Completed Projects

1.    Name of the Project : Risk Analysis of Long Term Agreement
      Project Coordinators : B.K. Sinha, G.M. Saha and D. Sengupta
      Units involved : Statistics-Mathematics, Applied Statistics., Computer and Statistical Services
      Centre, Statistical Quality Control, (T&P) and Sociological Research
      Funded by : Coal India Limited

2.    Name of the Project : Strengthening Local Government in Madhya Pradesh (Indian Statistical
      Institute-PWC Project)
      Principal Investigator : J.K. Ghosh
      Co-Principal Investigators : A.K. Adhikari and P. Maiti
      Chief Consultant : J. Roy
      Units involved : Statistics-Mathematics, Applied Statistic.and Economic Research
      Funded by : Price Water House and Asian Development Bank

3.    Name of the Project : Development of Statistical Technique as an Aid to Geological Mapping
      Principal Investigator : J.K. Ghosh
      Project Co-ordinator : Tapas Samanta
      Units involved : Statistics and Mathematics, Applied Statistics and Economic Research
      Funded by : Council of Scientific and Industrial Research, New Delhi

4.    Name of the Project :  Estimation of Infant and Maternal Mortality Rates of Identification of the
      Determinants in Rural North 24 Parganas, West Bengal.
      Name of Principal Investigatros : P.Bharati, T.S. Vasulu, R. Das, B. Bhattacharya, M. Pal,
      and A.Chowdhuri
      Units involved : Anthropology and Human Genetics , Biological Sciences Division, Population
      Studies, Economic Research, Applied Statistics
      Funded by : United Nation International Children Education Fund

5.    Name of the Project : Development of CAD Tools for Identification of Logical Equivalence of
      Library  Elements and Identification of False Paths in a Switch-Level Network
      Project Coordinators : B.B. Bhattacharya and P. Palchaudhuri
      Unit involved : Advanced Computing and Microelectronics
      Funded by : Motorola India Electronics Ltd., Bangalore

6.    Name of the Project : Large Amplitude Ion and Electron Acoustic Waves in Relativistic Plasma
      Project Leader : R.K. Roychoudhuri
      Unit involved : Physics and Applied Mathematics
      Funded by : Department of Science and Technology, New Delhi

7.    Name of the Project : Development of Thin Film on a Rotating Disk
      Project Leader : B.S Dandapat
      Unit involved : Physics and Applied Mathematics
      Funded by : Council of Scientific and Industrial Research, New Delhi

8.    Name of the project :  Maternal (obstetric) Studying in Three Districts of West Bengal.
      Name of Principal Investigator : S. Mukhopadhyay
      Co-Investigator : B. Mukhopadhyay
      Unit involved  : Anthropology and Human Genetics
      Funded by : Department for International Development (DFID), UK

9.  Name of the Project : Indian Statistical Institute-Hindustan Liver Limited Collaborative Project
    On Business Research
    Principal Investigator : Robin Mukherjee
    Co Principal Investigator : Pulakesh Maiti
    Units involved : Economic Research and Computer andStatistical Services Centre
    Funded by : Hindustan Lever Limited

10. Name of the Project : Study on Taxable Capacity
    Name of thePrincipal Investigator : Dipankor Coondoo
    Unit involved : Economic Research
    Funded by : Finance Commission, Government of India

11. Name of the Project : Selection Test for Admission of Students to the B.Lib. and Information
    Science Course for the period 1999-2000, for Rabindra Bharati University, Calcutta
    Name of the Project Coordinator : S.N. Banearjee
    Unit involved : Psychology Research
    Funded by : Rabindra Bharati University, Calcutta

12. Name of the Project : Concurrent Evaluation of Total Literacy Campaign in the district of Uttar
    Dinajpur
    Project Coordinator : Atis Dasgupta
    Unit involved : Sociological Research
    Funded by : Govt. of West Bengal

13. Name of the Project : Manpower Development Programme in the area of Computer Applications to
    Library and Information Field
    Project Coordinator : I.K. Ravichandra Rao
    Unit involved : Documentation, Research and Training Centre, Bangalore
    Funded by : National Information Systems for Science and Technology, New Delhi

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

### SYMPOSIA, CONFERENCES AND WORKSHOPS

Conference on "Probability & Statistics" was organised by Stat Math Unit, Delhi during December 17–21, 1999 at ISI, Delhi.

Conference on "Functional Analysis & Linear Algebra" was organised by Stat Math Unit, Delhi during January 03-07, 2000 at ISI, Delhi.

Conference on "Operations Research and Game Theory" was organised by Stat. Math Unit, Delhi on January 03,2000 at IIT, Madras

Conference on "Quantum Probability and Infinite Dimensional Analysis" was organised by Stat Math Unit, Bangalore. Jointly with JNCASR, Bangalore during December 14-18, 1999 at I.S.I , Bangalore.

6th International Conference on "High Performance Computing (HiPC'99)" was organised by Advanced Computing & Microelectronics Unit, Calcutta during December 17-20, 1999 at Taj Bengal Hotel, Calcutta.

13th International Conference on "VLSI Design" was organised by Advanced Computing & Microelectronics Unit, Calcutta during January 3-7, 2000 at Science City, Calcutta.

International Workshop on "Document Analysis, Speech and Natural Language Processing" was organised by Computer Vision and Pattern Recognition Unit, Calcutta during December 23-24, 1999 at ISI, Calcutta.

4th International Conference on "Advances in Pattern Recognition and Digital Techniques (ICAPRDT'99) was organised by Electronics & Communication Sciences Unit, Calcutta during December 27-29, 1999 at ISI, Calcutta.

Workshop on "Geology of Pranhita-Godavari Valley : Current Status and Future Directions" was organised by Geological Studies Unit, Calcutta during November 15-18, 1999 at ISI, Calcutta.

Workshop on "Uterine Cervical Cancer Control : Statistical Modelling, Database and Other Issues" was organised by Biochemistry Unit, Calcutta during March 23-24, 2000 at ISI, Calcutta.

Workshop on "Applied Bayesian Methods in Econometrics and Forecasting" was organised by Economic Analysis Unit, Bangalore during January 10-15, 2000 at ISI, Bangalore.

Annual Conference on "Economic Theory and Policy" was organised by Planning Unit, Delhi during November 29 – December 1, 1999 at ISI, Delhi.

Winter School on "Economic Theory and Econometrics " was organised by Planning Unit, Delhi during December 2-5, 1999 at ISI, Delhi.

National Symposium on "Methods of Quantitative Linguistics" was organised by Linguistic Research Unit, Calcutta during February 28-29, 2000 at ISI, Calcutta.

Conference on "Operational Research in the Age of Information Technology" was organised by SQC-OR (T&P), Calcutta Unit during November 27-28, 1999 at National Institute of Management, Calcutta.

Conference on "Game Theory and Industrial Applications" was organised by SQC & OR Unit, Coimbatore at ISI, Coimbatore.

Workshop on "E-Commerce" was organised by SQC & OR Unit, Coimbatore in January 2000 at ISI, Coimbatore.

International Symposium on "Management of Quality at Amrita Institute of Technology and Science, was organised by SQC & OR Unit, Coimbatore in January 2000 at ISI, Coimbatore.

Symposium on "Aryabatteyam (to Commemorate 1500 Anniversary of the Publication of Aryabatteyam)" was organised by SQC & OR Unit, Coimbatore in January 2000 at ISI Coimbatore.

International Conference on "DOE" was organised by SQC & OR Unit, Bangalore, on January 2, 2000 at ISI, Bangalore.

International Conference on " Six Sigma" was organised by SQC & OR Unit, Bangalore, on January 3, 2000 at ISI, Bangalore.

Conference on "Industrial Applications" was organised by SQC & OR Unit, Bangalore, during January 2-3, 2000 at ISI, Bangalore.

Conference on "Game Theory and ICORGT 2000" was organised by SQC & OR Unit, Bangalore, during January 3-7, 2000 at ISI, Bangalore.

Conference on "Game Theory" was organised by SQC & OR Unit, Bangalore at ISI, Bangalore.

National Seminar on "Reliability Analysis & Engineering (NSRAE-99) was organised by SQC & OR Unit, Bangalore, on December 16, 1999 at ISI, Bangalore.

Conference on "Operational Research in the Age of Information Technology" was organised by SQC – OR (T&P) Unit, Calcutta during November 27-28, 1999 at ISI, Calcutta.

International Conference on "Operations Research and Game Theory (ICORGT)" was organised by SQC & OR Unit, Hyderabad, during January 3-7, 2000 at ISI, Hyderabad.

Workshop on " Annual Seminar on Electronic Sources of Information" was organised by DRTC, Bangalore, during March 1-3, 2000 at ISI, Bangalore.

## LECTURES AND SEMINARS

Lectures/Seminars organised by the Institute and delivered by visiting scientists are listed below.

### Theoretical Statistics and Mathematics Division

*Stat-Math Unit, Calcutta*

Athreya, K.B., Iowa State University (14.1.2000): Random Iterations.

Balasubramanian, R., Institute of Mathematical Sciences, Chennai (29.07.1999) : Number Theory and Cryptology.

Balasubramanian, R., Institute of Mathematical Sciences, Chennai (30.07.1999) : Number Theory and Cryptology –II.

Basu, Sudeshna, Department of Mathematics, George Washington University, Washington DC (16.08.1999) : On Ball-Generated Properties of Banach Spaces.

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Bhagwan Das, Department of Statistics, Devi Ahilya University, Indore (15.06.1999) : Some Problems in Optimal Designs.

Bhattacharya, R.N., Department of Mathematics, University of Bloomington, Indiana (28.07.1999) : A New Approach To Convergence To Equilibrium Of Markov Processes Via Iterated Maps.

Bhattacharya, Siddhart, TIFR (06.09.1999) : Rigidity of Affine Actions On Homogeneous Spaces.

Bishwal, J.P.N. (15.11.99): Approximate Maximum Likelihood Estimation For Discretely Observed Diffusions.

Biswas, Indranil, School of Mathematics, TIFR (01.12.99): Projective Structures On A Riemann Surface.

Biswas, Jishnu., Institute of Mathematical Sciences, Chennai, (25.1.2000): Roitman's Theorem For Singular Varieties.

Dey Rukmini, University of Texas, Austin, (14.1.2000): Two Dimensional Reductions Of The Seiberg-Witten Equation And Geometric Quantization Of The Moduli Spaces.

Dutta, Mahuya, Department of Mathematics, University of Calcutta (27.12.99): h-Principle Theory And Its Applications.

Ghosal, Subhashis, Free University, Amsterdam, The Netherlands (12.07.1999) : Testing Monotonicity of Non-parametric Regression Function.

Ghosh, Yashowanto N., Purdue University (28.12.99): On The Probability Of Extinction Of Families : a Lower Bound And A Question.

Gupta, J.C. (13.3.2000): Coin – Tossing and Laplace Inversion.

Kerman, Ron, Brock University, Canada (17.12.99): Weighted Mean Convergence And Summability Of Eigenfunction Expansions.

Laskar, Renu, Clemson University (3.1.2000): On Harmoneous And Related Coloring Of Graphs.

Maitra, Ranjan., Department of Mathematics and Statistics, University of Maryland (27.3.2000) : Clustering Massive Datasets:

Murty, U.S.R., Department of Mathematics, University of Waterloo, (5.1.2000): On The Number Of Linearly Independent Perfect Matchings Of A Graph.

Nasser, Mohammed., Dept. of Statistics, Rajshahi University, Bangladesh (21.2.2000): Qualitative Robustness of Bootstrapped Sampling Distribution.

Oja, Hannu, Department of Statistics, University of Jyavaskyla, Finland (24.1.2000): Sign And Rank Covariance Matrices.

Okada, Masami, GSIS, Tohuku University, Sendai, Japan (25.1.2000): Weak $l_p$ Estimate and Its Application to Wavelet De-noising.

Ramakrishnan, S., University of Miami (16.07.1999) : Large Discrete Time Cyclic Queuing Networks and Convergence of Measures.

Rao, M.B., Department of Statistics, North Dakota State University, Fargo, USA (21.06.1999) : Some Practical Problems in Statistics and Probability.

Shalabh, Department of Statistics, Panjab University, Chandigarh (26.11.99): Improved Estimation In Measurement Error Models Through Stein Rule Estimation.

Srinivasa Rao, Arni S.R., IIIPS, Mumbai, (13.09.1999) : Incubation Distribution To Aids And Back-Calculation Model.

Venkatachala, B.J., Indian Institute of Science, Bangalore (01.04.1999) : On a System of Diophantine Equations.

Verma, D.N., TIFR, Mumbai (02.11.99): Classical Representation Theory From The Scratch.

Verma, D.N., TIFR, Mumbai (03.11.99) : From The Game Of Nim, To The Finonacci Quasi- Crystal, To The Archemedes-Brahmagupta-Pell's Equation.

### Stat-Math Unit, Delhi

Chaubey, Y.P., Concordia University (09.02.2000) : Smooth Estimation of Survival and Related Functions I.

Dani, S.G., TIFR, Mumbai (09.04.1999) : What Happens to Measures on Groups Under Automorphisms.

Danzer, L. University of Dortmund (27.10.1999) : Geometry of Quasicrystals and Beyond FRG.

Das, Manab, University of Louisville (18.06.1999 and 23.06.1999) : (i) Multifractals, Doubling Measures and Vitali Properties, (ii) Multifractals, Doubling Measures and Vitali Properties II.

de Silva, Jose Dias, University of Lisbon (07.02.2000) : Linear Algebra and Additive Theory.

Franz, Uwe, (27.12.1999) : Malliavin Calculus for Quantum Stochastic Processes.

Guivarc'h, V., Universite de Renes, France (04.11.1999) : Random Walks on Free Groups.

Gupta, J.C., (28.04.1999) : Coin Tossing and Laplace Inversion.

Ibragimov, Ildar Abdullovich, Steklov Mathematics Institute (19.01.2000 and 20.01.2000) : (i) Random Algebraic Surfaces, (ii) Extrapolation of Analytic Functions Observed in Gaussian White Noise.

Oja, Hannu, University of Jyvaskyla (27.01.2000) : Sign and Rank Covariance Matrices.

Semrl, Peter, University of Ljublijana (10.11.1999) : Invertibility Preserving Maps.

Sengupta, A., Lousiana State University (12.04.1999) : The Segal-Bargmann Transform.

### Stat-Math Unit, Bangalore

Athreya, K.B. Iowa State University (19-05-1999) : On I.I.D. Random Iterations.

Bhaskara Rao, M. North Dakota State University, Fargo, U.S.A (31-05-1999, 01-06-1999) : (i) One Bulb? Two Bulbs? How many Bulbs Light Up? (ii) Discrete Deconvolution Problems, (iii) The Wonderful World of Dice.

Bhattacharjee, Manish C. New Jersey Institute of Technology, U.S.A (05-08-1999) : Stochastic Equivalence of Laplace Ordered Survival Times with an Application to Reliability.

Birindelli, Isabella, Department of Mathematics Universita di Roma "La Sapienza" (26-08-1999) : Maximum Principles.

Dendukuri, Nandini, Department of Health Care Policy Harvard Medical School (25-10-1999) : Bayesian Approaches to Modeling Multiple Diagnostic Tests.

Deo, Nivedita, JNCASR, Bangalore (08-07-1999) : Random Matrix Models and Some Applications.

Druet, Olivier, Iowa State University, U.S.A (16-03-2000) : Best Constants in Sobolev Inequalities on Compact

Faraut, J., University Pierre et Marie Curie, Paris (06-12-1999 & 07-12-1999) : Harmonic Analysis on Symmetric Cones.

Ghosh, M.K, Indian Institute of Science, Bangalore. (05-08-1999) : Differential Games in the Framework of Viscosity Solutions.

Hudson, Robin , Nottingham Trent University, U.K. (27-01-2000) : Method of Formal Power Series in Qunatum Stochastics.

Inamdar, S.P., Institute of Math. Sciences, Chennai (01-04-1999) : Non-Complete Intersection Cycles in Smooth Quadrics.

Indumathi, V., Pondicherry University (11-06-1999) : Proximinality in Polyhedral Spaces.

Jeganathan, P., University of Michigan, U.S.A (04-06-1999) : On Asymptotic Inference in A.R. Models With Near Unit Roots and Fractionally Integrated Errors.

Kerman, Ron, Brock University, Canada (02-12-1999) : Optimal Sobolev Imbedding Spaces.

Madan, Shobha, Department of Mathematics, IIT Kanpur (23-06-1999 & 24-06-1999) : On Wavelets.Manifolds.

Naik, Suresh, Mehta Research Institute, Allahabad (21-05-1999) : Residues and Duality.

Piazza, Paolo, Department of Mathematics Universita di Roma "La Sapienza" (19-08-1999) : Index Theory for Dirac Operators on Manifolds With Boundary.

Ramaswamy, Mythily, TIFR, Bangalore (29-07-1999) : Symmetry of Positive Solutions of p-Laplacian Equations in $R^n$.

Ramaswamy, S., Department of Mathematics, Pondicherry University (28-06-1999) : The Regularisation theorem for Random Variables in Infinite Dimensions.

Sankaran, N., Panjab University, Chandigarh (09-03-2000) : On the Rationality of the $\zeta$ – Function of An Algebraic Variety Over a Finite Field.

Seade, J., Instituto de Matematicas, U.N.A.M., Mexico (12-08-1999) : Groups of Automorhisms in Projection Spaces.

Sen, Diptiman, CTS, Indian Institute of Science, Bangalore (21-06-1999) : Some Applications of SU(2) In Physics.

Sethuraman, Sundar, University of Cergy, Paris (05-01-2000) : Conditional Survival Trajectories of Brownain Motion under Obstacles.

Skeide, M., University of Cottbus, Germany (28-12-1999) : The Square of White Noise.

Srinivas, V., T.I.F.R., Bombay (27-09-1999) : Embeddings of Affine Varieties.

Srinivasan, R., Mehta Research Institute, Allahabad (30-03-2000) : Vertex Models.

Vaman, H.J., Department of Statistics, Bangalore University (20-04-1999) : Markov Modelling Amenorrhic Period.

Viswanath K., University of Hyderabad, Hyderabad (25-11-1999) : Mathematics of Cellular Automata.

Viswanath, K., University of Hyderabad, Hyderabad (24-11-1999) : Introduction to Cellular Automata.

Wills, Stephen, University of Nottingham (10-12-1999) : Markovian Cocycles on Hilbert Space Adapted to a Fock Filtration.

Yadava, S.L., T.I.F.R. Centre, Bangalore (15-07-1999) : Uniqueness of Solutions of Some Non-linear Elliptic Problems.

## Applied Statistics Division

*Applied Statistics Unit*

Bhattacharya, Bhaskar, University of Southern Illinois, USA (30-11-1999) : Testing Equality of Scale Parameters in Gamma Distributions.

Ding Cunsheng, National University of Singapore (22-02-2000) : Chinese Remainder Theorem and Secret Sharing.

Dutta, Susmita, Georgia State University, USA (22-06-1999) : Statistical Theory for the Evolutionary Dynamics of Cytonuclear Association.

Ghosh, Sujit K., North Carolina State University, USA (13-07-1999) : Bayesian Analysis of Zero-inflated Regression Models.

Larsen, Michael, University of Chicago, USA (22-12-1999) : Iterative Automated Record Linkage Using Mixture Models.

Mukerjee, Rahul, IIM, Calcutta (16-11-1999) : Comparison of Test Statistics via Expected Lengths of Associated Confidence Intervals.

Paul, Suhir R., University of Windsor, Canada (24-08-1999) : Analysis of Two-way Layout of Count Data Involving Multiple Counts in Each Cell.

Sarkar, Jyotirmoy, Indiana University Purdue University, Indianapolis, USA (13-04-1999) : Limiting Availability in a Random Environment.

Srinivasa Rao, Arni S.R. (14-09-1999) : Natural History of HIV and its Related Statistical Modelling.

## Computer & Communication Sciences Division

*Advanced Computing & Microelectronics Unit*

Andonov, R., University of Valenciennes, France (28.12.1999) : Optimal Tiling.

Bhattacharya, P., Vice Chancellar, Tezpur University, (02.08.1999) : Hermite Birkhoff (HB) Interpolation by Entire Transendental Function.

Das, Rajib, K., Deptartment of Computer Science, Tezpur University (21.07.1999) : Natural Language Processing for Assamese.

Gupta, Bidyut, Deptartment of Computer Science, Southern Illinois University, Carbondale, Illinois, USA (02.07.1999) : A Hybrid Checkpoint/Recovery Protocol for Mobile Computing Environment.

Gupta, Vinay, Managing Director, DigiTech, Sector , Salt Lake, Calcutta (09.09.1999) : High Speed Networks.

Mukhopadhyaya (Sen Gupta), Sarbani (25.08.1999) : Cache Conscious Design : A Blocked All-Pairs Shortest Paths Algorithm.

Rajopadhye, Sanjay, COSI Group, IRISA, Rennes France (21.01.2000) : Massive Parallelism in Embeded VLSI Systems.

*Computer Vision and Pattern Recognition Unit*

Saha, Apurba, City University of New York, USA (April 1999) : Distributed Intelligent Information Networks.

*Machine Intelligence Unit*

Basu, M., Electrical Engineering Department & Centre for Biomedical Engineering. City College of City University of New York, USA (13.08.1999) : Image Enhancement Using a Human Visual Model.

Dasgupta, D., University of Memphis, USA (24.6.1999) Mathematical Sciences Department : Artificial Immune Systems.

Gangopadhyay, . P., University of Adelaide, Australia (19.11.1999) : Implementation and Evaluation of Ghost CT Router, a Deadlock-free Solution without Virtual Channels.

Ghosal, S., IBM Solutions Research Center, New Delhi (19.04 1999) :.Image Processing and Analysis Research at IBM Solutions Research Center.

Kargupta, H., School of Electrical Engineering & Computer Science, Washington State University, USA (15-16.6.1999) : (i) Scalable Genetic Algorithms : Foundations and Recent Developments, (ii) Distributed Data Mining : Towards Next Generation Knowledge Discovery Techniques.

Kothari, R., Department of Electrical & Computer Engineering & Computer Science, University of Cincinnati, USA (2. 11. 1999 and 11.11.1999) : (i) Laterally Connected Feedforward Neural Networks, (ii) Bayes Optimality Motivated Dimensionality Reduction.

Roy, A., VECC, Calcutta (07.02.2000 and 18.02.2000) : Rough Set in Soft Computing I and II.

## Physics and Earth Sciences Division

*Physics and Applied Mathematics Unit*

Alekseenko, S.V., Institute of Thermophysics, Novosibirsk, Russia (4 and 6.1.2000) : (i) Interfacial Instabilities and Wave Effect on Transfer Processes in Liquid Films and (ii) Wave Flow of Rivulets.

Bhattacharyya, Sankar, P., Department of Electrical Engineering, Texas A & M University, USA (28.12.1999) Robust Control.

Chattopadhyay, Biplab, Saha Institute of Nuclear Physics, Calcutta (13.12.1999) : Kosterlitz Thouless Signatures in Layered Superconductors.

Choudhury, Ranjan, S.N. Bose National Centre for Basic Science, Calcutta (22.11.1999) : High T Superconductivity.

Das, Samir, Kumar, Central Water and Power Research Station, Pune (21.02.2000) : Mathematical Modelling of Salinity Intrusion in Chilka Lake.

Dasgupta, Gautam, Columbia University, USA (20-23.07.1999) : Tutorials on the Use of Mathematica.

Ghosh, B., Saha Institute of Nuclear Physics, Calcutta (16.12.1999) : High Temperature Superconductivity.

Sarkar, Anamika, Department of Mathematics, Indian Institute of Technology, Delhi (24.11.1999) : Correction to Flow Rate – Pressure Drop Relation in a Catheterized Artery.

Sen, S. K., Supercomputer Education & Research Centre, Indian Institute of Science, Bangalore (31.05.1999) : Solving Linear Differential Equations as a Minimum-Norm Least Square Problem with Error-Bounds.

Sharma, Som, D., Mercator University, Germany (04.02.2000) : Ship Waves.

Sinha, Tapas, Kumar, NEHU (14.02.2000) : Bio-Photons.

## Biological Sciences Division

### Agricultural Sciences Unit

Edmonds, Christopher, IRRI (12.03.2000) : Sustainability Criteria of Rice Based Cropping System.

### Anthropology and Human Genetics Unit

Redd, Alan J., Department of Ecology & Evolutionary Biology, University of Arizona, Tucson, USA (23.12.1999) : The Peopling of Sahul : DNA Evidence.

Reich, Theodore, Department of Psychiatry & Genetics, Washington University, St. Louis, USA (06.03.2000) : Developing Genetic Epidemiology Methods for Complex Disease Studies in India.

### Biochemistry Unit

Das Sarma, Jayasri, Institute of Environmental Medicine, School of Medicine, University of Pennsylvania, Philadelphia, USA (28.02.2000) : Mouse Hepatitis Virus Induced Demyelination : Molecular Mechanisms.

Romney, Carla A., Department of Cancer Cell Biology, Harvard School of Public Health, Harvard University, Boston, Massachusetts, USA (18.08.1999) : Genomic Instability at Mammalian Autosomal Loci.

Roy, Monika, (30.09.1999) : Natural History of Human Papilloma Virus : An Association with Uterine Cervical Cancer.

Sinha, Anindya, National Institute of Advanced Studies, Bangalore (28.12.1999) : How Monkeys See the World Social Knowledge in Wild Bonnet Macaques.

## Social Sciences Division

### Economic Research Unit

Bandopadhyay, Debasish, University of Aucland, New Zealand (15.02.2000) : Growth-Inequality Relationship in a Model with Discrete Occupational Choice and Redistributive Tax.

Banerjee, Surya Pratim, Boston University ( 15.07.99) :Efficiency and Stability in Economic Networks.

Barari, Mahua, SMSU, USA (13.10.99) : Trade Policy Under Uncertainty : The Role of Financial Markets.

Bhattacharya, Kaushik, RBI (10.11.99) : A Measure of Relative Efficiency of Financial Markets form

Biswas,Upen, CBI (30.07.99) : Defining Wetlands and East Calcutta Wetlands.

Bose, Suchismita, ICRA (30.09.99) : Indian Bond Market : A First Glimpse.

Chaudhuri, Ananish, Washington State University (03.08.99) : On the Evolution of Conventions in Games : Experimental Evidence And Analysis Eigenvalue Based Mobility Indices.

Ghosh, Parikshit, Texas A & M University (05.08.99) : Electoral Competition, Moderating Institutions and Political Extremism.

Goschowdhury, S.P., WBREDA (06.09.99) : Solar Power in Sunderbans.

Kondo, Norio, Institute of Developing Economics Tokyo, Japan (04.02.2000) : Prices, Hindutva Issues and Loksabha Elections after 1980s.

Lahiri, Somdeb, IIM, Ahmedabad (12.11.99) : A Note on Characterizing the Median.

Lahiri, Somdeb, IIM, Ahmedabad (02.07.99) : Extended Preference Orderings : A Note.

Maitra, Pushkar, University of Sidney, Australia (27.01.2000) : The Effect of Transfer on Household Expenditure Patterns and Poverty in South Africa

Rao, D.S.P., University of New England Australia (21.12.99) : Generalized CPD and EKS Methods for Multilateral Comparison of Purchasing Power Parties of Currencies.

Sengupta, Sarbajit, Visva Bharati University (01.06.1999) : Delegating Recruitment

*Economic Analysis Unit*

Bose, D.K. (04.02.2000) : Issues in Environmental Economics.

Murthy, N.R. Vasudeva (31.03.2000) : Times Series Properties of Some Key Macroeconomic Series in India.

*Sociological Research Unit*

Chattopadhyay, Paresh, Faculty of Human Science, Quebec University, Canada (11.08.1999) : Economic Contents of Socialism in Marx's Writings.

Swaminathan, Madhura, Associate Professor, Indira Gandhi Institute of Development Research (07.04.1999) : Food Subsidy in India.

## Statistical Quality Control and Operations Research Division

*Statistical Quality Control and Operations Research Unit*

Murty, Katta, G. University of Michigan, Ann Arbor, USA (17.08.99) : Application of Optimization Techniques.

Rao, M.B., North Dakota University, USA (1806.99) : The Wonderful World of Dice.

## Library, Documentation and Information Sciences Division

### *Documentation Research and Training Centre (Bangalore)*

Egghe, Leo, Chief Librarian, LUC Library, Limburgs University Belgium (15.11.1999 and 22.11.1999) : (i) Language Preference Measures, (ii) Explaining Informetric Regularities by Using Classical Informetrics Models.

Gopinath, M.A., Visiting Professor, North Carolina Central University, Department of Library & Information. Science, Durham, USA (09.08.1999) : Dr. S.R. Ranganathan's Contribution to Information Science: Revisited.

Nagarajan, K.S., Head, (Reted.) INSDOC Regional Office, Bangalore (25.10.1999) : Design of Music Databases.

### *Library (Bangalore)*

Krishnamurthy, M. Rajiv Gandhi University of Health Sciences, Bangalore : Online Public Access Catalogue and Acquisition System Using Software.

# 6. PUBLICATION OF SANKHYA

Founded and edited by Professor P.C. Mahalanobis in 1933, Sankhya, the Indian Journal of Statistics and the official organ of the Indian Statistical Institute is now published bi-monthly in two series - Ser. A on *Probability and Mathematical Statistics*, and Ser. B on *Statistical Methodology and Applications including Sample Survey and Quantitative Economics*. Since its inception, eminent scholars all over the world have been contributing research articles for publication in Sankhya, one of the most prestigious and internationally renowned journals. Sankhya office takes care of publication of Sankhya (A&B) with the assistance of Publication and Printing Unit.

<u>Journal Committee</u>
<u>(Upto October 1999)</u>

| | |
|---|---|
| *Editors* | : Somesh Das Gupta and J.K. Ghosh |
| *Managing Editors* | : Series A : Arup Bose<br>Series B : T. J. Rao |
| *Co-Editors* | : Series A : P. K. Bhattacharya, Sujit Kumar Basu, Arup Bose, Anirban Dasgupta, Mohan Delampady, R.L. Karandikar, Hira L. Koul and Kesar Singh. |
| | Series B : Dipankar Coondoo, Anup Dewanji, Aloke Dey, S.R. Mohan, T.J. Rao and Bimal K. Sinha. |

<u>(From October 1999)</u>

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The following publications are published during April 1999 to March 2000.

| <u>Series B</u> | | <u>Series A</u> | |
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| April 1999 | : Volume 61 Part 1 | June 1999 | : Volume 61 Part 2 |
| August 1999 | : Volume 61 Part 2 | October 1999 | : Volume 61 Part 3 |
| December 1999 | : Volume 61 Part 3 | February 2000 | : Volume 62 Part 1 |

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# 6. SCIENTIFIC PAPERS AND PUBLICATIONS

## BOOKS PUBLISHED

## Theoretical Statistics and Mathematics Division

*Stat-Math Unit, Calcutta*

Rao, A. Ramachandra and Bhimasankaram, P. : *Linear Algebra*, Second Edition, Vol. 19 in TRIM Series, Hindustan Book Agency, Delhi, 2000.

*Stat-Math Unit, Delhi*

Bapat, R.B. : *Linear Algebra and Linear Models, Second Edition*, Hindustan Book Agency, New Delhi, 180, 1999.

Dey, Aloke and Mukerjee, Rahul : *Fractional Factorial Plans*, Wiley, New York, 211, 1999.

Kallianpur, G. and Karandikar, R.L.: *Introduction to Option Pricing Theory*, Birkhauser, Boston, 268, 2000.

Rao, B.L.S.P. : *Semimartingales and their Statistical Inference*, Chapman and Hall, London and CRC Press, Boca Raton, Florida, 1999.

Rao, B.L.S.P. : *Statistical Inference for Diffusion Type Processes*, Arnold, London and Oxford University Press, New York, 1999.

Roy, Rahul : *Percolation Theory and Interacting Particle Systems*, Indian Academy of Sciences and Universities Press, Hyderabad.

*Stat-Math Unit, Bangalore*

Rajarama Bhat, B.V., Elliott, G. and Fillmore, P. : *Lectures on Operator Theory*, American Mathematical Society, Providence, Rhode Island, USA, 323, 1999.

## Applied Statistics Division

*Applied Statistics Unit*

Mukhopadhyay, P. : *Applied Statistics*, Books and Allied, Calcutta, 648+49, 1999.

## Computer and Communication Sciences Division

*Advanced Computing and Microelectronics Unit*

Banerjee, Prith, Prasanna, Victor K. and Sinha, Bhabani P.(eds.) : *Lecture Notes in Computer Science*, High Performance Computing – HiPC'99, Berlin, Springer, 1999.

*Electronics and Communication Sciences Unit*

Bezdeck, J. C., Keller, J. M., Krishnapuram, R. and Pal, N. R. : *Fuzzy Models and Algorithms for Pattern Recognition and Image Processing*, Kluwer Academic Publisher, 1999.

Mukherjee, Dipti Prasad, : *Fundamentals of Computer Graphics and Multimedia*, Prentice Hall India, ISBN, 81-203-1446-8, 1999.

### Indian Statistical Institute

Pal, N R, De, A K and Das, J, (eds.) : *Advances in Pattern Recognition and Digital Techniques*, Narosa Publishing Co., New Delhi, India, 506 +xv , ISBN 88-7319-347-9, 2000.

#### Machine Intelligence Unit

Pal, S. K., Ghosh, A. and Kundu, M. K. (eds.): *Soft Computing for Image Processing*, Physica Verlag Springer, Heidelberg, ISBN 3-7908-1268-4, 2000.

Pal, S. K. and Mitra, S. : *Neuro-fuzzy Pattern Recognition: Methods in Soft Computing*, John Wiley, New York, ISBN 0 -471-34844-9, 1999.

Pal, S. K. and. Skowron, A. (eds.) : *Rough Fuzzy Hybridization : New Trends in Decision Making*, Springer Verlag, Singapore, ISBN 981-4021-00-8, 1999.

## Physics and Earth Sciences Division

#### Geological Studies Unit

Bhattacharyya, A. and Chakraborty, C. : *Analysis of Sedimentary Successions:A field Manual*, Balkema, Canada, 399, 2000.

#### Physics and Applied Mathematics Unit

Mandal, B. N. and Chakroborty, A. : *Water Wave Scattering by Barriers*, WIT Press, Southampton, UK, 390+xi, 2000.

## Social Sciences Division

#### Economic Research Unit

Gupta, G., Gutpa, M.R. and Maitra, B.(eds.) : *Issues on Development Economics*; Orient Longman, India, 2000.

Mazumdar, Krishna : *Patterns of Socio-Economic Development*, Inter-India Publications, New Delhi, 263, 2000.

Roy, J. and Gupta, M. R.(eds.) : *Themes on Development Economics*, Allied Publishers Ltd., India, 2000.

#### Population Studies Unit

Bhattacharya, B.N., Bhattacharya, N., Guha Roy, S. and Malakar, C.R. (eds.) : *Selected papers of Ajit Das Gupta*, Indian Statistical Institute, Calcutta, XVI + 303, 2000.

Sarkar, B.N., and Mukhopadhyay, Barun Kumar : Control of Population Growth in India, Daya Publishing House, Trinagar, Delhi, X + 69, 1999.

## PAPERS PUBLISHED IN JOURNALS

## Theoretical Statistics and Mathematics Division

*Stat-Math Unit, Calcutta*

Ami, S..R., Rao, Srinivasa, Hira, S. K. and Thanekar, D. J.: Evidence of AIDS Related Mortality in Mumbai, India , *Lancet*, 354, 9185:1175-6, 1999.

Bandyopadhyay, Pradipta and Basu, Sudeshna : On a New Asymptotic Norming Property, *Indagatione Mathematics*, NS 10, 15-23, 1999.

Bandyopadhyay, Pradipta and Rao, T.S.S.R.K. : Central Subspaces of Banach Spaces, *Journal of Approx. Theory*, 103, 206-222, 2000.

Bhandari, S.K., Ray Chaudhuri, A., Basu, A. and Chaudhuri, B.B. : An Efficient Approach to Consistent Set Estimation, *Sankhya*, Ser. B, 61, Part 3, 1999.

Bose, Arup and Sen, Arusharka : The Strong Law of Large Numbers for Kaplan-Meier U-statistics, *Journal of Theoretical Probability*, 12, 181-200, 1999.

Bose, Arup: Review of "Theory of Point Estimation" by E.L.Lehmann and G. Casella, *Sankhya* Ser. A, 61, Part 1, 152, 1999.

Bose Arup : Review of "Elements of Large Sample Theory" by E.L.Lehmann, *Sankhya*, Ser A, 61, Part 3, 453-455, 1999.

Bose, Arup and Chatterjee, S : Variance Estimation in High Dimensional Regression Models, *Statistica Sinica*, 10, 2000.

Bose, Arup : Review of "Mathematical Statistics" by George R. Terrell. *Sankhya*, Ser. A, 62, Part 1.

Chaudhuri, Probal and Marron, J. S. : Sizer for Exploration of Structures in Curves, *Journal of the American Statistical Association*, 94, 807-823, 1999.

Chaudhuri, Probal and Chakraborty, Biman : A Note on Robustness of Multivariate Medians, *Statistics and Probability Letters*, 45, 269-276, 1999.

Chaudhuri, Probal and Chakraborty, Biman : On Affine Invariant Sign and Rank Tests in One- and Two-Sample Multivariate Problems, *Multivariate Analysis, Design of Experiments And Survey Sampling*, Subir Ghosh (ed.), 499-522.

Dutta, Amartya Kumar and Bhatwadekar, S.M. : Structure of $A^*$-Fibrations Over One-dimensional Seminormal Semilocal Domains, *Journal of Algebra*, 220, 56-573, 1999.

Ghosh, J.K., Ghosal, S. and Samanta, T. : Approximation of the Posterior Distribution in a Change Point Problem, *Annals of Institute of Statistical Mathematics*, 51, 479-497, 1999.

Ghosh, J.K., Srikant, K.R. and Ramamoorthi, R.V. : Posterior Consistency for Right Censored Data, *Statistics and Probability Letters*, 41, 255-265, 1999.

Ghosh, J.K., Ghosal, S. and van der Vaart, H. : Convergence Rates of Posterior Distributions, *Annals of Statistics*, #2, 2000.

Indian Statistical Institute

Mukherjee, Goutam : Cobordism of Manifolds with $Z_2 \times Z_2$ – Action Having Isolated Stationary Points, *Southeast Asian Bulletin of Mathematics*, Springer-Verlag, 23, 673-677, 1999.

Sengupta, Debapriya, and Ghosh, S.K. : On Multivariate Monotonic Measures of Locations with High Breakdown Point, *Sankhya, Ser.A*, 61, Part 3, 362-380, 1999.

Rao, T.J. : Ratio of Means, Mean of Ratios or Both?, *Journal of Statistics, Planning and Inference, Special Issue in Memory of Prof. P.V. Sukhatme.*

Tripathi, T.P., Chakrabarty, T.K. and Singh, B.M. : Estimation of Finite Population Transition Probability Matrix Based on Two–Stage Sampling Design, *Calcutta Statistical Association Bulletin*, 49, 215-223, 1999.

*Stat-Math Unit, Delhi*

Balasubramanian, K., Dey, Aloke and Gupta, S. : Incomplete Block Designs for Slope-Ratio Assays, *Journal of Statistical Planning and Inference*, 78, 369-383, 1999.

Bapat, R.B., Jain, S.K. and Manjunatha Prasad, K. : Generalized Power Symmetric Stochastic Matrices, *Proceedings of the American Mathematical Society*, 127, 1987-1994, 1999.

Bapat, R.B., Grossman, J.W. and Kulkarni, D.M. : Generalized Matrix Tree Theorem for Mixed Graphs, *Linear and Multilinear Algebra*, 46, 299-312, 1999.

Bapat, R. B. : Linear Estimation in Models Based on a Graph, *Linear Algebra and its Applications, Vol.* 302-303, 223-230, 1999.

Bhatia, R. and Sinha, K.B. : Derivations, Derivatives and Chain Rules, *Linear Algebra and Applications*, Vol. 302-303, 231-244, 1999.

Bhatia, R. and Davis, C. : Perturbation of Extended Enumeration of Eigenvalues, *Acta Mathematicarum (Szeged)*, 65, 277-286, 1999.

Bhatia, R. and Parthasarathy, K.R. : Positive Definite Functions and Operator Inequalities, *Bulletin Of the London Mathematical Society*, 32, 214-228, 2000.

Bhatia, R. : Algebric Geometry Solves An Old Matrix Problem, *Resonance*, 4, 101-105, 1999.

Bhatia, R. : Orthogonalisation of Vectors, *Resonance*, 5, 52-59, 2000.

Bhatt, A.G., Kallianpur, G. and Karandikar, R.L. : Robustness of the Nonlinear Filter, *Stochastic Processes And their Applecations*, 81, 247-254, 1999.

Bhatt, A.G. and Karandikar, R.L. : Characterization of the Optimal Filter : The Non Markov Case, *Stochastics And Stochastic Reports*, 66, 177-204.

Biswas, Amit K., Parthasarthy, T. and Ravindran G. : Stability and Largeness of Core For Symmetric Games, *International Journal of Game Theory*, 29, 11-22, 2000.

Carriere, K.C. and Kochar, S. : Comparing Sub-survival Functions in a Competing Risks Model, *Lifetime Data Analysis*, 6, 85-97, 2000.

Das, Ashish and Ghosh, D.K. : Balanced Incomplete Block Diallel Cross Designs, *Statistics and Applications*, 1, 1-16, 1999.

Das, M.N, Das, Ashish and Das, P. : Streamlining Some Innovative Banking Services and an Algorithm Therefor, *Statistics and Applications*, 1, 89-97, 1999.

Demuth, M. and Sinha, K.B. : Schrodinger Operator with Empty Singular Continuous Spectrum, *Mathematical Physics, Analysis and Geometry*, 2, 223-244, 1999.

Dewan, I. and Rao, B.L.S.P. : A General Method of Density Estimation For Associated Random Variables, *Journal of Nonparametric Statistics*, 10, 405-420, 1999.

Dey, Aloke and Mukerjee, Rahul : Inter-effect Orthogonality and Optimality in Hierarchical Models, *Sankhya, Ser-B*, 61, 460-468, 1999.

Goswami, D. and Sinha, K.B. : Minimal Quantum Dynamical Semigroup on a von Neumann Algebra, *Infinite Dimensional Analysis, Quantum Probability and Related Fields*, 2, 221-239, 1999.

Goswami, D. and Sinha, K.B. : Hilbert Modules and Stochastic Dilation of a Quantum Dynamical Semigroup, *Comm. Mathematical Physics*, 205, 377-403, 1999.

Karandikar, R. L. : Opinion Polls and Statistics, *Calcutta Statistical Association Bulletin*, 49, 123-131, 1999.

Khaledi, B. and Kochar, S. : Stochastic Orderings between Distributions and their Sample Spacings – II, *Statistics and Probability Letters*, 44, 161-166, 1999.

Khaledi, B. and Kochar, S. : On Dispersive Ordering between Order Statistics in One-sample and Two-sample Problems, *Statistics and Probability Letters*, 46, 257-261, 2000.

Khaledi, B. and Kochar, S. : Stochastic Comparisons and Dependence among Concomitants of Order Statistics, *Journal of Multivariate Analysis*, 73, 262-281, 2000.

Kochar, S., Mukerjee, H. and Samaniego, F. : The 'Signature' of a Coherent System and Its Application to Comparison among Systems, *Naval Research Logistic*, 46, 507- 523, 1999.

Kochar, S. and Ma, C. : Dispersive Ordering of Convolutions of Exponential Random Variables, *Statistics and Probability Letters*, 43, 321-324, 1999.

Mohan, S. R., Neogy, S.K., Parthasarathy, T. and Sinha, S. : Vertical Linear Complementarity and Discounted Zero-sum Stochastic Games with Arat Structure, *Mathematical Programming*, 86, 634-648, 1999.

Pal, A. : Regular Operators on Hilbert $C^*$- modules, *Journal of Operator Theory*, 42, 331-350, 1999.

Parthasarathy, K. R. and Sinha, K.B. : Quantum Markov Processes with a Christensen-Evans Generator in a von Neumann Algebra, *Bulletin of London Mathematical Society*, 31, 616-626, 1999.

Rao, B.L.S.P. : Bounds For The r-th Order Joint Cumulant under r-th OrderListrong-Mixing, *Statistics and Probability Letters*, 43, 427-431, 1999.

Rao, B.L.S.P. : Covariance Identity for Exponential and Related Distributions, *Statistics and Probability Letters*, 42, 305-311, 1999.

Rao, B.L.S.P. : Estimation of the Integrated Squared Density Derivative by Wavelets, *Bulletin of Information Cybernetics*, 31, 47-65, 1999.

*Stat-Math Unit, Bangalore*

Bagchi, B : Fermat's Two Squares Theorem Re-visited, *Resonance*, 4, 59-67, 1999.

Balaji, S, and Ramasubramanian, S. : Passagee Time Moments for Multidimensional Diffusions *Journal of Applied Probability*, 37, 2000.

Bandyopadhyay, P. and Rao, T.S.S.R.K. : Central Subspaces of Banach Spaces, *Journal of Approximation Theory*, 103, 206 – 222, 2000.

Birindelli, I. and Prajapat, J. : Nonlinear Liouville Theorems in Heisenberg Group Via the Moving Plane Method, *Communications in Partial Differential Equations*, 24 , 1875–1890, 1999.

Cowling, M., Sitaram, A. and Sundari, M. : Hardy's Uncertainty Principle on Semisimple Lie groups,192, 293 – 296, 2000.

Kumeresan, S. and Jyotshana Prajapat : Analogue of Gidas-Ni-Nirenberg result for Domains in Hyperbolic Space and Sphere, *Rendiconti Dell'istituto Di Matematica, Dell'Universita Di Trieste*,30,107– 112, 1999

Paranjape, Kapil and Pati, V : Seiberg-Witten Invariants-an Expository Account, *Proceedings of Indian Academy of Science (Math.Sci.)*, 109, 257 – 270, 1999.

Pati, V : The Theorem of Kronheimer-Mrowka, *Proceedings of Indian Academy of Science, Mathematical Science*, 109, 271 – 298, 1999.

Pati, V : Hilbert's Nullstellensatz, *Resonance*, 4, 36 – 57, 1999.

Rajarama Bhat, B.V. : Minimal Dilations of Quantum Dynamical Semigroups to Semigroups of Endomorphisms of C*-algebras, *Journal of Ramanujan Mathematical Society*, 14, 109– 124, 1999.

Rao, T.S.S.R.K. : There are no Denting Points in the Unit Ball of WC (K,X), *Proceedings of American Mathematical Society*, 127, 2969 – 2973, 1999.

Rao, T.S.S.R.K. : $L^1(\mu,X)$ as a Constrained Subspace of its Bidual, *Proceedings of Indian Academy of Science, Mathematical Science*, 109, 309 – 315, 1999.

Rao, T.S.S.R.K. : Points of Weak*-norm Continuity in the Dual Unit Ball of Injective Tensor Product Spaces, *Collect. Math.*, 50, 269 – 275, 1999.

Rao, T.S.S.R.K. : Boundedness of Linear Maps, *Comment. Math. Univ Carolinae*, 41, 107-110, 2000.

Rawat, R, and Sitaram, A. : Injectivity Sets for Spherical Means on $R^n$ and on Symmetric Spaces, *Journal of Fourier Analysis and Applications*, 6, 343 – 348, 2000.

Sury, B. : On an Example of Jacobson, *American Mathematical Monthly*, 106, 675 – 676, 1999.

Sury, B. : On Triangular Representations of Aut $(F_r)$, *Journal of Algebra*, 222, 164 – 173, 1999.

Sury, B. : An Introduction to Galois Theory, *Resonance*, 4, 47-60, 1999.

Sury, B. : Cyclotomy and Cyclotomic Polynomials, *Resonance*, 4, 41-53, 1999.

## Applied Statistics Division

### *Applied Statistics Unit*

Basu, A., Basu, S. and Raychaudhuri, A. : Measureing Agreement between Two Rathers for Ordinal Response a Model Based Approach, *The Statistician - Journal of Statistical Society – Series D*, 48, 339-348, 1999.

Basu. A.. Sarkar, S. and Kim, C.S. : Tests for Homogeneity of Variances Using Robust Weighted Likelihood Estimates, *Biometrical Journal*, 41, 857-871, 1999.

Basu, A.. Roychaudhuri, A., Bhandari, S.K. and Chaudhuri, B.B. : An Efficient Approach to Consistent Set Estimation *Sankhya B, 61, 496-513, 1999.*

Biswas, A. and Bandyopadhyay, U. : Sequential-type Procedures to Select the Best Treatments, *Statistics and Decisions*, Supplement Issue, 139-164, 1999.

Biswas, A    Delayed Response in Randomized Play-the-winner Rule Revisited, *Communications in Statistics, Simulation and Computation*, 28, 715-731, 1999.

Biswas, A and Bandyopadhyay, U. : Allocation by Randomized Play-the-winner Rule in the presence of Prognostic Factors, *Sankhya Sr. B*, 61, Part 3, 397-412, 1999.

Biswas. A.. Das, K. and Rao, J.N.K. : Bayesian Analysis of Clustered Regression Models for Mixed Discrete and Continuous Outcomes- an Appleccation to Depressive Disorder Data, *Calcutta Statistical Association Bulletin, 49, 255-267, 1999.*

Biswas, A. and Bandyopadhyay, U. : Comparison of two Treatments with Heterogeneous Experimental Units, *Journal of Statistical Planning and Inference*, 83, 441-448, 2000.

Biswas, A. and Bandyopadhyay, U. : An Alternative Test on Berenoulli Success Probability, *Sankhya, Sr.A, 62, Part 1*, 40-48, 2000.

Bose, Mausumi and Mukherjee, Bhramar : Cross-over Designs in the Presence of Higher Order Carry-Overs , *Australian and New Zealand Journal of Statistics*, 42, 901-909, 2000.

Chaudhuri, A. and Pal, Sanghamitra : A Version of Cluster Sampling, *Survey Statistician, 1999.*

Dewanji, A. Goddard, M.J., Krewski, D. and Moolgavkar, S.H. : Two Stage Model for Carcinogenesis : Number and Size Distributions of Premalignant Clones in Longitudinal Studies, *Mathematical Biosciences*, 155, 1-12,1999.

Mukhopadhyay, P. : On Conditionally Weighted Estimators of a Finite Population Variance, *Journal of Statistical Research*, 33, 1-12, 1999.

Mukhopadhyay, P. : On Prediction in Finite Population under Error Invariables Superpopulation Models, *International Journal of Mathematical and Statistical Science*, 8, 89-101, 1999.

Palchoudhury P., Khan A.K., Dihidar, K. and Verma, R. : Text Compression Using Two-dimentional Cellular Automata, *Computers and Mathematics with Applications*, 37,115-127, 1999.

## Computer and Communication Sciences Division

*Advanced Computing and Microelectronics Unit*

Das, D. , De , M. and Sinha, B.P. : A New Network Topology with Multiple Meshes, *IEEE Trans. Computers*, 48, 536-551, 1999.

Mukhopadhyay, K., Das, N. and Dattagupta, J. : $O(n)$ Routing in Rearrangeable networks, *Journal of Systems Architecture*, 46, 529-542, 2000.

Sen Gupta, S. and Sinha, B.P. : An $O(logn)$ Time Algorithm for Testing Isomorphism of Maximal Outerplanar Graphs, *Journal of Parallel and Distributed Computing*, 56, 144-155, 1999.

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Indian Statistical Institute

*Computer Vision and Pattern Recognition Unit*

Adiga, P. S. Umesh and Chaudhuri, B.B. : Efficient Cell Segmentation Tool for Confocal Microscopy Tissue Images and Quantitative Evaluation of Fish Signals, *Microscopy Research and Technique*, 44, 49-68, 1999.

Adiga P. S. Umesh and Chaudhuri, B.B. : Deformable Models for Segmentation of CLSM Tissue Images and its Application in FISH Signal Analysis, *Analytical Cellular Pathology*, 18, 211-225, 1999.

Adiga P. S. Umesh, and Chaudhuri, B.B. : Region Based Techniques for Segmentation of Volumetric Histo-pathological Images, *Journal of Computer Methods and Programs in Biomed.*, 61, 23-47, 2000.

Adiga, P. S. Umesh and Chaudhuri, B.B. : Segmentation and Counting of FISH Signals in Confocal Microscopy Image, MICRON, *The International Research and Review Journal for Microscopy*, 31, 5-15, 2000.

Chaudhuri B. B. and Rosenfeld, A : A Modified Hausdorff Distance between Fuzzy Sets, *Information Sciences*, 118, 159-171, 1999

Chaudhuri B. B. and Kundu, P.K. : Error Pattern in Bangla Text, *International Journal of Dravidian Linguistics*,. 27, 48-48, 2000.

Ray Chaudhuri, A. Basu, A. Bhandari, S. and Chaudhuri, B.B. : An Efficient Approach to Consistent Set Estimation , *Sankhya*, 61, Sr. B, 3, 496-513, 1999.

*Electronics and Communication Sciences Unit*

Acton, Scott and Mukherjee Dipti Prasad, : Scale Space Classification using Area Morphology, *IEEE Trans. on Image Processing*, 9, 623-635, 2000.

Banerjee, S, Mukherjee, D.P. and Dutta Majumder, D : Fuzzy c-means Approach to Tissue Classification in Multimodal Imaging, *Information Science*, 115, 261-279, 1999.

Banerjee, S. and Dutta Majumder, D : Shape Matching in Multimodal Medical Images Using Point Point Landmarks with Hopfield Net, *Neurocmputing*, 30, 103-116, 2000.

Biswas, S and Pal, N R : On Hierarchical Segmentation for Image Compression, *Pattern Recognition Letter*, 21, 131 - 144, 2000.

Bezdek, J.C., Keller, J. M., Krishnapuram, R., Kuncheva, L I, and Pal, N R : Will the Real Iris Data Please Stand Up?, *IEEE Trans. Fuzzy Systems*, 7, 368-369, 1999.

Chanda, A., Das, J. : In Homogenous Vertical Turbulent Convection in PBL, *Mech. Research Communication Journal*, 26, 371-377, 1999.

Chanda, A., Das J., Das, P. and De, A. K., : Self Similarity in the Decay of Homogenous Isotropic Temperature, *Journal of Technical Physics*, 41, 13-17, 2000.

Dutta Majumder, D. and Bhattacharya, M. : A New Shape Based Technique for Classification and Registration: Application to Multimodal Medical Images, *International Journal of Image Processing and Communication*, 4, 45-70, 1999.

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Dutta Majumder, D. and Bhattacharya, M. : Cybernetic Approach to Medical Technology : Application to Cancer Screening and other Diagnostics, (Frank George Research Award Paper – I of WOSC), *Kybernetes Millenium Issue*, 2000.

Dutta Majumder, D.and Roy, P. : Cybernetics, Oncogenesis and Oncolysis : Problems and Prospects of Tumor Stability, Frank George Research Award Paper–II of WOSE, *Kybernetics Millenium Issue*, 2000.

Dutta, P. and Dutta Majumder, D. : Performance Evaluation of Evolutionary Class of Algorithms –An Application to Knapsack Problem, *An International Journal of Mathematics and Computer Modelling*, Elsevier Science, 1999.

Ganguli, N. R., Datta, A. K. and Mukherjee, B. : Acoustic Phonetic Features of Fricative Consonants In Assamese, *Journal of Acoustic. Society, India*, 27, 191-194, 1999.

Ganguli, N. R., Datta, A. K. and Mukherjee, B. : Acoustic Phonetic Features of Glides and Dipthongs in Bengali, *Journal of Acoustic. Society, India*, 27, 199-202, 1999.

Ghosh, P,. Chanda, B. and Mali, P. C. : Fast Algorithms for Sequential Machine to Compute Pattern Spectrum in Square Grid via City-Block Distance Transform, *International. Journal of Information Sciences* , 124, 93-217, 2000.

Mudi, R. and Pal, N. R. : A Robust Self-Tuning Scheme for PI and PD Type Fuzzy Controllers, *IEEE Trans. Fuzzy Systems* , 7, 1-16, 1999.

Mukhopadhyay, S. and Chanda, B. : A Multiscale Morphological Approach to Local Contrast Hancement, *Signal Processing* , 80, 685-696, 1999.

Pal, S. : An Empirical Model for the Performance Analysis of Thinning Algorithms on Parallel Computers *Advances in Modeling andAanalysis*, 3, 33-54, 1999.

Pal, N. R. and Chakraborty, D. : Mountain and Subtractive Clustering Methods : Improvements and Generalizations , *International. Journal of Intelligence Systems*, 15, 329 - 341, 2000.

Pal, N. R. : Soft Computing for Pattern Recognition, *Fuzzy Sets and Systems*, 103, 197-200, 1999.

Pal, N. R. : Soft Computing for Feature Analysis, *Fuzzy Sets and Systems*, 103, 201-221, 1999.

Pal, N. R. : On Quantification of Different Facets of Uncertainty, *Fuzzy Sets and Systems*, 107, 81-91, 1999.

Pal, N. R. and Pal, T. : On Rule Pruning Using Fuzzy Neural Networks, *Fuzzy Sets and Systems*, 106, 335-347, 1999.

Pal, N. R. and Pal, K. : Handling of Inconsistent Rules with an Extended Model of Fuzzy Controller, *Journal of Intell. and Fuzzy Systems*, 7, 55-73, 1999.

Pal, N. R., Mandal, G. and Vijay, Kumar E. : A Note on the Fuzzy Neural Network of Kwan and Cai, *IEEE Trans. Fuzzy Systems*, 7, 479-480, 1999.

Pal, N. R. and Bose, C. : Context Sensitive Inferencing and Reinforcement Type Learning Algorithms for Fuzzy Logic Controllers, *Journal of Knowledge Based Intelligent Engineering. Systems*, 3, 230-239, 1999.

Pal, K, and Pal, N. R. : A Neuro-Fuzzy System for Inferencing, *International Journal of Intell. Systems*, 14, 1155-1182, 1999.

Pal, P., Das, J., Mukherjee, A. and Acharya, S. : Continuous Detection of Atmospheric Patterns from SODAR Signals, *Signal Processing*, 74, 153-168, 1999.

Roy, P. K. and Dutta Majumder, D. : States of Consciousness in Sleep, Dream and Beyond : A Biothermodynamic and Neurocybernetic Evolutionary Study, *Journal of Intelligent Systems*, 16, 57-108, 2000.

Roy, P. K., Biswas, J. and Dutta Majumder, D. : Paradox of Spantaneous Cancer Regression : Implications for Fluctuational Radotherapy and Radiothermy, *Indian Journal of Physics*, 73-B, 777-793, 1999.

Ray, N., Das J., and Mukherjee, D. P. : Identification of Tracer Cloud – A Shape Based Approach, *Current Science*, 76, 1999.

### Machine Intelligence Unit

Bandyopadhyay, S. and Pal, S. K. : Relation Between *VGA*-classifier and MLP : Determination of Network Architecture, *Fundamenta Informaticae*, 37, 177-196, 1999.

Basak, J. and Amari, S. : Blind Separation of a Mixture of Uniformly Distributed Signals : A Novel Approach, *Neural Computation*, 11, 1011-1034, 1999.

Basak, J. and Mitra, S. : Feature Selection Using Radial Basis Function Network, *Neural Computing and Applications*, 8, 297-302, 1999.

Basak, J. and Pal, S. K. : Connectionist Object Recognition—Methods and Methodologics, *International Journal on System Science*, 30, 823-848, 1999.

Basak, J. and Amari, S. : Blind Separation of Uniformly Distributed Signals : A General Approach, *IEEE Trans. on Neural Networks*, 1999.

Biswas, S. and *Pal, N. R.*: On Hierarchical Segmentation for Image Compression, *Patter Recognition Letters*, 21, 131-144, 2000.

De, R. K., Basak, J. and Pal, S. K. : Neuro-fuzzy Feature Evaluation with Theoretical Analysis, *Neural Networks*, 12, 1429-1455, 1999.

Ghosh, A., Tsutsui, S., Tanaka, H. and Corne, D. : Genetic Algorithms with Substitution and Re entry of Individuals, *International Journal of Knowledge Based Intelligent Engineering Systems*, 4, 64-71, 2000.

Maulik, U., Bandyopadhyay, S. and Bhattacharyya, S. : Fault Tolerant Permutation Mapping in Multistage Interconnection Network, *Journal of System Architecture*, 46,297-300, 2000.

Maulik, U. and Bandyopadhyay, S. : An Efficient Evolutionary Search Directed by Parallel Genetic Algorithms, *Indian Journal of Engineers*, 28, 15-25, 2000.

## Physics and Earth Sciences Division

### Geological Studies Unit

Bandyopadhyay, S. and Sengupta, D. P. : Middle Triassic Vertebrate Faunas from India, *Journal of African Earth Science*, 29, 233-241, 1999.

Chaudhuri, A.K., Mukhopadhyay, J., Patranabis Deb, S., and Chanda, S.K. : The Neoproterozoic Succession of Peninsular India, *Gondwana Research*, 2, 213-225, 1999.

Das, S. S., Bardhan, S., and Lahiri, T. C. : The Late Bathonian Gastro Pod Fauna of Kutch, Western India: a New Assemblage, *Palaeontological Research,* 3, 4, 268 – 286, 1999.

Datta, B., Sarkar, S., and Chaudhuri, A. K. : Swaley Cross-Stratification in Medium to Coarse Sandstone by Oscillatory and Combined Flows : Examples from the Proterozoic Kansapathar Formation, Chhattisgarh Basin, M.P., India, *Sedimentary Geology,* 129, 51-70, 1999.

Deb, G. K. : Evolution of the Dhanjori Volcano-Sedimentary Rocks in the North Singhbhum Fold Belt ; a Reappraisal, *Indian Minerals,* 53 , 25-36, 1999.

Joy, S. and Saha, D. : Dynamically Recrystallised Quartz C-axis Fabric in Greenschist Facies Quartzites, Singhbhum Shear Zone and its Footwall, Eastern India - Influence of High Fluid Activity, *Journal of Structural Geology,* 22, 777-793, 2000.

Mandal, N., Chakraborty, C. and Samanta, S. K. : Boudinage in Multilayerd Rocks under Layer Normal C Compression: Theory and Experiments, *Journal of Structural Geology,* 22, 373-382, 2000.

Mandal, N., Chakraborty, C. and Samanta, S. K. : An Anlysis of Anisotropy of Rocks Containing Shape Fabrics of Rigid Inclusions, *Journal of Structural Geology,* 22, 811-829, 2000.

Mandal, N., Samanta, S. K. and Chakraborty, C. : Progressive Development of Mantle Structures Around Elongate Porphyroclasts : Insights from Numerical Models., *Journal of Structural Geology,* 22, 993-1008, 2000.

Misra, S., Moitra, S., Bhattacharya, S., and Sivaraman, T. V. : Archaean Granitoids at the Contact Eastern Ghats Granulite Belt and Singhbhum-Orissa Craton, in Bhuban-Rengali Sector, Orissa, India,*Gondwana Research,* 3, 205-213, 2000.

Misra, S., Deomurari, M. P., Wiedenbeck, M., Goswami, J. N., Ray, S., and Saha, A. K. : 207Pb/206Pb Zircon Ages and the Evolution of the Singhbhum Craton, Eastern India: an Ion Microprobe Study, *Precambrian Research,* 93, 139-151, 1999.

Mukhopadhyay, J., Chaudhuri, A.K., and Chanda, S.K. : Fabric Development in Proterozoic Bedded Chert, Penganga Group, Adilabad, India: Sedimentologic Implications, *Journal Sedimentary Research,* 69, 738-746, 1999.

Ray, S. : Permian Reptilian Fauna from the Kundaram Formation, Pranhita-Godavari Valley, India, *Journal of African Earth Science,* 29, 211-218, 1999.

*Physics and Applied Mathematics Unit*

Basu, B., Pal, D.and Bandyopadhyay, P. : Topological Aspects of High-$T_c$ Superconductivity, Fractional Quantum Hall Effect and Berry Phase, *International Journal of Modern PhysicsB,*13, 3393,1999.

Bhattacharyya, S., De Chakraborty,S.,and Roy,D. : Intermittency Index in High Energy Collisions and the Role of some Multiple Production Models, *Hadronic Journal,* 22, 51-62,1999.

hattacharyya, S.,and Das Ghosh,A.C. : Some Aspects of Experimental High Energy Nuclear Collisions : An Overview and Interpretations, *Indian Journal of Physics,* 73 B, 331-335, 1999.

.indapat, B.S. and Layek,G.C. : Spin Coating in Presence of Transverse Magnetic Field and Non-uniform Rotation : a Numerical Study, *Journal of Physics D, Applied Physics,* 32, 2483-2491,1999.

indapat, B.S., Andersson,H.I.and Aarsetts, J. B. : Heat Transfer in a Liquid Film on an Unsteady Stretching Surface, *International Journal of Heat and Mass Transfer,* 43, 69-74, 2000.

Das, P. K. : Phase Distribution of Kerr Vectors in a Deformed Hilbert Space, *International Journal of Theoretical Physics*,38,1999.

Das, P. K. : Erratum:Eigenvectors of Backwardship on a Deformed Hilbert Space, *International Journal of Theoretical Physics*, 38,1999.

Das, P. K. : Even and Odd Coherent Vectors in a Deformed Hilbert Space, *International Journal of Theoretical Physics*,38, 10, 1999.

Das, P. K. : Shifts on a Deformed Hilbert Space, International Journal of Theoretical Physics, 39,2000.

Ghosh, S. : Bosonization Exercise in Three-Dimensions : Gauged Massive Thirring Model, Physics Review, D 59, 045014, 1999.

Ghosh, S. : Self-Interaction Effects on Screening in Three-Dimensional QED, Journal of Physics, A33, 1915, 2000.

Ghosh, S. : Three-Dimensional Field Theory with Topological and Non-Topological Mass : Hamiltonian and Lagrangian Analysis, Journal of Physics, A33, L 1031, 2000.

Kumar,K., Falcon,Eric, Bajaj,K.M.S. and Bhattacharjee,J.K.: Heap Corrugation in Hexagon formation of Powder under Vertical Vibrations, Physics Review, E 59, 5716-5720, 1999.

Kumar,K., Falcon, Eric Bajaj, K.M.S. and Fauve,S. : Shape of Convective Cell in Faraday Experiment with Fine Granular Matrerials, Physica, A270,97-104, 1999.

Kar, G., Bandyopadhyay,S.and Roy, A. : Disentanglement of Pure Bipartite Quantum States by Local Cloning, Physics Letters A, 258, 205-209, 1999.

Kar, G.,and Bandyopahdyay,S. : Broadcasting of Entanglement and Universal Cloners, Physics Review, A60}, 3269, 1999.

Kar, G., Ghosh, S.and Roy, A. : Optimal Cloning and No-signaling, Physics Letters, A,261,17-19,1999.

Kar, G., Ghosh, S., Bandyopadhyay, S., Roy, A.and Sarkar, D. : Optimal Universal Disentangling Machine for Two Qubit Quantum States, Physics Review, A61, 052301-1-052301-7, 2000.

Majumdar,C.K.: Walter Khon : Nobel Prize in Chemistry in 1998 Current Science, 76, 1451-53,1999

Majumdar,C.K.: Magnetic Properties of Solids : Krishnan's Contribution in Current Science, 76, 12, 1595-97, 1999.

Mandal, B.N. and Chakrabarti, A. : On Galerkin's Method Applicable to the Problems of Water Wave Scattering by Barriers, *Proceedings of the Indian National Science Academy (PINSA)*,A 65, 61-71,1999.

Mandal, B.N., Kanoria, M. and Dolai,D.P. : Water Wave Scattering by Thick Vertical Barriers, *Journal of Engineering Mathematics*, 35, 361-384,1999.

Mandal, B.N. and Kanoria, M. : Water Wave Scattering Submerged Thick Wall with a Gap, *Applied Ocean Research*, 69-80, 1999.

Mazumdar, B.S.and Bandyopadhyay, S. : Unsteady Convective Diffusion in a Pulsatile Flow Through Channel, *Acta Mechanica*, 134, 1-16,1999.

Mazumdar,B.S.and Bandyopadhyay, S. : On Continment Dispersion in Unsteady Generalized Couette Flow,International Journal of Engng Science,37, 1407-1423, 1999.

Roy, B. and Roy, P. : New Nonlinear Coherent States and Some of Their Properties, *Journal of Opt. B : Quantum and Semiclassical Optics*, 2, 65, 2000.

Roy, B. and Roy, P. : Time Dependent Nonclassical Properties of Even and Odd Nonlinear Coherent States, Physics Letters, A 263, 49, 1999.

Roy, B. and Roy, P. : Phase Distribution of Even and Odd Nonlinear Coherent States, Physics Letters,A 257, 264, 1999.

Roy, P., and Levai,G. : Conditionally Exactly Solvable Potentials and Supersymmetric Transformations, Physics Letters, A 264, 48,1999.

Roy, P.and Tkachuk,V.M. : Supersymmetry of a Spin 1/2 Particle on the Real Line, Physics Letters, A 263, 245, 1999.

Roy, P. and Junker, G. : Nonlinear Coherent States Associated with Conditionally Exactly Solvable Problems, Physics Letters, A 257, 113,1999.

Roy, S.and Kafatos,M.and Dutta,S. : Shift of Spectral Lines Due to Dynamic Multiple Scattering and Screening Effect : Implications for Discordant Redshifts, *Astronomy and Astrophysics*, 353, 1134, 2000.

Roy, S., Lehnert,Bo.and Deb,A. : An Extended Electromagnetic Theory, *Aperion*, 7, 53, 2000.

Roy, S.and AIAS,Group : Derivation of the Lehnert Field Equation from Gauge Theory in the Vacuum : Space Charge and Current, Found.Phys.Lett, 13,179,2000.

Roy, S.and AIAS,Group : Non-Abelian SU(2) SU(2) Electroweak Theory in LEPI Data on Z-Particle Production, Found. Phys. Lett., 13,193,2000.

Roy, S.and AIAS,Group : Interferometry in Higher Symmetry Forms of Electrodynamics and Physical Optics, *Physica Scripta*, 61, 79, 2000.

Roy, S.and AIAS,Group : On the Nature of the B(3) Field, *Physica Scripta*, 61, 287, 2000.

Roy, S.and AIAS,Group : Ultra High Frequency Fermion Resonance Induced by Circularly Polarized Radiation : The Resonance Inverse Farady Effect, *Frontier Perspectives*,8, 15, 2000.

Roy, S.and AIAS,Group : Equation of the Young Mills Theory of Classical Electrodynamics, *Optik*, 111, 53, 2000.

Roy, S.and AIAS,Group : Inconsistencies of the U(1) Theory of Energy Momentum Tensor, *Found. Phys. Lett.*, 12, 187, 1999.

Roy, S.and AIAS,Group : Self Inconsistencies of the U(1) Theory and Michelson Interferometry, *Found. Phys. Lett.*,12,589,1999.

Roy, S.and G. Kar : Quantum Cryptography, Eves Dropping and Unsharp Spin Measurement, Chaos, Solitons and Fractals,10, 1715, 1999.

Roy, S.and AIAS,Group : Link Between the Non-Abelian Stokes Theorem and the B-Cyclic Theorem, *Apeiron*, 6, 3-4, 1999.

Roy,S., Kafatos,S.and Dutta,S. : Broadening of Spectral Lines Due to Dynamic Multiple Scattering and the Trully-Fisher Relation. *Phys. Rev A.*,60, 273,1999.

Roychoudhury,R., Das, G.C. and Sarma, J. : Potential Analysis for Deriving the Multidimensional Sagdeev Potential Equations in Multicomponent Plasma. *Phys. Plasmas.* 6, 2721,1999.

Roychoudhury,R.,and Sinha, A. : WKB and MAF Quantization Rules for Spatially Confined Quantum Mechanical Systems. *Int. J. Quantum Chemistry.* 73,497,1999.

Roychoudhury, R.,and Bagchi,B : A New PT Symmetric Complex Hamiltonian with a Real Spectrum. *J Phys A. Math. Gen.*,33, L1,2000.

# Biological Sciences Division

## *Agricultural Science Unit*

Adhikary, S., Bagchi, D.K. and Sarkar, B. : Studies on the Extent of Drought Tolerance in Upland Super-Fast Rice, *Oryza*, 36,169-170, 1999.

Banik, P., Sarkar, B., Sasmal, T., Ghosal, P.K., Adhikary, S. and Bagchi, D.K. : Evaluation of Rice (Oryza Sativa) – Based Cropping Sequences under Rainfed Medium Land Situation of Bihar Plateau *Indian Journal of Agricultural Sciences*, 69, 307-310, 1999.

Chakraborty, K., Sarkar, B., Chakraborty, A., Banik, P.and Bagchi, D.K. : Organic Recycling for Soil Quality in a Sub-tropical Plateau Region, *Journal of Agriculture and Crop Science*, 184,137-142, 2000.

Das, S. and Ghose, M. : Major Inorganic Elements in the Leaves of some Mangroves from Sundarbans(West Bengal) and Bhitarkanika (Orissa)- a Comparative Approach, *Acta Botanica Indica.* 27, 139-143. 1999.

Das, S. : An Adaptive Feature of some Mangroves of Sundarbans, West Bengal, *Journal of Plant Biology* 42,109 – 116, 1999.

Ghose, M. and Das, S. : Structural Characteristics of Vessel Elements in Stems of some Mangroves of Sundarbans with Special Reference to Habitat, *Sundarbans Mangals.*1, 298-307, 1999.

## *Anthropology and Human Genetics Unit*

Bhattacharyya,N.P., Basu,P., Das,M., Paramanik,S., Banerjee,R., Roy,B., Roychoudhury,S.and Majumder, Partha P. : Negligible Male Gene Flow Across Ethnic Boundaries in India, Revealed by Y-Chromosomal DNA Polymorphisms, *Genome Research, 9,* 711-719, 1999.

Forsius,H., Errikson,A.W., Fellman,J., Kajanoja.P., Mark,K., Gupta,R and Mukhopadhyay, B. : Is Myopia Related to Stature and other Measurements? A Study of 10 Populations in Asia, Europe and North America, *Perspectives in Human Biology,* 4, 1-11, 1999.

Ghosh, S.and Majumder, Partha P. : A Two-Stage Variable Stringency Semiparametric method for Mapp Quantitative Trait Loci with the use of Genomewide-Scan Data on Sib Pairs, *American Journal of Human Genetics,* 66, 1046-1061, 2000.

Ghosh Dastider, M.and Gupta, R. : A Methodological Approach As Applied to Small Scale Anthropological Study, *Journal of the Indian Anthropological Society,*33, 251-255, 1999.

Hemam, N.S.and Reddy, B.M. : Opportunity for Natural Selection Among the Transitional Groups of Gangte Manipur, India, *Journal of Human Ecology,*10,161-166, 1999.

Mandal, B. : Incidence of Low Birth Weight Among the Nepali Babies of West Kameng District of Arunachal Pradesh, *The Anthropologist,* 2, 43-47, 2000.

Mukherjee, N., Majumder, Partha P.,Roy, B., Roy, M., Dey, B.,Chakraborty, M.and Banerjee, S. : Variation at 4 Short Tandem Repeat Loci in 8 Population Groups of India, *Human Biology,* 71, 439-446, 1999.

Majumder, Partha P., Roy, B., Banerjee, S., Chakraborty,M., Dey,B., Mukherjee, N., Roy,M., Guha-Thakurta,P., Sil,S.K. : Human-Specific Insertion/Deletion Polymorphisms in Indian Populations and Their Possible Evolutionary Implications, *European Journal of Human Genetics,* 7, 435-446, 1999.

Reddy, B.M. : Fluctuating Asymmetry and Canalization : An Appraisal Based on a-b Ridge Counts Among a Large Number of Indian Populations with Diverse Backgrounds, *American Journal of Human Biology,* 11, 367-381, 1999.

Reddy, B.M.and Chopra,V.P. : Biological Affinities Between the Parental and Migrant Populations of Fishermen of the East Coast of India, *Human Biology,* 71,803-822, 1999.

Reddy, B.M., Chopra,V.P.,Karmakar, B., Malhotra, K.C.and Mueller,H.: Population Structure and the Patterns of Dermatoglyphic Variation in Northwest India, *American Journal of Human Biology,* 12, 315-326, 1999.

Roy, S.K. : A Note on Age Changes in Anthropometric Characters Among the Tea Garden Labourers of Northern West Bengal : Age Differences, *Journal of the Indian Anthropological Society,* 34, 191-195, 1999.

Tapadar, P., Ghosh, S. and Majumder, Partha P. : Haplotyping in Pedigrees Via a Genetic Algorithm, *Human Heredity,* 50, 43-56, 2000.

### Biochemistry Unit

Sengupta, S., Roy, M., Bhattacharyya, N. P. : Effect of Post AK-2123 Treatment in Aerobic Condition on Radiation Induced Cell killing in V79 Cells and a Radioresistant Cell Strain M5 Derived from V79 Cells, *International Association for the Sensitisation of Cancer Treatment: Scientific Report,* 2000.

### Biometry Research Unit

Chattopadhyay, R.R. : Possible Mechanism of Antihyperglycemic Effect of Azadirachta Indica Leaf Extract, Part VI, *Pakistan Journal of Scientific and Industrial Research,* 43, 46-49, 2000.

Chattopadhyay, R.R. : A Comparative Evaluation of some Blood Sugar Lowering Agents of Plant Origin, *Journal of Ethnopharmacology, Elsevier ,* 67, 367-372, 1999.

Chattopadhyay, R.R. : Possible Mechanism of Antihyperglycemic Effect of Azadirachta Indica Leaf Extract, Part V, *Journal of Ethnopharmacology, Elsevier ,* 67, 373-376, 1999.

### Embryology Unit

Chattopadhyay, J. and Arino, O. : A Prey-Predator Model with Disease in the Prey, *Nonlinear Analysis,* 36, 747-766, 1999.

Chattopadhyay, J., Ghosal, G. and Chowdhuri, K. S. : Nonselective Havesting of a Prey-Predator Commnity with Infected Prey, *Korean Journal of Computational and Applied Mathematics,* 6, 601-616, 1999.

Ghosh, A. K. and Tapaswi, P. K. : Dynamics of Japanese Encephalitis - A Study in Mathematical Epidemiology, *IMA Journal Mathematics Applied in Medicine and Biology,* 16, 1- 27, 1999.

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Mandal, S. and Tapaswi, P. K. : Phytotoxicity of Aqueous Leachate from the Weed, Chrozophora Rottleri A. Juss on Rice, Wheat and Mustard, *Journal Weed Science Technology*, 44, 144-146, 1999.

Tapaswi, P. K. and Mukhopadhyay, A. : Effects' of Environmental Fluctuation on Plankton Allelopathy,*Journal of Mathematical Biology*, 39, 39-58, 1999.

### Plant Chemistry Unit

Das, S., Chanda, S., Das, R.N.and Bhaduri,S.K. : ParticleBoard from Leaf Fibre Residue of Sugar Beet, *Journal of Scientific and Industrial Research*, 59, 306-308, 2000.

Labbe, R.F., Dewanji, A. and McLaughlin, K. : Observations on the Zinc Protoporphyrin/Heme Ratio in Whole Blood, *Clinical Chemistry*, 45, 146-148, 1999.

## Social Sciences Division

### Economic Research Unit

Chattopadhyay, M. and Sengupta, Atanu : Farm Size and Productivity, *Economic and Political Weekly*,34, 8-14, 1999.

Chakravarty, S.R.and Mukherjee, D. : Measures of Deprivation and Their Meaning inTerms of Social Satisfaction, *Theory and Decision*, 47, 89-100, 1999.

Chakravarty, S.R.and Mukherjee, D. : Measuring Improvement in Well-being,*Keio Economic Studies*, 34, 65-78, 1999.

Ghosh, C. : Poverty, Human Capital and Growth, *Artha Beekshan*, 8, 72-82, 1999.

Gupta, M.R. : Foreign, Capital, Unemployment, Worker's Efficiency and Fair Wage, *Indian Economic Review*, 34, 73-87, 1999.

Kabiraj, T. : A Simple Theory of Joint Venture Break Down, *Keio Economic Studies*, 36, 87-98, 1999.

Kabiraj, T. and Chaudhuri, M. : On the Welfare Analysis of a Cross – Border Merger, *Journal of International Trade and Economic Development*, 8, 195-208, 1999.

Kabiraj, T., Roy, P. and Mukherjee, A. : Technology Transfer, Merger and Joint Venture: A Comparative Welfare Analysis, *Journal of Economic Integration*, 14, 442-466, 1999.

Kabiraj, T., Marjit,S. and Mukherjee, A. : Bilateral Agreements in a Multi-Firm Industry : Technology Transfer, Horizontal Merger, *Pacific Economic Review*, 5, 77-87, 2000.

Kabiraj, T., S., Mukhopadhyay, S. and Mukherjee, A. : Technology Transfer in Duopoly : The Role of Cost Asymmetry, *International Review of Economics and Finance*, 8, 363-374, 1999.

Mazumdar, Krishna : Inter-Country Inequality in Social Indicators Of Development, *Social Indicators Research*, 49, 335-345, 2000.

Mazumdar, Krishna ` : Measuring Well - beings of the Developing Countries : 1960 -1990, *Social Indicators Research*, 47, 1-60, 1999.

Mukjerjee, D., Rajeev, Meenakshi, and Marjit, Sugata : Incomplete Information as a Deterrent to Crime, *European Journal of Political Economy*, 543, 2000.

Mukherjee, R., Das, P. and Bhattacharya, U.K. : Small-Scale Industries in West Bengal, 1971-97 : Data Analysis for Study of Growth, *Economic and Political Weekly*, 34, 1999.

Pal, Manoranjan and Sengupta, A. : A Model of FPF with Correlated Error Components : An Application to Indian Agriculture, *Sankhya B*, 61, 337-352, 1999.

## Economic Analysis Unit

Narayana, NSS. : Review Article : More Jobs Per Drop : Targetting Irrigation to Poor Women and Men By Barbara Van Koppen, Royal Tropical Institute KI, *Indian Journal of Agricultural Economics*, 54, 1999.

Rao, Surekha : Review of the Book : Econometrics and Data Analysis for Developing Countries by Chandan Mukherjee, Howard White and Marc Wuyts, *Journal of International Trade and Economic Development*, 9-2, 219-222, 2000.

Rao, Surekha : Modelling the Size Distribution of Incomes : A Fresh Look from the Bayesian Perspective: The Case Of Italy, *Indian Journal of Applied Econometrics*, 8, 75-90, 1999.

## Linguistic Research Unit

Bandyopadhyay, Debaprasad : Welfare Economics: A Post-mordern Response, *Frontier*, 32, 3-9, 1999.

Bandyopadhyay, Debaprasad : Triglossia in Bangla, *South Asian Language Review*, 9, 1-2, 1999.

Bandyopadhyay, Debaprasad : Folksong-Classical Songs: The Discursive Formation of Dividing Practice, *Pondicherry Institute of Language and Culture journal of Dravidian Studies*, 10, 53 - 59, 2000.

Bandyopadhyay, Debaprasad : The Making of The Indian Philosophy of Science, *Margins*, 57-73, 2000.

Bandyopadhyay, Debaprasad : adhunik bhaSatOtto SOMronika ba bhaSatOtter mrittu kibhabe Holo, *JigMaSa*, 20, 100-110, 1999.

Bandyopadhyay, Debaprasad : pranto theke bOla, *OytiHaSik*, 8:1-2, 31-62, 1999.

Bandyopadhyay, Debaprasad : melaben tini melaben: Quantum o SOmajbigEMn? : *alocOnacOkro*, Collection-14, 175-190, 2000.

Bandyopadhyay, Debaprasad : biSSOtoker SOmajbigEMn: ekti khOSRa protibedOn mattro, *AlocOnacOkro*, Collection-14, 47-62, 2000.

Bandyopadhyay, Debaprasad : Discourse *dhrubapOd*, Yearbook 4, 108-109, 2000.

Bandyopadhyay, Debaprasad : Difference, *dhrubapO*, Yearbook 4, 127-8, 2000.

Bandyopadhyay, Debaprasad : Competence-Perfomance, *dhrubapO*, Yearbook 4, 69-70, 2000.

Bandyopadhyay, Debaprasad : Why Do I Forsake Historical Linguistics?, *International Journal of Dravidian Linguistics*, 28, 1-10, 1999.

## Planning Unit

Chatterjee, Shurojit and Chattopadhyay, Subir : Global Stability in Spite of Local Instability with Learning, *Journal of Mathematical Economics*, 33, 155-165, 2000.

Dasgupta, Dipankar : Growth vs Welfare in a Model of Nonrival Infrastructure, *Journal of Development Economics*, 58, 359-386, 1999.

Dasgupta, Dipankar : Voluntary Contribution to Public Goods : A Note on Consistent Conjectures and Other Equilibria, *Economic Journal of Hokkaido University*, 28, 1999.

Dutta, Bhaskar and Laslier,J.F. : Comparison Functions and Choice Correspondences, *Social Choice and Welfare*, 16, 513-531, 1999.

Gangopadhyay, Shubhashis and Singh,Gurbachan : Avoiding Bank Runs in Transition Economies, *Journal of Banking and Finance*, 24, 2000.

Ramaswami, Bharat and Balakrishnan,P. : Vision and Illusion in Fiscal Correction, *Economic and Political Weekly*, 1137-1139, 2000.

Sarma, Atul: Tax Reforms and Structural Adjustment in the Indian Federation, *Indian Social Science Review*, 2.

Sen, Arunava and Breton,Michel Le : Separable Preferences, Strategyproofness and Decomposability, *Econometrica*, 67, 605-628, 1999.

### Population Studies Unit

Mukhopadhyay, Barun Kumar, Majumder, Prasanta Kumar and Ghosh, N.C. : Digit Preference Error in Age Data : An Implicit Model Approach, *Journal of Bihar Mathematical Society*, 19, 51-59, 1999.

### Psychology Research Unit

Banerjee, S.N. : Problems of Primary Education in West Bengal, *Swarnakshar*, 8, 9-40, 1999.

Dutta Roy, D. and Deb, N.C. : Item-Total Score Correlations of State Anxiety Inventory Across Different Months in Antarctic Expedition, *Psychological Studies*, 44, 1 & 2, 43-45, 1999.

Dutta Roy, D : Item Response Theory in Organizational Psychology : A Review, *Journal of the Indian Academy of Applied Psychology*, 25, 1-2, 125-128, 1999.

Ghosh, A. : Measuring Managerial Skills Using a Forced-Choice Questionnaire, *Management and Labour Studies*, 24, 2, 89-95, 1999.

### Sociological Research Unit

Chatterjee, Arun Kumar : Personal Relations and the Question of Development : An Experience in a West Bengal Village, *Man and Development*, 21, 1999.

Chatterjee, Arun Kumar : The Youth in Dilemma : A study on the Personal Community of Middle-Class Youth in Calcutta, *Socialist Perspective*, 26, 153-162, 1999.

Dasgupta, Atis : Ethnic Problems and Movements for Autonomy in Darjeeling, *Social Scientist*, 27, 1999.

Ghosh, Bhola Nath : Paschimbange Panchayate Mahilader Jogdan : Sakshmatar Pathe, *Arthanithi Rajniti*, 1st Issue, 20-25, 1999.

Ghosh, Bhola Nath : Witch Hunting: Still a Social Problem, *Kurukshetra*, 40-42, 1999.

Ghosh, Bhola Nath : Panchayat : Grambaglar Rupantar O Mahiladher Anshagrayan, *Arthaniti Rajniti*, 29-32, 3rd-4th Issue, 1999.

Ghosh, Bhola Nath : Women Leadership in Gram Panchayat: Prospects and Constraints, *Socialist Perspective*, 27, 35- 45, 1999.

Ghosh, Bhola Nath : Witch-Hunting : A Supersition, *Man in India*, 79, 391-396, 1999.

Ghosh, Tejandra Nath : On the Impact of Marriage Legislaltion : An Experience from Calcutta, *Bulletin of the Cultural Research Institute*, Government of West Bengal, 20, 64-67, 1999.

Maiti, Asok : International Standards: Are they Many, if There is Any?, *Review of Commerce and Management*, Berhampur University, 11-19, 1999.

## Statistical Quality Control and Operations Research Division

Acharya, U.H. and Ray, Sanjit : ISO 9000 Survey of Indian Industries, *TQM*.

Chowdhury, K. K., Gijo, E.V. and Raghavan, R. : Quality Improvement Through Design of Experiments : A Case Study, *Journal of Quality Engineering* , 12, 2000.

Chowdhury, A.R. and Mitra, S. : Reduction of Defects in Wave Soldering Process, *Journal of Quality Engineering* , 12, 2000.

Chaudhuri, A.K. and Acharya, U.H. : Measuring Effectiveness and Suitability of a Quality System, *TQM*, 11, 2000.

Chowdhury, K. K., Gijo, E.V. and Hegde, Shankar : Role of the Organized Sector in Developing Small-scale Industries a Vendors : A Case Study of Experimental Approach, *TQM*, 11, 2000.

Das, A.K. and Gupta, A. : Improving Resistivity of UF Resin Through Setting of Process Parameters, *Quality Engineering*, 12, 2000.

Joseph, V. Roshan : Experimental Sequence : A Decision Strategy, *Journal of Quality Engineering*, 12, 2000.

Ravindran, G., Biswas, A.K. and Parthasarathy, T. : Stability and Largeness of Core for Symmetric Games, *International Journal of Game Theory*.

Ravindran, G., Gowda, M.S. and Song, Y. : On Some Properties of P-Matrix Sets, *Journal of Linear Algebra and its Applications*.

Seth, Arvinda and khanjari, Mod. :Number of Path Sets with Known Size in a Consecutive-k-out-of-n : F System, *Journal of Indian Association for Productivity, Quality and Reliability*, 1999.

Seth, Arvinda, Bhattacharya, Himadri, Nag, Ashok Kumar and Pattanaik, Sitikantha : Port-folio Selection for Management of Foreign Exchange Reserves, *Study 18*, Development Research Group, RBI, 1999.

Seth, Arvinda, Parthasarathy, T. and Neogy, S.K. : On linear Complementarity and a Discounted Polystochastic Game, Stochastic and Differential Games Theory and Numerical Methods, *Annals of the International Society of Dynamic Games*, 1999.

Seth, Arvinda, neogy, S.K., Parthasarthy, T. and Sinha, S. : Vertical Linear Complementarity and a Zero-sum Stochastic Game with ARAT Structure, *Mathematical Programming*, 1999.

## Library, Documentation and Information Sciences Division

*Documentation Research and Training Centre (Bangalore)*

Ravichandra Rao, I.K. and Sainul Abideen,P. : Features of Library Automation Software: A       Comparative Study, *Paper Library Science with a Slant to Documents and Information Studies*,36, 2111-2, 1999.

Ravichandra Rao I.K and Suma,P. : A Quantitative Study of Indian Engineering Literature, *Journal of Scientometrics*, 40, 605-619, 1999.

Ravichandra, I.K. and Sangeetha, M. A. : Evaluation of Knowledge Management, *SRELS Journal of Inference Mangament*, B, 37, 2000.

Basak, Nanda Dulal : Natun Sahasrabde-R Granthagar-O-Granthagarikata : Kayek Ti Bhabna Chinta, *RBU Journal of Library and Information Science,* V4, 9 – 13, 2000.

## Computer and Statistical Services Centre

Maitra, S. and Sarkar, P. : Hamming Weight of Correlation Immune Boolean Function, *Information Processing Letters,* 71, 149-153, 1999.

Maitra, S., Roy, B.K. and Sarkar, P. : Ciphertext only Attack on LFSR Based Encryption Scheme,*Calcutta Statistical Bulletin,* 49, 239-254, 1999.

# PAPERS PUBLISHED IN CONFERENCE PROCEEDINGS

## Theoretical Statistics and Mathematics Division

*Stat-Math Unit, Delhi*

Roy, Rahul : Percolation on Trees, *Percolation Theory and Interacting Particle Systems,* Indian Academy Of Sciences and Universities Press, Hyderabad, 25-42.

## Applied Statistics Division

*Applied Statistics Unit*

Chaudhuri, A. and Adhikary, Arun : Variance Estimation in a Specific Three Stage Survey Sampling Strategy, Proceeding of the Third Triennial International Calcutta Symposium on Probability and Statistics, P.K. Sen, and A.K. Basu (eds.), Oxford University Press, Calcutta.

Mukhopadhyay, P. : Small Area Estimation of Population for the District of Hugli, West Bengal, India, *Proceedings of IASS Satellite Conference on Small Areas* Estimation, *Riga, Latvia,* 263-268, August,1999.

## Computer and Communication Sciences Division

*Advanced Computing and Microelectronics Unit*

Bhattacharya,B.B., Dmitriev,A.and Gossel,M.: Zero-Aliasing Space Compression Using a Single Period output and Its Application to Testing of Embedded Cores, *Proceedings of 13th International Conference on VLSI Design,IEEE CS Press,* USA, 382-387, 2000.

Bera, A. and Das, N. : Performance Analysis of Dynamic Location Updation Strategies for Mobile Users, *Proceedings of International Conference on Distributed Computing Systems,* IEEE CS Press, Taiwan, 2000.

Bhunia,S.,Majumder,A.,Sircar,S., Sur-Kolay, S. and Bhattacharya, B.B. : Topological Routing Amidst Polygonal Obstacles, *Proceedings of International Conference on VLSI Design,* 274-279, 2000.

Das,S.K., Sinha, B.P.and Chaudhuri,R. : A Combinatorial Approach to Performance Analysis of a Multiprocessor System, *Proceedings of International Conference on Computing and Combinatorics,*Tokyo, Japan, 462-472, 1999.

Dey,S., Bhattacharya, B.B., Kundu, M.K. and Acharya,T. : A Fast Algorithm for Computing the Euler Number of an Image and Its VLSI Implementation, *Proceedings of 13th International Conference on VLSI Design ,* IEEE CS Press, USA, 330-335, 2000.

Dey, S., Bhattacharya, B.B., Kundu, M.K. and Acharya, T. : Computing Orientation of an Image by Projection Method and its VLSI Implementation, *Proceedings of International Conference on Advances in Pattern Recognition and Digital Techniques*, Narosa, 331-335, 1999.

Jana, P.K. And Dattagupta, J. : Mapping Algorithms on Augmented Tree AT, *Proceedings of International Conference on Advanced Computing and Communications*, Roorkee, December, 1999.

Rahaman, H., Das, D.K. and Bhattacharya, B.B. : An Adaptive BIST to Detect Multiple Stuck-open Faults in CMOS Circuits, *Proceedings of 4th Asia-South-Pacific Design Automation Conference*, IEEE CS Press, USA, 287-290, 1999.

Sen, A, Roxborough, T. and Sinha, B.P. : On an Optimal Algorithm for Channel Assign- ment in Cellular Networks, *Proceedings of IEEE International Conference on Communications*, Vancouver, Canada, 1147-1151, 1999.

Sen, A, Shah, T., Bandyopadhyay, S. and Sinha, B.P. : On New Architectures for WDM Networks, *Proceedings of Thirty-Seventh Annual Allerton Conference on Commu- nications, Control and Computing*, USA, 402-413, 1999.

*Computer Vision and Pattern Recognition Unit*

Bishnu, A. and Chaudhuri, B.B. : Segmentation of Bangla Hand-written Text into Characters by Recursive Con- tour Following, *International Conference on Document Analysis and Recognition*, India, 402-405, 1999.

Garain, U. and Chaudhuri, B.B. : Extraction of Type Style Based Meta-Information, *International Conference on Document Analysis and Recognition*, Bangalore, India, 341-344, 1999.

Pal, U. and Chaudhuri, B.B. : Script Line Separation from Indian Multi-Script Document, *Proceedings of International Conference on Document Analysis and Recognition*, Bangalore, 406-409, 1999.

Pal, U. and Chaudhuri, B.B. : Automatic Separation of Machine-Printed and Hand-Written Text Lines, *Pro- ceedings of International Conference on Document Analysis and Recognition*, Bangalore, 645-648, 1999.

*Electronics and Communication Science Unit*

Chakraborty, S. and Pal, N. R. , Generation of Fuzzy Rules from a Decisiontree, *Asian Fuzzy Systems Symposium*, 2000.

Datta, A. and Pal, N. R., : A Neural Network Model for 2D Convex-Hull, *ICONIP,1999*.

Dutta Majumder, D. and Roy, P. K. : Cybernetics Thermodynamics and Evolution of Human Conscious- ness, *13th International Cong. Cyb. Syst.*, R Valee and J Rose (eds), WOSC, Paris, France, 10-16, 1999.

Dutta Majumder, D. and Bhattacharya, M. : Cybernetic Approach to Medical Technology for Diagnostics and Therapy Planning,13th International Cong. Cyb. System, R Valee and J Rose (eds.), WOSC, Paris, France, 103-110, 1999.

Mukhopadhyay, S. and Chanda, B. : A Simple Approach for Vectorization of Engineering Drawings, *Proceedings of GREC'99*, Jaipur, India, 24--31, 1999.

Pal, T., Pal, N. R. and Devroy, S. : A Self-Organized Rule Generation Scheme for Fuzzy Controllers, *IEEE International Conference on Fuzzy Systems, FUZZIEEE'2000*, San Antonio,13-18, 2000.

Pal, N. R. and Chakraborty, S. : An Improved Version of RID3 for Classification, *Asian Fuzzy Systems Symposium*, 2000.

*Machine Intelligence Unit*

Choudhury, S., Mitra, S. and Pal, S. K. : Modes of Radiowave Propagation : Neural Learning, *Proceedings of SAMMIT*, Calcutta; 1999.

Dey,S., Bhattacharya, B. B., Kundu, M. K. and Acharya,T. : A Fast Algorithm for Computing Euler Number of an Image and its VLSI Implementation, *Proceedings of 13th International Conference on VLSI Design* , Calcutta, 330-335, 2000.

Dey,S., Bhattacharya, B. B., Kundu, M. K. and Acharya,T. : Orientation Computation by Projection Method and its VLSI Implementation, *Proceedings of 4th International Conference on Advances of Pattern Recognition and Digital Techniques*, Calcutta, 331-335, 1999.

Mitra, P., Mitra, S. and Pal, S. K. : Modular Rough Fuzzy MLP: Evolutionary Design, *Proceedings of 7th International Workshop, RSFDGrC'99*, Yamaguchi, Japan, 128-136, 1999.

Mitra, S. K., Murthy, C. A. and Kundu, M. K. : Image Edge Extraction Using Iterative Function Systems, *Proceedings of 4th International Conference on Advances in Pattern Recognition and Digital Techniques*, Calcutta, 165-169, 1999.

## Physics and Earth Sciences Division

### Geological Studies Unit

Chakraborty, T. : Reconstruction of Fluvial Bars from Proterozoic Mancheral Quartzite, Pranhita-Godavari Valley, India. In: Fluvial Sedimentology VI, N. D.Smith and J. Rogers (eds.), *International Association of Sedimentologist Spec. Publ*, 28, 451-466, 1999.

Paul, B.K., Chakrabarty, A. and Moulik, S. P. : Physicochemical Studies of Microemulsion Systems Using Single and Mixed Surfactants, *Proceedings of 9th National Conference on Surfactants, Emulsions & Biocolloids*, Kalyani University, 1999.

Paul, B. K., Chakrabarty , A. and Moulik, S.P. : Formation of Aqueous and Nonaqueous Microemulsion Systems Using Single and Mixed Surfactants, *Proceedings of International Conference On Chemistry and 36th Annual Convention Of Chemists*, Calcutta, 1999.

### Physics and Applied Mathematics Unit

Kumar, K., Falcon,Eric, Bajaj,K.M.S.and Fauve,S. : Shape of Convective Cell in Faraday Experiment with Fine Granular Materials, International Conference on Statistical Physics, S.S. Manna and B.K.Chakraborty(eds.) elsevior, North - Holland, 97-104, 1999.

Majumder,C.K. : Magnetic Properties of Solids : Krishna's Contribution in Condensed Matter Physics, B.K. Agarwal and H. Prakash (eds.), Narosa Publishing House, New Delhi, *Allahabad University Physics Department Platinum Jubilee and K.S. Krishnan Birth Centenary Meeting*, 269-273, 1999.

Mandal, B.N. and Kanoria, M. : Second-Order Diffraction by Thin Vertical Barriers in Finite Depth Water, *Proceedings of 14th International Workshop on waterWaves and Floating Bodies*, Port Human, Michigan, USA, 64-67, 1999.

Mandal, B.N. : Water Wave Scattering by Barriers in Finite Depth Water, Lecture Notes on Mathematical Sciences 5, *Proceedings of the Seminar Recent Trends in Applicable Mathematics, 1996*. UGC-DSA Programe Phase II, Department of Mathematics, Jadavpur University, 1997.

## Biological Sciences Division

### Biochemistry Unit

Sengupta, S., Ray, M., Pandit, B., Bhattacharyya, N. P., Sengupta, D., Ghosh, S., Roy, S., Das R., Saha, S. and Duttagupta, C. :*19th Annual Conference of Indian Association for Cancer Research & Symposium on Biology of Cancer*, Thrissur, Kerala, 2000.

## Social Sciences Division

### Economic Research Unit

Mazumdar, Krishna : A Multi-Variate Analysis of Urban Quality of Life in One-Million-Puls Cities of India, Proceedings of the Second International Conference on Quality of Life in Cities; Singapore, 511-517, 2000.

Mazumdar, Krishna : Inter-Country Inequality in Social Indicators of Development, *12th World Congress of the International Economic Association*, Buenos Aires, Argentina, 1999.

### Linguistic Research Unit

Choudhry, Amitav : The State of Linguistic Minorities in the Indian Multilingual Context, *Proceedings of the Conference on Comparative Perspectives on Regional and Immigrant Minority Languages in Multicultural Europe*, European Cultural Foundation, Amsterdam, The Netherlands, 22-25, 2000.

### Psychology Research Unit

Banerjee, S.N. : Gender Inequality in the Education System in India, *87th Indian Science Congress*, Psychology and Educational Science Section, Indian Science Congress Association, Pune, 1999.

Banerjee, S.N. : Primary Education in India – Some Problems and Remedies, *2nd Indian Educational Science Congress*, Kalyani University, Kalyani, 2000.

Banerjee, S.N. : Impact of Total Literacy Campaign in North 24-Parganas District – A Survey, *7th West Bengal State Science and Technological Congress*, Jadavpur University, Calcutta, 2000.

Dutta Roy, D., Mallik, R. and Banerjee, I. : Factor Analysis of Computer Programming Tasks, *Proceedings of the 5th International & 36th Indian Academy of Applied Psychology Conference*, 14, 1999.

Dutta Roy, D., Kar, R. and Maitra,M. : A Study on Reading Motivation, *Proceedings of the Fifth International and Thirty sixth Indian Academy of Applied Psychology Conference*, 7, 1999.

Dutta Roy, D. and Mukhopadhyay, S. : Organizational Coping and Organizational Commitment Across Organizational Hierarchies in Heavy Engineering Organizations, *Proceedings of the Fifth International and Thirty sixth Indian Academy of Applied Psychology Conference*, 7, 1999.

Dutta Roy, D. and Maitra,M. : State Anxiety Profile Similarity of Scientists and Logistic Personnel in the Antarctica Expedition, *Proceedings of the Fifth International and Thirty sixth Indian Academy of Applied Psychology Conference*, 8, 1999.

Ghosh, A. : Influence of Gender and Community on Learning Achievement of Primary School Students, *Proceedings of the second Indian Educational Science Congress*, Kalyani University, Kalyani, 2000.

Gupta, Rumki : Relation between Socio-Economic Deprivation and Academic Achievement in Adolescents, *22nd Annual Colloquium of International School Psychology Association*, Switzerland, 1999.

Gupta, Rumki : Crisis in Scholastic Attainment Due to Socio-Economic Deprivation in Rural and Urban Boys with some Comparisons between these two Groups, *First Ever Global Conference on Children 2000 AD*, Science City, Calcutta, 1999.

### Sociological Research Uint

Chakraborty, Aniruddha : Adoption of Agricultural Practices by some Birhor Families of Purulia: Some Observation, *Conference on Social Transformation in Rural Sector*, D. Dasgupta and Siddhartha D. Mukhopadhyay (eds.), Institute of Agriculture, Palli Sikha Bhawan, Visva-Bharati, Sriniketan.

Ghosh, Bhola Nath : Women's Participaltion in Gram Panchayat: State-wise Distribution of Elected Paychayat Members in India, *Conference on Social Transformation in Rural Sector*, D. Das Gupta and S.D.Mukhopadhyay (eds.), Institute of Agriculture, Palli Sikha Bhawan, Visva-Bharati, Sriniketan.

Maiti, Asok : Globalization vis-a-vis Regional Development:Challenges before the North Eastern States, *Seminar on North East India*, Council of Social Science Research, Shillong, 1999.

## Library, Documentation and Information Sciences Division

### Documentation Research and Training Centre (Bangalore)

Ravichandra Rao, I.K. and Suma,P. : A Quantitative Study of Indian Engineering Literature, *Proceedings Of 7th International Conference*, ISSI, Mexico, 1-12, 1999.

Ravichandra Rao, I.K. and Kundra,Ramesh : Behaviour of Bradford's Law towards Citation Data on Indian Medical Journal, *Proceedings of 7th International Conference*, ISSI, Mexico, 1-10, 1999.

Ravichandra Rao, I.K.: General Features of Library Automation Software, *Karnataka Library Association*,1999.

Ravichandra Rao, I.K.: Development of Networks for Digital Information Resource Sharing, *READIT-99*, 1999.

Ravichandra Rao, I.K. and Sainul Abideen, P. : Standards for Library and Information Work: Missing Links and Limitations, *NACOSTAN*, Institute of Standards Engineering, Bangalore, 1999.

Ravichandra Rao, I.K.: Sources of Information with Emphasis on Electronic Resources, *ISI/DRTC*, 2000.

## PAPERS PUBLISHED IN BOOKS

## Computer and Communication Sciences Division

### Advanced Computing and Microelectronics Unit

Das,S.K., Sinha, B.P. and Chaudhuri,R. : A Combinatorial Approach to Performance Analysis of a Multiprocessor System, *Lecture Notes in Computer Science*, T. Asano et al.(eds.) Springer-Verlag, Berlin, 462-472, 1999.

Jana,P.K.and Sinha, B.P. : Efficient Parallel Algorithms for finding Polynomial Zeroe, *Recent Trends in Advanced Computing*, P.K. Sinha and C.R. Das (eds.), Tata McGraw-Hill, New Delhi, 462-472, 1999.

### Computer Vision and Pattern Recognition Unit

Bhattacharya, U., Datta, A., Parui, S.K. and Chaudhuri, B.B. : Vector Quantization of Volumetric Images of 3-D Objects Using a Topology Adaptive Self-Organizing Neural Network, *Advances in Pattern Recognition and Digital Techniques*, Narosa Publishers, New Delhi, 337-381, 2000.

Garain, U. and Chaudhuri, B.B. : An Approach for Processing Mathematical Expressions in Printed Document, Lecture Notes in Computer Science, *Document Analysis Systems: Theory and Practice*. Seong-Whan Lee and Y. Nakano (eds.), Springer Verlag, 310-321, 1999.

Pal, U. and Chaudhuri, B.B. : Automatic Separtion of Roman, Devnagari and Telugu Script Lines, *Advances in Pattern Recognition and Digital Techniques*, Narosa Publishers, New Delhi, 447-451, 2000.

Palit, S. and Roy, B.K. : Cryptanalysis of LFSR-Encrypted Codes with Unknown Combining Function, *Advances in Cryptology (ASIACRYPT '99)*, Singapore, 1999.

### Electronics and Communication Sciences Unit

Bhattacharya, M. and Dutta Majumder, D. : Multiresolution Medical Image Registration Using Mutual

Information and Shape Matching, *Advances in Pattern Recognition & Digital Techniques*, N.R. Pal, A. K. Dey,and J. Das (eds.), Narosa Publishing House, New Delhi, 175-179, 2000.

Chatterjee, N., Pal, P., and Das, J. : Recognition of Sodar Patterns: A Rule Based Approach, *Advances in Pattern Recognition and Digital Techniques*, N. R. Pal, A. K. Dey,and J. Das (eds.), Narosa Publishing House, New Delhi, 69-72, 2000.

Chanda, A., Pal, P., Roy, N. and Das, J. : A 3-D Erosion Model for Image Processing with Special Reference of Cloud IR Image, *Advanced in pattern recognition and digital techniques*, N.R. Pal, A. K. Dey and J. Das (eds.), Narosha Publishing House, New Delhi, 83-86, 2000.

Das, A. K.and Chanda, B. : A New Model for Performance Analysis of Segmentation, *Advances in Pattern Recognition and Digital Techniques*, N. R. Pal, A. K. Dey and J. Das (eds.),Narosa Publishing House, New Delhi, 210-214, 2000.

Dutta, P.and Dutta Majumder, D. : Performance Characteristics of Evolutionary Algorithms, *Advances in Pattern Recognition & Digital Techniques*, N. R. Pal, A. K. Dey and J. Das (eds.), Narosa Publishing House, New Delhi, 495-498, 2000.

Dutta Majumder, D. : Multidimensional Learning Models for Pattern Recognition and Computer Vision in Humans and Machines, *Advances in Pattern Recognition and Digital Techniques*, N. R. Pal, A.K.Dey and J. Das (eds.), Narosa Publishing House, New Delhi, 388-391, 2000.

Mukherjee, A, Pal, P.and Das, J. : Identification of Elementary SODAR Patterns Using Perceptrons, *Advances in Pattern Recognition and Digital Techniques*, N. R. Pal, A. K. Dey,and J. Das (eds.), Narosa Publishing House, New Delhi, 83-86, 2000.

Mukhopadhyay, S. and Chanda, B. : Multiscale Morphological Noise Smoothing of Grayscale Images *Advances in Pattern Recognition and Digital Techniques*, N. R. Pal, A. K. Dey and J. Das (eds.), Narosa Publishing House, New Delhi, 160-164, 2000.

Pal, N. R. : Connectionist Approaches for Feature Analysis, *Neuro-Fuzzy Tools and Techniques*, N. Kasabov and R. Kozma (eds.), Physica-Verlag, Heidelberg, 147-167, 1999.

Pal, N.R. and Bezdek, J. C. : Quantifying Different Facets of Fuzzy Uncertainty, *Handbook of Fuzzy Set*, D. Dubois and H.Prade (eds.), Kluwer Academic Publishers, 459 - 480, 1999.

Roy, P. K., Kozma, R. and Dutta Majumder, D. : From Neurocomputing to Immuno Computing : Tumor Tability Analysis as New Anticancer Strategy, *Advances in Pattern Recognition and Digital Techniques*, N.R. Pal, A. K. Dey,and J. Das (eds.), Narosa Publishing House, New Delhi, 372-376, 2000.

## *Machine Intelligence Unit*

Kundu, M. K. and *Pal, N. R.*: Self Crossover and its application to the traveling salesman problem, *Multiple Approaches to Intelligent System*, Lecture notes in Artificial Intelligence series, Ibrahim Imam, Yves Kodratoff, Ayman El-Dessouki and Moonis Ali (eds.), vol. 1611, pp. 326-332, Springer-Verlag, Berlin, 1999.

Mitra, S. K., Murthy, C. A. and Kundu, M. K. : Image Compression and Edge Extraction Using Fractal Tech nique and Genetic Algorithms', *Computing in Image Processing*, S. K. Pal, A. Ghosh and M.K. Kundu, (eds.), 79-100, Physica-Verlag, Heidelberg, 2000.

Pal, S. K. : Fuzzy Image Processing and Recognition, *Encyclopedia of Electrical and Electronics Engineering*, J.G. Webster (ed.), 109-123, John Wiley and Sons, Inc., 1999.

Pal, S. K., Ghosh, A. and Kundu, M. K. : Soft Computing and Image Processing: Feature, Relevance and Hybridization, *Soft Computing in Image Processing* , S.K. Pal, A. Ghosh, and M.K. Kundu,(eds.),1-20, Physica-Verlag, Heidelberg, 2000.

Uma Shankar, B., Ghosh, A. and Pal, S. K. : On Fuzzy Thresholding on Remotely Sensed Images, *Soft Computing in Image Processing* , S.K. Pal, A. Ghosh, and M.K. Kundu. (eds.), 130-161, Physica-Verlag, Heidelberg, 2000.

## Physics and Earth Sciences Division

### *Geological Studies Unit*

Bandyopadhyay, S. : Gondwana Vertebrate Faunas of India, *Gondwana Assembly: New Issues and Perspectives*, Ashok Sahni and R. S. Loyal (eds.), Indian National Sciences Academy Publications, New Delhi, 77-105, 1999.

Paul, B.K. and Moulik, S.P., : Transport Processes in Microemulsions. J. A. Schwarz and C. Contescu (eds.), *Surfaces of Nanoparticles and Porous Materials*, Marcel Dekker Inc., USA, 59-80, 1999.

## Biological Sciences Division

### *Anthropology and Human Genetics Unit*

Ghosh Dastider, M.and Gupta, R. : A Study on Family Planning, Fertility and Ideal Family Size among the Hindu and Muslim Slum Dwellers of Calcutta City, *Contemporary Research in Anthropology*, R. Khongsdier (ed.), Commonwealth Publishers, New Delhi, 245-253, 2000.

Majumder, Partha P., Roy, B., Balgir,R.S,and Dash,B.P. : Polymorphisms in the Beta-Globin Gene Cluster in some Ethnic Populations of India and their Implications on Disease, *Molecular Intervention in Disease*, Sushma Gupta, and O.P. Sood (eds.), Ranbaxy Science Foundation, New Delhi, 75-83, 1999.

Majumder, Partha P. : Thoughts on some Bioethical Issues Arising out of Human Genome Diversity Studies with Special Reference to India, *Human Genome Research: Emerging Ethical, Social and Economic Issues*, M.G.K. Menon, P.N. Tandon, S.S. Agarwal,and V.P. Sharma (eds.), Allied Publishers Ltd., New Delhi, 96-105, 1999.

Mandal, B. : Low Birth Weight in Relation to some Biosocial Factors among the Khasi and Bengali Populations of Meghalaya, *Contemporary Research in Anthropology*, R. Khongsdier (ed.), Commonwealth Publishers, New Delhi, 217-226, 2000.

### *Plant Chemistry Unit*

Chanda, S. : Fungal Digestion of Deproteinized Leaf Juice from Two Aquatic Weeds for SCP Production and BOD Reduction, *Inland Water Resources : India*, M.K. Durga Prasad and Sankara Pitchiah (eds.), Discovery Publishing House, New Delhi, 247-257, 1999.

Dewanji, A. : Utilization Aspects of some Aquatic Plants, *Inland Water Resources : India*, M.k. Durga Prasad and P. Sankara Pitchiah (eds.), Discovery Publishing House, New Delhi, 247-257, 1999.

## Social Sciences Division

*Economic Reseaarch Unit*

Bourguignon, F. and Chakravarty, S.R. : A Family of Multidimensional Poverty Measures, D.J. Slottje (ed.), *Advances in Econometrics, Income Distribution and Scientific Methodology,*SpringeVerlag, New York, 331-334.

Chakrabarti, Subuendu and Sharma Biswas, C. : Women in the Unorganized Sector in India : A Post-Reform Scenario, P.D. Hajela and M.P. Goswami (eds.), *Economic Reforms and Employment,* Deep and Deep Publications, New Delhi, 1999.

Chakravarty, S.R. : Measuring Inequality : The Axiomatic Approach, J. Silber (ed.), *Handbook of Income Inequality. Measurement,* Kluwer Academic, Boston, 163-186, 1999.

Maiti, A., Chakrabarti, Subhendu, Mukherjee, S. and Saha, S. : Planning and Management of Water Resources in North-East India : A Holistic Approach, B. Dutta Roy and R.P. Athparia (ed.) *Water and Water Resource Management,* Omsons Publication, New Delhi, 1999.

*Linguistic Research Unit*

Bandyopadhyay, Debaprasad : nicutOlar bharot, umcutOlar India: SaNskritik aSONHotir arthoSOmaj, *Subalterns' bhuroy.superordinates' India: Socio-economics of Cultural disintegrity,* Book Trust, Calcutta.

Bandyopadhyay, Debaprasad : *bEkaron theke rasTro: bhaSar otideS (Bangla),* Partha chattopadhyay and Gautam Bhadra (eds.), Ananda Publishers.

*Psychology Research Unit*

Banerjee, S.N. : A Study in Developing a Standardised Scoring and Interpretation Manual for Wagner's Hand Test, *Readings in Applied Psychology,* Calcutta University, Calcutta, 49-55, 1999.

## BOOKS ACCEPTED FOR PUBLICATION

## Theoretical Statistics and Mathematics Division

*Stat-Math Unit, Delhi*

Sinha, K.B. : *Understanding Mathematics,* Universities Press, Hyderabad.

*Stat-Math Unit, Bangalore*

Bagchi, S.C., Madan, S., Sitaram, A. and Tewari, U.B. : *A first course on representation theory and linear Lie groups,* Universities Press, Hyderabad.

elampady, Mohan, Krishnan, T. and Ramasubramanian, S. : *Echoes from Resonance – Probability and Statistics,* Universities Press, Hyderabad.

## Applied Statistics Division

*Applied Statistics Unit*

ukhopadhyay, P. : *Topics in Survey Sampling,* Springer-Verlag, New York.

# Computer and Communication Sciences Division

*Electronics and Communication Sciences Unit*

Chanda, B and Dutta Majumder, D. : *Digital Image Processing and Analysis*, Prentice Hall , New Delhi, India

Pal, N. R. : *Soft Computing in Pattern Recognition*, World Scientific, Singapore.

*Machine Intelligence Unit*

Pal, S. K., Dillon, T.S. and Yeung,D. (eds.) : *Soft Computing in Case Based Reasoning*, Springer Verlag, London.

Pal, S. K. and Pal, A. (eds.) : *Lecture Notes in Pattern Recognition*, World Scientific Co. Ltd., Singapore.

Pal, S. K., *Dillon, T. S.* and *Yeung, D.*, Special Issue on "Data Mining", *Engineering and Intelligent Systems* London, 2000.

Pal, S. K. and Murthy, C. A. (ed.) Special Issue on Pattern Recognition, Vision and Image Processing. *Proc. INSA-A.*

Pal, S. K.,Pedrycz,W.,Skowron,A.and Swiniarski R., Special Issue on Rough-Neuro Computing, *Neurocomputing*, 2000

# Social Sciences Division

*Economic Research Unit*

Mazumdar, Krishna : *Human Well-being : The Socio-Economic Development, A Study of Inter-Country Inter-temporal Comparisons,* SHIPRA Publications, Delhi.

Sarkar, A. : *Contemporay Macroeconomics,* Oxford University Press.

## PAPERS ACCEPTED FOR PUBLICATION IN JOURNALS

## Theoretical Statistics and Mathematics Division

*Stat-Math Unit, Calcutta*

Bandyopadhyay, Pradipta, Basu, Sudeshna : On Nicely Smooth Banach Spaces, *Extracta Math.*

Bandyopadhyay, Pradipta, Da Huang, B.L. Lin and Troyanski,S.L. : Some Generalizations of Locally Uniform Rotundity, *Journal of Math. Anal. and Appl.*

Bandyopadhyay, P.and Rao, T.S.S.R.K. : Central Subspaces of Banach Spaces, *Journal of Approximation Theory.*

Barua, Rana, Roy, Suman and Zhou Chao Chen : Completeness of Neighbourhood Logic, *Journal of Logic and Computation.*

Bose, Arup and Bishwal, J.P.N. : Rates of Convergence of Approximate Maximum Likelihood Estimators in the Ornstein-Uhlenbeck Process, *Computers and Mathematics with application.*

Bose, Arup and Chatterjee, Snigdhansu : Last Passage Times of Minimum Contrast Estimators, *Journal of Aust. Math. Soc.*

Bose, Arup and Chatterjee, Snigdhansu : *Dimension Asymptotics for the Uuncorreclated Weights Bootstrap in Linear Regressions, Ann. Inst. Stat. Maths.*

Chaudhuri, Probal and Marron, J. S. : Scale Space View of Curve Estimation, *The Annals of Statistics*.

Chaudhuri, Probal : Asymptotic Consistency of Median Regression Trees, *Journal of Statistical Planning and Inference*.

Chaudhuri, Probal, Godtliebsen, F. and Marron, J.S. : Significance in Scale Space for Bivariate Density Estimation, *Journal of Computational and Graphical Statistics*.

Dutta, Amartya Kumar : On Separable A¹ Forms, *Nagoya Mathematical Journal*.

Ghosh, J.K., Berger, J.O. and Mukhopadhyay, N. : *Approximations to the Bayes Factor in Model Selection Problems and Consistency Issues, JSPI*.

Ghosh, J.K. and Samanta, T. : *Nonsubjective Bayes Testing - an Overview, JSPI*.

Ghosh, J.K.and Samanta, T. : Discussion of a Paper by Berger and Pericchi, *IMS Lecture Notes*.

Ghosh, J.K. and Hang Ping Zhang, Peter : Sequential Estimation in a Reliability Change Point Problem, *Proceedings of Third Calcutta Triennia – a Tribute to Professor S.K. Chatterjee, OUP*.

Maity, Soumen and Roy,Bimal K. : Construction of Some Classes of Optimal Repeated Measurement Designs, *Calcutta Stat. Assoc. Bull.*

Mukherjee, G: Cobordism of Manifolds with Z X Z - Action having Isolated Stationary Points, *Southeast Asian Bulletin of Math.*.

Mukherjee, G. and Sankaran, P. : Minimal Model of Oriented Grassmannians and Application, *Slovakia-Math. Journal*.

Naolekar, Aniruddha and Sankaran, P. : Chaotic Group Actions on Manifolds, *Topology and Its Applications*.

Raha, A.B. and Kundu, Subiman : The Stone-Weierstrass Theorem and the Dini's Theorem: An Insight, *Houston Journal of Mathematics*.

Raha, A.B., Kundu, Subiman and Swardson, M.A. : Bounded Subsets and the Weak Real Compactness Conditions. Quaestiones Mathematicae, *Journal of the South African Mathematical Society*.

Roy, A.K.and Rao, T.S.S.R.K. : Diameter-preserving Bijections of Function Spaces, *Journal of the Australian Mathematical Society, Sr. A.*

Sengupta, Debapriya and Ghosh, S.K. : Testing Proportionality of Multivariate Dispersion Structures Using Interdirections, *Journal In Journal Nonpara. Statist.*

Sengupta, Debapriya, Dey, B.K. and Biswas, P.K. : Propranolol in Primary and Secondary Prophylaxis of Variceal Bleeding among Cirrhotics in India : A Haemodynamic Evaluation, *Amer. Journal Of Gastroenterology*.

Sengupta, Debapriya : An Exploratory Statistical Analysis of the Effect of Demography Risk Factors on Uterine Cervical Squamous Intraepithelial Lesion, *CSA Bulletin, Application Section*.

### Stat-Math Unit, Delhi

Bapat, R.B., Grossman,J.W.and Kulkarni,D.M. : Edge Version of Matrix Tree Theorem for Trees, Linear and Multilinear Algebra.

Bapat, R.B : *Moore-Penrose Inverse of Set Inclusion Matrices*, Linear Algebra and Its Applications.

Bapat, R.B., Pati, Sukanta and Song, Seok-Zun : Rank Preservers of Matrices Over Max Algebra, *Linea and Multilinear Algebra*.

Bhatia, R. and Holbrook, J. : Frechet Derivatives of the Power Function, *Indian UniversityMathematic. Journal*.

Bhatia, R. and Zhan, X. : Compact Operators Whose Real and Imaginary Parts are Positive, *Proceedings of th American Mathematical Society*.

Bhatia, R. and Kittaneh, F. : Notes on Matrix Arithmetic-geometric Mean Inequalities, *Linear Algebra an Its Applications*.

Bhatia, R. : Pinching, Trimming, Truncating and Averaging of Matrices, *American Mathematical Monthly*.

Bhatia, R.and Davis, C. : A Better Bound on the Variance, *American Mathematical Monthly*.

Das, Ashish, Dey, Aloke and Suen, C. : On the Construction of Asymmetric Orthogonal Arrays, *Statistica Sinica*.

Dewan, I.and Rao, B.L.S.P. : Explicit Bounds on Levy-Prohorov Distance for a Class of Multidimensiona Distribution Functions, *Statistics and Probabilities Letters*.

Goswami, D., Pal, A. and Sinha, K.B. : Existence of Evans-Hudson Dilation in a $C^*$ Algebric Setup, Infinite Dim, *Analysis and Quantum Probability*.

Gowda, M.S., Parthasarthy, T. : Complementary Forms of Theorems of Lyapunov and Stein, *Linear Algebra and Its Applications*.

Hu, X., Kochar, S., Mukerjee, H.and Samaniego, F. : Estimation of Two Ordered Mean Residual Life Functions, *Journal of Statistical Planning and Inference*.

Khaledi, B. and Kochar, S. : Dependence among Spacings, *Probability in Engineering and Information Sciences*.

Khaledi, B. and Kochar, S. : On Dependence Structure of Multivariate Mixture Distributions, *Annals of Institute of Statistical Mathematics*.

Kochar, S., Mukerjee, H.and Samaniego, F. : Estimation of a Monotone Mean Residual Life, *Annals Statistics*.

Kochar, S. and Korwar, R.: On Random Sampling without Replacement from a Finite Population, *Annals Institute of Statistical Mathematics*.

Rao, B.L.S.P. : Some Covariance Identities and Inequalities and their Applications, PINSA-A, *Physical Sciences*.

Rao, B.L.S.P. : Inequality for Random Matrices with an Application to Statistical Inference, *Student 3 (2000)*

Rao, B.L.S.P. : On Bayes Estimation for some Stochastic Partial Differential Equations, *Journal of Statistical Planning and Inference*.

Sinha, K.B. : Quantum Stop Times, *Quantum Probability and Communications*.

Bagchi, B. and Misra, G. : A Note on the Multipliers and Projective Representations of Semi-Simple Lie Groups, *Sankhya.*

Brock, F.and Prajapat, J. : Some New Symmetry Results for Elliptic Problems on Sphere and in Euclidean Space, *Rendiconti del Circolo Matematica di Palermo.*

Delampady, M. : Robust Bayesian Detection of Outliers, *REBRAPE: Brazilian Journal of Statistics.*

Casella,G., DasGupta, A., Delampady, M., Genest, C., Rubin, H.and Strawderman,W.E.: Correlation in a Formal Bayes Framework, *Canadian Journal of Statistics.*

Casella,G., Das Gupta, A., Delampady, M., Rubin,H. and Strawderman,W.E. : A New Approach to Default Priors and Robust Bayes Methodology, *Canadian Journal of Statistics.*

Douglas,R.G., Misra, G. and Varughese, C : On Quotient Modules–The Case of Arbitrary Multiplicity, *Journal of Functional Analysis.*

Natarajan, S. : Chaotic Dynamics on the Real Line, 1. Periodic Behaviour and the Bifurcation Diagram, *Resonance.*

Natarajan, S. : Chaotic Dynamics on the Real Line, 2. Non-periodic Chaotic Behaviour, *Resonance.*

Padmawar, V.R. and Vijayan,K. : Randomized Response Revisited, *Journal of Statistical Planning and Inference.*

Padmawar, V.R. : On the Assessment of an Adapted Estimation Strategy, *Sankhya.*

Pati, V. and Sitaram, A. : Some Questions on Integral Geometry on Riemannian Manifolds, *Sankhya .*

Prajapat, J. and ¸Tarantello,G. : On a Class of Elliptic Problems in $\mathbb{R}^2$ : Symmetry and Uniqueness Result, *Proceedings of Royal Society of Edinburgh.*

Raja, C.R.E. : Weak Mixing and Unitary Representation Problem, *Bulletiene Des Sciences Mathematiques.*

Rajarama Bhat, B.V. : Cocycles of CCR Flows, *Memoirs of the American Mathematical Society.*

Ramasubramanian, S. : A Subsidy–Surplus Model and the Skorokhod Problem in an orthant, *Mathematics of Operations Research.*

Rao, T.S.S.R.K. : Weakly Continuous Functions of Baire Class 1, *Extracta Mathematicae.*

Rao, T.S.S.R.K. : On Ideals in Banach Spaces, *Rocky Mountain J. Math.*

Rao, T.S.S.R.K. : Local Surjective Isometries of Function Spaces, *Expositiones Mathematicae.*

Sastry, N.S.N. and Sin,Peter : Codes Associated with Nondegenerate Quadrics of a Symplectic Space of Even Order, *Journal of Combinatorial Theory.*

Sury, B. : Values of Euler Polynomials, Comptes Rendus Mathematical, *Reports of the Academy of Sciences of Canada.*

Thangavelu, S. : Some Remarks on Bochner-Riesz Means, *Colloquium Mathematicum.*

Thangavelu, S. : An Analogue of Hardy's Theorem for the Heisenberg Group, *Colloquium Mathematicum.*

**Thangavelu, S.. :** On the Injectivity of Twisted Spherical Means on $C^n$ *srael Journal of Mathematics.*

**Thangavelu, S. :** On the Equisummability of Fourier and Hermete Expansions, *Proceedings of the Indian Academy of Sciences.*

## Applied Statistics Unit

**Adhikary** Arun, Chaudhuri Arijit and Dihidar Sankar : Mean Square Error Estimation in Multistage Sampling', *Metrika.*

**Adhikary** Arun, Chaudhuri Arijit and Dihidar Sankar : On Alternative Variance Estimators in Three Stage Sampling, *Pakistan Journal of Statistics.*

**Basu A,** Basu S. and Mitra S. : Exact Minimum Disparity Inference in Complex Multinomial Models, *Metron.*

**Biswas, A.** and Dewanji, A.   : An Optimal Design for Simple Illness-death Model, *Journal of Statistical Planning and Inference* (Special Issue of Statistical Design of Medical Experiments)

**Biswas, A.** and Bandyopadhyay, U.  : Delayed Response in a Bivariate Set up Using Gibbs Sampler. REBRAPE, *Brazilian Journal of Probability and Statistics* (Revista Brasileira de Probabilidade e Estatistica).

**Biswas, A.** and **Sarkar, J.** : Availability of a System Maintained Through Several Imperfect Repairs before a Replacement or a Perfect Repair, *Statistics and Probability Letters.*

**Biswas, A.** and Bandyopadhyay, U. : Some Sequential-type Conditional Tests in Clinical Trials Based on Generalized Randomized Play-the-winner Rule, *Metron.*

**Biswas, A.** and Bandyopadhyay, U.  : A Class of Adaptive Designs, *Sequential Analysis.*

**Biswas, A.** : Stopping Rule in Delayed Response Randomized Paly-the-winner Rule, REBRAPE, *Brazilian Journal of Probability and Statistics* (revista Brasileira de probabilidade e Estatistica).

**Chaudhuri, A.** : Using Randomized Response from a Complex Survey to Estimate a Sensitive Proportion in a Dichotomous Finite Population, *JSPI.*

**Chaudhuri A.,** Adhikary, Arun and Dihidar, Sankar : Mean Square Error Estimation in Multistage Sampling. *Metrika.*

**Chaudhuri A.,** Adhikary, Arun and Dihidar, Sankar : On Alternative Variance Estimators in Three State Sampling, *Pakistan Journal of Statistics.*

**Dewanji, A.** and Biswas, A. : An Optimal Design for Simple Illness-death Model, *Journal of Statistical Planning and Inference.*

**Dewanji, A.** : Carcinogenic Potency: Statistical Perspectives, *Handbook of Statistics,* Vol. 17 Environmental and Public Health Statistics edited by C.R. Rao and P.K. Sen.

**Mukhopadhayay, P.** : On Estimating a Finite Population Distribution Function, *Parisankhyan Samikkha*

**Mukhopadhayay, P.** : Calibration Estimators of a Finite Population Variance, *Parisankhyan Samikkha.*

**Mukhopadhayay, P.** : Bayesian Estimation in Finite Population Using Asymmetric Loss Function, *International Journal of Mathematical and Statistical Sciences.*

**SenGupta, A.** and **Laha, A.** : The Slippage Problem for the Circular Normal Distribution, *Australian and New Zealand Journal of Statistics.*

SenGupta, A. and Pal, C. : On Optimal Tests for Isotropy Against the Symmetric Wrapped Stable -circular Uniform Mixture Family, *Journal of Applied Statistics*.

SenGupta, A. and Pal, C. : Optimal Tests for No Contamination in Reliability Models, *Lifetime and Data Analysis* .

SenGupta, A. and Roy, S. : On Classification Rules for the Stable Distribution, *Stable Non-gaussian Models in Finance and Econometrics, Special Volume in Mathematical and Computer Modelling* .

## Computer and Communication Sciences Division

### Advanced Computing and Microelectronics Unit

Chakraborty, S.,Das, S., Das, D.,K.and Bhattacharya, B.B. : Synthesis of Symmetric Functions for Path-delay Fault Testability, *IEEE Transactions on Computer-Aided Design.*

Das,A.K. Bhattacharya, U.K. Bhattacharya, B.B. : Isomorph-redundancy in Sequential Circuits, *IEEE Transactions on Computers*

Dasgupta,P.S.and Sur-Kolay, S. : Slicibility Conditions of Rectangular Graphs and their Applications to Floorplan Optimization, *ACM Transactions on Design Automation of Electronic System.*

Nandy, S.C., Hernandez-Barrera, A. and Bharracharya :. Safety Zone Problem, *Journal of Algorithm.*

### Computer Vision and Pattern Recognition Unit

Adiga, P. S. Umesh and Chaudhuri, B.B. : An Efficient Method Based on Watershed and Rule Based Merging for Segmentation of 3-D Histo-Pathological Images, *Pattern Recognition.*

Adiga ,P. S. Umesh and Chaudhuri, B.B. : Some Efficient Methods to Correct Confocal Images for Easy Interpretation, *MICRON, The Inernational Research and Review Journal for Microscopy.*

Adiga, P. S. Umesh and Chaudhuri, B.B. : An Integrated Approach for Segmentation of 3-D Confocal Images of a Tissue Specimen, *Microscopy Research Techniques.*

Bhattacharya, U. and Chaudhuri, B.B. : Efficient Training and Improved Performance of Multilayer Perceptron in Pattern Classification, *Neurocomputing.*

Dash, N.S. and Chaudhuri, B.B. : The Process of Designing a Multidisciplinary Monolingual Sample Corpus, *International Journal of Corpus Linguistics.*

Datta, A., Parui, S.K. and Chaudhuri, B.B. : Skeletonization by a Topology Adaptive Self-organizing Neural Network, *Pattern Recognition.*

Garain, U. and Chaudhuri, B.B. : An Approach for Recognition and Interpretation of Mathematical Expressions in Printed Document, *Pattern Analysis and Applications.*

Mitra, M. and Chaudhuri, B.B. : Information Retrieval from Documents: A Survey, *Special issue of Information Retrieval.*

Mitra, M. Buckley,C.,Cardie,C.and Singhal,A. : Syntactic and Statistical Phrases for High-precision Retrieval', *Information Processing and Management* .

Pal, U., Kundu, P.and Chaudhuri, B.B. : OCR Error Correction of an Inflectional' Indian Language Using Morphological Parsing, *Journal of Information Science and Engineering.*

*Electronics and Communication Sciences Unit*

Acton, Scott and Mukherjee Dipti Prasad : Area Operators for Edge Detection, *Pattern Recognition Letters.*

Chanda, B. and Haralick, R. M. : Bridging Transformation: An Aid to Spatial Transformations in the Discrete Domain , *Indian Journal of Pure and Applied Mathematics.*

Chanda, B. and Bhattacharyya, R. : Automatic Selection of Structuring Element for Object Classification Through Morphology, *Image Processing and Communication.*

Dutta, H. N., Naithani J. and Deb, N. : Cyclone Induced Warming Over East Antarctica Region during Feb., 1996, *Geophysical Research.*

Dutta ,A., Pal, S. and Pal, N. R. : A Connectionist Model for Convex Hull, *Neural Networks .*

Laha , A. and Pal, N.R. : Dynamic Generation of Prototypes with Self-Organizing Feature Maps for Classifier Design, *Pattern Recognition.*

Mukhopadhyay, S. and Chanda, B. : Fusion of 2D Grayscale Images Using Multiscale Morphology, *Pattern Recognition.*

Mudi , R. and Pal, N. R. : A Self-tuning Fuzzy PI Controller, *Fuzzy Sets and Systems.*

Mudi , R. and Pal, N. R. : A Note on Fuzzy PI-type Controller ith Resetting Action, *Fuzzy Sets and Systems.*

Roy, N. , Chanda, B. and Das, J. : A Fast and Flexible Multi-resolution Snake with a Definite Termination Criterion, *Pattern Recognition.*

*Machine Intelligence Unit*

Acharyya, M. and Kundu, M. K.: An Adaptive Approach to Unsupervised Texture Segmentation using M-band Wavelet Transform, *Signal Processing.*

Acharyya, M. and Kundu, M. K. : Classification of Rotated Textures Using Overcomplete Wavelet Frames, *IETE Journal of Research.*

Bandyopadhyay, S. and Maulik,U. : An Improved Evolutionary Algorithm as Function Optimizer, *Journal of Institute of Electronics and Telecommunication Engineers.*

Bandyopadhyay, S., Murthy, C. A. and Pal, S. K. : Pattern Classification by Surface Fitting with Genetic Algorithms, *Proceedings of Indian National Science Academy, Part A.*

Bandyopadhyay, S., Murthy, C. A. and Pal, S. K. : *VGA-Classifier* : Design and Application, *IEEE Transactions on Systems, Man and Cybernetics.*

Bandyopadhyay, S. and Pal, S. K. : A Note on Pixel Classification Using Variable String Genetic Algorithms with Chromosome Differentiation, *IEEE Transactions on Geoscience and Remote Sensing.*

Basak, J. : Learning Hough Transform : A Neural Network Model, *Neural Computation.*

Basak, J. and Mahata,D. : A Connectionist Model for Corner Detection in Binary and Gray Images, *IEEE Transactions on Neural Networks.*

Biswas, S. : Contour Coding through Stretching of Discrete Circular Arcs by Affine Transformation, *Pattern Recognition.*

De, R. K. and Pal, S. K.: Pattern Classification Using Fuzzy Sets and Neural Nets: A Case-based Approach, *Engineering Intelligent Systems.*

Kargupta,H. and Bandyopadhyay, S. : A Perspective on the Foundation and Evolution of the Linkage Learning Genetic Algorithms, *The Journal of Computer Methods in Applied Mechanics and Engineering, Special issue on Genetic Algorithms* .

Maulik,U. and Bandyopadhyay, S.: Genetic Algorithm Based Clustering Technique, *Pattern Recognition.*

Mitra, P. : Self Control of Chaotic Dynamics Using LTI Filters, *IEEE Transactions on Circuits and Systems - 1.*

Mitra, P., Mitra, S. and Pal, S. K. : Staging of Cervical Cancer with Soft Computing, *IEEE Transactions on Biomedical Engineering.*

Mitra, P., Mitra, S. and Pal, S. K.: Modular Fuzzy MLP with Rough Sets and ID3 Algorithm for Staging of Cervical Cancer, *Neural Computing Applications.*

Mitra, S. and Hayashi,Y. : Neuro-fuzzy Rule Generation: Survey in Soft Computing Framework, *IEEE Transactions on Neural Networks.*

Mitra, S., Mitra, P. and Pal, S. K. : Evolutionary Modular Design of Rough Knowledge-based Network Using Fuzzy Attributes, *Neurocomputing.*

Mitra, S. K. and Murthy, C. A. : Mathematical Frame Work to show the Existence of Attractor of the Partitioned Iterative Function Systems, *Pattern Recognition.*

Mitra, S. K., Murthy, C. A. and Kundu, M. K. : A Technique for Image Magnification Using Partitioned Iterative Function System, *Pattern Recognition.*

Mitra, S. K., Murthy, C. A. and Kundu, M. K. : Partitioned Iterative Function System: A New Tool for Digital Imaging, *IETE Journal of Research.*

Pal, S.K. : Fuzzy Models for Image Processing and Applications, *Proceedings of Indian National Science Academy.*

Pal, S. K., Bandyopadhyay, S. and Murthy, C. A.: Genetic Classifiers for Remotely Sensed Images: Comparison with Standard Method, *International Journal of Remote Sensing.*

Pal, S. K., De, R. K. and Basak, J.: Unsupervised Feature Evaluation: A Neuro-fuzzy Approach, *IEEE Trans. on Neural Networks.*

Pal, S. K., Ghosh A. and Uma Shankar, B. : Segmentation of Remote Sensing Images with Fuzzy Thresholding, and Quantitative Evaluation, *International Journal of Remote Sensing.*

Zhang,D.and Pal, S. K. : Parallel Neural System Design for Time-Delay Speech Recognition Computing, *IEEE Trans. Neural Networks.*

Zhang,D. and Pal, S. K. : A Fuzzy Clustering Neural Networks (FCN) System Design Methodology, *IEEE Trans. Systems, Man and Cyberns., Part C: Applications & Reviews.*

## Physics and Earth Sciences Division

### *Geological Studies Unit*

Chakraborty, T and Chakraborty, C., : Eolian and Aqueous Interactions in the Development of a Proterozoic Sand Sheet: Shikhaoda Formation, Bhopal, India., *Journal of Sedimentary Research.*

Chakraborty, C. : Forced Regressive Shoreface Deposits: Proterozoic Ghaghar Formation, Vindhyan Supergroup, Son Valley, *Indian Journal of Geology.*

Ghosh. P. : Estimation of Channel Sinuosity from Palaeocurrent Data: A Method Using Fractal Geometry. *Journal of Sedimentary Research* (Section A).

Mandal, N., Chakraborty, C. and Samanta, S. K. : Controls on the Failure Mode of Brittle Objects Hosted in a Ductile Matrix, Paul Hancock Memorial Volume, *Journal of Structural Geology.*

Mandal, N., Samanta, S.K. and Chakraborty, C. : Numerical Modeling of Heterogeneous Flow Field Around Rigid Objects with Special Reference to Particle Paths, Strain Shadows and Foliation Drag., *Tectonophysics*.

Maulik, P. K., Chakraborty, C., Ghosh, P. and Rudra, D. : Meso and Macro-scale Architectures of a Triassic Fluvial Succession: Denwa Formation, Satpura Gondwana Basin, *M.P. Journal Geological Society of India.*

Mishra, S. : The Mayurbhanj Granite: Its Nature, Tectonic Setting, Mode of Emplacement and Pressure-temperature of Magma Generation, *Indian Journal of Geology.*

Mukherjee, M. K. : Structural Pattern and Kinematic Framework of Deformation in the Southern Nallamalai Fold-fault Belt, Cuddapah district, Andhra Pradesh, South India, *Journal of Asian Earth Sciences.*

Paul, B. K. and Moulik, S. P. : The Viscosity Behaviours of Microemulsions: An Overview, *Proceedings of Indian National Science Academy, A.*

Paul, B. K. and Moulik, S. P. : Uses and Applications of Microemulsions, Current Science, *Special Issue on Soft Condensed Matter.*

Ray, S. : Endothiodont Dicynodonts from the Late Permian Kundaram Formation of India., *Palaeontology.*

Saha, D., Deb, G. K., and Dutta, S. : Granite-greenstone Relationship in the Sonakhan Belt, Raipur District, Central India. *Geological Survey of India Special Pub.*

### Physics and Applied Mathematics Unit

Bandyopadhyay, P. : Conformal Field Theory, Quantum Group and Berry Phase, *International Journal of Modern Physics A, 2000.*

Bandyopadhyay, P. : Topological Aspects of Chiral Anomaly, Origin of Mass and Electroweak Theory, *International Journal of Modern Physics A, 2000.*

Bandyopadhyay, P. and Ghosh, P.: Noncommutative Geometry, Quantization and Topological Aspects of a Fermion, *International Journal of Modern Physics A, 2000.*

Das, P. K. :Probability Operator Measure and Phase Measurement in a Deformed Hilbert Space, *International Journal of Theoretical Physics.*

Das, P. K. : Erratum : Phase Distribution of Kerr Vectors in a Deformed Hilbert Space, *International Journal of Physics.*

Ghosh, S.and Banerjee,R. : Canonical Transformations and Soldering, *Physics Letters B.*

Mandal, B.N.and Kanoria, M. : Oblique Wave Scattering by Thick Horizontal Barriers, *Journal of Offshore Mechanics and Arctic Engineering.*

Mandal, B.N., Kanoria, M. and *Chakrabarti*, A. : On Approximate Evaluation of Infinite Integrals involving Two Parameters, *Indian Journal of Pure and Applied Mathematics.*

Mandal, B.N.and Ghosh, P. : Waves due to Initial Axisymmetric Disturbances at the Inertial Surface between Two Superposed Fluids, *Indian Journal of pure and Applied Mathematics.*

Mazumder, B.S.,and Dalal, D.C. : Contaminant Dispersion from an Elevated Time-dependent Source, *Journal of Computer and Applied Mathematics.*

Mazumder, B.S. and Bandyopadhyay, S. : On Solute Dispersion from an Elevated Line Source in an Open-channel Flow, *Journal of Engineering Mathematics.*

Mazumder, B.S.and Purkait, B. : Grain-size Distribution a Probabilistic Model for Usri River Sediment, Bihar, India. *Stohastic Hydraulics 2000,* Balkema Publishers.

Mazumder, B.S., Bhattacharya, R.N., Dalal, D.C.and Ghosh, J.K. : Comparison of Diffusion Based Approaches to Sediment Transport with a Stochastic Interpretation, *Stochastic Hydraulics 2000,* Balkema Publishers.

Mazumder, B.S.and Ray, R.N. : Hall Effects on Hydromagnetic Liquid Falling Film, *International Journal of Non-linear Mechanics,* 2000.

Roy, P.and Tkachuk, V.M. : Motion of Spin Particle in Shape Invariant Scalar and Magnetic Fields, *Journal of Physics A* 2000.

Roy, S. and Kafatos, Menas : Complementarity Principle and Cognition Process, *Physics Essays,* 2000.

Roy, S.and, AIAS, Group : On the Representation of the Maxwell Heaviside Equation in Terms of the Barut Field Four Vector, *Found Physics, Letters,* 2000.

Roy, S.and AIAS, Group : Effect of Vacuum Energy on the Atomic Spectra, *Found Physics Letters, 2000.*

Roy, S.and AIAS, Group : Operator Derivation of the Gauge Invariant Proca Equation, Lehnert Equation and Elimination of the Lorentz Condition, *Found Physics, 2000.*

Roychoudhury, R.and Sinha, A. : SWKB Quantization Rules for Bound States in Quantum Wells, *Journal of Physics B, 2000.*

Roychoudhury, R.and Chatterjee, P. : Large Amplitude Solitary Waves in a Relativistic Non-Isothermal Plasma with Warm Ions, *Canadian Journal of Physics, 2000.*

Roychoudhury, R., Varshni, Y.P.and Sinha, A. : Shifted Expansion and Confined Quantum Systems, *Canadian Journal of Physics, 2000.*

## Biological Sciences Division

### Agricultural Science Unit

Banik; P. Sasmal, T., Ghosal, P.K.and Bagchi, D.K. : Evaluation of Mustard and Legume Intercropping System in 2:1 and 2:2 Row Replacement Series, *Journal of Agronomy and Crop Science.*

Das, S. : Wood Anatomy of some Mangroves from Sundarbans, West Bengal, *Journal of Economic and Taxonomic Botany.*

### Anthropology and Human Genetics Unit

Ghosh, S.and Majumder, Partha P. : Mapping Quantitative Trait Loci Via the EM Algorithm and Bayesian Classification, *Genetic Epidemiology.*

Gupta, R. : Does the Indian Tradition in Anthropology Need Reorientation, *Journal of the Indian Anthropological Society.*

Langstieh, B.T and Reddy, B.M. : The Origin and Ethnic Position of the Lyngngam among the Tribes of Meghalaya : An Exploratory Study, *Journal of the Indian Anthropological Society.*

Mandal, B. Risk Factors of Low Birth Weight among the Nepali Infants: A Hospital Based Study in Shillong, Meghalaya, *Indian Journal of Paediatrics.*

Pandey,B.N.,Vasulu, T.S., Das, P.K.L.and Pankaj, P.K. : Genetic Diversity and Population Structure among 13 Endogamous Populations of Purnia, Bihar, *Mankind Quarterly.*

Reddy, B.M. : R-matrix Analysis and the Patterns of Gene Glow in India, *Human Biology.*

Reddy, B.M., Sun,G.,Javier,R.L.,Crawford,M.H., N.S. Hemam,and Deka,R.: Genomic Diversity at the 13 STR Loci among the 7 Subcastes of the Substructured Golla Population of Southern Andhra pradesh, India, *Human Biology.*

Roy, M. and Dey, B. : A New Glucose-6Phosphate Dehydrogenase Variant Among Six Endogamous Groups in Uttar Pradesh, India, *Journal of Indian Medical Association.*

Roy, S.K. : Weekly Variation in Physical Activity of the Oraon Agricultural Labourers of Jalpaiguri District, West Bengal, *Collegium Antropologicum.*

Roy, S.K. and Pal, B.N. : Anthropometric and Physiological Traits : Age Changes among the Oraon Agricultural Labourers of Jalpaiguri District, Northern West Bengal, *Anthropologicher Anzeiger.*

Roy, S.K. : Comparison of Methodology : Anthropometric Somatotype of the Oraon Agricultural Labourers of Jalpaiguri District, West Bengal, *Journal of the Indian Anthropological Society.*

Roy, S.K.and Pal, B.N. : Land-labourer Relationship and Effect on the Working Efficiency: Anthropometry and Health Traits of the Oraon Agricultural Labourers of Jalpaiguri District of West Bengal, *The Anthropologist.*

## Biometry Research Unit

Sarkar, S.K., Medda, C., Ganguly, S.and Basu, T. K. : Length-weight Relationship and Relative Condition of Bundh and Hatchery-bred Labeo rohita (Ham) during the Early Period of Development, *Asian Fisheries Science.*

## Embryology Unit

Chattopadhyay, J. : A Spatial Pattern in an Ecological Context, *Korean Journal of Computational and Applied Mathematics.*

Ghosh, A. K., Chattopadhyay, J. and Tapaswi, P. K. : An Epidemic Model with Imparted by Subclinical Infection on a Dispersive Population, *Korean Journal of Computational and Applied Mathematics.*

# Social Sciences Division

## Economic Research Unit

Chakrabarty, Subhendu and Mukherjee, Robin : Non-Response in Annual Survey of Industries in India, *Economic and Political Weekly.*

Das, Samarjit. and Sarkar, Nityananda : An ARCH in the Nonlinear Mean (ARCH-NM) Model, *Sankhya.*

Dasgupta, D., Maiti, P. Sarkar, S., Mukherjee, R. and Chakrabarty, S : Growth and Interstate Disparities in India, *Economic and Political Weekly.*

Dinda, Soumyananda, Coondoo, Dipankor and Pal,Manoranjan  :  Air Quality and Economic Growth : An Empirical Study, *Ecological Economics.*

Ghosh, Buddhadeb and De, Prabir  :  Linkage Between Infrastructure and Income  Among Indian States : A Role of Rising  Disparity since Independence, *Indian Journal of Applied Economics*,  A Special Issue in Honour of Paul Samuelson.

Ghosh, Buddhadeb and De, Prabir  :  Infrastructure, Economic Growth and Trade in SAARC, *Journal of Bangladesh Institute of International Strategic Studies.*

Ghosh, Buddhadeb and De, Prabir  :  Indian Ports and Globalization : Need for New  Policy Initiatives, *Economic and  Political Weekly.*

Gupta, M.R.  :  Wage Determination of a Child Worker : A Theoretical Analysis, *Review of Development Economics.*

Gupta, M.R.  :  Duty Free Zone and Unemployment in a Fair Wage Model, *Keio Economic Studies.*

Kabiraj, T. and Mukherjee, A.  :  Cooperation in R & D and Production : A Three-Firm Analysis, *Journal of Economics*, (Zeitschrift Fur Nationalokonomie).

Kabiraj, T. and Yang, Chun-Lei :  Licensing vs. Innovation Incentives under Uncertain Government Policies, *International Review of Economics and Finance.*

Mazumdar, Krishna  :  Causal Flow Between Human Well-being and Per Capita Real Gross Domestic Product, *Social Indicators Research.*

Sarkar, Nityananda  :  ARCH Model with Box-Cox Transformed Dependent Variable, *Statistics and Probability Letters.*

### Economic Analysis Unit

Das, Nivedita : Technology, Efficiency and Sustainability of  Competition in the India Telecommunications Sector, , *Information Economics and Policy.*

Naryana, NSS and  Reddy, C.A.P. : A Statistical Search Method for Estimation of Bradford Groups, *SRLES Journal of Information Management.*

Rao, Surekha and Ghali, M.  :  The Speed of Adjustment and Production Smoothing: Bayesian Estimation, *Journal of Production Economics.*

### Linguistic Research Unit

Bandyopadhyay, Debaprasad : Final Sound-Initial Sound: A Note on Playing Antyaksari, *Linguistics Today.*

Bandyopadhyay, Debaprasad : Understanding Semantics of Language Development, *Perspectives in Economic Development in India.*

Bandyopadhyay, Debaprasad : Cybermultilingualism, *Indian Journal of Applied Linguistics.*

Bandyopadhyay, Debaprasad : Scientific Writing : Creating Prokrustrean Bed, *Margins.*

Bandyopadhyay, Debaprasad  : Psi-Properties: Language, Psyche and Society, *Indian Journal of Linguistics.*

Bandyopadhyay, Debaprasad  : uttoradhunikOta o bigEMn(Bangla), *JigaMSa.*

Choudhry, Amitav   India Bursting at the Linguistic Seams, *UNESCO Courier.*

Choudhry, Amitav : The Scope of Quantitative Analysis in Text Linguistics,Arun Kumar Sharma Memorial Volume, *Osmania Papers in Linguistics.*

## Population Science Unit

De, Partha, Mitra, Sandip, and Ghosh, Ajoy K. : Item Analysis of Two Newspapers : A Socio-economic Perspective, *Economic and Political Weekly.*

Saha, Anuj Kumar : Concise Description of the Marriage Process amongst Females on an Indian state and Bangladesh, *GENUS.*

### Psychology Research Unit

Dutta Roy, D. and Mallik, R. : Ranking General Aptitudes for Success in Computer Programming, *Journal of the Indian Academy of Applied Psychology..*

Dutta Roy, D., Maitra,M. And Deb, N.C. : State Anxiety Profile Similarity of Scientists and Logistic Personnel in the Antarctica expedition using 'rp' Index, *Psychological studies.*

Ghosh, A. : Occupational Stress, Strain and Coping in Physicians and Executives, *Journal of Personality and Clinical Studies.*

Gupta, Rumki : Prolonged Deprivation and its Impact on Attainment Level of students, *Psychological Studies.*

## Statistical Quality Control and Operations Research Division

Goel, Rajiv : Bounds for $W^m UB^m$ for Simple Games, OPSEARCH.

Neogy, S.K. : A Note on P1and  Lipschitzian Matrices, SIAM Journal on Matrix Analysis and Applications.

Ravindran, G. : Stability and Largeness of Core, *Journal of Games and Economic Behaviour,* USA.

Seth, Arvind : A Combinatorial Approach for Component Importance, *Communication in Statistics.*

## Library, Documentation and Information Sciences Division

### Documentation Research and Training Centre (Bangalore)

Rao, I.K. Ravichandra : Sources of Information with Emphasis on Electronic Resources, *SRELS Journal of Information Management,* IIS, Bangalore.

## PAPERS ACCEPTED FOR PUBLICATION IN CONFERENCE PROCEEDINGS

## Theoretical Statistics and Mahematics Division

### Stat-Math Unit, Delhi

Gowda , M . S . ,Murthy, G.S.R. and Parthasarthy, T. : On the Connectedness of  Solution Sets of Parametrized Equations and of Solution Sets in Linear Complementarity Problems,

## Applied Statistics Division

### Applied Statistics Unit

Biswas Atanu and Bandyopadhyay U. : An Alternative Test on Bernoulli Success Probability for Two-sided Alternative, *Proceedings of the Third Calcutta Triennial Symposium.*

## Computer and Communication Sciences Division

*Advanced Computing and Microelectronics Unit*

Derrien, S., Sur-Kolay, S. and Rajopadhye, S. : Optimal Partitioning for FPGA Based Regular Array Implementation, *Proceedings of International Conference on Parallel Computing in Electrical Engineering.*

Sinha, K. and Das, N. : Exact Location identification in Mobile Computing Networks, *Proceedings of International Conference on Parallel Processing.*

Venkataraman, G., Sahni, S. and Mukhopadhyay, S. : A Blocked All – pairs Shortest-paths Algorithm, *Proceedings of 7* Scandinavian Workshop on Algorithm Theory.*

*Computer Vision and Pattern Recognition Unit*

Bhattacharya, U., Liebscher, V., Datta, A., Parui, S.K., Rodenacker, K. and Chaudhuri, B.B. : Shape Extraction of Volumetric Images of Filamentous Bacteria Using Topology Adaptive Self-organization, *International Conference on Pattern Recognition.*

Garain, U. and Chaudhuri, B.B. : A Syntactic Approach for Processing Mathematical Expressions in Printed Documents, *International Conference on Pattern Recognition.*

*Electronics and Communication Sciences Unit*

Acton, Scott and Mukherjee, Dipti Prasad : Image Edges from Area Morphology, *Proceedings of IEEE International Conference on Acoustics, Speech and Signal Processing.*

Chanda, A., Das, J. and Das, P. : On Ultifractal Imensions and Their Relations, *Procedings of International Symposium on Mathematics And Mathematical Science, Calcutta Mathematical Society.*

Chanda, A. and Das, J. : On Development of Scalar Transport in Turbulent Flow, Proceedings of Hydraulics 2000.

Dutta Majumder, D. and Bhattacharya, M. : Registration of CT and MR Images of Alzheimer's Patient : A Shape Theoretic Approach, *Pattern Recognition Letter, Elsevier Science.*

*Machine Intelligence Unit*

Acharyya, M. and Kundu, M. K. : Two Texture Segmentation Using M-band Wavelets, *15th International Conference on Pattern Recognition, ICPR2000.*

De, R. K. : Artificial Consciousness : Integration of Knowledge-based and Case-based Approach in Neuro-fuzzy Paradigm, *Proceedings of Third International Conference on Cognitive and Neural Systems.*

Mitra, P., Murthy, C. A., Pal, S. K. : Data Condensation in Large Databases via Incremental Learning with Support Vector Machines, *Proceedings of 15th International Conference on Pattern Recognition, ICPR 2000.*

Teoh, T.Y., Sowmya, A. and Bandyopadhyay, S. : Road Extraction for High Resolution Images by Composite Learning, International Conference on Advances in Intelligent Systems: Theory and Applications (AISTA).

## Physics and Earth Sciences Division

*Geological Studies Unit*

Bandyopadhyay, S. : Triassic Reptile Faunas from the Pranhita-Godavari Basin, Deccan, India, *Proceedings of 31st International Geological Congress, Rio de Janeiro, Brazil.*

Chakraborty, C. and Bhattacharyay, A. : Tectonosedimentary Evolution of the Vindhyan Basin: Clues from Architectures of Strata, Depositional Systems and Unconformities, *M.S. Krishnan Birth Centenary Volume.*

Saha, D. : Multi Stage Deformation in the Nallamalai Fold Belt (NFB), Cuddapah Basin, South India - Evidence for Pre-Grenvillian Tectonism along the Southeastern Margin of India, *31ˢᵗ IGC, Rio de Janeiro, Brazil.*

## Physics and Mathematics Unit

Kumar, K. : Granular Materials under Vertical Vibration, Slow Dynamics and Freezing in Condensed Matter System, *Phase Transitions.*

Mazumdar, H. P., Ghosh,S.C.and Tsagas,Gr. : On the Breaking of Mirror Symmetry in Homogeneous Isotropic Turbulence - Helicity Effect, *International Conference of the Balkan Society of Geometers,* Thessaloniki, Greece, 1999.

Mazumdar, H. P., Basu D. K.and Adhikari,M.R. : Flow of a Second Grade Fluid Over a Stretching Sheet with Injection or Suction, *International Symposium on Mathematics and Mathematical Sciences,* Calcutta Mathematical Society.

Majumdar, C.K. : Physico-chemical Ideas in Ancient and Mediaeval India, Asiatic Society in March 2000.

Majumdar, C.K. : Salient Features of Modern Physics and Their Relevance to Indian society, Asiatic Society in March 2000.

Roy, S. : Non-locality,Unsharp Observable and Experimental of Fri,Walther and Lee, *Proceedings of First winter Inst. on Foundation of Quantum Theory, Quantum Optics and Mesoscopic System, Special issue of 'PRAMANA'.*

Roy, S. and Kafatos, Menas : Quantum Correlations, Large Scale Structure of the Universe and Temporal Non-locality, *Proceedings of the First International Conference On Studies of Time : from Physics to Psycho(patho)logy, (2000),* Kluwer Academic Publishers.

Roy, S., Kafatos,Menas and Amoroso,Richard : Scaling in Cosmology and Arrow of Time, *Proceedings of the First International. Conference, On Studies of Time:from Physics to Psycho(patho)logy, (2000),* Kluwer Academic Publishers.

Roy, S., Group,AIAS : *O*(3) Electrodynamics - Plenary Paper for Science, (2000), *Petrograd,* Russia.

Roy, S.and Kafatos,Menas : Geometroneurodynamics, *Proceedings in the Second International Conference on Consciousness,* George Mason University, 1999.

Roy, S.and Gesu,Vito de : Fuzzy Measures For Image Distances, *Proceedings Wilf'99* Genova,1999.

# Social Science Division

## Economic Research Unit

Coondoo, Dipankor,, Majumder, Amita and, Neogi, Chiranjib : Taxable Capacities Function : A Note on Specification, Estimation and Application, *Issues Before the Eleventh Finance Commission ,National Institute of Public Finance and Policy,* New Delhi.

Mitra, S. and Sarkar, A. : Migration and Fragmentation : *A Theoretical Note* , J. Roy and M.R. Gupta (eds.), *Themes on Development Economics,* Allied Publishers.

Mitra, Sandip and Dasgupta, Byasdeb : Exchange Rate and Under Invoicing of Exports in India,*Conference Volume of Indian Economic Association,* 1999, Deep Publishers, New Delhi.

Sarkar, A.and Bhattacharya, S. :   On the Effects of Trade in Foodgrains, N. Banerjee and S. Marjit (Eds.) *Golden Jubilee Conference Volume of Centre for Studies in Social Sciences,* Calcutta.

### Linguistic Research Unit

Bandyopadhyay, Debaprasad   : The Loss of Self : The Political Psychology of Address, *Proceedings of the Seminar on Terms of Address and Reference,* Central Institute of Indian Languages and School of Language Development , Telugu University.

Bandyopadhyay, Debaprasad   : The Valency of Bangla Verb and Problem of Compounding, *Proceedings of the Seminar on Terms of Address and Reference,*Central Institute of Indian Languages and School of Language Development , Telugu University.

Bandyopadhyay, Debaprasad   : Vedic Songs: Technology Without Machine, *Proceedings of the Symposium on Speech Technology,* National Conference of Dravidian Linguistics Association.

### Population Studies Unit

Barman, Subhas, Majumdar, Prasanta Kumar and Bhattacharya, B.N. : Child Labour in India and Its Determinants, *Proceedings of $21^{st}$ Annual Conference on Population at Banaras Hindu University,*

K.K. Singh (eds.), Indian Association for the Study of Population and Benaras Hindu University, Varanasi/Delhi.

De, Partha and Bhattacharya, B.N. : Child Immunization in India : An Analysis of NFHS Data,*Proceedings of the $21^{st}$ Annual Conference on Population at Banaras Hindu University,* K.K. Singh (eds.), Indian Association for the Study of Population and Benaras Hindu University, Varanasi/Delhi.

Mukhopadhyay, Barun Kumar : Orissa's Mortality : Its Trends and Disparities, *Procedings of the $20^{th}$ National Seminar on Population and Development with a Special Emphasis on Reproductive Health Issues in Orissa,*Subrata Lahiri et al (eds.), International Institute for Population Science, Mumbai.

### Statistical Quality Control and Operations Research Division

Gowda, M.S., Murthy, G.S.R. and Parthasarathy, T. : On the Connectedness of Solution Sets of Parametrised Equations and of Solution Sets in Linear Complementarity Problems, *Proceedings of the Symposium on Complementarity Problems,* Medison, June 2000.


## PAPERS ACCEPTED FOR PUBLICATION IN BOOKS
### Theoretical Statistics and Mathematics Division
#### Stat-Math Unit, Delhi

Chakrabory, P.S., Goswami, D. and Sinha, K.B. : A Covariant Quantum Stochastic Dilation Theory, *Stochastics in Finite/Infinite Dimensions in Honour of G.Kallianpur,* U.S.A.

Dewan, I.and Rao, B.L.S.P. : Associated Sequences and Related Inference problems, *Hand Book of Statistics; Stochastic Process : Theory and Methods,* C.R. Rao and D.N.Shanbhag (eds.).

Pernandes, C.and Sinha, K.B. : On a Theory of Resonance in Quantum Mechanical Scattering, *Stochastic Analysis and Math. Physics,* R.Rebolledo (ed.), U.S.A.

Rao, B.L.S.P. : Characterization and Identifiability for Stochastic processes, *Handbook of Statistics: Stochastic Processes : Theory and Methods,* C.R. Rao and D.N. Shanbhag (eds.).

Rao, B.L.S.P. : Cramer-Rao Type Integral Inequalities in Banach Spaces, *Proceedings Third Calcutta Triennial Symposium.*

### Computer and Communication Sciences Division
#### Electronics and Communication Sciences Unit

Pal, N.R.and Chakraborty, D.   : Simultaneous Faature Analysis and System Identification in a Neoro-Fuzzy Framework, *Neuro-Fuzzy Pattern Recognition,* H.Bunke and A. Kandel (eds.), World Scientific Publication Company.

*Machine Intelligence Unit*

De, R. K., Basak, J. and Pal, S. K. : Neuro-fuzzy Model for Unsupervised Feature Extraction with Real Life Applications, *Neuro-fuzzy Pattern Recognition*, H. Bunke, and A. Kandel,(eds.), World Scientific.

De, R. K. and Pal, S. K. : Case-based Systems: A Neuro-fuzzy Method for Selecting Cases, *Soft Computing in Case Based Reasoning* , S.K. Pal, T.S. Dillon, and D. Yeung, (eds.), Springer Verlag, London, 2000.

Mandal, D. P. and *Pal,N.R.* : On the Utility of Different Entropy Measures in Image Thresholding, *Festscript volume of Prof. J. N. Kapur*, Karmeshu et. al. (eds.), Physica Verlag, 2000.

Sarbadhikari,S.N. and Pal, S. K. : Automated Techniques for Identifying Depression from EEG, *Computer Techniques in Medical and Biotechnology Systems*, C. T. Leondes (ed.), Gordon and Breach Science Pub., Newark.

## Physics and Earth Sciences Division

### *Geological Studies Unit*

Saha, D. : A Transgressive Sequence at the Transition from Proterozoic Nagari Bairenkonda Quartzite to Pullampet Cumbum Formation, Southern Nallamalais, South Cuddapah District, South India, *Mem. Geological Soc. India Cuddapah Volume*.

### *Physics and Applied Mathematics Unit*

Kumar, K. : Parametically Driven Dissipative Structures on Fluid Surface, *First edition of I N S A Series on Mathematics*, S. K. Mallik (ed.).

Roy, S. : Frequency Dependent Speed of Light, *Contemporary Optics and Electrodynamics, Second edition of Modern Nonlinear Optics, Advances in Chemical Physics*,I. Progogine, and S. A. Rice (eds.),Wiley, NY .

Roy, S. : O(3) Electrodynamics - A Review in Contemporary Optics and Electrodynamics, *Second edition of Modern Nonlinear Optics,Advances in Chemical Physics*,I.Progogine,and S.A.Rice (eds.),Wiley, NY .

## Biological Sciences Division

### *Agricultural Sciences Unit*

Bagchi, D.K. : Technology Adoption in Complex and Uncertain Rainfed Agriculture : Experiences of Eastern Plateau,*Technology with a Human Face*, D. Dasgupta (ed.), Visva Bharati Visha Vidyalaya, Bolpur.

### *Anthropology and Human Genetics Unit*

Heman, N.S.and Reddy, B.M. : Maintenance of Village Reserve Forest : A Dyning Traditional Conservation Practice among the Gangte Tribe of Manipur, India, *Man-Environment Interactions*.

Vasulu, T.S. and Ghosh, B.N. : Indicators of Socio-Economic Status among Tribal Populations of India, *Socio-Economic among Indian Populations*, J.Roy (ed.), Mittal Publications, New Delhi.

## Social Sciences Division

### *Economic Research Unit*

Chakravarty, S.R. : Deprivation, Inequality and Welfare, *in Honor of Professor Amartya Sen by Visva Bharati*, Santiniketan.

Chakrabarti, Snigdha : Economics of Urban Waste Management in N.C. Sahu and A.K. Choudhury (eds.), *Dimensions Of Environmental and Ecological Economics*, Universities Press (India) Ltd., Hyderabad.

Coondoo, D., Amita Majumder and Kaushik Bhattacharya : Employment, Level of Living and Utilisation of PDS, *Public Support for Ford Security : The Public Distribution System in India*, N. Krishnaji and T.N. Krishnan (eds.), Sage Publications, New Delhi/Thames and Dales/London, 2000.

Ghosh, Buddhadeb : Impact of Infrastructure on Income : Empirical Evidence from Indian States, Development, *Displacement and Disparity*, Sugata Marjit and Nirmala Banerjee (eds.).

Kabiraj, Tarun and Chaudhuri, M.: An Input Joint Ventures : Some New Results, *Industry and Trade : Collection of Essays by NIPFP- Ford Foundation Fellows*, A. Guha and A. Lahiri and K.L. Krishna (eds.).

Mazumdar, Krishna : Human Well-being of the Countries : Achievement and Improvement Indices, *Hans Singer Edited Book in Honour of A.K. Sen*.

Mazumdar, Krishna : Structural Changes in Selected Agricultural Economies of South and South-East Asia 1960-90, *Socio- Economic Development in India*, B. Ray (ed.), Mohit Publications, New Delhi.

### *Economic Analysis Unit*

N.S.S. Narayana : T.N. Srinivasan's Writings on Economic Policy and State Interventions: Selected Readings, Oxford University Press, New Delhi.

NSS Narayana and Kirit S. Parikh : Virtual Reality in Economywide Models: Some Reflections on Hope and Despair with Reference to India, Elsevier Science Publishers.

### *Linguistic Research Unit*

Choudhry, Amitav : The State of Linguistic Minorities in the Indian Multilingual Context, The Other Languages of Europe: Demographic, Sociolinguistic, and Educational Perspective, Guus Extra (ed.), Clevedon, Multilingual Matters 2001.

### *Psychology Research Unit*

Banerjee, S.N. : Problems of Primary Education and Economic Development in India, *Socio-economic Reforms in India (Amartya Sen Volume)*, Biswanath Ray (ed.), Kaniska Publications, New Delhi

## PAPERS READ AT CONFERENCES/SEMINARS/SYMPOSIA/WORKSHOPS

## Statistics and Mathematics Division

### *Stat-Math Unit, Calcutta*

Ami, SR Srinivasa Rao, Hira,S.K., Fernandes,C.S.and Gharpure, H. : Incidence of HIV ½ among STD Clinic Attenders in Mumbai, *Millennium Conference on Population, Development and Environment Nexus*, New Delhi, February 14 – 16, 2000.

Bose, Arup : Generalised Bootstrap, *International Workshop on Statistics and Probability*, Indian Statistical Institute, New Delhi, India, December 17- 21, 1999.

Rao, T.J : Some Recent Results in Stratified Sampling, *Indian Science Congress*, Pune, January 3-7, 2000.

Rao, T.J. : Recent Trends in Research in Statistics with Special Reference to Sample Surveys, *International Conference on Teaching and Research in Statistics in the 21st Century*, Delhi, January 8-10, 2000.

### *Stat-Math Unit, Delhi*

Das, Ashis : A-efficient Balanced Treatment Incomplete Block Designs, *The Second Conference of the Society of Statistics, Computer and Applications*, St. Thomas College, Pala, Kerala, November 28- December 1, 1999.

Dey, Aloke : On the Construction of Asummetric Orthogonal Arrays, *International Workshop in Statistics and probability*, Indian Statistical Institute, Delhi, December 17-21, 1999.

Kochar, S. : Some Recent Results on Stochastic Comparisons of Order Statistics, *International Conference on Teaching and Research in Statistics for the 21st Century*, Delhi University, January 8-10, 2000.

Kochar, S. : Testing the Equality of Hazard Rates in Competing Risks, *International Workshop in Statistics and Probability*, Indian Statistical Institute, Delhi, December 17-21, 1999.

*Stat-Math Unit, Bangalore*

Misra, G. : New homogeneous operators from old ones via Sz.-Nagy- Foias Theory, *Functional analysis and applications : Memorial Conference for Bela Szokefalvi-Nagy*, University of Szeged, Hungary, August 01-06, 1999.

Misra, G. : A rigidity theorem for invariant subspaces, *SUMRIFAS*, Texas A & M University, August 06-07, 1999.

Misra, G. : New homogeneous operators from old ones via Sz.-Nagy-Foias Theory, *Twenty five years of ISI - Delhi Centre*, Indian Statistical Institute, Delhi, January 05-07, 2000.

Misra, G. : New homogeneous operators from old ones via Sz.-Nagy-Foias Theory, *Discussion meeting on Harmonic Analysis*, I.I.T. Kanpur, January 08-12, 2000.

Ramasubramanian, S. : A Skorokhod problem with generalized time and space dependencies, *International Conference on Stochastic Processes and their applications*, Cochin University of Science and Technology, Cochin, December 17-20, 1999.

Ramasubramanian, S. : Reflecting Brownian motion in a Lipschitz domain and a conditional gauge theorem, *International Workshop in Statistics and Probability*, Indian Statistical Institute, New Delhi, December 17-21, 1999.

# Applied Statistics Division

*Applied Statistics Unit*

Adhikary Arun : Small Area Estimation − A Review, Indian Science Congress, 2000. University of Pune, 3-7 January, 2000.

Adhikary Arun : Consistent Set Estimation in k-dimensions: an Efficient Approach, *International Workshop on Image and Shape Analysis*, Indian Statistical Institute, Calcutta, January 1999.

Basu A. : Applications of Statistics in Other Disciplines: Two Examples, *The International Conference on Teaching and Research in Statistics for the 21st Century*, Delhi University and the Indian Statistical Institute, January 2000.

Basu A. : Economic Issues and Resource Allocation in the Health Sector: All Illustration through the HIV Scenario of Calcutta, *The National Conference on Economic and Statistical Issues in Development*, Department of Economics and the Department of Statistics, Kalyani University, West Bengal, India, March, 2000.

Biswas Atanu : Salamander Mating Experiment Revisited − A Bayesian Data Analysis, *The Indian Science Congress*, Pune, January 4, 2000,.

Bose, Mausumi and Dey, Aloke : Some Small and Efficient Cross-over Designs under a Non-additive Model, *6th International Conference on Statistics, Combinatorics and Related Areas*, University of South Alabama, USA, December 18-20, 1999.

Chaudhuri A. : Acknowledging Certain Worthy Indian Contributions to Survey Sampling, *88th Session of Indian Science Congress*, Pune, January 3-7, 2000.

SenGupta, Ashis : Directional Data Analysis : Recent Results and Applications, *Silver Anniversary Conference,* Ohio State University, Columbus, USA, October 1999.

SenGupta, Ashis : On Change-point Problem for Isotropy Against the Wrapped Stable Family of Distributions for Directional Data, Statistics, Combinatorics and Related Areas, *International Forum for Interdisciplinary Mathematics,* University of Alabama, Mobile, Alabama, December 1999.

SenGupta, Ashis : On Optimal Tests for Detecting Change in Isotropy with Fixed Sample and Sequential Directional Data, Statistics : Reflections on the Past and Visions for Future, *Internation Conference to honour Prof. C.R. Rao on his 80th Birthday,* University of San Antonio, Texas, USA, March 2000.

## Computer and Communication Sciences Division

### *Advanced Computing and Microelectronics unit*

Bhattachaya, B.B., Dmitriev, A. and Gossel, M.: Zero-aliasing Space Compression Using a Single Periodic Output and Its Application to Testing of Embedded Cores, *13th International Conference on VLSI Design,* Calcutta, January, 2000.

Bhunia, S., Majumder, S., Sircar, A., Sur-Kolay, S.and Bhattacharya, B.B. : Topological Routing Amidst Polygonal obstacles, *13th International Conference on VLSI Design,* Calcuta, January, 2000.

De, M., Sen, A., Sinha, B.P. Mukherjee, A. : Identification of Straight Lines in an Image Using Mesh of Processors, *6th International Conference on High Performance Computing (HiPC-99),* Calcutta, December 17-20, 1999.

Dey, S., Bhattacharya, B.B., Kundu, M.K. and Acharya, T. : Computing Orientation of an Image by Projection Method and its VLSI Implementation, *International Conference on Advances in Pattern Recognition and Digital Techniques,* December, 1999.

Dey, S., Bhattacharya, B.B., Kundu, M.K. and Acharya, T. : A Fast Algorithm for Computing the Euler Number of an Images and Its VLSI Implementation, *International Conference on VLSI Design,* Calcutta, January, 2000.

Jana, P.K. and Dattagupta, J. : Mapping Algorithms on Augmented Tree AT, *International Conference on Advanced Computing and Communications (ADCOM-99),* Roorkee, December, 1999.

Mukhopadhyay, K. and Das, N. : On Optimal Assignment of Multiple Channels in Cellular Networks, *6th International Conference on High Perormance computing (HiPC-99),* Calcutta, December 17-20, 1999.

Mukhopadhyay, S. and Sinha, B.P. : Efficient implementation of Algorithms on GHCC, *6th International Conference on High Performance Computing (HiPC-99),* Calcutta, December 17-20, 1999.

Rahaman, H., Das, D.K.and Bhattacharya, B.B. : An Adaptive BIST to Detect Multiple Stuck-open Faults in CMOS Circuits, *4th Asia-South-Pacific Design Automation Conference (ASP-DAC),*USA, 1999.

### *Computer Vision and Pattern Recognition Unit*

Bhattacharya, U., Datta, A., Parui, S.K. and Chaudhuri, B.B. : Vector Quantization of Volumetric Images of 3-D Objects Using a Topology Adaptive Self-Organizing Neural Network, *International Conference on Advances in Pattern Recognition and Digital Techniques,* Calcutta, December 27-29, 1999.

Bishnu and Chaudhuri, B.B. : Segmentation of Bangla Hand-written Text into Characters by Recursive Contour Following, *International Conference on Document Analysis and Recognition (ICDAR'99)* Bangalore, September 20-22, 1999.

Dash, N.S. and Chaudhuri, B.B. : On Automatic Parsing of Bangla Pronominal Forms, *ICOSAL-II*, Punjabi University, Patiala, January 9-11, 1999.

Garain, U. and Chaudhuri, B.B. : Extraction of Type Style Based Meta-information, *International Conference on Document Analysis and Recognition (ICDAR'99)*, Bangalore, September 20-22, 1999.

Pal, U. and Chaudhuri, B.B. : Script Line Separation from Indian Multi-script Document, *International Conference on Document Analysis and Recognition (ICDAR'99)*, Bangalore, September 20-22, 1999.

Pal, U. and Chaudhuri, B. B. : Automatic Separation of Machine-printed and Hand-written Text Lines, *International Conference on Document Analysis and Recognition (ICDAR'99)*, Bangalore, September 20-22, 1999.

Pal, U. and Chaudhuri, B.B. : Automatic Separtion of Roman, Devnagari and Telugu Script Lines, International Conference on Advances in Pattern Recognition and Digital Techniques , Calcutta, December 27-29, 1999.

### Machine Intelligence Unit

Bandyopadhyay, S. and Maulik,U. : A K-Means Type Clustering Using Genetic Algorithms, *Third Annual Conference on Indian Society of Information Theory and Applications*, Amritsar, 1999.

Mandal, D. P. and Pal, N. R. : Non-Shannonian Entropies for Image Thresholding, *$3^{rd}$ Annual Conference on Information Theory and Applications*, Amritsar, 1999.

Mandal, D. P. : Multilayer Percerptron for DNA Sequence Analysis, *Workshop on Structure and Sequence: Database Analysis*, Calcutta, 1999.

Mitra, S. K., Murthy, C. A. and Kundu, M. K. : Fractal Based Image Edge Extraction, *Annual Conference of Indian Society of Information Theory and Applications (ISITA'99)*, Amritsar, 1999.

Pakhira,M.K.,Maulik,U.and Bandyopadhyay, S. : An Improved Search Strategy for Edge Detection Using Simulated Annealing, *Third Annual Conference on Indian Society of Information Theory and Applications*, Amritsar, 1999.

## Physics and Earth Sciences Division

### Physics and Applied Mathematics Unit

Dandapat, B.S. : Unsteady Flow of Thin Liquid Film on a Disk Under Non-uniform Rotation, *65th Annual Conference of the Indian Mathematical Society*, A. P. S. University, Rewa, U.P., December 20-23, 1999.

Dandapat, B.S. : Waves on a Film of Power-law Fluid Down an Inclined Plane at Moderate Reynolds Number, *FLUMECH-2000*, IIT, Chennai , January 11-15, 2000.

Ghosh, S. : Bosonization and Related Theories in 2+1 Dimensions, *Quantum Field Theory 2000*, Saha Institute of Nuclear Physics, Calcutta, January 18-22, 2000.

Kumar, K. : Non-equilibrium Patterns in Thermal Convection with Deformable Free Surface, *Recent Trends in Non-equilibrium Statistical Physics*, J. N. U. Centre for Advanced Scientific Research, I. I. Sc. Bangalore, November 15-25, 1999.

Kumar, K. : Granular Materials under Vertical Vibrations, *Slow Dynamics and Freezing in Condensed Matter Physics*, J. N. U., New Delhi, February, 2000.

Mandal, B.N. : Scattering of Electromagnetic Waves by An Iris in a Rectangular Wave by An Iris in a Rectangular Wave-guide, *65th Annual Conference, Indian Mathematical Society*, A. P. S. University, Rewa, U₁P₁, December 20-23, 1999.

Mandal, B.N., Ghosh, Prity and Kanoria, M. : Diffraction of Internal Waves by a Semi-infinite Inertial Surface, *22nd National Research Symposium on Prospect of Applied Mathematics in the 21st Century*, Calcutta University, March 14-15, 2000.

Mandal, B.N.,and Kanoria, M. : Oblique Wave Scattering by Slotted Thick Barriers in Finite Depth Water, *22nd National Research Symposium on Prospect of Applied Mathematics in the 21st Century*, Calcutta University, March 14-15, 2000.

Mandal, B.N.,and Kanoria, M. : Numerical Modelling of Wave Scattering by Slotted Thick Barriers, *National Conference on Emerging*.

# Biological Sciences Division

*Anthropology and Human Genetics Unit*

Majumder, Partha P. : Genetic Epidemiological Analyses of Multivariate Phenotypes *Genetic Dissection of Complex Traits: Challenges for the Next Millennium*, St. Louis, September 8, 1999.

Majumder, Partha P. : Human Genome Diversity and its Relation to Disease, with Particular Reference to Myotonic Dystrophy in India, *Symposium on Research in Molecular Biology & Biotechnology in India*, Indian Institute of Chemical Biology, Calcutta, September 13-14, 1999.

Mandal, B. : Anaemia During Pregnancy in Relation to Some Biosocial Factors Among the Jaintia of Meghalaya, *33rd Annual Conference of Indian Anthropological Society*, Visva-Bharati, February 18-20, 2000.

Mazumdar, A.and Roy, S.K. : An Anthropological Approach to the Study of Disability : A Brief Review, *National Seminar on Problems of Women, Weaker Section and Disables*, Department of Anthropology, University of Calcutta, March 29-30, 2000.

Saha, R.and Dasgupta, P. : Age at Menarche and its Relationship with Growth and Body Composition of the Urban Bengali Girls, *Anthropological Perspective Man and Environment*, Department of Anthropology, Calcutta University, January 21-22, 2000.

Roy, Bidyut : Ethnic Differences in Distributions of GSTM1 and GSTT1 "null"genotype in India, *25th Annual Conference of Indian Society of Human Genetics*, Nagpur, January 9-10, 2000

Roy, Bidyut : Association between GSTM1, GSTT1 and CYP1A1 Mutations and Occurrence in Oral Cancer in Patients from a Calcutta Hospital, *19th Annual Meeting of the Indian Association for Cancer Research*, Thrissur, Kerala, January 21-23, 2000.

Satapathy, K.C. : Epidemiology of Diabetes, *Indian Science Congress Association*, Pune, January 2000.

Tapadar, P. Ghosh, S.and Majumder, Partha P. : Haplotyping in Pedigrees Via a Genetic Algorithm, *International Genetic Epidemiology Society Conference*, St. Louis, September 9-10, 1999.

Vasulu, T.S. : Sustainable Development in the Context of Tribal Welfare : A Critical Appraisal, *UGC National Seminar on Tribal Ecology and Sustainable Development in India*, Department of Anthropology, S.V. University, Tirupati, March 8-9, 2000.

*Biometry Research Unit*

Basu,T.K. : Compartmental Modelling of Blood Glucose Homeostasis in a Stressed Condition, *Biometrics 99*, University of Tasmania, Hobart, Australia, December 12-16, 1999.

*Plant Chemistry Unit*

Barik, S. : Strategies to Check Falling Sugar Concentration of Sugar Beet, *Joint Convention of ISAB and SGVR (Indian Chapter) and national Symposium on Emerging Trends in Agricultural Biochemistry- Regulation of Metabolic Pathways for Crop Improvement and Recent Developments in Green Vegetation and Leaf Protein Research*, Kanpur, February 24-26, 2000.

Majumder, P. and Chanda, S. : Monitoring Cellulolytic Fungi on CMC – Asparagine Medium Highlighting Trichoderma Lignorum Cellulase as a Saccharifying Agent, *87th Session of the Indian Science Congress,*Pune January 3-7, 2000.

Matai, S. : Adaptation of Leaf Protein Technology :1. Lesson to be Learnt from Past and 2. What may be done to Turn it Around to Success, *Joint Convention of ISAB and SGVR (Indian Chapter) and National Symposium on Emerging Trends in Agricultural Biochemistry-Regulation of Metabolic Pathways for Crop Improvement and Recent Developments in Green Vegetation and Leaf Protein Research,* Kanpur, February 24-26, 2000.

Mukherjee, G. : Assesment of Water Quality and Macrophyte Vegetation in a Pond-a Pilot Survey, *87th Session of the Indian Science Congress,* Pune January 3-7, 2000.

## Social Science Division

### *Economic Research Unit*

Chakrabarti, Snigdha and Chakrabarti, Subhendu : Socio-Economic Analysis of Solar Photovoltaic Power Plant : Some Preliminary Results of A Case Study in Sagar Island, West Bengal, *International Workshop on Eco-Friendly Electrification in Off Grid Areas with Grid Quality Power,* Calcutta and Sagar Dweep (Solar Island), West Bengal Renewable Energy Development Agency, Calcutta, December 18-20, 1999.

Chakrabbarti, Subhendu and Sharma Biswas, C. : Women in Unorganised Sector in India : A Post-Reform Scenario, *82 Annual Conference of Indian Economic Association,* Amritsar, December 27-29, 1999.

Kabiraj, Tarun and Chaudhuri, M. : A Simple Theory of Joint Venture Break Down, *The 12th World Congress of the International Economic Association,* Buenos Aires, Argentina, August 23-27, 1999.

Kabiraj, Tarun and Chaudhuri, M. : On the Welfare Analysis of a Cross-Border Merger , *The 12th World Congress of the International Economic Association,* Buenos Aires, Argentina, August 23-27, 1999.

Maiti, A. and Chakrabarti, Subhendu : Depletion of Forest - A Threat to Environment and Livelihood : A Case Study of North-East India, *National Seminar organized by NECSSR,* Shillong, June 5-6, 1999.

Mazumdar, Krishna : A Multivariate Analysis of Urban Quality of Life In One-Million-Plus Cities of India, *Second Inter-National Conference on Quality of Life in Cities,* Singapore, March 8-10, 2000.

Mazumdar, Krishna : Inter-Country Inequality in Social Indicators of Development, *12th World Congress of the International Economic Association,* Buenos Aires, Argentina, August 23-27, 1999.

Mitra, Sandip : A Note on the Price Behaviour of Calcutta Potato Markets, *National Conference on Economic and Statistical Issues in Development,* Kalyani University, March 10, 2000.

Mukherjee, Robin and Sengupta, Pampa : Quality of Life in India : An Interstate Analysis, *Second International Conference On Quality of Life in Cities,* Singapore, March 8-10, 2000.

Mukhopadhyay, Debrabata and Sarkar, Nityananda : Has There Been an Acceleration in the Growth of Agriculture in West Bengal : A Fresh Look Using Modern Time Series Techniques, *National Conference on Economic and Statistical Issues in Development,* Kalyani University, Kalyani, West Bengal, March 10-11, 2000.

Mukhopadhyay, Debrabata and Sarkar, Nityananda : Has There Been an Acceleration in the Growth of Agriculture in West Bengal : A Fresh Look Using Modern Time Series Techniques, *Thirtysixth Annual Conference of the Indian Econometric Society,* Ahalyabai University, Indore, February 4-6, 2000.

Pal, Manoranjan and Sengupta, Atanu : Correlation Between Technical and Allocative Inefficiency Errors in Stochastic Frontier Production Functions, *The National Conference on Economic and Statistical and Issues*

*in Development*, Department of Economics and Department of Statistics, Kalyani University, March 10-11, 2000.

## Economic Analysis Unit

Rao, K. Surekha : Euro Dollar Exchange Rate: Time Series Analysis,*UGC conference on Application of Statistics in Economics*, Mysore University, February 28- March 2, 2000.

## Linguistic Research Unit

Bandyopadhyay, Debaprasad, Chakrovorti, J.and Chattopadhya, S. : Linguistic Approach to Moleculer Recognition, *Seminar on Biophysics for moleculer recognition,*Saha Institute, September 28-29,1999.

Bandyopadhyay, Debaprasad : Cyberborrowing, *Seminar on Borrowing and Structure1 Change in Indian Languages (in absentia) CIIL* Mysore January 19-21,2000.

Bandyopadhyay, Debaprasad : Quantification and Mis-quantification, *2nd National Symposium on the Methods of Quantitative Linguistics,* Linguistic Research Unit, Indian Statistical Institute,Calcutta, February 28-29, 2000.

Bandyopadhyay, Debaprasad : Language, Machine and Creativity, Department of Philosophy, Rabindra Bharati University, February 2000.

Choudhry,. Amitav : Perspectives on Indian Multilingualism, *Linguistic Diversity for Democratic Citizenship in Europe*, Innsbruck, Austria. May 10-12, 1999.

Choudhry, Amitav : Inadequacies of IT in the Indian Multi-lingual Context, *Tasknet discussion forum,* British Council Division, Calcutta, November 9,1999.

Choudhry, Amitav: Introduction to Linguistic Demography,*Keynote Address).Conference on Comparative Perspectives on Regional and Immigrant Minority Languages in Multicultural Europe. European Cultural Foundation under the auspices of the European Parliament. Oegstgeest*, The Netherlands, January 28-30, 2000.

Choudhry, Amitav : The State of Linguistic Minorities in the Indian Multilingual Context, *Conference on Comparative Perspectives on Regional and Immigrant Minority Languages in Multicultural Europe. European Cultural Fou ndation under the auspices of the European Parliament. Oegstgeest*, The Netherlands, January 28-30, 2000.

Choudhry, Amitav and Verma, Mahendra K. : Language Attitudes of the Gujaraties in Britain, *National Symposium on the Methods of Quantitative Linguistics,* LRU, Indian Statistical Institute, Calcutta, February 28-29, 2000.

Choudhry, Amitav, Bandyopadhyay, Debaprasad and Debnath, Sukesh : A Comparative Study of the Classification of Initial Graphemes in Distinct Words in Fourteen Novels of Bankimchandra and Rabindranath's Galpaguccha, 2nd National Symposium on the Methods of Quantitative Linguistics" Linguistics Research Unit, Indian Statistical Institute,Calcutta. Feb.28-29,2000.

Sengupta, Tapas Kumar : Quantitative Assessment of Element Compound Relation, 2nd National Symposium on the Methods of Quantitative Linguistics , Linguistic Research Unit, Indian Statistical Institute,Calcutta, February 28-29, 2000.

## Population Studies Unit

De, Partha and Bhattacharya, B.N. : A Study on the Determination of Child Immunisation in Northern States of India, *Millenium Conference on Population, Development and Environment Nexus,* Indian Association for the Study of Population, New Delhi, February 14-16, 2000.

Dihidar, Sankar and Bhattacharya, B.N. : A Study on some Proximate Determinants of Fertility in Slum Areas of Calcutta, *Millenium Conference on Population, Development and Environment Nexus,* Indian Association for the Study of Population, New Delhi, February 14-16, 2000.

*Psychology Research Unit*

Chattopadhyay, Rachana : A Study of Feeling Tone Associated with the Visual Imagery Evoked by Two North Indian Classical Rages, *National Conference on Research in Clinical Psychology,* New Delhi, February 23-26, 2000.

Ghosh, Anjali : Influence of Gender and Community on Learning Achievement of Primary School Students, *2nd Indian Educational Science Congress,* Kalyani University, Kalyani, January 21-23, 2000.

Gupta, Rumki : Relation between Socio-economic Deprivation and Academic Achievement in Adolescents, *22nd Annual Colloquium of International School Psychology Association,* Switzerland, July 30–August 3, 1999.

Gupta, Rumki : Crisis in Scholastic Attainment Due to Socio-economic Deprivation in Rural and Urban Boys with some Comparisons between these Two Groups, *First Ever Global Conference on Children 2000 AD,* Science City, Calcutta, December 15-18, 1999.

Mitra, Subir Kumar : Recent Trends in Evaluation , *UGC Refresher Course for College and University Teachers of Eeastern Rregion,* University of Calcutta, January 14, 2000.

Mitra, Subir Kumar : Competency Based Learning of L1 of Primary School Curriculum in West Bengal, *2nd National Symposium on Methods in Quantitative Linguistics,*Linguistics Research Unit, ISI, February 29, 2000.

*Sociological Research Unit*

Bandyopadhyay, Suraj : Statistical Issues in Social Sciences, *Professor K.M. Hossain Memorial Lecture Series,* Dept. of Statistics, University of Rajshahi, Bangladesh 2-*day Workshop on 'Statistical Science:Theory and Application',* April 20-22, 2000.

Bandyopadhyay, Suraj : Statistical Methods in Understanding Sociological Relaltions: Problems and Llimitations, *National Seminar on 'Statistics and Society',* Post-Graduate Department of Statistics, Utkal University, March 29, 2000.

Bandyopadhyay, Suraj : Social Networking Analysis, *Seminar on Economics and Information Technology, Industrial Statistics Wing of CSO,* Ministry of Planning, Govt. of India, Calcutta, March 28-29, 2000.

Bandyopadhyay, Suraj : Application of Statistics in Social Sciences: Problems and prospects, the Pannel Discussion, *National Conference on Economic and Statistical Issues in Development,* Dept. of Economics and Dept. of Statistics of Kalyani University, March 10-11, 2000.

Bandyopadhyay, Suraj : Land Reforms and the Issues of Mobilization in Post-colonial India – the Case of West Bengal, *National Seminar on Mobilization and Development: Society and Economy in 20th Century India,* Dept. of History, University of Calcutta, December 4-5, 1999.

Chakraborty, Aniruddha : Adoption of Agricultural practice by some Birhor Families of Purulia: Some Observation, *National Symposium on Social Transformation in Rural Sector,* Institute of agriculture, Visva-Bharati, Santiniketan, February 1-3, 2000.

Ghosh, Bhola Nath : Women's Participation in Gram Panchayat: State-wise Distribution of Elected Panchayat Members in India, *National Symposium on Social Transformation in Rural Sector,* Institute of Agriculture, Visva-Bharati, Santiniketan, February 1-3, 2000.

Maiti, Asok: Globalization Vis-a-Vis Regional Development:Challenges Before the North Eastern States, *Council of Social Science Research,* Shillong, December 1999.

## Statististical Quality Control and Operations Research Division

Asokan, M.V. : Success of Industrial Application of Statistics, *National Seminar on Statistical Techniques with Computer Applications,* Coimbatore.

Bandopadhyay, Sriparna : Strong Monotonicity and P2 Properties of SDLCP, *International Conference on Operations Research and game Theory*, January 3-7, 2000.

Das, Arup : On Classes of Fully Semimonotone Matrices, *ICORGT, Chennai, January* 3-7, 2000.

Dutta, Joydeep : Opotimality Conditions in Nonsmooth Optimization, *International Conference on Operations Research and game Theory*, January 3-7, 2000.

Goel, Rajiv : Some Results on Weighted Majority Representation of Simple Games, *International Conference on Operations Research and Game Theory*, January 3-7, 2000.

Mandal, P. : Prospects of Acceptance Sampling, *International Conference on Game Theory,* Chennai, January 3-7, 2000.

Mohan, S.R. : Pivot Algorithms for Some Problems in Stochastic Games, *International Conference on Operations Research and Game Theory*, January 3-7, 2000

Neogy, S.K. : On Some Recent Generalization of the Linear Complementarity Problem, *International Conference on Operations Research and Game Theory*, January 3-7, 2000.

Rajagopal, A. : Lead Time Reduction, *Conference on Game Theory and Industrial Applications*, Chennai.

Rajagopal, A. : Lead Time Reduction for Garment Industries, *International Conference on Game Theory and Industrial Appications, Chennai*, January 3-7, 2000.

Ravindran, G. : Blackwell Games, *Conference on Game Theory in ICORGT 2000*, Chennai, January 3-7, 2000.

Rao, T. Sreenivasa : Calculation of Stress-Strength Reliability of a System, *National Seminar on Reliability Analysis and Engineering*, December 15-16, 1999.

## Library, Documentation and Information Sciences Division

### Library (Calcutta)

Basak, Nanda Dulal : Library Services in the 20th Century, *One day Seminar jointly, organised by IASLIC & BLA to commemorate the birth anniversary of Dr. S.R. Ranganathan and celebrate Librarians' day*, Indian Institute of Management, Calcutta, August 22, 1999.

Basak, Nanda Dulal : Users' Approach to Museum Collections, Seminar, Durbar Hall of the Victoria Memorial Hall, Calcutta, March 30, 2000.

### Library (Bangalore)

Krishnamurthy, M. : Online Public Access Catalogue : An Experience of ISI BC Library, *DRTE Annual Seminar*, March 2000.

## Part II. VISITING SCIENTISTS, HONOURS AND AWARDS, ASSIGNMENTS

## 7. VISITING SCIENTISTS

A number of distinguished scientists from abroad and India 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.

1. Alekseenko, S. V., Institute of Thermophysics, Novosibirisk, Russia, January 2-10, 2000 *Physics and Applied Mathematics Unit, Calcutta.*

2. Andonov, R., University of Valencienes, France, December 28, 1999, *Advanced Computing and Microelectronics Unit Calcutta.*

3. Athreya,K.B., Iowa State University, USA, May 19, 1999, *Stat Math Unit,Bangalore.*

4. Barari, Mahua, Southwest Missouri State University, U.S.A., August – December, 1999, *Economic Research Unit, Calcutta.*

5. Barreto, Stephen Dias, NBHM Post-Doctoral Fellow,August 1999,*Stat-Math Unit, Bangalore.*

6. Basu, M., Electrical Engineering Dept. & Centre for Biomedical Engineering, City College of City University of New York, USA, August 13, 1999, *Machine Intelligence Unit, Calcutta.*

7. Basu, Sujit Kumar, National Institute of Management, Calcutta, April 01, 1999 – March 31, 2000, *Stat Math Unit, Calcutta.*

8. Bhattacharjee, Manish C., New Jersey Institute of Technology, USA, August 05, 1999, *Stat Math Unit, Bangalore.*

9. Bhattacharya, Bhaskar, University of Southern Illinos, USA, (Period), *Applied Statistics Unit, Calcuna.*

10. Bhattacharya, Mahidas, Scientist, ISDL, July, 1999, *Computer Vision and Pattern Recognition Unit Calcutta.*

11. Bhattacharyya, Shankar P., Department of Electrical Engineering, Texas A & M University, USA, December, 28-29, 1999, *Physics and Applied Mathematics Unit, Calcutta.*

12. Bhattacharyya,Tirthankar, Poorna Prajna Research Scientist,August - September 1999, *Stat Math Unit, Bangalore.*

13. Birindelli, Isabella, Department of Mathematics, Universita di Roma "La Sapienza, Italy, Agust 19-26,1999, *Stat-Math Unit, Bangalore*

14. Bose, D.K., Honorarv Professor, ISI, Calcutta, February 2-4, 2000, *Economic Analysis Unit Bangalore.*

15. Bottcher, Albrecht, Fakultat Mathematik, Germany, January 2000, *Stat Math Unit, Delhi.*

16. Chakraborty, B., Dept. of Software and Information Science, Iwate Prefecture University, Japan December 16 - 22, 1999, and December 30, 1999--January 13, 2000, *Machine Intelligence Unit Calcutta.*

17.  Chakraborty, G., Dept. of Software and Information Science, Iwate Prefecture University, Japan, December 16 - 22, 1999, and December 30, 1999 - January 13, 2000, *Machine Intelligence Unit, Calcutta.*

18.  Chatterjee, Kashinath, Ashutosh College, Calcutta, December 14 – January 1,2000, *Stat Math Unit, Delhi.*

19.  Chaubey, Y.P., Concordia University, Canada, February 1- March 31,2000, *Stat Math Unit, Delhi.*

20.  Chaudhuri, Gopal, February 2000, *SQC & OR Unit, Delhi.*

21.  Das, Manab, Dept. of Mathematics, University o Louisville, Louisville, KY, 40292, USA, June 8-28, 1999, *Stat Math Unit, Delhi.*

22.  Das, Rajiv, K., Tezpur University, July 21, 1999, *Advanced Computing and Microelectronics Unit Calcutta*

23.  Das, Samir Kumar, Central Water and Power Research Station, Pune, February, 21-22, 2000 *Physics and Applied Mathematics Unit, Calcutta.*

24.  Dasgupta, D., Mathematical Sciences Dept., University of Memphis, USA, June 24, 1999, *Machine Intelligence Unit, Calcutta.*

25.  Dasgupta, Gautam, Columbia University, USA, July 20-23, 1999, *Physics and Applied Mathematics Unit, Calcutta*

26.  Davis, Chandler, University of Toronto, Canada, January 2000, *Stat Math Unit, Delhi.*

27.  Dendukuri, Nandini, Department of Health Care Policy, Harvard Medical School, USA, October 25, 1999, *Stat Math Unit, Bangalore.*

28.  Deo, Nivedita, JNCASR, Bangalore, July 8, 1999, *Stat Math Unit, Bangalore.*

29.  Derrien, S., IRISA, Rennes, France, January 10-28, 2000, *Advanced Computing and Microelectronics Unit Calcutta.*

30.  Devi Ahilya, Bhagwandas, University, Indore, May 18, 1999 – May 27, 1999, *Stat Math Unit, Calcutta*

31.  Devi, Anasuya, H. K., National Institute of Advanced Studies, Bangalore, India from February 15, 1999 - May 03, 1999 *Machine Intelligence Unit, Calcutta.*

32.  Dias da Silva, J.A., Centro de Estruturas Lineares e Combinatorias, Portugal, February 3-12, 2000, *Stat Math Unit, Delhi.*

33.  Ding, Cunsheng, NUS, Singapore, (Period), *Applied Statistics Unit, Calcutta.*

34.  Druet,Olivier, University of Cergy Pontoise, France, March 16,2000, *Stat-Math Unit, Bangalore.*

35.  Dutta, Joydeep, NBHM, date .....? *SQC & OR Unit, Delhi.*

36.  Dutta, Susmita, Georgia State Univeristy, USA,(Period), *Applied Statistics Unit, Calcutta.*

37.  Edmonds, Christopher, Social Sc. Division, IRRI, Philippines, March 01-13, 2000, *Agricultural Sciences Unit, Calcutta.*

38.  Faraut, J.,University Pierre et Marie Curie, Paris, December 06 – 07, 1999, *Stat-Math Unit, Bangalore.*

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39. Fitzpatrick, Jennifer, University of Konstanz, Germany, September 1999, *Computer Vision and Pattern Recognition Unit, Calcutta.*

40. Franz, Uwe, Institute fuer Mathematik and Informatik, Germany, December 22-27, 1999, *Stat Math Unit, Delhi.*

41. Gangopadhyay, P., University of Adelaide, Australia, December 1, 1999 - March 30, 2000, *Machine Intelligence Unit, Calcutta.*

42. Gangopadhyay, Sreela,...(Affiliation)., November 25, 1999- March 31, 2000, *Stat Math Unit, Calcutta*

43. Garimella,Gayatri, NBHM Post-Doctoral Fellow,April - June 1999, *Stat Math Unit, Bangalore.*

44. Ghate, Chetan, The Colorado College, USA, January 5 – March 30, 1999, *Planning Unit, Delhi.*

45. Ghosal, S., IBM Solutions Research Center, New Delhi, India, April 19, 1999, *Machine Intelligence Unit, Calcutta.*

46. Ghosh, M.K., Indian Institute of Science, August 05, 1999, *Stat Math Unit, Bangalore.*

47. Ghosh, Sujit K., NC State University, USA, (Period), *Applied Statistics Unit, Calcutta.*

48. Gillette,David D., Colbert Curator of Paleontology, Museum of Northern Arizona, 3101 N. Fort Valley, Flagstaff, Arizona 86001, U.S.A., November 15 – 24,1999,*Geological Studies Unit, Calcutta.*

49. Gossner, Olivier, University of Paris, Nanterre, February 1999, *Planning Unit, Delhi.*

50. Gupta, B., Dept. of Computer Science, Southern Illinois University, Carbondale, USA, July 2, 1999, *Advanced Computing and Microelectronics Unit Calcutta.*

51. Hudson, R.L., Dept. of Mathematics, The Nottingham Trent University, U.K., January 2 – February 2, 2000, *Stat Math Unit, Delhi.*

52. Hudson, Robin,University of Nottingham, UK and Slovak Academy of Sciences, Slovakia, January 16 – 31,2000, *Stat-Math Unit, Bangalore.*

53. Ibragimov, I., St. Petersburg University, January 18-23, 2000, *Stat Math Unit, Delhi.*

54. Inamdar, S.P.,Institute of Mathematical Sciences, Chennai, January 4, 1999, *Stat Math Unit, Bangalore.*

55. Indumathi,V., Pondicherry University, June 11,1999, *Stat Math Unit, Bangalore.*

56. Jacques, Dreze, CORE, December 2-9, 1999, *Planning Unit, Delhi.*

57. Jeganathan, P., University of Michigan, USA, May – June, 1999, *Stat Math Unit, Bangalore.*

58. Kakkar, Vikas, City University, Hong Kong, August 1-31, 1999, *Planning Unit, Delhi.*

59. Kargupta, H., School of Electrical Engineering & Computer Science, Washington State University, USA, June 15-16, 1999, *Machine Intelligence Unit, Calcutta.*

60. Kerman, Ron,Brock University, St. Catharines, Canada, November 01 – December 15, 1999, *Stat-Math Unit, Bangalore.*

61. Kohli, S. S., Department of Science and Technology, New Delhi, December 1999, *Computer Vision and Pattern Recognition Unit, Calcutta.*

62. Kolar, Vaclav, Institute of Hydrodynamics, Academy of Sciences of Czech Republic, Prague, October 24 - November 20, 1999, *Physics and Applied Mathematics Unit, Calcutta.*

63. Kothari, R., Dept. of Electrical & Computer Engineering & Computer Science, University of Cincinnati, USA, October 25, - December 5, 1999, *Machine Intelligence Unit, Calcutta.*

64. Larsen, Michael, University of Chicago, USA, (Period), *Applied Statistics Unit, Calcutta.*

65. Luo,Zhexi, Carnegie Museum of Natural History, 4400 Forbes Avenue,Pittsburgh, PA-15213-4080, U.S.A., May 20-21,1999,*Geological Studies Unit,Calcutta.*

66. Madan,Shobha, Department of Mathematics, I.I.T., Kanpur, June 16-30, 1999, *Stat Math Unit, Bangalore.*

67. Maniquet, Francois, University of Namur, December 5-20, 1999, *Planning Unit, Delhi.*

68. Maskin, Eric, Harvard University, December 2-7, 1999, *Planning Unit, Delhi.*

69. Mohanty, Sara, Visiting Scientist, ISI, Bangalore, March 2000, *Stat Math Unit, Bangalore.*

70. Mukherjee, A., ISI, Calcutta, March 10-17,2000, *Stat Math Unit, Delhi.*

71. Mukherjee, Amiya, (Affiliation), September 01, 1999 – September 2001, *Stat Math Unit, Calcutta.*

72. Mukherjee, Rahul, IIM, Calcutta, (Period), *Applied Statistics Unit, Calcutta.*

73. Mukherjee, Rahul, IIM, Calcutta, April 01, 1999 – March 31, 2000, *Stat Math Unit, Calcutta.*

74. Murthy, K.G, November, 1999, *SQC & OR Unit, Hyderabad.*

75. Murthy, N.R. Vasudeva, Creighton University, Omaha, Netherlands, USA, March 27 – April 2, 2000, *Economic Analysis Unit, Bangalore..*

76. Murty, M.Ram, Queen's University, Canada, January 13-16,2000, *Stat Math Unit, Delhi.*

78. Naik,Suresh, Mehta Research Institute, Allahabad, May, 21, 1999, *Stat Math Unit, Bangalore.*

79. Oja, Hannu, Department of Statistics, University of Jyavaskyla, Finland, January 17 – 25, 2000, *Stat Math Unit, Calcutta.*

80. Pati, Sukanta, ISI, Visiting Fellow, August 01 – September 28, 1999, *Stat Math Unit, Delhi.*

81. Paul, Sudhir R., University of Windsor, Canada, (Period), *Applied Statistics Unit, Calcutta.*

82. Pennsylvania, Philadelphia, USA, February 21 – March 6, 2000, *Biochemistry Unit, Calcutta.*

83. Piazza, Paolo, Department of Mathematics, Universita di Roma "La Sapienza",Italy, August 19-26,1999, *Stat-Math Unit, Bangalore.*

84. Pradipeswar, Vice Chancellor, Tezpur University, 1999, *Advanced Computing and Microelectronics Unit Calcutta.*

85. Prasanna, Viktor. K., Dept. of Computer Science, University of Southern California, USA, December 16, 1999, *Advanced Computing and Microelectronics Unit Calcutta.*

86. Rajopadhye, R., IRISA, Rennes, France, January 10-28, 2000, *Advanced Computing and Microelectronics Unit Calcutta.*

87. Ramaswamy, Mythily, TIFR, Bangalore, July 29, 1999, *Stat Math Unit, Bangalore.*

88. Ramaswamy, S., Department of Mathematics, Pondicherry University, June 28, 1999, *Stat Math Unit, Bangalore.*

89. Rao, Arni, S.R.S., IIPS, Deonar, Mumbai ,September 01,1999 – August 2000, *Stat Math Unit, Calcutta.*

90. Rao, D.S. Prasada, University of New England, Armidale, Australia, January 01-11, 2000, *Economic Analysis Unit, Bangalore.*

91. Rao, D.S.P., University of New England, Armidale, New South Wales, Australia, December 01-31, 1999, *Economic Research Unit, Calcutta.*

92. Rao, M.B., Department of Statistics, North Dakota State University, Fargo, ND 58105-5575, May 21 – July 10, 1999, *Stat Math Unit, Calcutta.*

93. Rao, M.Bhaskara, North Dakota State University, FARGO, USA, May 31- June 1, 1999, *Stat Math Unit, Bangalore.*

94. Rao,Arni SR Srinivasa, India, (Period), *Applied Statistics Unit, Calcutta.*

95. Robinson Edward Raja,C., Visiting Scientist, ISI, Bangalore, July 1999, *Stat Math Unit, Bangalore.*

96. Rogers, Kristina Curry,Bell Museum of Natural History, University of Minnesota, St Paul, Minnesota 55108, U.S.A., November 15 – 26, 1999, *Geological Studies Unit, Calcutta*

97. Rust, John, Yale University, December 2-7, 1999, *Planning Unit, Delhi.*

98. Sankaran, N.,Punjab University, Chandigarh, March 09,2000, *Stat-Math Unit, Bangalore.*

99. Sarkar, Jyotirmoy, Indiana University Purdue University, USA, (Period), *Applied Statistics Unit, Calcutta.*

100. Sarma, Jayasri Das, Institute of Environmental Medicine, School of Medicine, University of

101. Seade, J., Instituto de Matematicas, U.N.A.M., Mexico, August 12,1999, *Stat Math Unit, Bangalore.*

102. Semrl, Peter, Institute for Mathematics & Physics, Slovenia, November 5 – 19, 1999, *Stat Math Unit, Delhi.*

103. Sen,Diptiman, CTS, Indian Institute of Science, Bangalore, June 21, 1999, *Stat Math Unit, Bangalore.*

104. Sengupta, Ambar, Dept. of Mathematics, Louisiana State University, LA 70803, USA, April 8-14, 1999, *Stat Math Unit, Delhi.*

105. Sengupta, Arindam, (Affiliation)., July 20, 1999 – June 2000, *Stat Math Unit, Calcutta.*

106. Sethuraman,Sundar, Iowa State University, USA, January 05, 2000, *Stat-Math Unit, Bangalore.*

107. Sharma, Som D., Institute of Ship Technology, Mercator University, Duisburg, Germany,February 4 and February 17, 2000, *Physics and Applied Mathematics Unit, Calcutta.*

108. Sinha, Kishore, Dept. of Statistics & Mathematics, Birsa Agricultural University Ranchi, Bihar, September 9 – October 8, 1999, *Stat Math Unit, Delhi.*

109. Skeide, M.,University of Cottbus, Germany, November 14-29, 1999, *Stat-Math Unit, Bangalore.*

110. Skeide, Michael, Brandenburgische Technische Universitat, Cottbus, Germany, January 2-16, 2000, *Stat Math Unit, Delhi.*

111. Srinivas, V., TIFR, Bombay, September 27,1999,*Stat-Math Unit, Bangalore.*

112. Srinivasan, R.,Mehtha Research Institute, Allahabad, March 15 – 31,2000, *Stat-Math Unit, Bangalore.*

113 .Subramoniam,V.I., Director, ISDL, July, 1999, *Computer Vision and Pattern Recognition Unit, Calcutta.*

114. Tanemura, Hideki, Chiba University, Japan, December 12-24, 1999, *Stat Math Unit, Delhi.*

115. Uchiyama, Kohei, Tokyo Institute of Technology, Japan, March 06 – 26, 2000, *Stat Math Unit, Delhi.*

116. Vaman,H.J.,Department of Statistics, Bangalore University, April 20,1999, *Stat Math Unit, Bangalore.*

117. Viswanath,K.,University of Hyderabad, Hyderabad, November 22 – 26, 1999, *Stat-Math Unit, Bangalore.*

118. Wadhwa,Wilima, SERFA, August-December 1999, *Planning Unit, Delhi.*

119. White, Damien, University of Utrecht, December 13-22, 1999, *Stat Math Unit, Delhi.*

120. Wills,Stephen,University of Nottingham, December 07-18, 1999, *Stat-Math Unit, Bangalore.*

121. Yadava,S.L.,TIFR, Bangalore, July 15, 1999, *Stat Math Unit, Bangalore.*

122. Zhan, Xingzhi, Peking University, January 22 – February 23, 2000, *Stat Math Unit, Delhi.*

# 8. HONOURS, AWARDS AND SPECIAL ASSIGNMENTS

## Theoretical Statistics and Mathematics Division

*Stat-Math Unit, Calcutta*

Ghosh, J.K., was awarded the First Sukhatme Memorial Award instituted by the Ministry of Statistics and Programme Implementation, Government of India.

Sinha, Bikas K., was elected as a Featured Speaker by the Forum for Interdisciplinary Mathematics at the Sixth International Conference held at the University of South Alabama, Mobile, USA. and he was also honoured for outstanding contribution in Statistical Science, during December 18-20, 1999.

*Stat-Math Unit, Delhi*

Bapat, R.B., was elected Fellow of the Indian Academy of Sciences, Bangalore.

Karandikar, R.L. received the S. S. Bhatnagar award for his achievements in mathematics.

*Stat-Math Unit, Bangalore*

Alladi Sitaram was appointed an Editor of the Proceedings of the Indian Academy of Sciences (Mathematical Sciences).

## Applied Statistics Division

*Applied Statistics Unit*

Chaudhuri, A., presided over the Statistics Section in the 88th Session of the Indian Science Congress held in Pune during January 3-7, 2000.

SenGupta, A., served as Chairman for Invited Session on Directional Data Analysis, International Forum for Interdisciplinary Mathematics, University of South Alabama, Mobile, Alabama, USA, December 1999.

## Computer and Communication Sciences Division

*Advanced Computing and Microelectronics Unit*

Bhattacharya, Bhargab B. was elected a fellow of the Indian National Academy of Engineering.

Sinha, Bhabani, P. was appointed an Associate Editor of the IEEE Transactions on VLSI Systems.

*Electronics and Communication Sciences Unit*

Majumder, D. Dutta, received the Frank George Research Award for his contribution on "Cybernetic Approach to Medical Technology and Cancer Screening" from World Congress of Cybernetics Systems at Brunnel University, London.

Pal, N.R. has been continuing as an associate editor of IEEE Trans. on Fuzzy systems, IEEE and International Journal of Approximate Reasoning, North-Holland. He has been appointed as an editor of IEEE Trans. on Syst. Man & Cybern. Part B (Elect. Version), IEEE and International Journal of Fuzzy Systems and acting as guest editor of a special issue on Soft Computing for Pattern Recognition for the Journal of Fuzzy Sets and Systems, Vol. 103, 1999. He has also been selected as the Independent Theme Chair for neural Networks of the World Federation of Soft Computing (WFSC).

*Machine Intelligence Unit*

Bandyopadhyay, S. was selected for the award of the Indian National Science Academy (INSA) Young Scientist medal, 2000. She also received the Young Scientist award at the 87th Indian Science Congress, held in Pune in January 2000.

Kundu, M. K. was elected a Fellow of The National Academy of Sciences, India, in 1999. He has been elevated to Senior Member, IEEE in 2000. He served as a member of the Programme Committee for 13th International Conference on VLSI design during January 2000. He also acted as a member of the local organizing committee of the 6th International conference on High Performance Computing during December 1999.

Murthy, C. A. served as a Guest Editor of the Proc. INSA for a special issue on Pattern Recognition, Image Processing and Computer Vision.

Pal, S. K., received the 1999 G. D. Birla Award for Scientific Research from the K. K. Birla Foundation. He also received, from the Prime Minister, the 1998 Shri Om Prakash Bhasin Foundation Award for Science and Technology for his work on Electronics and Information Technology . He continued to serve as (i) an IEEE (USA) Computer Society Distinguished Speaker for the Asia Pacific Region (ii) an Associate Editor of the journals - IEEE Trans. on Neural Networks , Pattern Recognition Letters, Neurocomputing, Information Sciences, and Applied Intelligence and (iii) a guest editor of a special issue on (a) 'Pattern Recognition, Image Processing and Computer Vision' for the journal Proc. INSA-A, (b) 'Rough-Neural Computing' for the journal Neuro-Computing and (c) 'Data Mining' for the journal Engineering Intelligent Systems. He was appointed a member of the Editorial Board of the Fuzzy Sets and Systems, Computer Vision and Graphics and Fundamenta Informaticae. He continued to serve as an Executive Advisory Editor of IEEE Trans. on Fuzzy Systems and Int. J. of Approximate Reasoning; and a member of the Reviewing Boards of Mathematical Reviews (American Mathematical Society) and IEEE Computer.

## Physics and Earth Sciences Division

*Physics and Applied Mathematics Unit*

Mandal, B.N. was elected Fellow (F.N.A.Sc.) by *The National Academy of Sciences*, India. He was also elected Fellow of the National Academy of Sciences, India.

## Biological Sciences Division

*Anthopology and Human Genetics Unit*

Majumder, Partha P., received (i) the New Millennium Science Medal from the Council of Scientific & Industrial Research and Indian Science Congress Association and (ii) G.S. Radhawa Oration Award in Human Genetics from Guru Nanak Dev University, Amritsar.

Satapathy, K.C., received Young Scientist Award from the Indian Science Congress Association.

## Social Sciences Division

*Economic Analysis Unit*

Rao, Surekha, K., was re-nominated a member of the editorial board of Journal of Quantitative Economics.

## Documentation and Information Sciences Division

*Documentation Research and Training Centre (DRTC)*

Prasad, A.R.D. was awarded Fulbright Fellowship by the *United States Educational Foundation in India (USEFI)*.

# 9. SCIENTIFIC ASSIGNMENTS ABROAD

## Theoretical Statistics and Mathematics Division

*Stat-Math Unit, Calcutta*

Bandyopadhyay, Pradipta visited the Department of Mathematics, University of Iowa, USA during August 16, 1999 - May 22, 2000 as a Visiting Professor.

Barua, Rana visited the Department of Mathematics and Computer Science, University of Miami, Coral Gables, USA, during August 16 – May 15, 2000 as a Visiting Professor. '

Basu, Arup visited the Department of Statistics, Purdue University, USA, during January 3 – May 15, 2000 as a Visiting Professor.

Basu, Srabashi attended the International Statistical Institute, 62nd Session, at Helsinki, Finland, during August 2 – 20, 1999.

Chaudhuri, Probal visited the Department of Statistics and Applied Probability of the National University of Singapore during July 13- 28, 1999.

Ghosh, J.K. attended the International Statistical Institute Biennial Meeting during August 10-17, 1999 and visited Purdue University, USA, as Professor during August 18 – December 22, 1999.

Sinha, Bikash Kumar visited the Department of Mathematics and Statistics, University of Maryland, USA, as a Professor during January 25 – December 15, 1999.

*Stat-Math Unit, Delhi*

Dey, Aloke visited the Institute of Statistical Science, Academia Sinica, Taipei, Taiwan, during May 15 – June 15, 1999.

Kochar, S.C. visited the University of Hong – Kong during October 25 – November 5, 1999.

Rao, B.L.S.P. visited Australian National University, Canberra as a Visiting Fellow during May 20- June 29, 1999.

*Stat-Math Unit, Bangalore*

Joshi, S.N. visited the Ohio State University, Columbus, USA, during April-September, 1999.

Misra, G. visited Texas A and M University during August 7 – 30, 1999 and Universities of CUNY, NY during August 31 -September 02,1999.

Prajapat, Jyotshana visited the Department of Mathematics, Rutgers University, New Brunswick, NJ, USA, during November 01-30, 1999 and Courant Institute of Mathematical Sciences, New York University, Mercer Street, NY, USA, during December 01-14, 1999.

Rajeev, B. has been visiting the Department of Probability and Statistics, Michigan State University, East Lansing, Michigan, USA, since August 1999.

Rao,T.S.S.R.K. visited the Department of Mathematics, University of Missouri, Columbia, Missouri,USA,in August 1999 and the Department of Mathematics, University of Iowa, USA, on March 23, 2000 . He also participated in a Conference on Analysis.

Thangavelu, S. visited the Israel Institute of Technology, Haifa during April 29- May 16, 1999.

## Applied Statistics Division

*Applied Statistics Unit*

Basu, A. visited the Department of Statistics and Applied Probability, National University of Singapore, during November-December 1999.

Bose Mausumi visited the Department of Statistics, University of S. Alabama, USA,during December 13-24, 1999.

Dewanji, Anup visited the Fred Hutchinson Cancer Research Center, Seattle, USA during June 28-August 6, 1999 and National University of Singapore on August 10, 1999.

Mukhopadhayay P. visited the University of South Pacific, Fiji during February 4,1999-January 16, 2000.

Sen Gupta, Ashis visited (i) the Department of Statistics, University of California, Riverside, USA as Visiting Professor during September 1999- March 2000 and (ii) Universities of Singapore, Cork (Ireland), Glasgow (UK) and California (Santa Barbara). He presented an invited paper in the Silver Anniversary Conference, Department of Statistics, Ohio State University, Columbus, USA, in October 1999.

## Computer and Communication Sciences Division

*Advanced Computing and Microelectronics Unit*

Bhattacharya, B.B. visited the Institute fuer Informatik, University of Potsdam, Germany during June 1- July 31, 1999.

Sur-Kolay, S. visited (i) Strategic CAD Laboraties, Intel Corp., Hillsboro, OR, USA during September 1-12, 1999 (ii) Intel Corp., Santa Clara, CA, USA during September 13-15, 1999 (iii) IRISA/INRIA, Rennes, France during September 16 – October 15, 1999. (iv) Northwestern University, Evanston, Illinois, USA.

*Computer Vision and Pattern Recognition Unit*

B.B. Chaudhuri visited (i) GSF, Munich during August-September,1999 (ii) University of Konstanz, Germany in August, 1999 (iii) Monash University, Australia in November, 1999. He also was appointed a member of the IAPR Fellow Committee.

Pal, U. visited the Beijing Hanwang Technology Co. Ltd., Beijing, China in May, 1999 and delivered a seminar at Tsinhua University, Beijing, China in May, 1999. He also participated in a Summer School on Computer Vision and Partial Differential Equations organized by the International Centre for Pure and Applied Mathematics, and Chinese Academy of Sciences, Beijing, China in May, 1999.

*Electronics and Communication Sciences Unit*

Mukherjee, D.P. visited School of Electrical and Computer Engineering, Oklahoma State University, Stillwater, USA during September 1998 to August 1999

Pal, N.R. visited the University of West Florida, Pensacola, USA, during January - July 2000.

Bandyopadhyay, S. visited the University of New South Wales, Sydney, Australia during March-September, 1999 and Monash University, Melbourne, Australia.

Ghosh, A. visited and delivered talks at the (i) German National Research Center for InformationTechnology (GMD)), Bonn (ii) Dortmund University, (iii) University of Karlsruhe, Karlsruhe Germany during January 10 - April 7, 2000 (iv) Warsaw University, and Warsaw University of Technology, Warsaw, Poland during March-April 2000 (v) Leiden University, Leiden, the Nederlands. He also served as a member of the program committee of the Genetic and Evolutionary Computation Conference (GECCO) 1999, Orlando, USA, and the Seventh International Conference on Fuzzy Theory and Technology, New Jersey, USA, 2000.

Kundu, M.K. served as a member of the Programme Committee for 13th International Conference on VLSI design during January 2000. He also acted as a member of the local organizing committee of the 6[o] International conference on High Performance Computing during December 1999.

Mitra, S. visited (i) the Computer Science Department, Meiji University, Kawasaki, Japan as a Visiting Professor during May-July, 1999 (ii) the Department of Software and Information Science, Iwate Prefectural University, Japan, in July, 1999 . She has been serving as a member of the International Program Committees of NAFIPS 1999, New York, USA and the second International ICSC Congress on Computational Intelligence; Methods & Applications (CIMA 2001), Bangor, UK, during June 19-22, 2001.

Pal, S. K. visited the Hong Kong Polytechnic University as a Visiting Professor during April-June 1999 and January 2000. He also visited the Zhejiang University, Hangzhou, P.R. China and the Chinese Academy of Sciences, Beijing, P.R. China in September 1999 . He attended the 7th General Conference of the Third World Academy of Sciences (TWAS), Dakar, Senegal, in November 1999 ,and took part in the panel discussion for Scientific Development Program in the Third World Countries. He served as a member of the (i) International Program Committees of the International Symposium on Medical Informatics and Fuzzy Technology (MIF'99) at Hanoi, during August 27-29, 1999 (ii) Seventh International Workshop on Rough Sets, Fuzzy Sets, Data Mining and Granular-Soft Computing in Japan during November 9-11, 1999 (iii) 6th International Conference on Neural Information Processing during November 16-20, 1999 at Perth, Australia (iv) Conference on Parallel and Distributed Computing and Network (PDCN'99) during December 15-17, 1999, Hong Kong.

## Physics and Earth Sciences Division

*Physics and Applied Mathematics Unit*

Das, P.K. visited Centro vito volterra, Universita di Roma, Tor vergata, Rome during July 6 – 24, 1999 and attended the Volterra International School, Trento, Italy.

Mazumder, B.S. was selected a member of International Scientific Advisory Committee, *8 International Symposium on Stochastic Hydraulics, Beijing, 2000.*

Mazumdar, H.P. visited (i) Aristotle University of Thessaloniki, Greece during May - June, 1999 as a Visiting Professor and attended Annual Conference of the Balkan Society of Geometries (ii) Institute of Hydrodynamics, Czech Academy of Science, Prague during July, 1999 as a Visiting Professor.

Roy, S. visited George Mason University, USA, as a Visiting Professor during September 23,1998-May 1,1999.

Roy, P. visited (i) Universiy of Lviv, Ukraine during April - May, 1999 as a Visiting Professor (ii) Institute of Nuclear Research, Hungarian Academy of Science, Debrecen, during May - June, 1999 as a Visiting Professor.

Roychoudhury, R. visited (i) University of Kiev, Ukraine during July 12-18, 1999 and attended the 3rd International Conference on 'Symmetry in Non-linear Mathematical Physics' (ii) Institute of Nuclear Physics, Czech Republic, Prague, during July 19-26 , 1999 as a Visiting Scientist.

## Biological Sciences Division

### *Agricultural Science Unit*

Banik, P. visited the GIS/IP Laboratory, Social Sciences Division, International Rice Research Institute, Los Banos, Philippines, during January 8-12, 2000.

### *Anthropology and Human Genetics Unit*

Majumder, Partha P. participated in (i) the Board of Directors meeting of the International Genetic Epidemiology Society in St. Louis, USA, on 9 September 1999, and (ii) a meeting for developing Guidelines for International Collaborations in Biomedical Research, at the Fogarty International Center, U.S. National Institutes of Health, Bethesda, USA, during March 19-20, 2000.

### *Biochemistry Unit*

Duttagupta, C. was re-appointed as a Visiting Assistant Professor at the Department of Obstetrics and Gynecology, Albert Einstein College of Medicine, New York, USA from July, 1999 to June, 2000 .

### *Biometry Research Unit*

Basu, T.K. visited (i) the University of Tasmania, Southern Australia during December 12-16,1999 (ii) the National University of Singapore, during December 17-22 ,1999.

### *Embryology Unit*

Ghosh, Asit Kumar participated in the Fifth Course on Mathematical Ecology at the ICTP, Trieste, Italy, during February 28 - March 24, 2000.

## Social Sciences Division

### *Economic Research Unit*

Kabiraj, Tarun visited the Department of Decision Sciences and Managerial Economics, The Chinese University of Hong Kong, during September 1999 - March 2000.

Mazumdar, Krishna visited the Institute of Commonwealth Studies, London, U.K., during September 1- 30, 1999.

### *Linguistic Research Unit*

Choudhry, Amitava visited the York University, U.K., during April 26-May 6, 1999 and February 1-12, 2000.

Chatterji, Shurojit visited the University of Warwick and the CORE during May-June, 1999.

Das, Satya P. visited the University of Copenhagen and Rutgers University during May-June, 1999.

Das, Sanghamitra visited the Northwestern University and the Boston University during May-June, 1999 .

Ramaswami, Bharat visited the University of Uppsaala during May-June, 1999.

Sen, Arijit visited the University of Maryland during May-June, 1999.

Sen, Arunava visited the University of Paris, Cergy-Pontoise and the CORE during May-June, 1999.

## Statistical Quality Control and Operations Research Division

Chaudhuri, A.K. visited Iran, Mexico and some Far East Asian countries.

Chaudhuri, K.K. visited some Far East Asian countries.

Perumallu, P.K. visited some Far East Asian countries.

Raman, D. Sampangi visited the State University of New York at Stony Brook during July 7-17, 1999.

## Documentation and Information Sciences Division

*Documentation Research and Training Centre (DRTC)*

Prasad, A.R.D. visited Iowa State University of Science and Technology for six months. He also visited (i) Iowa State University, Ames, Artificial Intelligence Lab., (ii) School of Computer Science, during August 20-October 31, 1999 (iii) School of Library and Information Science, University of Maryland, during November 5, 1999 - February 13, 2000 (iv) National Medical Library Bethesda (v) Library of Congress, Washington National Agricultural Library, Washington in December 1999.

Raivchandra Rao, I.K. visited the Universida de Colima, Mexico.

## Computer and Statistical Services Centre

Maitra, Subhamoy attended CRYPTO-99, University of California, Santa Barbara, during August 15-19, 1999.

Nandy, S.C. visited the School of Information Sciences, Japan, Advance Institute of Science and Technology, Japan, during August 3, 1998 - August 25, 1999.

# 10. SCIENTIFIC ASSIGNMENTS IN INDIA

## Theoretical Statistics and Mathematics Division

*Stat-Math Unit, Calcutta*

Dutta, Amartya, Kumar, visited the School of Mathematics, Tata Institute of Fundamental Research, Mumbai during August 9 – October 24, 1999.

Naolekar, Aniruddha C. visited Chennai Mathematics Institute, Chennai during July August 1999.

Rao, T.J. visited (i) Andhra University, Visakhapatnam during July 31 – August 1, 1999. He delivered a lecture to the Vietnamese delegation at the NSSO on December 6, 1999. He also participated as an expert in the PLC evaluation programme by IIM, Calcutta in Tripura during January 17-22, 2000.

Roy, A.K. visited the Department of Mathematics, University of Burdwan, West Bengal, during February 1-3, 2000.

*Stat-Math Unit, Delhi*

Bapat, R.B. visited the Homi Bhabha Centre for Science Education, Mumbai during May 17-29, 1999.

Bhatia, R. visited (i) Rani Durgawati University, Jabalpur and gave two lectures on Polynomials and Isometries during July 13-15, 1999 and (ii) Conducted a course for College and University Teachers organised by the Indian Academy of Sciences at Punjab University, Chandigarh and gave lectures. He also served as chairman of the Selection Committee for post graduate scholarships of the National Board for Higher Mathematics, and the chairman of the North Zone Library Committee of the NBHM.

Karandikar, R. L. visited Pune University and gave a series of lectures on mathematical finance at UGC refresher course for post graduate teachers. He also gave a series of lectures on option pricing at a workshop conducted by Mysore University.

Parthasarthy, T. visited SQC –OR Unit of ISI, Hyderabad and gave six lectures at the Central University, Hyderabad and four lectures at ISI, Hyderabad on topics relating to Mathematical Programming and Game Theory during January 15 - April 15, 2000.

Roy, Rahul, served as a member of the committee on Discrete and Combinatorial Mathematics set up by DST.

*Stat-Math Unit, Bangalore*

Misra, G. visited IIT-Guwahati, Millennium Lectures at IITG, during December 20-24, 1999.

Ramasubramanian, S. visited Department of Statistics, University of Calicut, Kerala and gave talk on Reflected Brownian motion at the National Seminar on Probability Models & Applied Statistics organized by the University. He also gave a couple of lectures on Brownian motion in the Department during February 24-26, 2000.

Sitaram, Aladi visited University of Hyderabad as visiting professor under MOU between ISI and University of Hyderabad during January 23 – March 31, 2000.

Sury, B. visited (i) University of Poona to give talks in the Intstructional Conference on Cyclotomic fields during June 7 – 14, 1999 and (ii) Kandaswamy Kandar College, Velur, Tamil Nadu to give a survey talk on Fermat's last theorem in a National Seminar organised by K. K. College on March 24, 2000.

## Applied Statistics Division

### Applied Statistics Unit

Adhikary, Arun Kumar was invited as a guest speaker to deliver two lectures on Sample Surveys in UGC Refreshers Course at the Department of Economics, University of Calcutta in March 2000.

Bandyopadhyay, S. served as a member of an expert committee on Natural Resources Data Management System (NRDMS) projects of the Department of Science and Technology, Govt. of India.

Basu, A. attended as an invited teacher the meeting of the Indian Academy of Sciences, Lucknow in October 1999.

Bose, M. gave a series of lectures on Some Selected Topics in the Area of Design of Expts., Utkal University in January 1999.

Chaudhuri, A. acted as a (i) chairman, Standing Technical Committee, Crop Estimation and Forecasting, Govt. of West Bengal and (ii) member, Standing Committee for the Evaluation of the Annual Survey or Industries , CSO, Industrial Statistics Wing.

Dewanji, A. gave a talk on (i) Risk Assessment : an Introduction at Sivatosh Mookherjee Science Centre, Calcutta on January 2, 1999 and March 18, 1999 (ii) Statistical Issues in Air Polution Studies with Multiple Hospital Admissions at National Conference on Economic and Statistical Isssues in Development on March 10, 2000 at Kalyani University and (iii) Air Population and Multiple Hospital Admissions : A Poisson Process Approach at University of Hyderabad on November 3, 1999.

SenGupta, A. was re- elected as a member of the Executive Council, Indian Society for Probability and Statistics, 2000-2002 also nomited as a member of the governing body of the forum for interdisciplinary mathematics.

## Computer and Communication Sciences Division

### Advanced Computing and Microelectronics Unit

Bhattacharya, Bhargab B, served as the (i) general chair, 13th International Conference on VLSI Design, jointly sponsored by IEEE Circuit and Systems Society, IEEE Computer Society, ACMSIGDA and VLSI Society of India in January 2000, (ii) session chair of the Sixth International Conference on High Performance Computing, 1999 (HiPC'99), jointly sponsored by the IEEE Computer Society, ACMSIGARCG and Indian Statistical Institute, (iii) member, Program Committee of the 13th International Conference on VLSI Design, Calcutta, in January 2000 and (iv) physical design coordinator, International Workshop on VLSI Design and Test, New Delhi in August 1999.

Chakraborti, M. K. served as chairman, Local Organizing Committee of the Sixth International Conference on High Performance Computing, 1999 (HiPC'99), jointly sponsored by the IEE Computer Society, ACMSIGARCH and Indian Statistical Institute.

Das, N. served as the publication chair of the Sixth International Conference on High Performance Computing, 1999 (HiPC'99), jointly sponsored by the IEEE Computer Society, ACMSIGARCH and Indian Statistical Institute.

Dattagupta, J. served as (i) registration chair of the Sixth International Conference on High Performance Computing, 1999 (HiPC'99) jointly sponsored by the IEEE Computer Society, ACMSIGARCH

and Indian Statistical Institute and (ii) member of the Program Committee of ASIA – PACIFIC Conference on ASICS (AP-ASIC)'99 at Seoul, korea, jointly sponsored by IEEE SSCS and EDS chapters of Seoul, Tokyo and Taipei during August 23-25, 1999.

Sinha, Bhabani P. acted as the general co-chair of the Sixth International Conference on High Performance Computing, 1999 (HiPC'99), jointly sponsored by the IEEE Computer Society, ACMSIGARCH and Indian Statistical Institute.

Sur-Kolay, S. served as (i) the tutorial chair, 13th International Conference on VLSI Design, jointly sponsored by IEEE Circuit and Systems Society, IEEE Computer Society, ACMSIGDA and VLSI Society of India in January 2000 and (ii) member, programme committee of the 13th International Conference on VLSI Design in January 2000.

*Computer Vision and Pattern Recognition Unit*

Chaudhuri, B.B. visited (i) the Department of Electronics, New Delhi, in October 1999 (ii) ISDL, Trivandrum during April 17-20, 1999, (iii) IISC, Bangalore and delivered a seminar lecture on Optical Character Recognition in October, 1999, (iii) Indian Institute of Information Technology (IIIT), Hyderabad, (iv) CDAC, Pune and (v) Ministry of Information Technology (MIT), New Delhi, to demonstrate language technology developed by CVPR Unit in ELITEX – 2000 in January 2000 . He served as (i) a programe committee member of the fifth International Conference on Document Analysis and Recognition, Bangalore, 1999, (ii) an expert for the evaluation of NRDMS project of DST, New Delhi. He also delivered (i) a lecture at the Satellite Conference on Image Analysis in Material and Life Sciences (SCIAMLS), Kalpakkam in November 1999 and (ii) gave the keynote address at the International Conference on Computational Intelligence and Multimedia Applications, New Delhi, 1999.

Garain, U. visited Ministry of Information Technology (MIT), New Delhi, to demonstrate language technology developed by CVPR Unit in ELITEX – 2000 in January 2000.

Mitra, Mandar, visited (i) Ministry of Information Technology (MIT), New Delhi, to demonstrate language technology developed by CVPR Unit in ELITEX – 2000 in January 2000 and (ii) CDAC, Pune in March 2000.

*Electronics and Communication Sciences Unit*

Pal, N.R. visited IISc. Bangalore. He also gave (i ) a talk at the IEEE Calcutta Chapter on soft computing and (ii ) an invited talk at the National Conference on Information Theory and Application, Amritswar, 1999. He has been acting as guest editor of a special issue on Soft Computing for Pattern Recognition for the Journal of Fuzzy Sets and Systems, Vol. 103, 1999. He has also been selected as the Independent Theme Chair for neural Networks of the World Federation of Soft Computing (WFSC).

*Machine Intelligence Unit*

Ghosh, A. delivered a lecture organized by the Indian National Academy of Engineering in National Institute of Advanced Studies, Bangalore in October 1999.

Kundu, M. K. delivered an invited lecture on *Digital Image Processing: Present status and Future Challenges* in the all India seminar on *Information Technology: Opportunities & Challenges in the Millennium* organized by the Institution of Engineers, Computer Engineering Division, West Bengal State Centre, Calcutta, held during March 10-11, 2000. He chaired the technical session on Digital Imaging at the 13th International Conference on VLSI design (VLSI'2000), Calcutta, India, during January 3-7, 2000.

Murthy, C. A. served as a Guest Editor of the Proceedings of INSA for a special issue on Pattern Recognition, Image Processing and Computer Vision.

Pal, S. K. served as a member of (i) the Sectional Committee for Engineering Sciences of Indian National Science Academy (INSA), (ii) Indian Academy of Engineering (INAE) and (iii) the Indian Academy of Sciences (IASc). He gave a keynote address at Unnayan-99, B.I.T, Ranchi, Mesra on 3.10.99; delivered a few invited lectures at Institute of Engineers, Computer Engineering Division, Calcutta, during March 10-11, 2000 and Science College, Calcutta, in March 2000. He continued to serve as a Category B speaker under the Theoretical Physics Seminar Circuit Programme of S. N. Bose National Centre for Basic Sciences for 1998-2000.

## Physics and Earth Sciences Division

### Physics and Applied Mathematics Division

Mazumder, B.S. was selected a member of International Scientific Advisory Committee, 8 International Symposium on Stochastic Hydraulics, Beijing, 2000.

Mandal, B.N. visited the Indian Institute of Science, Bangalore during September 6-10, 1999.

## Biological Sciences Division

### Anthropology and Human Genetics Unit

Majumder,Partha P.delivered an invited talk entitled (i) Some Statistical Methods for Human Gene Mapping, at the Centre for Cellular & Moecular Biology, Hyderabad, on 25 August 1999, (ii) Genome Diversity, Population Structure and Gene Mapping at the AstraZeneca Research Foundation, Bangalore, on 7 December 1999, (iii) Human Genomics: Challenges in the New Millennium during the New Millennium Science Medal award ceremony of the Indian Science Congress Association, Pune, on 5 January 2000 (iv) the Platinum Jubilee Lecture in the Anthropology Section of the Indian Science Congress Association, Pune during January 3-7, 2000, (v) the G.S. Randhawa Oration at the Guru Nanak Dev University, Amritsar, on 17 January 2000 and (vi) the Frontiers in Biology series entitled Human Genome Diversity: Evolutionary and Epidemiological Aspects at the Bost Institute, Calcutta, on 7 March 2000. He also served as a member of (i) the Human Genetics Task forces of Department of Biotechnology, (ii) Indian Council of Medical Research and (iii) the National Committee of the Indian Council of Medical Research on Genome Analysis.

Tapaswi, P.K. delivered and invited talks in the National Conference on Emerging Frontiers of Mathematics : Theories and Applications on March 24, 2000 at the Department of Mathematics, Jadavpur University.

## Social Sciences Division

### Economic Research Unit

Kabiraj, Tarun. Visited Centre for Economics Studies and Planning, Jawaharlal Nehru University in April 1999.

### Economic Analysis Unit

Rao, Surekha, K., was nominated a member of Expert Group on the *Estimation of State Domestic Product* by Govt. of Karnataka.

Narayana, N.S.S. was re-elected a memoer of the Editorial Board, *Indian Journal of Agricultural Economics*, Mumbai.

*Linguistic Research Unit*

Bandyopadhyay, Debaprasad gave a lecture on Comparative Study of the Classification of Initial Graphemes in Distinct Words in Fourteen Novels of Bankimchandra and Rabindranath's Galpaguccha in 2nd National Symposium on the Methods of Quantitative Linguistics, LRU, Indian Statistical Institute, Calcutta during February 28-29, 2000.

Chaudhury, Amitav, represented the National Informatics Centre, (NIC) Calcutta in a teleconference: towards A South Asian Knowledge Network (TASKNET) organised by the National Informatics Centre, New Delhi and The British Council in India, New Delhi during November 23-24, 1999.

*Sociological Research Unit*

Dasgupta, Atis, served as a member (i) Advisory Committee of the State Archives, Govt. of West Bengal, (ii) Advisory Committee of State Archaeology, Govt. of West Bengal, (iii) Advisory Committee of the District Gazatteers, Govt. of West Bengal, (iv) Governing Body of Netaji Institute of Asian Studies, Govt. of West Bengal, (v) Governing Body of Calcutta Museum to be set up in the historic Town Hall, (vi) Advisory Committee, Netaji Subhas Chandra Bose Open University, Govt. of West Bengal, (vii) the State-level Committee for publication on the occasion of 50 years of Independence, (viii) of the Advisory Committee and Working Group for collection and preservation of important source materials etc. from police records of the Detective Department and the Special Branch of Calcutta Police and the Intelligence Branch and CID, West Bengal, (ix) the State-level Committee on Heritage Buildings of West Bengal, and (x) Expert Committee on the Town Hall of Calcutta, Govt. of West Bengal.

Maiti, Asok, K.was elected as a Managing Editor, Bharatiya Samajit Chintan. He was also re-elected as a Vice-President, Indian Academy of Social Sciences, Allahabad, 1999-2001,

## Statistical Quality Control and Operations Research Division

Sengupta, Sukalyan, served as a member of the Eastern Regional fact finding committee of the Rajiv Gandhi National Quality Award organized by Bureau of Indian Standards.

## Library, Documentation and Information Science & Division

*Documentation Research and Training Centre*

Prasad, A.R.D. was visited Vidyasagar University and delivered special lectures on Bibliographical Database Management System during April 19-23, 2000.

Rao, Ravichandra, I.K. was visited (i) the Bishop Heber College, Trichy and delivered a special lecture on Recent Trends in Information Society on September 6, 1999, (ii) by the Indira Gandhi Centre for Atomic Research, Kalpakkam and delivered a special lecture on Development of Networks for Digital Information Resource Sharing and to chair a session during October 28-29, 1999, (iii) the NIO, Goa, and delivered a special lecture on Informetrics and Scientometrics on November 9, 1999, (iv) the National Centre for Scientific Information (NCSI), IISc, Bangalore and delivered a special talk on Scientometrics on March 13, 2000 and (v) the IGNOU, Delhi to discuss the syllabi for Certificate Programme on Library and Information Science during March 27-28, 2000.

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# PART III. ADMINISTRATION AND OFFICE BEARERS

## 11. GENERAL ADMINISTRATION

### Administrative Services Division

The Administrative Services Division at the headquarters caters to the various needs of the scientific workers 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 and Bangalore, each having a number of science units are, by and large, self-sufficient in providing administrative support to the scientific workers there. The division has different units in Calcutta as mentioned below :

*Accounts Section* : The Accounts Section keeps the accounts of all financial transactions made by the Institute and admits claims including personal claims preferred by workers and outsiders after proper check. This section is responsible for final closure of accounts and preparation of Income and Expenditure Account and Balance Sheet of each financial year. They are also to interact with the Statutory Auditors in the course of audit of final accounts. The Provident Fund Unit (PF) under this section maintains the accounts of provident fund of individual workers of the Institute and deals with PF loans and withdrawal and final payment of PF balance.

The Internal Audit Unit, in addition to their routine jobs, undertakes various audit assignments, by visiting different Service Units of the Institute at Calcutta and outlying Centres. The Unit plays an important role to ensure financial and accounting disciplines and statutory compliances; maintain system and procedures and bring out audit observations and suggest audit recommendation thereon.

*Council Section* : The Institute is a registered society with a large number of Ordinary and Life members. The Section maintains liasion with the members and satisfies their requirements including sending of Sankhya, the Indian Journal of Statistics, published by the Institute, to the members of the Institute. The Section arranges holding of meetings of General Body, the Council, Finance Committee, Section 8(1) Committee etc. This section is attached to CAO's Office.

*Director's Office and CAO's Office* : Director is the principal executive officer of the Institute and the head of all its academic and administrative activities whereas Chief Administrative Officer (CAO) is in over-all charge of General Administration, Financial and Personnel Management in respect of Administrative Services Division. Both the offices are entrusted with the task of providing all help and support to these two very important functionaries of the Institute. They are required to maintain confidential records, issue circulars, interact with various research and administrative divisions and maintain liasion with outside centres and branches of the Institute.

*Engineering Unit :* The Unit is responsible for day to day maintenance of the office/staff quarters and supply of water in the buildings housing various divisions and staff quarters. The Unit also looks after all new constructions.

*Electrical Maintenance Unit* : The Unit is responsible for supply of electricity to all buildings including staff quarters and day to day maintenance of the electrical equipments in these buildings.

*Estate Office* : The Institute has a very big campus comprising buildings, ponds and vacant space. The Estate Office looks after all the estates and properties of the Institute and also maintains regular conservancy services.

*Medical Welfare and Reimbursement Unit* : The workers of the Institute are entitled to medical claims as per CSMA rules of the Government of India. Besides there is a small dispensary with facilities of consulting general physicians and specialists for the campus residents and also for the workers residing nearby. The

medicines are supplied free. At present there are three regular doctors and several part-time specialist doctors attached to the dispensary. The Medical Reimbursement Unit is entrusted with the payment of all medical claims submitted by workers as per CSMA rules and the Medical Welfare Unit looks after the functioning of the dispensary with all attended activities.

*Personnel Unit* : The Personnel Unit deals with all service matters like appointments, promotions, transfers, disciplinary action, redressal of grievances, retirements etc. in respect of all the workers of the Institute and maintains all records in connection thereto. The Retirement Benefit Cell attached to the Unit deals with the payment of retirement benefits to workers like pension, death-cum-retirement gratuity etc.

*Public Relations Unit* : All sorts of public relations activities are being carried out by the Unit on behalf of the Institute. During the year, the Unit arranged media coverage of (i) The seminar on "The contributions of Dr. B.R. Ambedkar" held on April 15, 1999, (ii) "Faculty Upgradation Programme in Environmental Economics" held on November 01-26, 1999, (iii) "Mathematical Olympiad 1999" held on December 5, 1999, (iv) 6th International Conference on "High Performance Computing" held on December 17-20, 1999, (v) International Conference on "Advances in Pattern Recognition and Digital Techniques" held on December 27-29, 1999, (vi) 4th International Conference on "VLSI Design" held on January 4-7, 2000, (vii) Three-day International Workshop on "Statistical Science ;and Environmental Policy : Possible Interaction" held on January 10-12, 2000, (viii) Workshop on "Uterine Cervical Cancer Control : Statistical Modelling, Database and Other Issues" held during March 23-24, 2000, (ix) Annual Convocation of the International Statistical Education Centre (ISEC) held on March 31, 2000, The Unit issued a number of press releases during the year in connection with various scientific programmes/research activities of the Institute. Institute visit for the ;students of Ananda Ashram Sarada Vidyapeeth was also organised by the Unit.

Another important job of the Unit is to prepare and publish the Annual Report each year under the guidance of an Editorial Board and arrange for its distribution to different universities in India and abroad and also to the Government departments.

*Publication and Printing Unit* : The Unit was formed in August 1991 when Statistical Publishing Society was formally taken over by the Institute according to a Govt. of India order. It undertakes printing/binding work of the Institute and outside agencies. It also looks after the distribution of the journal, Sankhya throughout the world. Steps have been taken to modernise the existing letter press into an Offset printing press. As recommended by the modernisation committee under first phase, an Offset printing machine and a printing down frame have been installed and started working. D.T.P. set up has also been installed as per recommendation of the modernisation committee under second phase.

Another important activity of the Unit is to prepare and maintain it's separate accounts including monthly disbursement of salary, payments of D.A, Bonus etc., reply of audit para etc. The Unit has cells for sales and despatch of the journal, Sankhya and other publications of the Institute.

*Binding Unit* : The Institute has a large library with books and journals which are required to be bound regularly. Besides, various research divisions bring out research proposals, administrative division brings out booklets on budget for presentation to the Ministry. All such and many other documents are bound throughout the year in the Binding Unit.

*Central Office* : The Central Office is in charge of receipts and despatch/distribution of all official correspondence, circulars/office orders etc. of the Institute. Despatch Section of Central Office is now well equipped with the latest electronic franking machine for faster mailing of all kinds of communication of the Institute. Maintenance and service of all typewriters and duplicators of the Institute are done by the Unit through Annual Maintenance Contract (AMC) with respective agency. Another important job of Central Office is to arrange condolence meetings at the demise of Institute workers and send resolutions of the meeting to their bereaved families.

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*Central Stores Unit* : All stationery and articles including furniture required for use in various divisions of the Institute are procured through Central Stores Unit. They also procure and store materials required for day to day maintenance of building, and for the water and power supplies. A small Tailoring Unit is attached to it.

*Security Unit* : Security Unit is entrusted with the important task of maintaining security of the vast campus of the Institute and its properties.

*Telephone Unit* : The EPABX Unit has three electronic telephone exchanges installed by Crompton Greaves Ltd. in the Institute's Campus at Calcutta. The main exchange (NE-1100) is housed at 202, B.T Road and two other small exchanges (NE-20M and NE-30) are located at 205, B.T. Road campus. These three exchanges are interconnected. The main exchange (NE-1100) and a small exchange (NE-30) are manned by Telephone Operators during working hours and work in automatic mode after office hours and holidays (in night-mode connection) at different units as per instruction. The NE-20M exchange operates in the automatic mode.

*Transport Unit* : Besides a fleet of vehicles, the Institute has four buses and an ambulance. The vehicles are for use by the visiting scientists and dignitaries and by the workers in carrying out the activities of the Institute. The buses are used for transporting workers from eastern and southern part of Calcutta and its suburbs. The ambulance is used to carry ailing workers or members of their families to and from hospital for emergency treatment on recommendation of the doctors attached to Medical Welfare Unit. The Transport Unit looks after the use and maintenance of the vehicles.

*Guest House :* The New Guest House of the Institute has started functioning from December 1997. It has 6 A/c suits, 2 A/C single rooms, 6 Non-A/C double rooms, and 21 Non-A/C single rooms. There is also an A/C VIP lounge, a nicely decorated conference room with a modern public address system and overhead projector on the 1st Floor of the Guest House and an A/C dining hall on the ground floor of the Guest House. All the rooms are well furnished with 24 hrs. telephone facilities.

Besides the Institute guests and visitors, scientists and representatives from Institutes/Organisations like NSSO, NIOH, SSI, Rabindra Bharati University, Calcutta University etc. are being provided Guest House facilities on payment. Guest House service during the year 1999-2000 went on in full swing.

Apart from the Units mentioned above, there are some small cells dealing with Budget, Import, Travel and House Building Advances etc. 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 Canteen for the workers and students of the Institute. The other outlying Units numbering eight are controlled directly by the headquarters at Calcutta. The Administrative Services Division takes the responsibility for all new construction activities of the Institute at its headquarters and also at outlying centres/branches. A brief report on the construction activity in the current year is given later.

The activities of the Administrative Services in the two Centres, namely Delhi and Bangalore, and in other outlying branches of the Institute are more or less the same but on a much smaller scale. Depending on the needs of the branches/centres the units have been truncated and merged into fewer units.

## Staff of the Institute

The Government of India agreed that ISI might continue with the staff strength, the various posts, scales of pay, promotional policies and other service conditions as were existing in the past before imposing embargo. They also allowed revision of the payscales as approved by the Council for all categories including categories of posts for non faculty workers where certain anomalies existed. As a result of the clearance from the Government, the Institute has undertaken measures to recruit workers in various categories where there are

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acute shortages. The following senior members of the staff worked in the posts indicated against their names during the year.

| | |
|---|---|
| *Director :* | S.B. Rao |
| *Dean of Studies :* | P.S.S.N.V.P. Rao |
| *Head, Delhi Centre :* | Dipankar Dasgupta |
| | Aloke Dey, from 24.06.99 to 04.07.99 |
| | (Officiating) |
| | Bhaskar Dutta, from 18.08.99 to |
| | 15.09.99 excepting 20, 24, 30, 31 August |
| | 1999 and 03 September 1999 |
| | (Officiating) |
| | Bhaskar Dutta from 14.12.1999 to |
| | 12.01.2000, from 15.01.2000 to |
| | 23.01.2000 and 23.02.2000 to |
| | 27.02.2000 (Officiating). |
| *Acting Head, Bangalore Centre :* | Gadadhar Misra |
| | S. Natarajan, from 31.07.99 to 05.09.99 |
| | (Officiating) |
| | Kalyan K. Chowdhuri, from 20.12.99 to |
| | 25.12.99 and from 03.01.2000 to 13.01. |
| | 2000 (Officiating) |
| *Chief Administrative Officer :* | D.C. Bandyopadhyay, from 01.12.1999 |
| *In-Charge, Administration & Finance :* | Anup Majumdar upto 30.11.1999 (AN) |

*New Appointments*

List of workers (Scientific/Technical/Administrative) who joined the Institute during the year :

1. T.S. Vasulu, Lecturer
2. Pabitra Banik, Lecturer
3. Rabi Ranjan Chattopadhyay, Lecturer
4. Diganta Mukherjee, Lecturer
5. B. Sury, Associate Professor
6. Jyotshana Prajapat, Lecturer
7. S.P. Inamdar, Lecturer
8. Utpal Garain, Programmer
9. Sarbani Palit, Lecturer
10. Mandar Mitra, Lecturer
11. Rajat Kanti De, Computer Engineer
12. Pinakpani Pal, Programmer
13. Uma Dasgupta, Professor
14. Parthasarathi Ghose, Lecturer
15. Guruprasad Kar, Lecturer
16. Sanghamitra Bandyopadhyay, Lecturer
17. Lt. Col. Harish Anthony Khare, Senior Security Officer
18. S.V.S.M. Murthy, Technical Officer (SQC) Gr.III
19. Boby John, Technical Officer (SQC) Gr.III
20. Subir Ghosh, Associate Professor

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21. Dulal Chandra Bandyopadhyay, Chief Administrative Officer
22. Sandip Das, Programmer
23. Molly Chattopadhyay, Lecturer
24. Anil Kumar Chowdhuri, Lecturer

List of workers (Scientific/Technical/Administrative) who retired/resigned from the services of the Institute or died while in service during the year.

### Retired

1. Dipak Dasgupta (8059), Residential Medical Officer
2. B.R. Subba Rao (3926), Executive Officer (SG) (Officiating)
3. Sukumar Ganguly (3401), Research Assistant
4. Jatindra Nath Sett (2688), Executive Officer
5. Aloke Kr. Mukherjee (3243), Engineer (Electrical)
6. Parimal Chatterjee (3254), E.D.P.M. Supervisor
7. P.K. Bose (8673), Administrative Officer
8. Biswanath Ray (2294), Research Assistant

### Resigned

1. T. Krishna Kumar (8869), Professor

### Died

1. Gopal Das (3566), Record Attendant
2. Ram Lalit Shaw (2585), Supervisor (Electrical)
3. Ashok Pashi (7930), Senior Mazdoor
4. Sarat Singh (7670), Senior Helper
5. Sambhu Chanda (8040), Record Attendant
6. Saudagar Mahato (7269), Senior Sweeper/Jamadar
7. Shaiba Nayak (8511), Sweeper/Jamadar Gr. I
8. Bhagwat Sarup (7910), Supervisor (Electrical)
9. Kamalendu Biswas (7644), Assistant
10. Prasanta Banerjee (7136), Section Officier

Number of workers in the Institute as on 31 March, 2000 :

(i) Scientific and Technical Workers - 524
(ii) Non-Scientific Workers - 1050

Total 1574

### Budget and Finance

For the year 1999-2000 the Institute's budget was estimated to be Rs.3203.00 lakhs and Rs.1388.79 lakhs towards Non-Plan and Plan respectively at the BE stage. The Govt. after considering the report of the Section 8(1) Committee approved a sum of Rs.3360.00 lakhs including internal receipts and Rs.900.00 lakhs for Non-Plan and Plan expenditure respectively. At the revised estimates stage, the Institute sought for a grant of Rs.3739.10 lakhs and Rs.900.00 lakhs in Non-Plan and Plan estimates respectively. The Government approved a sum of Rs.3561.55 lakhs on Non-Plan, the Plan RE allocation was fixed at Rs.810 lakhs. The expenditure during the year under report was well within the budget allocation sanctioned by the Government. The Audited Annual Accounts of the Institute for the year 1999-2000 have been furnished in part IV of this report.

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**Land and Construction**

The following major activities were undertaken by the Institute during 1999-2000.

*Calcutta*

### A-type quarters

Construction work progressed in full swing and the structural portion including brickwork, allied sanitary and plumbing works and part of finishing works have been completed. The budgetary allocated fund of Rs. 33.00 lakhs was totally used up for paying bills to the contractor and the consultant. The internal electrification work for the building, of job value Rs.5.998 lakhs, also commenced from March 1999 after completion of tendering process and award of contract.

### Canteen Building

After selection of the contractor, necessary site clearance and issue of work-order the construction work for the first phase of this building (i.e. the Ground and first two floors of the building) have commenced from September 1999. The tender amount for this work is Rs.124.84 lakhs and the estimated cost for the entire building (G+4 floors) is Rs.188.24 lakhs. Construction of the subsequent stories would be taken up in the later phase. The allocated amount of Rs.16.00 lakhs have been totally utilised in paying the bills of the contractor and the consultant.

### Bank and Post-Office Building

After necessary site clearance and issue of work-order the construction wok for the first phase of this building (the Post-Office portion i.e. the ground floor of the building) has commenced from September 1999. The tender amount for this work is Rs.39.21 lakhs and the estimated cost for the entire building (G+2 floors) is Rs.109.43 lakhs. Construction of the subsequent stories would be taken up in the later phase. The allocated amount of Rs.16.00 lakhs has been totally utilised in paying the bills of the contractor and the consultant.

### Academic Building

The estimate submitted by the consultant, M/S. Dulal Mukherjee and Associates, was examined in detail by the Baranagar Works Advisory Committee and certain modifications were proposed for incorporation. The revised estimate, submitted subsequently by the consultant, was scrutinised afresh and an amount of Rs.3,75,45,468/- was approved for construction of one block of the proposed building. The consultant has been informed of the same and requested to prepare tender documents for taking up Foundation work in the first phase. An amount of Rs.1,28,637/- has been paid to the consultant as fees in this year.

### Construction of Road and Drainage system at 203 & 204 B.T. Road

Several jobs were undertaken including repair and raising of W.B.M road at Deluxe Garden Campus and improvement of path and drainage of 202, B.T. Road Campus. The entire allocated fund of Rs.5.0 lakhs was utilised during the year.

### Boundary Wall and renovation of old buildings

Renovation of roof of RTS building and repair/renovation of Geology building (Phase-1) commenced from February 1999 after completion of necessary formalities as estimating, scrutiny, reestimating, tendering and award of contract. The tender amount of the project is 42.56 lakhs. The present work at Geology building covers only the first phase of the total work necessary for the building. Stretches of Institute boundary wall were also repaired and the allocated fund of Rs.16 lakhs was totally utilised during the year.