabal Roy Chowdhury, Probal Dasgupta, Tridip Ray, Chetan Ghate. Abhiroop Mukhopadhyay, Souvik Roy, Debasis Mishra.

D. Biological Sciences Division

Joydev Chattopadhyay, Anjana Dewanji, Arunava Goswami, Premananda Bharati, Barun Mukhopadhyay, Subrata Kr. Roy, Parasmani Dasgupta, P.P. Majumder, Bidyut Roy, Saurabh Ghosh, Sabyasachi Bhattacharya, Indranil Mukhopadhyay, Pabitra Banik, Susmita Mukhopadhyay.

E. Physics and Earth Sciences Division

Dilip Saha, Chandan Chakraborty, Dhurjati Prasad Sengupta, Soumendra Nath Sarkar, Saswati Bandyopadhyay, Pinaki Roy, Subir Ghosh, Barnana Roy, Banasri Basu, Guruprasad Kar, Parthasarathi Ghosh, Preeti Parashar, Supratik Pal, Amlan Banerjee.

F. Computer and Communication Sciences Division

Bhabani Prasad Sinha, Bhargab Bikram Bhattacharya, Subhas Chandra Nandy, Nabanita Das, Susmita Sur-Kolay, Krishnendu Mukhopadhyay, Sandip Das, Swapan Kr. Parui, Umapada Pal, A.R.D. Prasasd, Bhabatosh Chanda, Nikhil Ranjan Pal, Kumar Sankar Roy, Dipti Prasad Mukherjee, Srimanta Pal, C.A. Murthy, Sushmita Mitra, Ashish Ghosh, Sanghamitra Bandyopadhyay, Rajat Kumar De, Devika P. Madalli, B.S. Daya Sagar. Deba Prasad Mandal, Sarbani Palit, Utpal Garain

Administration

G. **Statistical Quality Control and Operations Research Division**

Kalyan Kumar Chowdhury, P.K. Perumallu, Ashim Roy Chowdhury, U. Haridas Acharya, Surajit Pal, A. Rajagopal, Samir Kr. Neogy, B. Mohan Reddy, G.S.R. Murthy, A.L.N. Murthy, Amitava Bandyopadhyay, Dipak Kr. Manna, Arup Kumar Das, Ranjan Sett, Arup Ranjan Mukhopadhyay, Abhijit Gupta, Prasun Das, Ashis Kr. Chakraborty, Nandini Das, Susanta Kumar Gauri, Md. Zafar Anis, Ashok Sarkar, Amit Kr. Biswas, Biswabrata Pradhan, Sanjit Ray, E. V. Gijo

H. **Library, Documentation and Information Sciences Division**

Chief Librarian

I. **Computer and Statistical Service Centre (CSSC)**

Debashis Roy, Amitava Datta,

J. **Member-Secretary, ISEC**

Prof. Prasanta Pathak (Up to 31st August 2016)
Prof. Ayanendranath Basu (From 1st September 2016)

2. **Other Committees of the Institute**

A. **Finance Committee**

Director (Chairman), Government Representative (MOS & PI), Government Representative (Ministry of Finance), Professor Abhirup Sarkar, ISI Kolkata, Professor Pabitra Banik, ISI Kolkata, Professor S.M. Srivastava, ISI Kolkata, Professor Dilip Saha, ISI Kolkata, Professor Chetan Ghate, ISI Delhi, Head, Delhi Centre, Head, Bangalore Centre, Head, Chennai Centre, Sh. Somnath Ray, ISI Bangalore, Shri Samar Ray (Former PS, Finance Dept., Govt. of WB; Former Dy. Comptroller and Auditor General, Govt. of India), External Expert, External Expert (to be decided soon), Chief Executive (A&F), Sudip Chakraborty (Convener), DCE (Finance).

B. **Sankhyā Editorial Committee**

(i) Editor-in-chief, *Sankhyā*, Series A and Series B:

Prof. Dipak K. Dey (University of Connecticut, Storrs, CT, U.S.A.)

(ii) Editors, *Sankhyā*, Series A:

Prof. Krishna B. Athreya (Iowa State University, U.S.A.), Prof. Gopal K. Basak, (Indian Statistical Institute, Kolkata), Prof. Francisco Louzada (Universidade De Sao Paulo, Brazil),

(iii) Editors, *Sankhyā*, Series B:

Prof. Sudipto Banerjee (University of California, Los Angles, U.S.A.), Prof. Bertrand Clarke (University of Nerbraska-Lincoln, U.S.A.), Prof. Bani Mallick (Texas A & M University, U.S.A.), Prof. Sumitra Purakayastha, (Indian Statistical Institute, Kolkata),

C. **Works Advisory Committees**

(i) **Kolkata**

Anandapran Gupta (Chairman), Former Head, Civil Department, IIT Kharagpur, Smarajit Bose (Vice-Chairman), Rajkumar Roychowdhury, Susmita Mukhopadhyay, Indranil Dasgupta, Ashis K. Chakraborty, External Expert (Civil), External Expert (Architecture), External Expert (Electrical), Chief Executive (A&F), Amal K. Biswas, Partha P. Mohanty, Amitava Mukherjee, In-Charge, EMU, In-Charge, Engg. Unit (Convener), External Expert (Environment/Pollution Control to be co-opted/invited by the Chairman when required).

(ii) **Delhi**

Prof. B. Bhattacharjee, Civil Engineering department, IIT Delhi (Chairman), Head ISI Delhi – Member, Mr. G. K.Taneja, Institute Engineer, IIT Delhi– Expert (Electrical), Mr. R. Upadhyay, Executive Engineer (Civil), Shri Lal Bahadur Sanskrit Vidyapeeth - Expert (Civil), Expert Architecture (to be co-opted later), Prof. Arup Pal, ISI Delhi, Prof S. K. Neogy, ISI Delhi, Prof. Chetan Ghate , ISI Delhi, Mr. Sujan Dutta, ISI Delhi, Mr. Kaisar Alam, OSD, ISI Delhi (Convener).

(iii) **Bangalore**

Professor K. S. Nanjunda Rao (Chairperson); Dr K. Keshavan, External expert (Electrical Engineering); Dr S. V. Venkatesh, External expert (Civil Engineering); Head, ISI, Bangalore Centre; Head, Stat-Math Unit, ISI, Bangalore or his/her nominee); Head, DRTC, ISI, Bangalore or his/her nominee; Head, SQC & OR Unit, ISI, Bangalore or his/her nominee; Head, E.A.U., ISI, Bangalore or his/her nominee; Dr. Kaushik Majumder, ISI, Bangalore; Accounts Officer, Bangalore Centre; Shri P.C. Karan, Administrative Officer, ISI, Bangalore (Convener).

D. **Ph.D. / D.Sc. Committees**

(i) Statistics

Director (Chairperson), Dean of Studies, Mausumi Bose, Gopal K. Basak, Mohan Delampady, V. Padmawar, Isha Dewan, Abhay G. Bhatt, Ayanendranath Basu, C.A. Murthy, Atanu Biswas, Tapas Samanta (Convener).

(ii) Mathematics

Director (Chairperson), Dean of Studies, B. Sury, Siva Athreya, Anish Sarkar, Arup K. Pal, Mahuya Datta, Swagata K. Ray, Banasri Basu, Debashish Goswami (Convener).

(iii) Computer Science

Director (Chairperson), Dean of Studies, Palash Sarkar, Subhas C. Nandy, Susmita Sur-Kolay, Mandar Mitra, Bhabatosh Chanda, Nikhil R. Pal, Sushmita Mitra, C.A. Murthy, Utpal Garain (Convener).

(iv) Quantitative Economics

Director (Chairperson), Dean of Studies, Nityananda Sarkar, Manipushpak Mitra, Prabal Roy Chowdhury, Bharat Ramaswami, Debasis Mishra, Anup Dewanji, Tarun Kabiraj (Convener).

Administration

(v) SQC & OR

Director (Chairperson), Dean of Studies, C.A. Murthy, Anup Dewanji, Mohan Delampady, E.V. Gijo, Ashis K. Chakraborty, S. K. Neogy, D. K. Manna, Arup K. Das (Convener).

E. **Policy Planning and Evaluation Committee (PPEC)**

Chairman of ISI Council (Chairman); Director (Vice-Chairman); Director General, CSO; Financial Advisor, MOS & PI; Professor Kalyan B. Sinha, Former Director, ISI; Professor B.L.S. Prakasa Rao, Former Director, ISI; Professor Partha P. Majumder, ISI; Professor Partha P. Chakraborty, Director, IIT Kharagpur; Professor T.S.S.R.K. Rao, Head ISI Bangalore; Professor Bharat Ramaswami, ISI Delhi; Professor Dhrubojyoti Chattopadhyay, Former Pro-VC (Acad), Calcutta University; VC Amity University; Professor Dipti P. Mukherjee, ISI (Convener).

F. **Technical Advisory Committees of different Divisions**

(i) Theoretical Statistics and Mathematics Division

Director, ISI (Chairperson), Professor V. Balaji. Professor Ravi Rao, Professor Indranil Biswas, Professor Tathagata Bandyopadhyay, Professor B.L.S. Prakasa Rao, Professor V.S. Borkar, Professor-in-Charge, Statistics & Mathematics Division (Convener).

(ii) Applied Statistics Division

Director, ISI (Chairperson), Professor S.P. Mukherjee, Professor Rahul Mukherjee, Professor Debasis Kundu, Professor Swadheenanda Pattanayak, Professor-in-Charge, Applied Statistics Division, (Convener).

(iii) Computer and Communication Sciences Division

Director, ISI (Chairperson); Professor Partha P. Chakrabarti, Professor Naveen Garg, Dr. Satyanarayana V. Lokam, Prof. Subhasis Chaudhuri, Dr. Ramesh Hariharan, Professor Pushpak Bhattacharya, Professor K.S. Raghavan, Professor-in-Charge, Computer & Communication Sciences Division (Convener).

(iv) Physics and Earth Sciences Division

Director, ISI (Chairperson), Professor Ashok Sahni, Professor S.K. Tandon, Professor Sudipta Sengupta, Prof. M. Lakshmanan, Professor Indrani Bose, Prof. C.S.P. Ojha, Professor-in-Charge, Physics & Earth Sciences Division (Convener).

(v) Biological Sciences Division

Director, (ISI) Chairperson, Professor Nitai P. Bhattacharyya, Professor Himanshu Pathak, Dr. Giriraj Chandak, Dr. A.R. Sharma, Professor S.P. Singh, Professor Aditya Chatterjee, Professor-in-Charge, Biological Sciences Division (Convener).

(vi) Social Sciences Division

Director, ISI (Chairperson), Professor Achla Raina, Professor Rajni Palriwala, Professor Saikat Sinha, Professor Arvind Pandey, Dr. Subrata Lahiri, Professor Manoj Panda, Professor-in-Charge Social Sciences Division (Convener).

(vii) Statistical Quality Control and Operations Research Division

Director, ISI (Chairperson), Professor Ramanuj Majumdar, Professor Debasis Kundu, Mr. Vadiraj Kulkarni, Dr. Richard Lobo, Shri. S. Krishnan, Dr. Gautam Chatterjee, Head, SQC & OR Division (Convener).

(viii) Library, Documentation and Information Sciences Division

Director, ISI (Chairperson), Dr. M. Paul Pandian, Dr. G. Mahesh, Dr. P.R. Goswami, Professor Sachindra Nath Bhattacharya, Chief Librarian/ In-Charge, Library (Convener).

EDITORIAL BOARD

Acknowledgements

The Editorial Board gratefully acknowledges the assistance rendered by the staff of the CE (A&F)'s Office, Public Relations Unit, Publication & Printing Unit and Reprography & Photography Unit in the preparation of this Annual Report.

Shri D. V. Sadananda Gowda, Minister of Statistics & Programme Implementation, visiting ISI Kolkata on 08 September 2016

Farewell of Shri Arun Shourie, former Chairman, ISI Council on 09 September 2016

Visit of Smt. Sudha Murthy at ISI, Kolkata on 26 March 2017

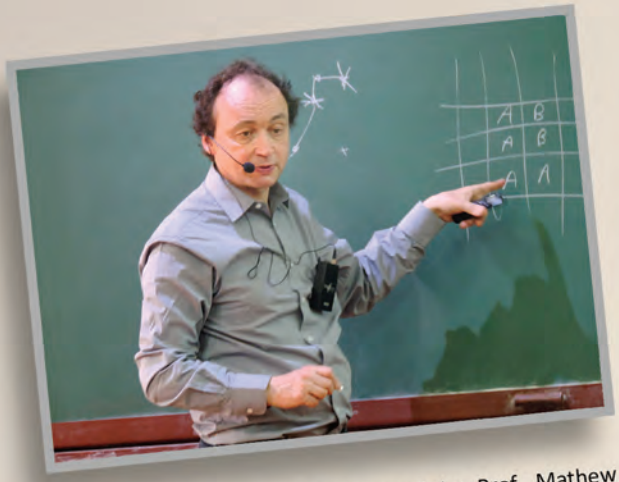
'Hindi Karyashala' organized by ISI, Kolkata on 22 June 2016

Workshop on 'Business Statistics' organized by ISRU at ISI North-East Center, Tezpur during 05-09 December 2016

51st ISI Convocation at ISI, Kolkata on 23 January 2017

Prof. Cedric Villani delivering a Public lecture at ISI, Kolkata on 26 August 2016

'PCM Memorial Lecture' by Prof. Ian Johanstone at ISI, Kolkata on 27 January 2017



'Ashok Maitra Memorial Lecture' by Prof. Mathew Penrose at ISI, Bangalore on 19 January 2017

'INSA JC Bose Memorial Lecture' (2016) by Prof. Kalyanmoy Deb at ISI, Kolkata on 23 September 2016

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