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**INDIAN STATISTICAL INSTITUTE
STAT-MATH UNIT, KOLKATA
EIGHTY-FIRST ANNUAL REPORT
(APRIL 2012 - MARCH 2013)**

1. TEACHING AND TRAINING

1.1 Degree and Training Courses

1.2 Ph.D/D.Sc. Degrees

The following is the list of PhD degree awardees from Stat-Math Unit-Kolkata, along with the titles of their thesis:

Research Fellow : Subhajit Dutta (Degree Date Feb. 12, 2013)

Title of Thesis : "Some Contributions to Discriminant Analysis Using
Different Notions of Data Depth"

Institute : Indian Statistical Institute

Supervisor : Probal Chaudhuri

2. CONVOCATION

3. RESEARCH AND OTHER SCIENTIFIC ACTIVITIES

Statistics on Non-Euclidean Manifolds such as Sphere, Projective Spaces and Shape
Spaces, Nonparametric Bayes Theory, Asymptotic Statistics, Bootstrapping Techniques.

Abhishek Bhattacharya

A joint work with Professor Arup Bose and Dr. Koushik Saha on finite-diagonal large
dimensional matrices was completed. A paper 'Convergence of a class of random and
non-random symmetric matrices' was prepared where spectral properties of finite
diagonal matrices have been studied, using the method of joint convergence of random

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matrices. Also a nice interplay between limiting spectral distributions of full-diagonal large dimensional random matrices and finite-diagonal large dimensional non-random matrices have been investigated.

Gangopadhyay, Sreela

L^p convergence of the scaled color counts in a general balanced urn model.

Krishanu Maulik and Gourab Ray.

Tail behavior of annuities was studied. Regular variation of the annuities was obtained from that of the returns, when the returns and discounting factors jointly follow Sarmanov distribution. A converse result was also obtained where the regular variation of the returns was obtained from that of the annuities under appropriate moment conditions.

Krishanu Maulik and Moumanti Podder.

The rates of counts of each colour of balls in a urn model were obtained, when the replacement matrix is not necessarily balanced. It is an ongoing work.

Amites Dasgupta and Krishanu Maulik

Random walk in random environment is studied where Cramer-type conditions fail. It is an ongoing work.

Krishanu Maulik, Zbigniew Palmowski and Parthanil Roy

Rates of convergence in Central Limit Theorem (CLT), Law of iterated logarithms (LIL) and Characterization theorems. Growth curve model, Applications of Statistics to Industrial quality control, Physics, Sociology, Agriculture, Education and other natural sciences.

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Research activities: Organized and participated in a two-day 'Workshop on Growth Curve Model' during 21-22 March 2013 at ISI Giridih.

Ratan Dasgupta

Adaptive Markov Chain Monte Carlo (AMCMC) is a class of MCMC algorithms where the proposal distribution changes at every iteration of the chain. The parameters of the proposal distributions is chosen adaptively over the previous iteration of the chain. However verifying ergodic properties of the adaptive chain is not always so straightforward. A diffusion approximation procedure have been used to a suitably defined AMCMC and to a standard MCMC to obtain Langevin type SDEs. Then target distribution have been recovered from these SDEs for a specific case and compared rate of convergence etc between AMCMC and MCMC.

Gopal K. Basak and Arunangshu Biswas

Work done on some properties of random walks perturbed at ex- tremas, which are generalizations of the walks considered e.g. in Davis (1999, PTRF). This process can be also viewed as a version of excited random walk, studied recently by many authors. A few properties have been obtained related to the range of the process with infinite memory. We also prove the strong law, CLT, and the criterion for the recurrence of the perturbed walk with finite memory.

Gopal K. Basak and Stas Volkov

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We constructed a model of capital inflow in a two country framework. A capital-scarce country, typically a developing country with a high return on capital borrows from a capital-rich country, typically a developed country to finance domestic investment. In the process both the countries gain, raising the world welfare. This borrowing leads to appreciation of exchange rate in the developing country. When the external loan is repaid there is depreciation of exchange rate leading to costlier repayment. This is further accentuated when a bad state hits the country. This explanation of financial crisis is different from the usual theoretical explanations based on information theory, while our explanation is drawn from trade theory where worsening of terms of trade in the next period wipes out the gains of cheaper external borrowing, which is supported by several historical episodes in the empirical literature. If the exchange rate depreciation of the next period reduces the welfare of the capital importing country, even then there might be a gain in the total world welfare. However, in a situation of financial crisis, gains of international borrowing turn into total world welfare loss. We study the potential regimes of foreign exchange crisis under different parametric configurations of the model through the exchange rate dynamics.

Pranab Kumar Das and Sugato Marjit

MATHEMATICS and STATISTICS

Research in Non-Commutative Geometry

Noncommutative geometry and quantum groups:

We have computed quantum isometry groups of group C^* algebras with natural word

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length spectral triple for a large class of finitely generated groups....Debashish

Goswami and Arnab Das

We have extended our earlier results for computing quantum isometry groups of Rieffel-deformed spectral triples to a more general class of cocycle-twisted examples. .

Debashish Goswami and Soumalya Joardar.

Research in Commutative Algebra

We show that an affine threefold in A^4 over a field k defined by an equation of the form $x^m y = f(z, t)$, where $m > 1$, is non-trivial if the polynomial $f(z, t)$ is not a coordinate of $k[z, t]$. In particular, when k is of positive characteristic and $f(z, t)$ a non-trivial line, then the threefold $x^m y = f(z, t)$ is non-trivial although, by a result of Asanuma, its coordinate ring is a stably polynomial ring over k . Moreover, if either n is not equal to m , or if $g(z, t)$ is another non-trivial line which is inequivalent to $f(z, t)$, then the two rings defined by $x^m y = f(z, t)$ and $x^n y = g(z, t)$ are non-isomorphic. Thus, for the affine three space in positive characteristic, we have a large family of non-isomorphic counter-examples to the Zariski's Cancellation Conjecture, a problem which had remained open for a long time.

Neena Gupta

Research in Algebraic Topology

Research in Statistics

Research in Differential Topology

Research in Harmonic Analysis

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Research in Probability Theory

Information economics. Moral hazard problems and incentives. Spectral inference.

Spectral properties of large dimensional random matrices.

Arup Bose

Research in History of Mathematics

4. INTERNALLY/EXTERNALLY FUNDED PROJECTS

4.1 Internal Funded Projects (completed)

Sl. No.	Name of the Project	Principal Investigators	Unit involved
1	Workshop on Extreme and Rare events	Dr. Krishanu Maulik	Stat-Math Unit
2	Workshop on Lie Groupoids and Lie Algebroids	Prof. Mahuya Datta	Stat-Math Unit
3	Indian School and Conference on Logic and its application	S.M. Srivastava	Stat-Math Unit

4.2 Externally Funded Projects (ongoing)

Sl. No.	Name of the project	A/c. No.	Principal Investigators	Unit involved	Funded by
1	Non Commutative Geometry groups and non-Commutative probability	248	Dr. Debashish Goswami	Stat-Math Unit	DST
2	J.C.Bose Fellowship	264	Prof. Arup Bose	Stat-Math Unit	DST
3	Harmonic Analysis on Riemannian Symmetric spaces Damek-Ricci spaces Homogenous Tress	203A	Prof. Rudra P. Sarkar/	Stat-Math Unit	NBHM
4	Risk Analysis, Ruin and Extremes (RARE)	NIL	Dr. Krishanu Maulik and Dr. Parthanil Roy	Stat-Math Unit	Marie Curie Research Staff Exchange Fellowship from the 7 th European Community Framework Programme

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5. CONFERENCES, SYMPOSIA, WORKSHOPS, LECTURES & SEMINARS (organised by the institute)

5.1 Symposia and Conferences

Bhattacharya, Abhishek:

Nonparametric Bayes Classification via Learning of Affine Subspaces. Talk
at ISBA Regional Meeting and Conference on Bayesian Theory and Applications.
January 10, 2013.

I beg to introduce myself - Few words on the Genius Ramanujan. Inauguration lecture at the symposium on Ramanujan. December 22, 2012.

Srivastava, S.M.:

Attended "Advances in Modal Logic, August 22 – August 25, 2012 at Copenhagen, Denmark.

Srivastava, S.M.:

Dagstuhl seminar on Coalgebraic Logics, October 7 to October 12, 2012. Delivered a talk
"A completeness Theorem of Zho for Stochastic Modal Logic."

5.2 Workshops and Training Programmes

Maulik, Krishanu:

Workshop on Heavy-tailed Distributions and Extreme Value Theory: Indian
Statistical Institute as part of the European Community Framework Programme
RARE, held at Indian Statistical Institute, Kolkata, January 14-17, 2013.

Srivastava, S.M.:

Organised an Instructional Workshop on Set Theory and Logic, Kerala School of
Mathematics, February 18 to March 01, 2013.

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5.3 Lectures and Seminars

1. Subhajit Dutta, SMU, ISI, Kolkata(02.04.2012): Classification using localized Spatial Depth with Multiple Localization.
2. Rahul Mazumder, Department of Statistics, Stanford University(04.04.2012): Convex Regularization Algorithms for learning Large Incomplete Matrices.
3. Anirvan Chakraborty, Stat-Math Unit, ISI, Kolkata(09.04.2012): Spatial Distributions in Banach Spaces.
4. Nitin Aggrawal(20.04.2012): A theorem of Suslin its applications.
5. Satwik Mukherjee(20.04.2012): Zeros of modular forms.
6. Munmun Biswas, SMU, ISI, Kolkata(23.04.2012): Nonparametric two-sample tests for high dimensional data.
7. Arideep Saha(20.04.2012): Hecke operators and algebraicity of Hecke eigenvalues.

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8. Manjunath Krishnapur, IISc. Bangalore(27.04.2012): Nodal length of random eigenfunctions of the Laplacian of the 2-d torus.
9. Alope Bakshi, M. Math Project(27.04.2012): Random Matrices.
10. Anirvan Chkaraborty, SMU, ISI, Kolkata(30.04.2012): Medians and Quantiles in Banach Spaces.
11. Ratan Dasgupta, SMU, ISI, Kolkata(30.04.2012): Tuber crop yield and Pareto model.
12. Ritabrata Munshi, TIFR, Mumbai(03.05.2012): the landau-Siegel zero problem.
13. Soumalya Joardar, SMU, ISI, Kolkata(08.05.2012): Rigidity of action of compact quantum group.
9. V.S. Sunder, I.M.Sc., Chennai(10.05.2012): Hilbert von Neumann mudules.
10. Koushik Pal, University of Maryland(28.05.2012): Transseries Fields.
11. Tathagata Basak, Iowa State University(11.06.2012): Finite projective planes, Lattices and the Monster.

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12. Sudarshan Iyengar, ISI, Chennai(18.06.2012): Do obstacles incentivize Human learning/problem solving.
13. S. Thangavelu, IISC, Bangalore(09.07.2012): On the unreasonable effectiveness of Gutzmer's formula.
14. Arindam Banerjee, University of Kansas(16.07.2012): Some Questions About Castelnuovo-Mumford Regularity of Edge Ideals.
15. Arindam Banerjee, University of Kansas(23.07.2012): Bounds on Castelnuovo-Mumford Regularity.
16. Ritwik Mukherjee, IMSC, Chennai(30.07.2012): Counting curves via topology.
17. Arindam Banerjee, University of Kansas(01.08.2012): Primary Decomposition: A New Uniqueness.
18. Bodhisattva Sen, University of Cambridge, U.K.(06.08.2012): Estimation in a Two-component Mixture Model.
19. Soumalya Joardar, SMU, ISI, Kolkata(03.08.2012): Quantum isometry group of Riemannian manifolds.

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20. Gourab Ray, University of British Columbia(10.08.2012): Random planar maps and half planar triangulations.

21. Arun Kumar, B.Stat., 3rd Year(17.08.2012): Gauss composition and Bhargava cubes.

22. Arindam Basak, Stanford University(22.08.2012): Limiting spectral Distribution of Sum of Unitary Matrices.

23. Debashish Goswami, ISI, SMU, Kolkata(11.09.2012): Operator Algebras and Operator Theory.

24. Jaydeb Sarkar, SMU, ISI, Kolkata(24.09.2012): Operator theory on symmetrized bidisc.

25. Debasis Sen, SMU, ISI, Kolkata(25.09.2012): Rectifying Homotopy group action.

26. B.V. Limaye, IIT, Bombay(04.10.2012): Reduction of some infinite-rank problems to matrix problems.

27. Soumalya Joardar, SMI, ISI, Kolkata(09.10.2012): Operator Algebras and Operator Theory.

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28. Neena Gupta, Tata Institute of Fundamental research(02.11.2012): A Counterexample to the Cancellation Problem for Affine Spaces .
29. S.M. Srivastava, SMU, ISI, Kolkata(05.11.2012): A trivial proof of Fermat's theorem 'an odd prime is a sum of two squares iff it is 1 mod 4'
30. Paramita Das, SMU, ISI, Kolkata(06.11.2012): Operator Algebras and Operator Theory.
31. D. Surya Ramana, HRi, Allahabad(26.11.2012): Chromatic Representation as sums of primes.
32. B.V. Rajarama Bhat, SMU, ISI, Kolkata(22.11.2012): Roots of States.
33. B.V. Rajaram Bhat, SMU, ISI, Bangalore(22.11.2012): Roots of States
34. P. Sankaran, IMSC, Chennai(23.11.2012): Borel-de Siebenthal discrete series representations.
35. Robin Hillier, Dipartimento di Matematica, Universita di Roma 'Tor Vergata', Via della Ricerca Scientifica 1, Italy(03.12.2012): Operator algebras and conformal quantum field theory.

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36. Robin Hillier, Dipartimento di Matematica, Universita di Roma 'Tor Vergata', Via della Ricerca Scientifica 1, Italy(04.12.2012): Operator algebras and conformal quantum field theory.
37. Subhabrata Sen, SMU, ISI, Kolkata(13.12.2012): On the De-preferential attachment model.
38. Subhajit Dutta, SMU, ISI, Kolkata(20.12.2012): Linear Discriminant Analysis of Character Sequences Using Occurrences of Words.
39. Tapas Pandit, SMU, ISI, Kolkata(19.12.2012): Attribute-Based Encryption.
40. Tapas Pandit, SMU, ISI, Kolkata(20.12.2012): Attribute-Based Encryption.
41. Moulinath Banerjee, University of Michigan(03.01.2013): M-estimation under multistage sampling.
42. Sumit Mukherjee, Stanford University(07.01.2013): Persistence probabilities for Gaussian polynomials.
43. Santanu Dutta, Tezpur University(11.01.2013): Uniform and L_1 convergence of kernel density estimators using random bandwidths.
44. Shao-Ming Fei, Capital Normal University, Beijing and MPL, Leipzig, Germany(15.01.2013): Theory of Quantum Entanglement and its Applications in Quantum Information and Computation.
45. V.A. Artamonov, Moscow University(21.01.2013): Polynomially complete algebras.
46. Rajat Subhra Hazra, University of Zurich, Switzerland(24.01.2013): Limiting spectral distribution of Wigner matrices with dependent entries.

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47. Shibananda Biswas, SMU, ISI, Kolkata(05.02.2013): Operator Algebras and Operator Theory.
48. Neelabh Rohan, Indian Statistical Institute NE(12.02.2013): Geometric ergodicity of asymmetric volatility models with stochastic parameters.
49. Shibananda Biswas, SMU, ISI, Kolkata(12.02.2013): Operator Algebras and Operator Theory.
50. Shigeru Kuroda, Metropolitan University(18.02.2013): Generalizations of the tame automorphisms of a polynomial ring over a domain of positive characteristic.
51. S.N. Lahiri, North Carolina State University(07.03.2013): A Frequency Domain Empirical Likelihood Method for Irregularly Spaced Spatial Data.
52. Monika Bhattacharjee, SMU, ISI, Kolkata(18.03.2013): Consistency of large dimensional sample covariance matrix under weak dependence.
53. Sutanu Roy, Math. Inst., University of Goettingen, Germany(21.03.2013): On braided multiplicative unitaries.
54. Kumarjit Saha, ISI, Delhi Centre(26.03.2013): Random directed forest and the Brownian web.

6. PUBLICATIONS OF THE INSTITUTE

7. SCIENTIFIC PAPERS AND PUBLICATIONS

7.1 Books Published

Bhattacharya, Abhishek and Bhattacharya, Rabi: Nonparametric Inference on Manifolds with Applications to Shape Spaces. Series: Institute of Mathematical Statistics

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Monographs 2, Subject: Statistical theory and methods, Cambridge University Press book, Publication date: April 2012.

Dasgupta, R. (Ed).: Advances in Growth Curve Models: Topics from the Indian Statistical Institute. Springer (USA) Proceedings in Mathematics & Statistics 46, (2013).
Srivastava, S.M.: A Course on Mathematical Logic, Second Edition, Springer, New York.

7.2 Papers published in journals:

Bhattacharya, Abhishek, Dunson, David and Page, Garritt: Density Estimation and Classification via Bayesian Nonparametric Learning of Affine Subspaces. Journal of the American Statistical Association, 2013.

Bhattacharya, Abhishek and Dunson, David: Strong consistency of nonparametric Bayes density estimation on compact metric spaces with applications to specific manifolds. Annals of the Institute of Statistical Mathematics, Volume 64, Part 4, pp 687-714, 2012.

Bhattacharya, Abhishek and Dunson, David: Nonparametric Bayes Classification and Testing on Manifolds with Applications on Hypersphere. Journal of Multivariate Analysis (2012). Volume 111, pp 1-19.

Bose, Arup and Gangopadhyay, Sreela: A note on Concomitants of Records, Statistical Methodology, 10, 103-112, 2013.

Bose, Arup and Gangopadhyay, Sreela: Pfeifer Records Process, Statistics, Taylor and Francis. Online Version (First published on September 11, 2012): DOI:10.1080/02331888.2012.719515.

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Hazra, Rajat, Subhra and Maulik, Krishanu: Tail behavior of randomly weighted sums.

Advances in Applied Probability, 44, no. 3, 794-814, 2012.

Das, Soumya and Ganguly, Satadal : Linear relations among Poincare' series, Bulletin of London Mathematical Society, Volume 44, Issue 5, October 2012

Das, Soumya and Ganguly, Satadal : Nonvanishing of Poincare' series on average, International Journal of Number Theory, Volume 9, Issue 1, February 2013

Dutta, Amartya, Kumar: Narayana's Treatment of Varga-Prakrti, Appeared in: Indian Journal of History of Science, Volume 47 Number 4, Page Nos: 633—677, December, 2012.

Meerschaert, Mark M., Roy, Parthanil and Shao, Qin: Parameter estimation for tempered power law distributions, *Communications in Statistics - Theory and Methods* 41(10), 1839-1856, 2012

Wang, Yizao, Stoev, Stilian A. and Roy, Parthanil: Decomposability for stable processes. *Stochastic Processes and their Applications*, 122(3) 1093-1109, 2012

Sen, B. and Chaudhuri, P.: "On fractile transformation of covariates in Regression".* Journal of the American Statistical Association*, vol. 107, pp.349-361, 2012,

Dhar, S. S. and Chaudhuri, P. : "On the derivatives of trimmed mean". *Statistica Sinica*, vol. 22, pp.655-680, 2012.

Dutta, S. and Chaudhuri, P. : "Semiparametric discriminant analysis for mixture models".

STAT, vol. 1, pp.90-102, 2012.

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Bose, Arup and Dutta, Santanu: Density estimation using bootstrap bandwidth selector. *Statistics & Probability Letters*, 83, 1, January 2013, 245--256.
<http://dx.doi.org/10.1016/j.spl.2012.08.027>, 2013.

Bose, Arup and Gangopadhyay, Sreela: A note on concomitants of records. *Statistical Methodology*, 10, 103—112, 2013.

Basu, Riddhipratim; Bose, Arup; Ganguly, Shirshendu and Hazra, Rajat Subhra: Joint convergence of several copies of different patterned random matrices. *Electronic Journal of Probability*, 17, Paper no. 82, 1--33. DOI: 10.1214/EJP.v17-1970, 2012c.

Basu, Riddhipratim; Bose, Arup; Ganguly, Shirshendu and Hazra, Rajat Subhra: Spectral properties of random triangular matrices. *Random Matrix Theory and Applications*, Vol. 1, No. 3, 1250003 [22 pages].doi: 10.1142/S2010326312500037), 2012b.

Basu, Riddhipratim; Bose, Arup; Ganguly, Shirshendu and Hazra, Rajat Subhra: Limiting Spectral Distribution of Block Matrices with Toeplitz Block Structure. *Statistics & Probability Letters*, 82, 1, 1430—1438, 2012a.

Bose, Arup and Gupta, Barnali: Optimal training, employee preferences and moral hazard. *Journal of Economic Theory and Social Development*, 1, 1, 1—24, 2012b.

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Bose, Arup and Gupta, Barnali: Mixed markets in a bilateral monopoly. *Journal of Economics*. Online first Oct 15, 2012. DOI. 10.1007/s00712-012-0310-8, 2012a.

Bose, Arup; Pal, Debashis and Sappington, David: Extreme screening policies. *European Economic Review*, 56, 1607--1620. DOI: 10.1016/j.euroecorev.2012.09.001, 2012.

Bose, Arup and Gangopadhyay, Sreela: Pfeifer records process. *Statistics: A Journal of Theoretical and Applied Statistics*, DOI:10.1080/02331888.2012.719515, 2012.

Bose, Arup; Hazra, Rajat Subhra and Saha, Koushik: Extremum of Circulant type matrices: a survey. Invited article in Golden Jubilee issue of *Journal of Indian Statistical Association*, 50, No. 1--2, 21—49, 2012b.

Bose, Arup; Hazra, Rajat Subhra and Saha, Koushik: Product of exponentials and spectral radius of random $k \times k$ circulants. *Annales de l'Institut Henri Poincaré -- Probabilités et Statistiques*, 48, 2, 424—443, 2012a.

Bose, Arup; Mitra, Joydip and Sen, Arnab: Limiting spectral distribution of random $k \times k$ circulants. *Journal of Theoretical Probability*, 25, 3, 771—797, 2012.

Basak, G.K., Das P.K. and Marjit, S.: Foreign capital inflow, exchange rate dynamics and potential financial crisis. Invited paper. *CURRENT SCIENCE*, VOL. 103, NO. 6, 25 September 2012.

Basak, G.K. and Biswas, Arunangshu: Process convergence of self-normalized sums of i.i.d. random variables coming from domain of attraction of stable distributions.

Proceedings of Indian Academy of Sciences (Mathematical Sciences), Vol. 125, No. 1,

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pp.85-100, February 2013.

Srivastava, S.M. and Doberkat, E.E.: Measurable Selections, Transition probabilities and Kripke Models, *Fundamenta Mathematicae* (Accepted).

7.3 Papers published in Conference Proceedings :

Goswami, Debashish and Skalski, Adam: On two possible constructions of the quantum semigroup of all quantum permutations of an infinite countable set, *Banach Center Publications* 98 199-214 (2012).

7.4 Papers published in books

Bose, Arup and Dey, Alok: The wonderful world of eigenvalues. *Math Unlimited: Essays in Mathematics*, pages 101--127. Invited article. Editors: R. Sujatha, H.N. Ramaswamy and C.S. Yogananda. Science Publishers. CRC Press, 2012.

8. VISITING SCIENTISTS

1. Indranil Biswas, TIFR, Mumbai, December 21, 2012 to December 26, 2012.
2. Ashis Mondal, Mathematics Research Unit, University of Luxembourg, April, 2012 to September, 2012
3. Ritabrata Munshi, TIFR, Mumbai, April 02, 2012 to May 31, 2012.
4. Koushik Pal, University of Maryland College Park, May 22, 2012 to June 01, 2012.
5. Arindam Banerjee, University of Kansas, June 08, 2012 to August 08, 2012.
6. Tathagata Basak, Iowa State University, Ames, IA, May 23, 2012 to July 14, 2012.
7. Sreela Gangopadhyay, SMU, Kolkata, July 01, 2012 to June 30, 2013.
8. Alpesh Dhorajia, SMU, Kolkata, May 15, 2012 to October 15, 2012.

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9. Pratyush Kumar, SMU, Kolkata, April 01, 2012 to July 31, 2012.
10. Pradipto Banerjee, SMU, Kolkata, January 01, 2012 to August 31, 2012.
11. Santanu Dutta, Tezpur University, July 16, 2012 to July 22, 2012.
12. Bodhisattva Sen, University of Cambridge, UK, July 25, 2012 to August 20, 2012.
13. Shilpa Suresh Gondhali, TIFR, Mumbai, September 01, 2012 to March 31, 2013.
14. Ali Saeb, Department of Studies in Statistics, University of Mysore, August 16, 2012 to February 28, 2013.
15. Pratyusha Chattopadhyay, Mainzerstrass 28, Saarbrücken, Germany, September 10, 2012 to March 31, 2012.
16. Robin Hillier, Dipartimento di Matematica, Università di Roma 'Tor Vergata', Via della Ricerca Scientifica 1, Italy, November 15, 2012 to March 15, 2013.
17. M.A. Sofi, Kashmir University, Srinagar, November 11, 2012 to January 06, 2013.
18. Jyotirmoy Sengupta, TIFR, Mumbai, December 07, 2012 to December 23, 2012.
19. Rajat Subhra Hazra, University of Zurich, January 01, 2013 to February 01, 2013.
20. Shao-Ming Fei, Capital Normal University, Beijing, China, January 08, 2013 to January 16, 2013.
21. Vishal Saraswat, CRRAO, AIMSCS, January 14, 2013 to January 18, 2013.

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22. Aditi Kar, Oxford University, U.K., February 07, 2013 to March 31, 2013.

23. Zbigniew Palmowski, University of Wroclaw, Poland, January 14-26, 2013.

9. HONOURS AND AWARDS

Goswami, Debashish:

Awarded the **Shanti Swarup Bhatnagar Award** in Mathematical Sciences for the year 2012.

Bhattacharya, Abhishek:

Awarded the 'Microsoft Young Faculty Award' by Microsoft Research Lab. India (MSR) for the year 2012.

Roy, Parthanil:

Elected: Associate of Indian Academy of Sciences, 2012 – 2015

Roy, Parthanil:

Awarded: Microsoft Young Faculty Award, Microsoft Research Lab India, 2012

10. SCIENTIFIC ASSIGNMENTS

10.1 Editorship

Chaudhuri, P.:

Appointed an Associate Editor of *Statistical Methodology. *Continuing as an Editor of* International Statistical Review* and* STAT* and as an Associate Editor of* Advances in Statistical Analysis.*

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Bose, Arup:

Associate editor of Statistical Methodology.

Bose, Arup:

Associate editor of Indian Journal of Pure and Applied Mathematics.

Bose, Arup:

Associate editor of Statistics and Probability Letters.

Bose, Arup:

Editorial Board Member of Lecture Note Series of Ramanujan Mathematical Society.

10.2 Scientific Assignments/Academic Visits Abroad

Maulik, Krishanu:

Invited speaker, 2nd IMS-Asia Pacific Rim Meeting, Tokyo, Japan, July 2-4, 2013.

Ganguly, Satadal:

Visited EPFL, Lausanne, Switzerland, September 01, 2012 -September 30, 2012.

Goswami, Debashish:

Visited the Instituto de Matemática Pura e Aplicada (IMPA), in Rio de Janeiro, Brazil for giving lecture in the 3rd Indo-Brazilian Symposium in Mathematics held during August, 13 - 17, 2012.

Bose, Arup:

Visited Dept. of Economics and Dept. of Maths., University of Cincinnati, USA May 15-
-June 08, 2012: Seminar on "Autocovariance Matrix" Collaborative work and research
discussions.

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Bose, Arup:

Visited Dept. of Statistics, Michigan State University, USA, May 27—30, 2012: Seminar on "Patterned Random Matrices".

Bose, Arup:

Visited University of Minnesota, USA, August 25--September 02, 2012. Collaborative work.

Bose, Arup:

Visited Dept. of Mathematical Sciences, Indiana University--Purdue University at Indianapolis, USA, September 03--05, 2012. Seminar on ``Non-random and random Toeplitz matrices'.'

Bose, Arup:

Visited Dept. of Mathematics, Lehigh University, USA, Sept. 06--12, 2012. Delivered two lectures: ``Limiting spectral distribution of patterned random matrices" ``Non-random and random Toeplitz matrices".

Bose, Arup:

Dept. of Mathematics, University of Cincinnati, Sept 25--Oct 03, 2012. Delivered a lecture on ``Non-random and random Toeplitz matrices".

Bose, Arup:

Distinguished speaker at 2nd IMS-APRM conference, Tsukuba, Japan, July 02--04, 2012. Lectured on ``Patterned Random Matrices''. Also Invited Session organizer on Random Matrices and Applications.

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Dasgupta, Ratan:

Participated in 'International Conference on Statistical Data Mining for Bioinformatics, Health, Agriculture and Environment' during December 22-24, 2012 organised by Rajshahi University, Bangladesh, chaired a session and delivered an invited talk therein entitled 'Extremal Processes based on Stationary Random Variables with Applications to Growth Curve Model'.

Srivastava, S.M.:

Visited University of Athens, September 03 to September 06, 2013.

Srivastava, S.M.:

Visited University of Munster, Germany, September 06 to October 06, 2013.

10.3 Scientific Assignments/Academic Visits in India**Bhattacharya, Abhishek:**

Invited to inaugurate and speak at the one day symposium on "The Legacy of Srinivasa Ramanujan" organized by Durgapur Viswagandha Science Society on December 22, 2012 at Durgapur.

Bhattacharya, Abhishek:

Invited to participate and give an invited lecture at the ISBA Regional Meeting and International Workshop/Conference on Bayesian Theory and Applications (IWCBTBTA) organized by Benaras Hindu University during January 6-10, 2013.

Maulik, Krishanu:

Invited speaker, Workshop on Topics in Probability, Virtual Institute of Mathematical and Statistical Sciences, Chennai, India, Dec 18-20, 2012.

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Ganguly, Satadal:

Visited TIFR, Mumbai, November 01, 2012 -November 30, 2012.

Dutta , Amartya, Kumar:

Visited School of Mathematics, Tata Institute of Fundamental Research, Mumbai, from September 7 to October 10, 2012.

Dutta, Amartya, Kumar:

Was a Resource Person in the NCM-organised ATM Workshop and Conference on Indian Mathematics held at IIT Bombay during February 6--16, 2013. He delivered a talk "On finding integer solutions of Aryabhata's equation" in the Department of Mathematics on February 11, 2013 and a talk on "The Kuttakadhyayah of Brahmagupta: Emergence of Algebra in Ancient India" in the ATM Conference on February 14, 2013.

Dutta, Amartya, Kumar:

Delivered a talk on "Brahmagupta's Bhavana --- Some Reflections" in a two-day workshop on Promoting History of Science in India at IIT Gandhinagar during 16--17 March 2013.

Dutta, Amartya, Kumar:

Delivered several lectures on "Mathematics and Astronomy in Ancient India" and on "Science and Scientific Temper in Modern India" in the Indology course of the Ramakrishna Mission Institute of Culture (RMIC) during April and December, 2012. He was a moderator and an examiner for the Examinations of the Indology course (June 2012).

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Dutta, Amartya, Kumar:

Contributed to the restructuring of the mathematics syllabus at St. Xavier's College, as a member of the Board of Studies.

Roy, Parthanil

Invited talk, Lectures on Probability and Stochastic Processes VII, Indian Statistical Institute, Delhi Centre, November 30 - December 4, 2012.

Bose, Arup:

STATQUEST—III, Seminars for research scholars, Calcutta University, March 05, 2013. Special invited talk titled ``You and your research''.

Bose, Arup:

Workshop on Heavy-tailed Distributions and Extreme Value Theory. ISI, Kolkata, January 14--17, 2013, Invited speaker. Lectured on ``Extreme eigenvalues of random matrices''.

Bose, Arup:

Conference on Topics in Probability}. Chennai Mathematics Institute (CMI) Organised by CMI, Institute of Mathematical Sciences and Statistical and Mathematical Sciences Institute, December 18--20, 2012. Invited speaker. Lectured on ``Patterned random matrices''.

Dasgupta, Ratan:

Participated in 'International Conference on Statistics and Informatics in Agricultural Research' being organized by the Indian Society of Agricultural Statistics at the Indian Agricultural Statistics Research Institute, New Delhi (India) during December 18-20,

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2012 and delivered an invited talk entitled 'Yam Growth Experiment and Above-ground Biomass as Possible Predictor'

Basak, Gopal, K:

Invited lecture, International Conference on Recent Advances in Mathematical Statistics and Its Applications in Applied Sciences at the Department of Statistics, Gauhati University during December 31, 2012 – January 1-2, 2013.

Shashi M. Mishra
9.5.13

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