Department of Mathematics
Annual Report (2010-2011)

A general overview of departmental activities

The year witnessed excellent contributions and achievements of faculty and students in research; interaction with industry and noted national and international institutes, universities and organizations; and extended educational activities beyond the departmental academic programs.

Some of the notable events are:

Prof. U. K. Anandavardhanan being awarded Excellence in teaching award (2010); Prof. Sudhir R. Ghorpade elected as a Fellow to the National Academy of Sciences, India, 2010.

Faculty strength; Names of new faculty members

Current faculty strength is 33.

New faculty members are:

Debraj Chakraborty

Bharath Sethuraman (Visiting Faculty [Professor])
Sharad S. Sane (Visiting Faculty [Professor])
Jayant V. Deshpande (Visiting Faculty [Professor])
Jaydeep Chipalkatti (Visiting Faculty [Professor])
Tarlok Nath Shorey (Distinguished Guest Professor)

Academic Programs:

Student Intake	
Ph.D	: 11
M.Sc. (MA)	: 31
M.Sc. (ASI)	: 32
Degree Awarded	
Ph.D.	: 05
M.Sc.(MA)	: 18
M.Sc. (ASI)	: 22
M.Phil.	: 01

Besides the teaching of B. Tech. courses, the Department offers M.Sc. and Ph.D. programs. It has two distinct M.Sc. programs: M.Sc. in Mathematics and M.Sc. in Applied Statistics and Informatics (ASI). In addition, the Department has a vibrant research programme leading to Ph.D. degree.

R & D Activities

Continuing with its tradition, the Department has further augmented its basic research, focusing in contemporary areas of fundamental, developmental and strategic importance, applied and interdisciplinary research and productive collaboration with industries and reputed R & D departments. The collaborating R & D institutions/organizations include: TIFR, IISc, ISI, ONGC, Institute of Mathematical Sciences and foreign universities like Brunei University (U.K), Florida Technical University (USA), Colorado School of Mines (US), Humboldt University (Germany), CNRS-IML, Marseille (France), INSA, Toulouse (France), Univ. St-Etienne (France), l'Université Pierre et Marie Curie, Paris (France), Vilnius University, Lithuania, Emory University, US, French Naval Academy, Universität Bielefeld, Germany, University of Twente, Netherlands and nodal organizations such as CSIR, DAE, DBT, DST, for scientific exchange of ideas of national importance.

In order to fulfill the broad objectives of research activities, steps are taken to ensure that, the theoretical bases in emerging areas are strengthened, interdisciplinary problems requiring mathematical solutions are identified, interaction between Indian and overseas scientists are facilitated, local talents are well nurtured through lecture series and instructional workshops by evolving a pool of trained manpower in thrust areas. During this year, the department organized a workshop on Reliability Theory and Survival analysis. Also organized an Advanced Instructional School in Group Theory.

Sponsored Research Projects

Sponsored Projects	
Ongoing	: 5
New	: 1
Completed	: 3
Faculty Involved	: 5
Consultancy	
Jobs	: 2
Faculty Involved	: 2

Project Title	**Sponsoring Agency**	**Status (New/ Ongoing/ Complete**
Arithmetic of Automorphic forms	IFCPAR (Indo-French Centre for the promotion of Advanced Research)	Completed
Extension and Web Implementation of PROPAINOR (ab-initio Prediction & Computational Function Elucidation of 3-D Structure *of Proteins*.	Department of Biotechnology (DBT	Successfully Completed
Instrumentation assisted Decision Support System deploying Data Mining Techniques for Pulse Examination & Diagnostics (Nadi Pariksha)	Ministry of Information Technology (MoIT)	Successfully Completed
"Robust parameter designs for quality and safety critical processes SR/FTP/MS-13/2009	DST	Ongoing Projects
"Identifying the Most Successful Combination Dose in a Phase I/II Clinical Trial"	IRCC	Ongoing Projects
The Oldroyd model of viscoelastic Fluids:	DST	On going
Theoretical and Computational Studies of Kelvin - Voigt model of viscoelastic fluids	DST -CNPq (Indo-Brazil)	On going
Numerical treatment of integral operators with non-smooth kernels	Indo-French Centre for Promotion of Advanced Research, New Delhi	Ongoing since September 2009
Liftings of operator tuples and structure theory of operator algebras	IRCC, seed grant	ongoing

Consultancy Projects

Project Title	**Sponsoring Agency**	**Status (New/ Ongoing/ Complete**
Validation of Application Credit Scoring Models	Tata Motors Finance Ltd.	Complete
Statistical modeling of Online Advertising Data	Directiplex, Mumbai	new and ongoing

Extension Activities:

Workshops and Conferences:

Ameer Athavale
Gave a talk based on 2 papers of mine at the conference FaO2010 (Functions and Operators 2010) held in Krakow, Poland from June 21, 2010 to June 25, 2010.

Santanu Dey
1. A MPhil thesis from Pune university referreed
2. M.Sc. Project of Sayan Chakraborty guided
3. Two PhD students currently working with me
4. Invited Visitor Prof. Rolf Gohm, Aberystwyth University, from 3-8-10 to 8-8-10 who gave a seminar talk on "Non-commutative Markov chains and multi-analytic operators" in our department

Ghorpade, Sudhir R.
Chair, Programme Committee, and Member, Local Organising Committee of: *International Conference on Algebra and Algebraic Geometry*, in honour of Prof. Abhyankar's 80th birthday, University of Pune, Pune, December 17-22, 2010.

Co-organiser of: *Short course on Algebra and Algebraic geometry*, by Prof. Shreeram S. Abhyankar, Bhaskaracharya Pratishthana, Pune, December 9, 2010 – January 5, 2011.

R.P. Kulkarni
Six invited talks on `Numerical Linear Algebra' in the Advanced Instructional School of the NBHM at I. I.T. Guwahati during 2 to 7 December, 2010.

B.V. Limaye
Six invited talks on `Numerical Linear Algebra' in the Advanced Instructional School of the NBHM at I. I.T. Guwahati during 2 to 7 December, 2010.

Amiya K. Pani
Member of the organising committee of Thematic Year 2009-2010 on PDE Models Arising in Multiscale Problems, Controls, Inverse Problems and Fluid Dynamics under IISC Math Initiatives.

Member of the organising committee of International Conference on Multiscale Analysis and Homogenization held in IISC Bangalore during July 12-14, 2010.

Member of the organising committee of the Satellite conference
ICMPDE held in TIFR, Bangalore during Aug. 13-17, 2010.

Member of the Scientific Committee of the World Congress on Mathematics and Applications held in Federal University of Parana at Curitiba (Brazil), during December 6-10, 2010.

Member of the organising committee of the International Conference on Recent Developments on Applied and Computational Mathematics held in Chiangmai University, Chiangmai during January 4- 6, 2011.

One of the Co-ordinators of the International Workshop on Advanced Computational PDEs held in BITS, Goa Campus during Feb 7- March 5, 2011.

One of the co-ordinators of Modelling Week and Study Group Meeting on Industrial Problems held in IISC Bangalore during March 14- March 26, 2011.

Member of the Scientific Committee on the International Conference on Mathematical Modelling and Applications to Industrial Problems held in NIT Calicut during March 28-31,2011.

S V Sabnis

Organized a Workshop on Reliability Theory & Survival Analysis during 25-27 November, 2010. The number of participants who attended this workshop was 55 and they essentially comprised of faculty members and research scholars from institutions/universities such as ISI (Kolkata, Delhi), IIT (Bombay, Kanpur, Guwahati), Delhi, Pune, Panjab, CUSAT (Cochin University of Science & Technology), Central University of Hyderabad etc. NBHM provided financial support for this workshop.

4. Participated in a Refresher Course organized for college teachers by Department of Mathematics, University of Mumbai. Gave three one and a half hour talks on 7^{th}, 9^{th} and 11^{th} March 2011 and the topic was Martingale Theory.

J.K. Verma

(1) Organized Advanced Instructional School sponsored by NBHM in Group Theory held at IIT Bombay during 10-29 May, 2010.

(2) Organized International Conference on commutative algebra and algebraic geometry held at IISc, Bangalore during 6-10 December, 2010.

Seminars:

Amit Kulshrestha, IISER Mohali, A Quick Introduction to GAP
Amitava Mukherjee, Dept of Mathematics and Mathematical Statistics, Umeå University, Sweden,
A Nonparametric Partially Sequential Test for Monitoring Phase-II Location under Pair-wise Dependence between Two Phases
Anand Srivastav, University of Kiel, Germany,
Quantum-Evolutionary Computation of the Discrepancy of Arithmetic Progressions
Anjan Gupta, TIFR Bombay,
A result of Kunz on the value semigroup of a one dimensional Gorenstein Ring
Anuradha Garge, CBS Mumbai ,
Filtered Rings
Filtered Rings II
Arnab Mitra, TIFR Bombay,
Duality Correspondence for (GL(m),GL(n))
Balwant Singh, IIT Bombay and CBS Mumbai,
Local Cohomology-I
Local Cohomology-II
Local Cohomology-III
Local Cohomology-IV
Local Cohomology-V
Bharath Sethuraman, IIT Bombay and California State university, Northridge,
Determinantal Rings and varieties-V
Determinantal Rings and varieties-IV
Determinantal Rings and varieties-III
Determinantal Rings and varieties-II
Determinantal Rings and varieties-I
Bill Casselman, Univ of British Columbia, Structure Constants for Lie Groups
Bobby Philip, Oak Ridge National Laboratory,
Multilevel Solution Algorithms on Adaptively Refined Grids: Analysis and Performance

Dave Woods, University of Southampton,
Blocked Experimental Designs for a Non-Normal Response
Dipendra Prasad, TIFR Mumbai,
On Models of Representations - I
Introduction to Algebraic Groups and Automorphic Forms - III
Introduction to Algebraic Groups and Automorphic Forms - II
On Models of Representations - IV
Francois Coulouvrat, Univ of Paris,
Nonlinear acoustical guided waves
Shock solution for general nonlinear wave equation
Frederique Oggier, NTU, Singapore,
On Gaussian Wiretap Lattice Codes
H. Esnault, Univ. of Duisburg-Essen,
Rational points over finite and local fields and Hodge theory.
Jaya Iyer, Univ. of Hyderabad,
Chow group computations for some varieties, via Abel-Jacobi maps
Jean Fasel of EPFL, Lausanne.
Grothendieck-Witt groups and projective modules
Kwai-Man Fan, National Chung-Cheng University, Taiwan,
On arrangements of complex hyperplanes whose fundamental group is a direct product of free groups.
Leo Storme Ghent University, Belgium,
The use of blocking sets in Galois geometries
Manoj Keshari, IIT Bombay,
Proof of Ferrand Szpiro's lemma.
Local complete intersection affine curves are set-theoretic complete intersection -II
Smooth affine curves are set-theoretic complete intersections-I
Manoj Kummini, Purdue University,
Regularity of Ext Modules
Marcelo Aguiar , University of Texas A & M,
The Hopf Monoid of Generalized Permutahedra Theory
Hopf Algebras in Topology, Combinatorics, and Representation Theory
Martin Charles Golumbic, Department of Computer Science, University of Haifa, Haifa, Israel,
"Algorithmic Graph Theory and its Applications: Twenty Five Years of EPT Graphs"
Meera G. Mainkar,
Anosov Automorphisms on Nilmanifolds
Michael Page,
Diffusion-driven flow in a stratified viscous fluid – and unexpected propulsion
Murali K Srinivasan, I.I.T. Bombay,
Symmetric chains, Gelfand-Tsetlin chains, and the Hypercube
Nikolai Vavilov St. Petersburg Univ.,
Constructions of Exceptional Groups
Parameswaran Sankaran, IMSc Chennai,
Ubiquity of Free Groups
Peter Beelen, Technical Univ of Denmark,
Towers of algebraic function fields
R. C. Cowsik, Mumbai University,
Bass' Fundamental Theorem about Gorentein rings- 1
Bass' Fundamental Theorem-2
Bass' Fundamental Theorem-3
Bass' Fundamental Theorem-4
Filtered Rings-I
Rajan Sundaravaradhan,
On Tate's thesis
Rajendran Narayanan, Cornell university,
Shrinkage estimation in the Lasso set up
Ravindra B. Bapat, Indian Statistical Institute, New Delhi,
Distance Matrix of a Tree and Beyond
Interplay of Ranks of Submatrices
Rituparna Sen, UC Davis,
Functional Data Analysis for Volatility
Santosh N. Kabadi, Faculty of Business Administration, University of New Brunswick Fredericton, NB,
Sue Lewis, University of Southampton,
Linearization of QAP and QTSP: Characterizations and Efficient Algorithms

Sarang Sane, TIFR Bombay,
Euler characteristic and Multiplicity-III.
Euler characteristic and Multiplicity-II.
Higher Euler Characteristics
Multiplicity, Euler characteristic of the Koszul homology and the multiplicity symbol.
Splitting of Projective Modules

Satrajit Roychoudhury, BDM Oncology, Novartis Pharmaceutical Company, Florham Park, NJ, Bivariate Semiparametric Baysian Approach for Finding Minimum Efffective Dose and Maximum Safe Dose.

Shastri, A.R., IIT Bombay,
Cancellation Theorems in Group Theory

Sheetal Dharmatti, Institut de Mathematique de Toulouse,
H-infinity Feedback Boundary Stabilization of 2D Navier-Stokes Equation

Shiv Prakash Patel, TIFR Mumbai,
Cuspidal Representations of *SL(2)* via Compact Induction - II

Shreedevi Masuti, IIT Bombay,
Dualizing module of an artinian ring
Gorenstein artinian rings

Shripad Garge, IIT Bombay,
Geometric Lemma of Bernstein and Zelevinsky - II
Geometric Lemma of Bernstein and Zelevinsky - III
Geometric Lemma of Bernstein and Zelevinsky
Intersection of Parabolic Subgroups
Intersection of Parabolic Subgroups - II

Siddhartha Gadgil, IISc, Bangalore,
The Word Problem

Sue Lewis, University of Southampton,
Design of experiments for Generalised Linear Models

T. N. Venkataramana, TIFR Mumbai,
Some Applications of the Ping-Pong Lemma

T. R. Ramadas, ICTP, Trieste, Italy,
The Hodge Conjecture: a possible approach via non-linear PDE.

Tony Puthenpurakal, IIT Bombay,
Matlis Duality-II
Some aspects of abelian categories and lim^III
Some aspects of abelian categories and lim^1
A short proof of the positivity of partial Euler characteristics
Canonical modules-1
Canonical Modules-II
Canonical Modules-II
Matlis Duality-III
Some aspects of abelian categories and lim^1

Tony Puthenpurakal, Mumbai University,
Matlis Duality-1

Verma, J.K., IIT Bombay,
Gorenstein's Theorem about conductor of plane algebraic curves-1
Gorenstein's theorem on plane algebraic curves-2
Hilbert functions of graded modules-II
Gorenstein's theorem on plane algebraic curves-3
Graded algebras with pure resolution-I
Graded algebras with pure resolution-II
Hilbert functions of graded modules-I

Vikram Mehta, TIFR Bombay,
The fundamental Group schemes in algebraic geometry.

Vydas Cekanavicius Vilnius University, Lithuania,
“Poisson Approximation for Weakly Dependent Random Variables”

Yuan Jin Yun,
A Sharp Upper Bound of the 1−Norm of the Inverse of Special Lower Triangular Toeplitz Matrices
Yuan Jin Yun, Convergent Splitting Method and its Applications

CEP Courses:

Inder K. Rana
CEP Long term certificate course "Math-for-ECM" for undergraduate students and teachers. April 17-30, 2010, held at IIT Bombay.

CEP workshop on "Professional Development and Technology Orientation" for teachers, December 27 – 29, 2010 held at Kennedy High School, Hyderabad.

CEP Workshop on "Math Modelling" for teachers, December 17-19, 2010, held at IIT Bombay.

CEP Workshop on "Professional Development and Technology orientation for school teachers" June 27-29, 2010 at DPS Ahmedabad.

S V Sabnis
1. CEP course done with Prof. P.P. Date (Mechanical Engineering)
Organization: Ordnance Factory, Ministry of Defence, Govt. of India, Ambernath. Gave five two and a half hour talks, spread over May and June 2010, on Sampling Plans.

2. CEP In-house course
Organization: Edelweiss Securities Limited, Mumbai Conducted a two day workshop on 3rd and 10th July 2010 from 9:30 am till 6:00 pm. The workshop topic was Time Serie Modelling.

Visitors to the Department:

International

Amitava Mukherjee, Dept of Mathematics and Mathematical Statistics, Umeå University, Sweden,
Anand Srivastav, University of Kiel, Germany,
Bill Casselman, Univ of British Columbia, Structure Constants for Lie Groups
Bobby Philip, Oak Ridge National Laboratory,
Dave Woods, University of Southampton,
Francois Coulouvrat, Univ of Paris,
Frederique Oggier, NTU, Singapore,
H. Esnault, Univ. of Duisburg-Essen,
Jean Fasel of EPFL, Lausanne
Kwai-Man Fan, National Chung-Cheng University, Taiwan,
Leo Storme Ghent University, Belgium,
Manoj Kummini, Purdue University,
Marcelo Aguiar , University of Texas A & M,
Martin Charles Golumbic, Department of Computer Science, University of Haifa, Haifa, Israel,
Meera G. Mainkar,
Michael Page
Nikolai Vavilov, St. Petersburg Univ.
Peter Beelen, Technical Univ of Denmark
Rajendran Narayanan, Cornell university
Rituparna Sen, UC Davis,
Santosh N. Kabadi, Faculty of Business Administration, University of New Brunswick Fredericton, NB,
Canada Sue Lewis, University of Southampton
Satrajit Roychoudhury, BDM Oncology, Novartis Pharmaceutical Company, Florham Park, NJ, Bivariate
Sheetal Dharmatti, Institut de Mathematique de Toulouse
Sue Lewis, University of Southampton
T. R. Ramadas, ICTP, Trieste, Italy
Vydas Cekanavicius Vilnius University, Lithuania
Yuan Jin Yun

National

Amit Kulshrestha, IISER Mohali
Anjan Gupta, TIFR Bombay,
Anuradha Garge, CBS Mumbai ,
Arnab Mitra, TIFR Bombay,
Jaya Iyer, Univ. of Hyderabad,
Parameswaran Sankaran, IMSc Chennai
R. C. Cowsik, Mumbai University
Rajan Sundaravaradhan,
Ravindra B. Bapat, Indian Statistical Institute, New Delhi,
Sarang Sane, TIFR Bombay
Shiv Prakash Patel, TIFR Mumbai
Siddhartha Gadgil, IISc, Bangalore
Vikram Mehta, TIFR Bombay
T. N. Venkataramana, TIFR Mumbai

Conferences / Symposia / Workshops / Seminars

(Participated / Paper presented)

National:

U.K. Anandavardhanan

Advanced Instructional School on Group Theory, Indian Institute of Technology Bombay, Mumbai, 10-29 May 2010.

76th Annual Meeting of the Indian Academy of Sciences, Goa, 12-14 November 2010.

D. Chakraborthy

Workshop on Variational Analysis and Optimization with Application to PDE's (IIT Gandhinagar, 1-4 April, 2011)

J.V.Deshpande

Instructional seminar on Risk Analysis in Finance and Survival Analysis, IIT, Bombay, Nov 2010, Three 1 ½ hour lectures

National Seminar on Reliability and Survival Analysis, Calcutta University, Jan 2011, One 1 hour lecture

Ghorpade, Sudhir R.

A series of two lectures: "Finite fields", *School on Algebra, Analysis and Topology*, The Kerala School of Mathematics, Kozhikode, January 2011.

Invited keynote address: "Algebraic Geometric Codes", *UGC National Seminar on Advances in Computational Mathematics*, Latur, February, 2011

Joshi R.R.

Invited research talk titled "*Pharmaco-Kinetic Modeling and Analysis to Evaluate Inhalation against Oral and I-V Modes of Drug Administration*". National Symposium on *Mathematics in Drug Discovery*. Organized by Piramal Life Sciences & NCL. (25-29 Sept., 2010; YASHDA, Pune)

Ravindra S. Kulkarni

i) Delivered an invited talk on "Development of the Idea of Symmetry, Geometric Examples". during Feb 19-20, 2010 in the Symposium on Symmetry, at IISER at Mohali, Punjab.

ii) Delivered an Invited talk on "Introduction to Teichmuller Theory" during September 1-12, 2010 in the National Seminar on Complex Analysis and Special Functions, at the Central University of Rajashtan, Kishangarh,District Ajmer, Rajasthan,

iii) Delivered three invited lectures on A) Riemann Mapping Theorem, B) Uniformization Theorem, C) Teichmuller Theory during March 21- April 2, 2011 in the Advanced Training in Mathematics for Lecturers in "Geometric Complex Analysis", at the Department of Mathematics, University of Delhi.

Rekha P. Kulkarni
Attended ICM satellite international conference on `**Functional Analysis and Operator Theory'** held at the Indian Statistical Institute, Bangalore, during 8th to 11th August 2010 and gave an invited talk on `**Asymptotic Expansions of solutions of second kind integral equations'.**

Gave 6 Invited Lectures in Advanced Instructional School on `Numerical Linear Algebra' held at I.I.T. Guwahati during 2 – 22 December 2010. This school was sponsored by NBHM

Amiya K. Pani
Professor P.D. Verma Memorial Lecture on `Navier-Stokes Equations: A Million Dollar Open Problem' at the Department of Mathematics, University of Rajasthan, Jaipur (August 7, 2010).

Invited Talk on `Can Mathematics help to extract more oil from Oil field ?' in the UGC Sponsored National Workshop on Challenges before Applied Mathematicians : Fluid Dynamics and Optimization Techniques during March 11-13, 2011.

A series of 15 lectures given on Mathematics foundation of Finite Element Methods in the International Workshop on Advanced Computational PDEs held in BITS, Goa Campus during February 7- 13, 2011.

Inder K. Rana
e-India 2010 at Hyderabad, 4- August. Prersented a paper on Technology, ICT and Math Education.

S.V. Sabnis
Gave one invited talk at a National Seminar on Reliability Theory & Practice held at University of Calcutta on 28th and 29th January 2011. The title of my talk was “Extreme Testing Using Negative Binomial Data and related results”.

Sharad S. Sane
Invited Speaker at the ICM Satellite conference on Discrete Mathematics and Graph Theory at Cochin University of Science and Technology (CUSAT), 12 to 15 August, 2010

Delegate supported by the National Board for Higher Mathematics for the International Congress of Mathematics (ICM). 19 to 27 August, 2010

Participant in the ICM Satellite conference on Finite Geometries and Finite Groups at Indian Statistical Institute (ISI), Bangalore, 29 to 31 August. 2010

IMOTC teaching at Homi Bhabha Center for Science Education: 8 lectures in May, 2010

Invited speaker at the Discrete Mathematics and Graph Theory conference at the College of Engineering, Pune (COEP), June 8, 2010; topic: Strongly regular graphs

Olympiad Lectures at the all India Mathematics Olympiad training camp of Delhi Public School, Nerul, June 11 to 13, 2010

Mentoring Lectures in the DST sponsored INSPIRE program at the following places:

(a) Two lectures, Sri Mata Vaishnodevi University, Jammu and Kashmir, April, 2010

(b) Three lectures, Guru Ghasidas Central Univ., Bilaspur, Chhatisgarh, June 22 to 24, 2010

(c) Two lectures, Uttaranchal Central Univ., Srinagar, Pauri Gadhwal, Uttarakhand, Dec. 2010

(d) Dharampeth Science College, Nagpur, January, 2011

Gave a One semester e-learning course on Graph Theory for the students of Pune University and the students of IISER Pune as a part of Bhaskaracharya Pratishthan's MHRD sponsored e-learning project, August 2010 to December, 2010

Participated in the Meeting of the Fellows of the Indian Academy of Sciences at the Indian Institute of Science, Bangalore, July 2 and 3, 2010

V.D. Sharma
Presided the inaugural session and delivered a technical talk at the Indian Society of Theoretical and Applied Mechanics Conference held at NIT, Hamirpur (HP) (Dec 18-21, 2010).

A. R. Shastri
1. Joint Coordinator of AFS-II school organized at Bhaskaracharya Pratisthan Pune in June 2010. Also gave 9 lectures in Algebraic Topology and conducted several hours of tutorial sessions.

2. Participated In the International Conference of Mathematicians at Hyderabad, August 2010.

3. Expert speaker in Differential Topology, at AFS-I at Department of Mathematics, Punjab University Chandigarh December 2010. Gave 12 lectures and conducted 8 tutorial sessions.

4. Expert Speaker in ATML on Complex Analysis and Geometry at University of Delhi, in March 2011. Gave 8 lectures and conducted six tutorials.

P Vellaisamy
Golden Jubilee Conference at IIT Kanpur in September 2010.

ISPS Conference in December 2010 at the University of Jammu, India.

International:

U.K. Anandavardhanan
Automorphic Forms and Number Theory, ICM Satellite Conference, International Center, Dona Paula, Goa, 14-17 August 2010.

International Congress of Mathematicians, Hyderabad

D. Chakraborthy
Workshop on the dbar-Neumann problem, Erwin Schroedinger / International Institute of Mathematical Physics, Vienna, Austria, 13-22 December, 2010

Santanu Dey
1. "Operator Theory Satellite Conference" from 9th to 13th August 2010 in IMSc Chennai. (participated)

2. "31st Conference on Quantum Probability and Related Topics" from 14th to 17th August 2010 in JNCASR Bangalore. (invited speaker)

Ghorpade, Sudhir R.
Invited talk: "Matrices and polynomials over finite fields and pseudorandom vector generation", *Binational DFG Workshop and Round Table on Discrete Structures and Algorithms*, Bonn, Germany, June 2010.

Invited talk: "Matrices, Polynomials, and Recurrences over Finite Fields", *Conference on Algebra and Algebraic Geometry with Applications*: *Celebration of the Eightieth Birthday of Professor Shreeram S. Abhyankar*, Purdue University, West Lafayette, USA, July 2010.

Short Communication: "Affine Grassmann codes", *International Congress of Mathematicians*, Hyderabad, August 2010.

Invited talk: "Jet schemes of determinantal varieties", *International Conference on Commutative Algebra and Algebraic Geometry*, Indian Institute of Science, Bangalore, December 2010.

A series of five lectures: "Gröbner bases and coding theory", *Indo-German Workshop on Computational Commutative Algebra* (NBHM Advanced Instructional School), Indian Institute of Science Education and Research, Pune, December 2010.

Invited talk: "Primitive recursive vector sequences", *13th International Conference on Arithmetic, Geometry, Cryptography and Coding Theory,* Centre International de Rencontres Mathématiques, Luminy, France, March 2011.

Joshi R.R.
Invited research talk titled "*Some Statistical Models of Gene Interactions Networks*". Intl. Symposium on *Accelerating Biology*. Organized by C-DaC. (14-16, Dec., 2010; VITS Hotel, Pune)

Manoj Kumar Keshari
CAAG 2010, IISc Bangalore 6 - 10th December, 2010.
Gave a talk on "K_0 of hypersurfaces defined by $x_1^2 + \cdots + x_n^2 = \pm 1$.

R.P. Kulkarni
Invited talk on 'Asymptotic Series Expansions for Solutions of Operator Equations' at University of Saint Etienne, France on 7 June 2010.

Invited talk on `Asymptotic Expansions of solutions of second kind integral equations' in the Satellite Conference of the International Congress of Mathematicians on `Functional Analysis and Operator Theory' at ISI, Bangalore on 8 August, 2010.

B.V. Limaye
Invited talk on `Matrix formulation of eigenvalue problems for some infinite-rank operators' at University of Saint-Etienne, France on 7 June 2010

Invited talk on `Canonical discretization of some infinite-rank operators' in the Satellite Conference of the International Congress of Mathematicians on `Functional Analysis and Operator Theory' at ISI, Bangalore on 8 August, 2010.

Mukhopadhyay, S.
Presented a paper "Robust Designs for Generalized Linear Models: A Graphical Approach," International Conference on Robust Statistics June 28 – July 2, 2010, Prague, Czech Republic

Amiya K. Pani

Invited talk entitled ‘ Oldroyd model: Theoretical and Computational Issues’ in the Satelite conference ICMPDE held in TIFR, Bangalore during Aug. 13-17, 2010.

Invited talk on ` Some theoretical and computational issues in Oldroyd model of viscoelastic fluids in the International Workshop on on CFD & Computational Mathematics during 10-11 September, 2010 held in Yonsei University, Seoul (S. Korea).

On Industrial Mathematics with a Case Study from Finance in the International Congress in Mathematics and Applications held in University of Parana at Curitiba during December 6-10, 2010.

‘Discontinuous Galerkin Method: An old Wine in a New Bottle’in the international conference on Recent development in Applied and Computational Mathematics during January 4-7, 2011.

Invited Lecture on ` Incompressible Miscible Displacement Problems in Oil Reservoir Studies: Some Theoretical and Computational Issues in the International Conference on Mathematical Modelling and Applications to Industrial Problems held in NIT, Calicut during March 28-31, 2011.

Participated and worked on two SABIC problems in the First KAUST Study Group in Mathematics for Industry held in KAUST (Saudi Arabia) during 23rd - 26th January 2011.

Ravi Raghunathan

“On the poles of *L*-functions satisfying Maass’s functional equation.” Satellite Conference to ICM 2010 Analytic and Combinatorial Number Theory, August 29- September 3, 2010, Institute of Mathematical Sciences Chennai.

Participation: Workshop on Analytic Questions in Arithmetic, July 23 - August 7, 2010, TIFR, Mumbai.

Automorphic Forms and Number Theory, ICM Satellite Conference, August 14-17, 2010, International Center, Dona Paula, Goa.

International Congress of Mathematicians, August 19 - 28, 2010, Hyderabad.

J.K. Verma

(1) “On the vanishing and positivity of the coefficients of normal Hilbert polynomial, Local Rings and Local Study of Algebraic Varieties, International Centre for Theoretical Physics, 6-12 June, 2010.

(2) “Polynomial equations, Gröbner bases and convex polytopes”, four lectures, Advanced Instructional School in computational commutative algebra, IISER Pune, 17-24 Dec. 2010.

(3) “Polynomials and polytopes”, IISER Pune, 31 July, 2010,

(4) “Pick's Area Theorem and Farey fractions”, Workshop in Mathematics for high school teachers organized by Bombay Association for Science Education, 23 July, 2010.

(5) “Gorenstein's theorem about plane algebraic curves”, two lectures, Advanced Instructional School on Schemes and Cohomology, Kerala School of Mathematics, Calicut, 16-17 July, 2010.

(6) “Gröbner bases and polynomial equations”, Ramakrishan Mission Vivekananda University, Belur Math, Kolkata, 2 April, 2010.

Invited Lectures

National:

U.K. Anandavardhanan
Six Lectures on Bass-Serre Theory, Advanced Instructional School on Group Theory, Indian Institute of Technology Bombay, Mumbai, 10-29 May 2010.

D. Chakraborthy
IISER Pune , TIFR, TIFR Bangalore Centre, IISc.

Ghorpade, Sudhir R.
"Maximal linear sections of Grassmannians", *Colloquium talk*, Tata Institute of Fundamental Research, Mumbai, April 2010.

Joshi R.R.
Invited 6 Lecture-Series on *Advanced Applications of Neural Networks in Protein Structure Function Modeling*. Centre of Excellence in Bioinformacits, at Pune Univ. Campus , Pune. 4-5 Feb., 2010.

Manoj Kumar Keshari
Gave a series of lectures from 20-24th December on ring theory at Kerala School of Mathematics at a winter school for PhD students of Kerala.

B.V. Limaye
`Fundamental theorem of calculus for rectangles' at IISER, Pune on 31 July 2010

Neela Nataraj
Invited Speaker in National Conference on "Advances in Differential Equations and Applications", 7th and 8th October 2010, Periyar University, Salem.

Amiya K. Pani
Invite Talk on `On Industrial Mathematics with a case study from financial market in MN Mittal Institute of Technology, Jaipur on 6th August, 2010.

Akhil Ranjan
A course in Functional Analysis at IISER Pune. Jan- Mar 2011

S.V. Sabnis
Gave one talk at Applied Statistics Division, ISI, Kolkata on 22nd March 2011. The title of my talk was "Estimation of Parameters of a Mixture Distribution using Quantile Functions".

V.D. Sharma
Invited Lecture ***on hyperbolic systems of PDEs and waves*** delivered at the 76th Annual Conference of the Indian Mathematical Society held at NIT Surat from 28-31 Dec. 2010.

A.R. Shastri
1. One lecture on Euler's proof of Fundamental theorem of algebra at ISI Kolkata April 2010.
2. One lecture on Real Analysis proof of Fundamental Theorem of Algebra, video-taped at Bhaskaracharya Pratisthan Pune. June 2010.
3. One lecture on Linear Algebra proof of Fundamental Theorem of Algebra, video-taped at Bhaskaracharya Pratisthan Pune. June 2010.

International

U.K. Anandavardhanan
A local global question in automorphic forms, Automorphic Forms and Number Theory, ICM Satellite Conference, International Center, Dona Paula, Goa, 14-17 August 2010.

Santanu Dey
"Liftings of covariant representations of W*-correspondences", QP Conference Bangalore- 14th August 2010.

Ghorpade, Sudhir R.
"Introduction to affine Grassmann codes", Christian-Alberchts Universität Kiel, Kiel, Germany, May 2010.

"Linear sections of Grassmann varieties", *Séminaire d'Algebra et Geometrie,* Université de Versailles Saint-Quentin en Yvelines, Paris, France, March 2011.

Neela Nataraj
Invited speaker in International Conference of Women Mathematicians (ICWM) 2010, an official satellite conference of ICM, 17th -18th August , 2010, University of Hyderabad, Hyderabad.

Amiya K. Pani
A series of Lectures on Fixed Point Methods and Applications to PDEs in the Department of Mathematics, Chiangmai University, Chiangmai (Thailand) during 26th December , 2011 to 3rd January, 2011.

Akhil Ranjan
Simultaneous Bilinear Equations and Applications to the Riemannian Foliations of Spheres at Dept. of Mathematics, Ohio State University, Columbus, OH, USA. June 2010

V.D. Sharma
Key Note address at an International Conference on Recent Advances in Fluid Mechanics held at Osmania University, Hyderabad (Dec 23-24, 2010).

Significant Awards and Distinctions

U.K. Anandavardhanan
Excellence in Teaching Award, Indian Institute of Technology Bombay, Mumbai, 2010.

Ghorpade, Sudhir R.
Otto Mønsted Guest Professorship, Technical University of Denmark, Lyngby, Denmark, May-July 2010.

Elected a Fellow of the National Academy of Sciences India, October 2010.

Member, Council of Editors, *Resonance.*

Member, Editorial Board, *International Journal of Information and Coding Theory.*

Expert Member, Board of Studies in Mathematics and the Faculty of Science, The M.S. University of Baroda, Vadodara, Gujarat, 2010-11.

Advisory Editor, Course material in algebra, Indira Gandhi National Open University, New Delhi, 2010-2011.

Member, Selection Committee for Mathematics Faculty, Veermata Jijabai Technological Institute (VJTI), Mumbai, September 2010.

Joshi R.R.
Member, National Task Force in Bioinforamtics, Comutational Biology and Systems Biology.

Chairperson, Board of Studies in Bioinformatics, Univ. of Poona, Pune.

Rekha P. Kulkarni
Visited University of St. Etienne, France from May 31 to June 20, 2010 as part of the Indo-French project supported by IFCPAR.

B.V. Limaye
Visited University of St.-Etienne, France from May 25 to 11 June, 2010 as part of the Indo-French Project supported by IFCPAR.

Member of Selection Committees of various IITs

Amiya K. Pani
1.Vising fellow, OCCAM, Oxford University, Oxford (UK) (2010).
2. Visiting Professor, Federal University of Parana, Curitiba (Brazil)
3. Visiting Professor, Chiangmai University, Chiangmai (Thailand).
4. Plenary speaker in the International Conference on Recent Development on Applied and Computational Mathematics
5. Delivered Professor P.D. Verma Memorial Lecture on `Navier- Stokes Equations: A Million Dollar Open Problem' at the Department of Mathematics, University of Rajasthan, Jaipur (August, 2010).

Ravi Raghunathan
Visited the University of Paris at Jussieu from May 5 to June 2 as part of the Indo-French project on the Arithmetic of Automorphic forms.

Sharad S. Sane
Elected Fellow of the Indian Academy of Sciences, Bangalore

V.D. Sharma
Elected President of the Indian Society of Theoretical and Applied Mechanics for the year-2010

Appointed as a Council Member of Indian Statistical Intitute, Kolkata

K. Suresh Kumar
Visiting Researcher at Department of Mathematics, University of Twente, the Netherlands, during November 2010 – April 2011.

Honorary Work:

U.K. Anandavardhanan
Reviewer for AMS MathSciNet

Reviewer for Zentralblatt MATH

Chaired a session on Short communications in Algebra at ICM Hyderabad.

Ameer Athavale
Reviewed 1 paper for MathSciNet and refereed 1 paper for the journal Integral Equations Operator Theory.

Ghorpade, Sudhir R.
Refereed for the journals: *Designs, Codes and Cryptography* (Springer), *Indian Journal of Pure and Applied Mathematics* (INSA), and the *Journal of Symbolic Computation* (Elsevier).

Referee and a viva-voce examiner for Ph.D. theses submitted to: (i) Panjab University, Chandigarh, and (ii) University of Pune, Pune

Joshi R.R.
1. Reviewer for "Proteins: Structure, Function, Bioinformatics" and "Journal of Biological Systems".
2. Statistics expert for review of projects submitted to DST and DBT.
3. Member, faculty selection committees at some other IITs and at Univ. of Poona.

Ravindra S. Kulkarni
i) Served as Editor in Chief, Ramanujan Mathematical Society Lecture Notes Series.
(We have so far published 14 volumes, since 2005, in addition to Collected Works of S. S. Pillai.

ii) Served as Editor, Journal of the Ramanujan Mathematical Society.
(The journal brings 4 issues every year.)

iii) Served as a member of the DST's Programme Advisory Committee, Mathematical Sciences.

iv) Served as a member of the Apex Committee of the IIT(B)-TIFR National Centre for Mathematics.

Served as Editor, Annales Academiae Scientiarum Fennicae, (Mathematics Section).

Rekha P. Kulkarni
Refereed papers for international journals

Neela Nataraj
Associate Editor, International Journal of Numerical Analysis and Modeling, Series B.
Reviewed papers for the journals:
Indian Journal of Pure and Applied Mathematics, Numerical Methods for Partial Differential Equations, Applied Mathematics and Computation, Journal of Mathematical Analysis and Application, Computational Methods in Applied Mathematics.

Amiya K. Pani
Editorial board member of 3 international journals and one national journal.

Refereed 3 Ph.D. theses

Reviewer for the journals: SIAM Journal of Numerical Analysis,
International J. Numerical Analysis and Modelling, Numerical methods in PDE, &
Applied Mathematics and Computations, and others.

Selection committee member of universities and other Institutes.

Reviewer for several National and International projects.

Ravi Raghunathan
Reviewer for MathScinet

Inder K. Rana
Reviewer for Asia Technology Conference in Mathemaitcs

Akhil Ranjan
Reviewed article for IJPAM

S.V. Sabnis
Reviewed one research article for Journal of Applied Statistics.

Sharad S. Sane
Advisory committee member of Central University of Tamilnadu (CUTN), Tiruvarur for the last one year, I continue to be a member of the following honorary positions.

National Coordinator of the Mathematics Olympiad program of the National Board for Higher Mathematics

Western Regional Library Committee member, National Board for Higher Mathematics

Referee work for the following two journals:

(a) Discrete Mathematics

(b) Designs, Codes and Cryptography

Review work for Zentralblatt Fur Mathematik: 6 Research papers reviewed

ICM Satellite Conference proceedings referee work:

(a) Combinatorics and Graph Theory Satellite conference at Cochin University of Science and Technology

(b) Conference on Finite Groups and Finite Geometries at Indian Statistical Institute, Bangalore

Selection committee member for the selection of M.Sc. (Economics) students at the Indira Gandhi Institute for Development Research, June 29 and 30, 2010

Mentoring work of two students in the area of Graph Theory under the student mentoring program of the Indian Academy of Sciences:

(a) Ankit Pat, Indian Institute of Technology, Kharagpur

(b) Anshul Srivastava, Indian Institute of Technology, Roorkee

Member of the International Scientific committee of the ICM Satellite conference on Discrete Mathematics and Graph Theory at Cochin University of Science and Technology (CUSAT), 12 to 15 August, 2010.

Nominated Member of the Academic Council of the Indira Gandhi Institute of Development Research (IGIDR).

Member of the Advisory Board of Ramanujan Mathematical Society.

V.D. Sharma
Served as a member of the S.S. Bhatnagar Award Committee for 2010

Reviewed papers for Zentralblatt (Germany) and Maths Reviews (USA).

Examiner of a Ph.D. thesis from IIT Kgp.

A.R. Shastri
Volume Editor-in- chief (along with P. Sanakaran, IMSc Chennai, and P. Zvengrowski, Calcgary, Canada) of Perspectives in Geometry and Topology the Proceedings of the IITB Golden Jubilee International Workshop/Conference in Geometry and Topology, in Ramanujan Mathematical Society Lecture Notes Series No. 11

J.K. Verma
1. Convener, NBHM Committee, Advanced Training in Mathematics Schools, 2010-2013.

2. Reviewer for Mathematical Reviews.

3. Member, Editorial Board, Ramanujan Mathematical Society Lecture Notes Series.

4.Member of the Apex Committee for National Center for Mathematics.

5.INSA National Steering Committee on Mathematics Education.

Faculty Members and their Specializations

1. **Anandavardhanan, U. K.**

Number Theory

2. **Athavale, Ameer**

Functional Analysis

3. **Baskar, S.**

Hyperbolic Conservation Laws: Theory, Numeric and Applications

4. **Debraj Chakraborty**

Several Complex Variables

5. **Das, Ashish**

Design of Experiments

6. **Dey, Santanu**

Operator Algebras

7. **Garge, Shripad M.**

Number Theory, Linear Algebraic Groups

8. **Ghorpade, Sudhir R.**

Algebraic Geometry, Combinatorics

9. **Joshi, Kapil D**.

Topology, Discrete Mathematics

10. **Joshi, Rajani R**.

Computational Biology, *Biostatistics* and *Bioinformatics*

11. **Kaipa, Krishna**

Complex Analysis

12. **Keshari, Manoj Kumar**

Commutative Algebra (Projective modules)

13. **Kulkarni, Rekha P**.

Numerical Functional Analysis, Spline Theory

14. **Mahajan, Swapneel**

Geometry and Topology

15. **Mukhopadhyay, Siuli**

Statistics

16. **Nataraj, Neela**

Finite Element Methods

17. **Pani, Amiya K**.

Numerical Analysis, Partial Differential Equations, Industrial Mathematics

18. **Puthenpurakal, Tony J.**

Commutative Algebra

19. **Raghunathan, Ravi**

Automorphic forms, Number Theory

20. **Raman, Preeti**

Number Theory

21. **Rana, Inder K**.

Harmonic Analysis, Mathematics Education

22. **Ranjan, Akhil**

Differential Geometry

23. **Sabnis, Sanjeev**

Reliability Theory, Industrial Statistics

24. **Sharma, Vishnu D**. **(Institute Chair Professor)**

Quasilinear Hyperbolic Systems of PDEs/ Nonlinear Waves

25. **Shastri, Anant R**.

Algebraic Geometry, Algebraic Topology

26. Sista, Sivaji Ganesh
Partial Differential Equations
27. Sivasubramanian, S.
Combinatorics
28. Srinivasan, Gopal K.
Partial Differential Equations
29. **Srinivasan, Murali K**.
Combinatorics
30. Subramanyam, A.
Statistical Inference, Geostatistics
31. **Sureshkumar, K**.
Stochastic Differential Game Theory, Mathematical Finance.
32. **Vellaisamy, P**.
Statistics and Probability
33. Verma, Jugal K.
Commutative Algebra

Institute Chair Professor

1 Kulkarni, Ravi S.
***D**ifferential Geometry*

Professor Emeritas

2 Pai, Devidas V.
Functional Analysis, Approximation Theory, Set-valued Analysis

Emeritus Fellow

3 Limaye, Balmohan V.
Functional Analysis, Approximation Theory, Set-valued Analysis

Adjunct Faculty

3. **Balwant Singh**
Commutative Algebra
4. **Dipendra Prasad**
Number Theory

Visiting Faculty

5. **Bharath Sethuraman** (Visiting Faculty [Professor])
Algebra & Algebraic Geometry
6. **Jayant V. Deshpande** (Visiting Faculty [Professor])
Probability and Statistics
7. **Sharad S. Sane** (Visiting Faculty [Professor])
Combinatorics and Design Theory

Distinguished Guest Professor

8. **Manjul Bhargava**
Number Theory
9. **M. Ram Murthy**
Number Theory
10. **Tarlok Nath Shorey**
Theory of Numbers

Publications

Books

S.R. Ghorpade and B.V. Limaye
(i) `A Course in Calculus and Real Analysis', corrected Indian reprint, Springer International, New Delhi, 2010, vii + 432 pages (with S.R. Ghorpade)
(ii) `A Course in Multivariable Calculus and Analysis, Indian Reprint, Spriunger International, New Delhi, 2010, xii + 475 pages (with S.R. Ghorpade)

Inder K. Rana
1. Introduction to Linear Algebra, …. Books, India, 2010.
2. Calculus@iitb, Version 2, math4all 2010

V.D Sharma
Vishnu D. Sharma, Quasilinear Hyperbolic Systems, Flows, and Waves. Chapman & Hall/CRC Monographs and Surveys in Pure and Applied Mathematics, 142. *CRC Press, Boca Raton, FL (USA) ,* 2010. xiv+268 pp. ISBN: 978-1-4398-3690-3.

A.R. Shastri
1. Basic Complex Analysis of 1-Variable, Mac Millan India Ltd, 2011 pages 358.
2. Elements of Differential Topology, CRC Press, Taylor & Francis Group, London New, York 2011 pages 307.

Articles in Journals

National :

Ravindra S. Kulkarni
"Parametrization Problems and Spaces of Geometric Objects", Published in Mathematics Student, Indian Mathematical Society, (March 2011)

Mukhopadhyay, S.
Mukhopadhyay, S. and Chakraborty D. (2011): A Computational Algorithm for Selecting Robust Designs in Safety and Quality Critical Processes. Sankhya (accepted for publication)

Inder K. Rana
Fsdff "Technology, ICT and Math Education" August 2010, Digital Learning.

International :

Ameer Athavale
(1) On the unital C^*-algebras generated by certain subnormal tuples. Integral Equations Operator Theory 68 (2010), no. 2, 255-262.

(2) (With Pramod Patil) On the duals of Szegö and Cauchy tuples. Proc. Amer. Math. Soc. 139 (2011), no. 2, 491-498.

D. Chakraborthy
International: "L^2 Serre Duality on Domains in Complex Manifolds and applications" (joint with Mei-Chi Shaw.) Transactions of the American Mathematical Society (To appear.)

J.V. Deshpande
A family of distributions to model load sharing systems, joint with U.V.Naik-Nimbalkar and I.Dewan, Journal of Statistical Planning and Inference, v. 140, pp. 1441-1451 (2010)

Santanu Dey
1. Liftings of covariant representations of W*-correspondences, Infin. Dimens. Anal. Quantum Probab. Relat. Top. 13 (2010), 511-523.

2. Characteristic functions of liftings (with R. Gohm), Journal of Operator Theory 65 (2011), 17-45.

Ghorpade Sudhir R.
Beelen, Peter**, Ghorpade, Sudhir R.,** and Høholdt, Tom
"Affine Grassmann codes", *IEEE Transactions on Information Theory*, Vol.56, July 2010, pp.3166-3176.

Ghorpade, Sudhir R., Hasan, Sartaj Ul, and Kumari, Meena
"Primitive polynomials, Singer cycles, and word-oriented linear feedback shift registers", *Designs, Codes and Cryptography*, Vol. 58, February 2011, pp. 123-134.

Joshi R.R.
Characteristic Peptides of Protein Secondary Structural Motifs**.** *Protein & Peptide Letters*. Vol. 17(10) pp. 1198-1206, 2010 (with Sheeba Sekharan)

Modified Wavelet-based Technique for Baseline Drift Removal and Diagnostic Scope of Spectral Energy of Radial Pulse Signal. *IJ Biomed. Engg. & Biotech.* Vol.6 (1), pp.1-13, 2011 (with G. Nawsupe)

Manoj Kumar Keshari
1. (Joint with Satya Mandal) Another definition of Euler class group of a Noetherian ring, Rocky Mountain Journal of Mathematics, Accepted.

2. (Joint with Alpesh M. Dhorajia) Projective modules over overrings of polynomial rings, J. Algebra **323**, 551-559 (2010).

Neela Nataraj
1. A Robin-type non-overlapping domain decomposition procedure for second order elliptic problems by Pradhan, D., Shalini, B., Nataraj, N., Pani, A.K. in Advances in Computational Mathematics, 34(4), pp. 339-368, 2011.

2. An hp discontinuous Galerkin method for the optimal control problem of laser surface hardening of steel by Nupur Gupta, Neela Nataraj (Paper accepted for publication in Math, Model. and Numer. Anal. (M2AN))

Mukhopadhyay, S.
1. Khuri, A.I., Mukhopadhyay, S. (2010): Response Surface Methodology. Wiley Interdisciplinary Reviews: Computational Statistics 2(2) pp. 128-149

2. Chakraborty, D., Mukhopadhyay, S. (2010): Robust Control Settings for Repeated Manufacturing Processes. Mediterranean Conference on Control and Automation, Morocco, June 2010

Amiya K. Pani
1. Deepjyoti Goswami and A. K. Pani (2011), A priori error estimates for semidiscrete finite element approximations to equations of motion arising in Oldroyd fluids of order one, International J. Numer. Anal and Modelling (IJNAM), 8, pp.324-352.

2. A.K. Pani and Sangita Yadav (2011), An hp-local discontinuous Galerkin method for parabolic integro-differential equations, J. Sci. Comp. 46, pp.71-99.

3. Nupur Gupta, Neela Nataraj and A.K. Pani (2010), On the optimal control problem of laser surface hardening, Internl. J. Numer Anal. Model, 7, pp. 667-680.

Ravi Raghunathan

"On *L*-functions with poles satisfying Maass's functional equation", Raghunathan, R. *J. Number Theory* 130 (2010), no. 6, 1255–1273.

S.V. Sabnis

Sabnis S.V. and Dharmadhikari A. D. "Interval Estimation for Weibull Distribution Based on a Sample of Size One", Journal of Applied Statistical Science, Volume 18, 2010. (In Press)

V.D. Sharma

Raja Sekhar, T.; Sharma, V. D. Evolution of weak discontinuities in shallow water equations. *Appl. Math. Lett.* 23 (2010), no. 3, 327–330,

Raja Sekhar, T.; Sharma, V. D. Riemann problem and elementary wave interactions in isentropic magnetogasdynamics. *Nonlinear Anal. Real World Appl.* 11 (2010), no. 2, 619–636,

K. Suresh Kumar

1. Borkar, V. S.**;** Kumar, K. Suresh McKean-Vlasov limit in portfolio optimization. Stoch. Anal. Appl. 28 (2010), no. 5, 884–906,

2. Borkar, V. S.; Kumar, K. Suresh A new Markov selection procedure for degenerate diffusions. J. Theoret. Probab. 23 (2010), no. 3, 729–747.

3. Biswas, Anup**;** Borkar, V. S.**;**Suresh Kumar, K. Risk- sensitive control with near monotone cost. Appl. Math. Optim. 62 (2010), no. 2, 145–163.

4. Borkar, V. S.*;*Suresh Kumar, K. Singular perturbations in risk-sensitive stochastic control. SIAM J. Control Optim. 48 (2010), no. 6, 3675–3697.

P. Vellaisamy

1. Vellaisamy, P. and Kumar, M. (2010). Design of optimal reliability test plans for a series system based on mixed-censoring. Journal of Applied Statistical Science, 17, 1-10.

2. Hardt, J., Vellaisamy, P. and Schoon, I. (2010). Sequelae of prospective versus retrospective reports of adverse childhood experiences. Psychological Reports, 107, 425-440.

3. Vellaisamy, P. and Sreehari, M. (2010). Some intrinsic properties of the gamma distribution. Journal of Japanese Statistical Society, 40, 133-144.

J. K. Verma

On some conjectures about the Chern numbers of filtrations, J. Algebra, 325 (2011), 147-162. (with M. Mandal, B. Singh)

Hilbert functions of multigraded algebras, mixed multiplicities of ideals and their applications, Journal of Commutative Algebra, vol. 2, no. 4,(2010), 515-565. (with N. V. Trung)

Negativity of the Chern number of parameter ideals, Proceedings of International Conference on Algebra and its Applications, Aligarh Muslim University, Feb 2011. (with S. Goto and M. Mandal)