

ANNUAL REPORT (2010-11)

1. Name and Department: Department of Mathematics & Statistics,
Indian Institute of Technology, Kanpur
2. New courses developed MTH 729- Ergodic Theory (Dr. Sudipta Dutta)
3. Books and book-chapters published
 1. Logic and Its Applications, 4th Indian Conference, ICLA 2011, Delhi, India, January 2011, Proceedings; Co-edited with A. Seth; Lecture Notes in Artificial Intelligence, Volume 6521, Springer-Verlag, Berlin, **Mohua Banerjee**.
 2. Text Book On Ordinary Differential Equations, 2/E, TMH, New Delhi, March, 2011 has been reprinted for the 17th time, S.G. Deo, V. Lakshmikantham, **V. Raghavendra**,
4. Research papers published in journals
 1. Common fixed point theorems in Menger spaces with common property (E.A). Comput. Math. Apl. 60(2010), No. 12, 3152- , J. Ali, M. Imdad, **D. Bahuguna**.
 2. On nonlinear abstract neutral differential equations with deviated argument. Nonlinear Dyn. Syst. Theory 10 (2010), No. 3, 283-294, D. Pandey, A. Ujlayan, **D. Bahuguna**.
 3. Laplace transform method for one-dimensional heat and wave equations with nonlocal conditions. Int. J. Appl. Math. Stat. 16 (2010), No. M10, 96-100, **D. Bahuguna**, S. Abbas, R.K. Shukla.
 4. Semilinear hyperbolic integrodifferential equations with nonlocal conditions. Nonlinear Dyn. Syst. Theory 10(2010), D.N. Pandey, A. Ujlayan, **D. Bahuguna**.
 5. A study of multiple-source approximation systems. Transactions on Rough Sets XII, LNCS 6190, 46-75, 2010, M.A. Khan, **Mohua Banerjee**.
 6. Stochastically perturbed allelopathic phytoplankton model, Elec. J. Diff. Eqn. 2010(98), 2010, 1-15, S. Abbas, **M. Banerjee**
 7. A primary infection model for HIV and immune response with two discrete time delays. Diff. Eqn. Dyna. Syst. 18, 2010, 385-399, P.K. Srivastava, M. Banerjee and P. Chandra.
 8. Biological cell-electrical field interaction:stochastic approach, J. Biol. Phy. 37, 2011, 39-50, A.K. Dubey, **M. Banerjee** and B. Basu.
 9. Self-organised spatial patterns and chaos in a ratio-dependent predator-prey system, Theor. Ecol. 4, 2011, 37-53, **M. Banerjee** and S. Petrovskii.
 10. A study of double diffusive free convection from a corrugated vertical surface in a Darcy porous medium under solet dufour effect, ASME Heat Transfer (in press) S.V.S.S.N.V.G. K. Murthy, B.V.K. Rathish, V. Sangwan, M. Nigam, **Peeyush Chandra**.
 11. A primary infection model for HIV and immune response with two discrete time delays. Differential Eqn. & Dynamical System (DSDE), Vol. 18(4), 2010, pp. 385-399,, P.K. Srivastava, M. Banerjee, **Peeyush Chandra**.

12. Mathematical modeling of HIV dynamics: In vivo – Mathematics Student, Vol. 78, 2010, . 7-27, **Peeyush Chandra**.
13. Mathematics Education in India: Some observations and Concerns, Mathematics Student, Vol. 78, 2010, 1-4, **Peeyush Chandra**.
14. How artificial rain can be produced ? A mathematical model – Nonlinear Analysis: Real World Applications, Vol. 11, 2010, pp. 2659-2668, J.B. Shukla, A.K. Misra, R. Naresh, **Peeyush Chandra** (DOI:10.1016/j.nonrwa. 2009.09.013).
15. Non-Darcy mixed convection in a fluid saturated square porous enclosure under suction effect: Part II, J Porous Media, Vol. 13(9), 799-805, 2010, S.V.S.S.N.V.G.K. Murthy, B.V.K.Rathish, V. Sangwan, M. Nigam, **Peeyush Chandra**, DOI:10.1615/JPor Media.v13.i9.30.
16. Non-Darcy mixed convection in a fluid saturated porous enclosure under suction effect: Part I, J Porous Media, Vol.13(6), 537-554, 2010, B.V.K.Rathish, S.V.S.S.N.V.G.K. Murthy, V. Sangwan, M. Nigam, **Peeyush Chandra**,
17. On operators Cauchy dual to 2-hyperexpansive operators: the unbounded case, Studia Mathematica, 203(2011), 129-162, **S.L. Chavan**.
18. Inexact proximal point methods for variational inequality problems. SIAM Journal of Optimization, Vol. 20, 2010, 2653-2678, R. Burachik, **J. Dutta**.
19. Regularized gap functions and error bounds for vector variational inequalities, Pacific Journal of Optimization, Vol. 6, 2010, 497-510, C. Charitha, **J. Dutta**.
20. On note on approximate Lagrange multiplier rules, Mathematical Programming, Series B, Vol. 123, 2010, 161-171, M. Durea, **J. Dutta**, Chr. Tammer.
21. Lagrange multipliers for epsilon-Pareto solutions in vector optimization with non-solid cones in Banach Spaces, Journal of Optimization Theory and Applications, Vol. 145, 2010, 196-211, M. Durea, J. Dutta, Chr. Tammer.
22. Optimal time advancing dispersion relation preserving schemes. J. Computational Physics, Vol. 229, 3623-3651, 2010, M.K. Tajpoot, T.K. Sengupta, **P.K. Dutt**.
23. Local U-convexity. J. Convex Analysis. 18(2011), No. 3, **S. Dutta**, B.L. Lin.
24. Strong proximality of closed convex sets. J. Approx. Theory 163(2011), 547-553, **S. Dutta**, P. Shunmugaraj.
25. Projections in the convex hull of three isometrics on $C(\Omega)$. J. Math. Anal. Appl. 379(2011), 878-888, **S. Dutta**, A.B. Abubaker.
26. Bioconvection in a suspension of isotropically scattering phototactic algae, Physics of Fluids 22, 071901(2010), **S. Ghorai**, M. K. Panda & N. A. Hill.
27. Numerical approximation of modified Burgers' equation via hybrid finite difference scheme on layer – adaptive mesh, Neural Parallel and Scientific Computations 18(2010), pp. 167-194, **M. K. Kadalbajoo**, V. Gupta.
28. Hybrid finite difference methods for solving modified Burgers and Burgers-Huxley equations, Neural Parallel and Scientific Computations 18(2010), pp. 409-422, **M.K. Kadalbajoo**, V. Gupta
29. A brief survey on numerical methods for solving singularly perturbed problems, Applied Mathematics and Computation 217(2010), pp. 3641-3716, **M. K. Kadalbajoo**, V. Gupta.
30. A singular perturbation approach to solve Burgers-Huxley equation via hybrid finite difference scheme on layer-adaptive mesh, Communications in Nonlinear Science and Numerical Simulation 16(2011), pp. 1825-1844, **M. K. Kadalbajoo**, V. Gupta.

31. Collocation method using artificial viscosity for solving stiff singularly perturbed turning point problem having twin boundary layers, *Computers & Mathematics with Applications* 61(2011) pp. 1595-1607, **M. K. Kadalbajoo**, V. Gupta, P. Arora.
32. B-spline collocation method for solving singularly perturbed turning point problem having twin boundary layers, *International Journal of Computer Mathematics* 87(2010) 3218-3235, **M. K. Kadalbajoo**, V. Gupta.
33. A layer adaptive B-spline collocation method for singularly perturbed one-dimensional parabolic with a boundary turning point, *Numerical Methods for Partial Differential Equations*, (Available online, DOI 10.1002/num.20574), **M. K. Kadalbajoo**, V. Gupta
34. Variable mesh finite difference method for self-adjoint singularly perturbed two-point boundary value problems, *Journal of Computational Mathematics*, **M. K. Kadalbajoo**, D. Kumar.
35. A computational method for singularly perturbed nonlinear differential-difference equations with small shift, *Applied Mathematical Modelling*, Vol. 34, Issue 9, Sept. 2010, pp. 2584-2596, **M. K. Kadalbajoo**, D. Kumar.
36. Variable mesh spline approximation method for solving singularly perturbed turning point problems having interior layer, *Neural, Parallel & Scientific Computations*, Vol. 18, No. 2, June 2010, pp. 207-220, **M. K. Kadalbajoo**, K. C. Patidar.
37. Numerical algorithm for singularly perturbed delay differential equations with layer and oscillatory behavior, *Neural, Parallel, and Scientific Computations*, 19, 2, 21-34, 2011, **M.K. Kadalbajoo**, V. P. Ramesh.
38. Time truncated acceptance sampling plans for generalized exponential distribution, *Journal of Applied Statistics*, Vol. 37, No. 4, 555-566, 2010, M. Aslam, **D. Kundu**, M. Ahmad.
39. On the comparison of the fisher information of the log-normal and generalized Rayleigh distributions, *Journal of Applied Statistics*, Vol. 37, No. 3, 391-404, 2010, A.S. Fawziah, R. Z. Mohammad, **D. Kundu**.
40. Generalized logistic distributions, *Journal of Applied Statistical Sciences*, Vol. 18, No. 1, 51-66, 2010, R.D. Gupta, **D. Kundu**.
41. Bivariate Birnbaum-Saunders distribution and associated inference, *Journal of Multivariate Analysis*, Vol. 101, 113-125, 2010, **D. Kundu**, N. Balakrishnan, A. Jamalizadeh.
42. Estimating the parameters of burst type signals, *Statistica Sinica*, Vol. 20, No.2, 733-746, 2010, S. Nandi, **D. Kundu**.
43. The generalized exponential cure rate model with covariates, *Journal of Applied Statistics*, Vol. 37, No. 9-10, 1625-1636, 2010, N. Kannan, **D. Kundu**, P. Nair, R.C. Tripathi.
44. Discriminating between the log-normal and log-logistic distributions, *Communications in Statistics- Theory and Methods*, Vol. 39, 280-292, 2010, A.K. Dey, **D. Kundu**.
45. An efficient and fast algorithm for estimating the parameters of two-dimensional sinusoidal signals, *Journal of Statistical Planning and Inference*, Vol. 140, 153-168, 2010, A. Prasad, S. Nandi, **D. Kundu**.
46. Survival models for step-stress experiments with lagged effects, special volume dedicated to W. Meeker, eds. Misha Nikulin, Nikolaos Limnios and N. Balakrishnan, *Advances in Degradation Modeling*, Birkhauser, 355-369, 2010, N. Kannan, **D. Kundu**, N. Balakrishnan.
47. Modified Sarhan-Balakrishnan singular bivariate distribution, *Journal of Statistical Planning and Inference*, Vol. 140, 526-538, 2010, **D. Kundu**, R.D. Gupta.

48. Parameter estimation of the hybrid censored log-normal distribution, *Journal of Statistical Computation and Simulation*, Vol. 81, No. 3, 275-287, 2011, S. Dube, B. Pradhan, **D. Kundu**.
49. Genetic algorithm based robust frequency estimation of sinusoidal signals with stationary errors, *Engineering Applications of Artificial Intelligence*, Vol. 23, 321-330, 2010, A. Mitra, **D. Kundu**.
50. *Statistical Signal Processing*, International Encyclopedia of Statistical Science, Springer, 2010, **D. Kundu**.
51. Bayesian inference and prediction of the inverse Weibull distribution for Type-II censored data, *Computational Statistics and Data Analysis*, Vol. 54, 1547-1558, 2010, **D. Kundu**, H. Howlader.
52. A class of absolute continuous bivariate distribution, *Statistical Methodology*, Vol. 7, 464-477, 2010, **D. Kundu**, R.D. Gupta.
53. Inference on Weibull parameters with conventional Type-I censoring, *Computational Statistics and Data Analysis*, Vol. 55, 1-11, 2011, A. Joarder, H. Krishna, **D. Kundu**.
54. The bivariate generalized linear failure rate distribution and its multivariate extension, *Computational Statistics and Data Analysis*, Vol. 55, 644-654, 2011, A.M. Sarhan, D.C. Hamilton, B. Smith and **D. Kundu**.
55. On some mixture models based on the Birnbaum-Saunders distribution and associated inference, *Journal of Statistical Planning and Inference*, Vol. 141, No. 7, 2175-2190, 2011, N. Balakrishnan, R.C. Gupta, **D. Kundu**, V. Leiva, A. Sanhueza.
56. Genetic algorithm and M-estimator based robust sequential estimation of parameters of nonlinear sinusoidal signals, *Communications in Nonlinear Sciences and Numerical Simulations*, Vol. 16, No. 7, 2796-2809, 2011, S. Mitra, A. Mitra, **D. Kundu**.
57. Time truncated group acceptance sampling plans for generalized exponential distribution, *Journal of Testing and Evaluation*, Vol. 39, No.4, 2011, M. Aslam, **D. Kundu**, C-H Jun, M. Ahmad.
58. Breaking the symmetries of the book graph and the generalized Petersen graph, *SIAM J. Discrete Math.* 23(2009), No.3, 1200-1216, **A.K. Lal**, B. Bhattachariya.
59. The distance matrix of a bidirected tree. *Electron. J. Linear Algebra* 18(2009), 233-245, R.B. Bapat, **A.K. Lal**, S. Pati.
60. Visited Indian Statistical Institute Delhi Centre during July 16, 2010 to July 23, 2010, **A.K. Lal**.
61. On Fuglede's Conjecture for three Intervals. *Online Journal of Analytic Combinatorics*, Vol.5, 1-24, 2010, D. Bose, C.P. Anil Kumar, R. Krishna, **S. Madan**.
62. Spectrum is periodic for n-intervals. *Journal of Functional Analysis*, Vol. 260, Issue 1, January 2011, 308-325, D. Bose, **S. Madan**.
63. Nearest neighbor estimates of entropy for multivariate circular distributions. *Entropy*, 2010, 12(5), 1125-1144, H. Singh, H. Vladimir, **N. Misra**.
64. An overview of the concepts and techniques of data mining. *Journal of Indian Statistical Association*, 2010, 48(1), 65-102, A. Mitra, **N. Misra**.
65. Standby redundancy allocations in series and parallel systems. *Journal of Applied Probability*, 2011, 48(1), 43-55, A.K. Misra, I.D. Dhariyal, **N. Misra**.
66. A numerical simulation of cardiac electric activity in LV based on Mono-domain model, *Journal of Mechanics in Medicine and Biology* 10(3), 1-14, 2010, **B.V.K. Rathish**, S.K. Pathak, V. Sangwan, S.V.S.S.N.V.G.K. Murthy, M. Nigam.

67. Three step Taylor Galerkin method for singularly perturbed generalized Hodgkin-Huxley equation, International Journal of Modelling, Simulation and Scientific Computing 1(2), 257-276, 2010, **B.V.K. Rathish**, V. Sangwan, S.V.S.S.N.V.G.K. Murthy, M. Nigam.
68. Finite element analysis for Mass-Lumped three step Taylor Galerkin method for time dependent singularly perturbed problems with exponentially fitted splines, Numerical Functional Analysis and Optimization, 2010, V. Sangwan, **B.V.K. Rathish**,
69. Serial changes in diffusion tensor imaging metrics of corpus callosum in moderate traumatic brain injury patients and their correlation with neuropsychometric tests: a 2-year follow-up study. J. Heat Trauma Rehabil 2010; 25(1):31-42, Kumar, Raj, Saksena, Sona, Husain, Mazhar, Srivastava, Arti, **R.K.S. Rathore**, Agarwal, Shruti, R.K. Gupta.
70. Comparative evaluation of dynamic contrast-enhanced perfusion with diffusion tensor imaging metrics in assessment of corticospinal tract infiltration in malignant glioma. J. Comput Assist Tomogr 2010, 34(1), 82-8, Awasthi, Rishi, Verma, S. Kumar, Haris, Mohammad, Singh, Anup, Behari, Sanjay, Jaiswal, A. Kumar, Rajput, Dinesh, Pandey, Rakesh, **R.K.S. Rathore**, K.S. Ram, Pandey, M. Chandra, R.K. Gupta.
71. Correlation of CSF proinflammatory cytokines with MRI in tuberculous meningitis. Acad Radiol. 2010, 17(2), 194-200, A. Yadav, C. Chaudhary, A.H. Keshavan, A. Agarwal, S. Verma, K.N. Prasad, **R.K.S. Rathore**, R. Trivedi, R.K. Gupta.
72. Diffusion tensor MR imaging in children with pantothenate kinase-associated neurodegeneration with brain iron accumulation and their siblings. AJNR AmJ. Neuroradiol 2010, 442-7, R. Awasthi, R.K. Gupta, R. Trivedi, J.K. Singh, V.K. Paliwal, **R.K.S. Rathore**.
73. Correlation of DTI metrics in the wall and cavity of brain abscess with histology and immunohistochemistry. NMR Biomed 2010, 23(3), 262-9, R.K. Gupta, Srivastava, Savita, Saksena, Sona, **R.K.S. Rathore**, Awasthi, Rishi, Prasad, N. Kashi Husain Mazhar, Pandey, M. Chandra, Husain, Nuzhat.
74. A diffusion tensor imaging study of deep gray and white matter brain maturation differences between patients with spina bifida cystica and healthy controls. J. Clin Neurosci 2010, 17(7), 879-85, Kumar, Manoj, R.K. Gupta, Saksena, Sona, Behari, Sanjay, Malik, K. Gyanendra, Kureel, N. Shiv, Pandey, M. Chandra, **R.K.S. Rathore**.
75. Brain MR imaging and 1H-MR spectroscopy changes in patients with extrahepatic portal vein obstruction from early childhood to adulthood. AJNR Am J Neuroradiol 2010, 31(7), 1337-42, S.K. Yadav, S. Saksena, Srivastava, Anshu, Srivastava, Arti, V.A. Saraswat, M.A. Thomas, **R.K.S. Rathore**, R.K. Gupta.
76. Correlation of quantitative sensorimotor tractography with clinical grade of cerebral palsy, Neuroradiology 2010, 52(8), 759-65, Trivedi, Richa, Agarwal, Shruti, Shah, Vipul, Goyal, Puneet, Paliwal, K. Vimal, **R.K.S. Rathore**, R.K. Gupta.
77. Cerebral oedema in minimal hepatic encephalopathy due to extrahepatic portal venous obstruction. Liver Int. 2010, 30(8), 1143-51, Goel, Amit, Yadav, Santosh, Saraswat, Vivek, Srivastava, Arti, Thomas, M Albert, Pandey, M. Chandra, **R.K.S. Rathore**, R. Gupta..
78. Serum proinflammatory cytokines correlate with diffusion tensor imaging derived metrics and (1) H-MR spectroscopy in patients with acute liver failure. Metab Brain Dis. 2010, 25(3), 355-61, R.K. Gupta, S.K. Yadav, M. Rangan, **R.K.S. Rathore**, M.A. Thomas, K.N. Prasad, C.M. Pandey, V.A. Saraswat.
79. Mixed norm estimate for Radon transform on weighted $SL^p L^p$ spaces. Proc. Indian Acad. Sci. Math. Sci. 120(2010), No.4, 441-456, A. Kumar, **S.K. Ray**.

80. Wiener-Tauberian type theorems for radial sections of homogeneous vector bundles on certain rank one Riemannian symmetric spaces of noncompact type, *Mathematische Zeitschrift*, DOI: 10.1007/s00209-010-0750-1, P. Sanjoy, **S.K. Ray**, R.P. Sarjar.
81. Stein-rule estimation in ultrastructural model under exact linear restrictions, *Journal of Statistical Research* (Invited paper for the special issue in honor of Professor Mir Maswood Ali) Vol.42, No.2, 159-180 (2009), G. Garg, **Shalabh**.
82. Conference interval estimation in ultrastructural model, *Communications in Statistics (Theory & Methods)*, 38:5, 675-681(2009), Pen-Hwang Liao, **Shalabh**.
83. Consistent estimation of regression parameter under replicated ultrastructural model with non-normal errors, *Journal of Statistical Computation & Simulation*, Vol. 79, No.3, 251-274(2009), **Shalabh**, C.M. Paudel, N. Kumar.
84. Use of prior information in the consistent estimation of regression coefficients in a measurement error model, *Journal of Multivariate Analysis*, Vol.100, 1498-1520(2009), **Shalabh**, G. Garg, N. Misra.
85. Optimality of Quasi-Score in the multivariate mean-variance model with an application to the zero-inflated poisson model with measurement errors, *Statistics*, Vol.44, No.4, 381-396(2010), A. Kukush, A. Malenko, H. Schneeweiss and **Shalabh**.
86. Consistent estimation of regression coefficients in measurement error model using stochastic apriori information, *Statistical Papers*, Vol. 51, 717-748(2010), **Shalabh**, G. Garg, N. Misra.
87. Sequential estimation of two dimensional sinusoidal models, *Journal of Probability and Statistics*, to appear 2011, A. Prasad, D. Kundu, **A. Mitra**.
88. Symmetric weight constrained traveling salesman problem: local search in OPSEARCH: Vol.47, Issue(2010), **P. Sharma**.
89. A simple algorithm for thermo-elasto-hydrodynamic lubrication problems, *Research and Reviews in Applied Sciences*, 2010, Vol.1, No.3, 265-279, **P. Sinha**, H. Khan, A. Saxena.
90. Thermal elastohydrodynamic lubrication of line contact rough surfaces considering flow factor method, *contemporary engineering sciences*, 2010, Vol.3, No.3, 113-138, H. Khan, **P. Sinha**.
91. Effect of shear flow factor on thermal elastohydrodynamic lubrication of infinite line contact rough surfaces, *Proceedings of the National Academy of Sciences, India (Section-A)*, 2010, Vol.80 Part IV, 327-346, H. Khan, **P. Sinha**.
92. Effect of inter-asperity cavitation on thermal elastohydrodynamic lubrication of infinite line contact rough surfaces, accepted for publication in *International Journal of Surface Science and Engineering*, 2010, H. Khan, **P. Sinha**.

5. Research papers published in conference proceedings `

1. Communicative approximations as rough sets. In LNCS 6086, Proc. Rough Sets and Current Trends in Computing (RSCTC 2010), Warsaw, Poland, 2010, Eds. Szczuka, M.S. et al. (Springer-Verlag), 317-326, 2010, **Mohua Banerjee**, A. Pathak, G. Krishna, A. Mukerjee.
2. A preference-based multiple-source rough set model. In: LNCS 6086, Proc. Rough Sets and Current Trends in Computing (RSCTC 2010), Warsaw, Poland 2010, Eds. Szczuka, M.S. et al. (Springer-Verlag), 247-256, 2010, M.A. Khan, **Mohua Banerjee**.
3. Hybrid finite difference methods for solving modified burgers and Burgers-Huxley Equations” at the Fourth International Conference on Neural, Parallel & Scientific Computations held during August 11-14, 2010 at Atlanta, USA. **M.K. Kadalbajoo**.
4. Analyzing non-stationary signals, at the 52nd meeting of the PAC on mathematical sciences (PAC-MS) at C.R. Rao advanced institute of mathematics, statistics and computer science, Hyderabad, Feb. 2011, **A. Mitra**.
5. Finite element analysis of three-step Taylor Galerkin approximation for singularly perturbed convection-diffusion equation, International Congress of Mathematicians August 19-27, 2010, Hyderabad, V. Sangwan, **B.V.K. Rathish**, S.K. Murthy, M. Nigam.
6. Darcy mixed convection in a fluid saturated 3D porous enclosure with a centrally buried isothermal cubical structure under suction effect, International Congress of Mathematicians, August 19-27, 2010, Hyderabad, S.V.S.S.N.V.G.K. Murthy **B.V.K. Rathish**, P. Chandra, V. Sangwan, , M. Nigam.
7. L^p Wiener Tauberian theorems for $M(2)$, given in ICM satellite conference in Harmonic Analysis, (SATEHA), Aug. 29-Sept.2, 2010, in National Institute of Science Education and Research (NISER), Bhubaneswar, **R. Rawat**.
8. Characterising Problems in class PLS for which Local Search is Polynomial Time, at the ORST 2010 Annual Convection, held in Madurai from 15th to 17th Dec. 2010, **P. Sharma**.
9. Chaired a session at SEAL’10 , held from 1st to 4th Dec. 2010 in IIT Kanpur, **P.Sharma**.
10. An extended three point approximating subdivision scheme in the proceedings of Computer Design and Applications Vol.2, IEEE Publication, 73-77,2010, S. Daniel, **P. Shunmugaraj**.
11. A ternary 4-point subdivision scheme with a tension parameter for geometric modeling in the proceedings of Modeling, simulation and control, IEEE publication 128-132, 2010, S. Daniel, **P.Shunmugaraj**.
12. Effect of surface roughness on thermal elastohydrodynamic lubrication of line contacts using average flow model, 65th Annual meeting of the STLE, Las Vegas, NV, USA, May 16-20, 2010, **P.Sinha**, H. Khan.
13. Thermal and roughness effects on the performance of a finite slider bearing considering heat conduction through the pad, 65th Annual meeting of the STLE, Las Vegas, NV, USA, May 16-20, 2010, **P.Sinha**, Getachew Adamu.
14. Thermal elastohydrodynamic lubrication of infinite line contact rough surface. Considering shear flow factor, 65th Annual meeting of the STLE, Las Vegas, NV, USA, May 16-20, **P. Sinha**, H. Khan.

6. Seminars and invited talks presented:

1. The stairway to Boolean algebras: through the eyes of logic, Presidency University, Kolkata, December 2010, **Mohua Banerjee**.
2. Reasoning with Information Systems, National Conference on Emerging Trends in Soft Computing, Department of Computer Science, Nowrosjee Wadia College, Pune, February 2011, **Mohua Banerjee**.
3. Stochastic Modelling in Population Biology, in ‘Workshop on Mathematical Ecology’ held at IISER Kolkata, 7-12 December 2010, **Malay Banerjee**.
4. Turing-instability and pattern formation, in ‘Workshop on Mathematical Ecology’ held at IISER Kolkata, 7-12 December, 2010, **Malay Banerjee**.
5. Turing and non-Turing pattern formation in ecology: effect of environmental noise, in ‘Symposium on Mathematical Ecology’ held at IISER Kolkata, 13-14 December, 2010, **Malay Banerjee**.
6. Spatio-temporal modeling and turing instability, in ‘Workshop on Stability & Bifurcation Analysis and Pattern Formation in Ecology and Epidemiology’ held at IIT Kanpur, 25 Feb 2 – March 2011, **Malay Banerjee**.
7. Overview of global dynamical analysis in mathematical ecology, in ‘Workshop on Stability & Bifurcation Analysis and Pattern Formation in Ecology and Epidemiology’ held at IIT Kanpur, 25 Feb – 2 March 2011, **Malay Banerjee**.
8. Moment based stability analysis for noise added model of interacting population in ‘Models in Population Dynamics and Ecology 2010: Animal Movement, Dispersal and Spatial Ecology, MPDE-10’, held at Leicester University, UK, 1-3 September, 2010, **Malay Banerjee**.
9. Spatio-temporal pattern formation in Holling-Tanner model in presence of multiplicative noise, in ‘Conference on Computational and Mathematical Population Dynamics: CMPD-10’ held at Universite Victor Segalen Bordeaux 2, France, 31 May – 04 June, 2010, **Malay Banerjee**.
10. Non-Newtonian Fluids and Biofluid Dynamics, Department of Mathematics, Lucknow University, July 30,2010, **Peeyush Chandra**.
11. Research Methodology in Biomathematics, NMRSMS, IIT Madras, Oct. 2010, **Peeyush Chandra**.
12. Invited talk at the DAV College, Kanpur, **Peeyush Chandra**.
13. Spectral Theory for Non-normal Hilbert Space Operators” on 26th May 2010 at IISER Pune, **S. Chavan**
14. Workshop in Functional Analysis-I, June 04-23,2010, IMSc, Chennai, **S. Dutta**.
15. Workshop in Functional Analysis-II, Dec. 05-23,2010, ISI, Delhi, **S. Dutta**.
16. Penetrative bioconection in a suspension of isotropically scattering phototactic algae, Workshop on “Individual and Collection Fluid Mechanics of Swimming Microorganisms”, July 6-8, 2010, Glasgow, UK, **S. Ghorai**.
17. Bioconvection and pattern formation, Conference on “Mathematical Modeling and Computer Simulation” March 25-27, 2011, IT, BHU, **S. Ghorai**.
18. Mathematical modeling of bioconvection, Workshop on “Stability and bifurcation analysis and Pattern formation in ecology and epidemiology”, February 25 to 2nd March, 2011, IIT Kanpur, **S. Ghorai**.

19. Numerical solution of ODE models in mathematical biology, Workshop on “Stability and bifurcation analysis and pattern formation in ecology and epidemiology”, Feb. 25 to 2nd March, 2011, IIT, Kanpur, **S. Ghorai**.
20. Numerical solution of PDE models in mathematical biology, Workshop on “Stability and bifurcation analysis and pattern formation in ecology and epidemiology”, Feb. 25 to 2nd March, 2011, IIT Kanpur, **S. Ghorai**.
21. Paul-Levy Gromov’s Isoperimetric inequality, in a workshop on Differential Geometry held at Department of Mathematics and Astronomy, University of Lucknow, Lucknow during January 15-16, 2011, **G. Santhanam**.
22. Parallel numerical simulation of thermal hydraulics in a AI MMIP2011, NIT Calicut March 28-31, 2011, **B.V.K. Rathish**.
23. An overview of HiPC in Cardio-Vascular Flow Simulations Part 1 & 2, International workshop in fluid dynamics, 12-14, December 2010, Satyabhama University, Chennai, **B.V.K. Rathish**.
24. FEM for Elliptic PDEs, DST National workshop on mathematical modeling, computational aspects for Continuum Mechanics, Dec. 20-23, Osmania University, Hyderabad, **B.V.K. Rathish**.
25. Resource person for the Study group meeting SGMIP2011, IISc, Bangalore, March 24-28,2011, **B.V.K. Rathish**.
26. FEM in Fluids, in UGC sponsored national symposium on “Applications in Fluid Dynamics”, Feb. 10-12, 2011, BSNV PG College, Lucknow, **B.V.K. Rathish**.
27. Chaired a session in International Conference on HiPC Applications at SSSHL, SSSUNIV, Prasanthinilayam, Dec. 16-18, 2010, **B.V.K. Rathish**.
28. Convection in Porous Media and Applications – A Numerical Perspective, Dec. 27-30, IMS 2010 NIT Surat, **B.V.K. Rathish**.
29. National Center for Advanced Research in Discrete Mathematics, Kalasalingam University, Krishnankoil, India in 2010, **Shalabh**.
30. Indian Statistical Institute , New Delhi, India in 2010, **Shalabh**.
31. Department of Statistics, Jammu University, Jammu, India in 2010, **Shalabh**.
32. School of Statistics, University of Indore, Indore, India in 2011, **Shalabh**.

7. Conferences attended outside IIT Kanpur

1. National Conference on Mathematical Modeling & Simulation, Dept. of Applied Math, IT BHU, March 27, - delivered an Invited talk as well as chaired a session, **Peeyush Chandra**.
2. 3rd National Symposium on Modern trends in Differential Geometry and Mathematical Modeling in Biosciences, Lucknow University, Jan. 2011, Invited talk ‘Mathematical Modeling of HIV Infection with drug therapy’, **Peeyush Chandra**.
3. CONIAPS XII, Rajasthan University, Jaipur, Dec. 24, 2020; delivered an Invited talk as well as chaired a session, **Peeyush Chandra**.
4. Member, local organizing committee of “Satellite Conference on Functional Analysis and Operator Theory” ISI Bangalore, August 08-11,2011, **S. Dutta**.
5. Attended, ICM 2011, Hyderabad, India, **S. Dutta**.

6. Generalized Lorentz sequence spaces and corresponding operator ideals, with Antara Bhar in “The great plains operator theory symposium” held in June, 20 at University of Denver, Denver, USA, **M. Gupta**.
7. On ideals of Orlicz type operators, in satellite conference on “Functional analysis and operator theory” held under Section 9 of the ICM, 2010, at Indian Statistical Institute, Bangalore in August 2010, **M. Gupta**.
8. Recent advances in Analysis and Operator theory, symposium convened during the 76th Annual Conference of Indian Mathematical Society held at SVNIT, Surat in December 2010. Delivered a talk on “Absolute Bases” in the symposium. Also chaired a session, **M. Gupta**.
9. “On Bivariate Exponential Distributions”, Presented at CUSAT, Feb., 2011, **D. Kundu**.
10. “On Random Number Generation”, Presented at CUSAT, Feb., 2011, **D. Kundu**.
11. “On Texture Modelling”, Presented at CUSAT, Feb., 2011, **D. Kundu**.
12. “On Birnbaum-Saunders Distribution”, Presented at Calcutta University, Jan. 2011, **D. Kundu**.
13. “On Bivariate & Multivariate Generalized Exponential Distributions”, Presented at the Indian Statistical Institute, Mar., 2011, **D. Kundu**.
14. Estimation of Entropy and its Application at Recent Developments in Statistics, Applied Econometrics and Forecasting at Allahabad University, Allahabad, India, in December, 2010, **N. Misra**.
15. Optimal Redundancy Allocations in Systems and Comparison of Component and System Level Redundancies at the Conference on Mathematical Modeling and Computer Simulation at Institute of Technology, BHU, Varanasi in March 2011, **N. Misra**.
16. Mapping properties of Radon transform of radial functions, ICM Satellite Conference, NISER, Bhubaneswar, August, 2010, **S.K. Ray**.
17. Workshop in Functional Analysis-II, Dec. 05-23, 2010, ISI, Delhi, **S.K. Ray**.
18. Indian Institute of Science Education and Research, Kolkata, India in 2009, **Shalabh**.
19. Measurement Errors Models in Bioinformatics at the Seminar –cum- Workshop on “Molecular Modeling, Protein-Protein Interactions and Computer Aided-Drug Design” at Center of Bioinformatics, University of Allahabad, India in March 2010, **Shalabh**.
20. Linear regression Modelling” at the “Instructional Workshop on Mathematical Modeling and Simulation” at National Center for Advanced Research in Discrete Mathematics, Kalasalingam University, Krishnankoil, India in July 2010, **Shalabh**.
21. An Introduction to Measurement error Modelling at the “Workshop on Modern Tools in Applied Statistics” at Department of Statistics, Jammu University, Jammu, India in December, 2010, **Shalabh**.
22. Instrumental Variable Estimation in Measurement Error Model Under Exact Restrictions” at “International Conference on Applied Statistics and Financial Mathematics” at The Hong Kong Polytechnic University, Hong Kong in December, 2010, **Shalabh**.
23. Simultaneous Prediction in Linear Regression Model at Recent Developments in Statistics, Applied Econometrics and Forecasting at Allahabad University, Allahabad, India, in December, 2010, **Shalabh**.
24. Simultaneous Prediction of Actual and Average Values of Study Variable in Linear Regression Model at 47th Conference of the Indian Econometric Society at Indore, India in January 2011, **Shalabh**.

25. Calibration in Linear Regression Model at the Conference on Mathematical Modeling and Computer Simulation at Institute of Technology, BHU, Varanasi in March 2011, **Shalabh.**

8. Other Activities

(a) *Technology Developed*

(b) *Software Developed*

(c) *Industry visited and visits to other Institutes for research*

(d) *Patents*

(e) *Awards and Honors*

(f) *Continuing Education Activities*

1. Organized a workshop ‘Stability & Bifurcation Analysis and Pattern Formation in Ecology and Epidemiology’ at IIT Kanpur during 25th February-2nd March, 2011 sponsored by DST, India and IISc Mathematics Institute, **Malay Banerjee.**
2. Gave a course of lectures on Topology in MTTS Programme held at Regional Institute of Education, Mysore during May 18-June 12,2010, **G. Santhanam.**
3. Gave a course of lectures on Linear Algebra in the training program held at Banasthali University, Rajasthan during December 18-26,2010., **G. Santhanam.**

(g) *Participation in the High Level Industry Academia Interaction Program during summer*

(h) *Students related activities, projects etc.*

1. DST Project: Nonlocal initial boundary value problems, 2011-2013, **D. Bahuguna.**
2. **Md. Aquil Khan** awarded Ph.D. 2010; Thesis entitled “Multiple-source Approximation Systems, Evolving Information Systems and Corresponding Logics: A Study in Rough Set Theory”.
3. **Mr. Gaurav Singh** M.Sc. Project “Applications of Ramsey Theory in Geometry of Banach Spaces.

(i) *Any other important activity not specified above*

1. Visited to the University of Western Cape during December 4, 2010 to December 25, 2010, **D. Bahuguna.**
2. Research visit to the Institute of Mathematics, University of Warsaw, Poland, June-July 2010, **Mohua Banerjee.**
3. 7th International Conference on Rough Sets and Current Trends in Computing (RSCTC 2010), Warsaw , Poland, June 2010, **Mohua Banerjee, Session Chair.**

4. 4th Indian Conference on Logic and Its Applications (ICLA 2011), Delhi, January 2011, **Mohua Banerjee**, Sesion Chair.
5. Delivered two lectures on Mathematical Modeling & Epidemiology at a referesher course in the Department of Mathematics, Delhi University, Dec. 22 and 23, 2010, **Peeyush Chandra**.
6. Resource person for the summer workshop on Mathematical Modeling, held at Kalasalingam University, Krishnankoil (TN), June 2010, **Peeyush Chandra**.
- 7.. Resource person in the DST Workshop on ‘Stability & Bifurcation Analysis and Pattern Formation in Mathematical Ecology and Epidemiology’ at IIT Kanpur, Feb. 25-March 2, 2011, **Peeyush Chandra**.
8. Presented 03 lectures at the Workshop on.....held during Decemberat Delhi University, **M. K.Kadalbajoo**.
9. Presented 02 lectures in the Centre of Advanced Study, Punjab University during December 22-25, 2010, **M. K.Kadalbajoo**.
10. Presented 03 lectures in the Workshop on PDEs held during March 3-5, 2010 at IIT Patna, **M. K. Kadalbajoo**.
11. Editorial Board Member of the Journal of Modern Applied Statistical Methods, **D.Kundu**.
12. Editorial Board Member of the journal Statistics and Its Applications, **D. Kundu**.
13. Editorial Board Member of the Journal Communications in Statistics – Theory and Methods, **D. Kundu**.
14. Editorial Board Member of the Journal Communications in Statistics – Simulation and Computation, **D. Kundu**.
15. Stability & Bifurcation Analysis and Pattern Formation in Mathematical Ecology and Epidemiology held during 25th February to 2nd March, 2011 at Indian Institute of Technology, Kanpur. This workshop is a part of year – long activity of the Centre for Mathematical Biology and the Mathematics Initiative of the Indian Institute of Science (IISc), Bangalore (A DST centre for Mathematical Biology). I delivered four invited talks on Stability of Linear Systems, **V. Raghavendra**.
16. Delivered 3 lectures on Second PDE at a four days Workshop in PDE for students and teachers of Patna and surrounding academic institutions during 1-4 March 2011. The venue was IIT Patna. This workshop is being partially funded by Indian Academy of Science, **V. Raghavendra**.
17. Member of Editorial Advisory Board of Proceedings of Indian Society of Mathematics and Mathematical Sciences, **Shalabh**.