

89th Annual Conference of Indian Mathematical Society
An International Meet
BITS Pilani - Hyderabad Campus, Hyderabad, December 22 – 25,
2023
Schedule

<i>Time</i>	<i>Event</i>	<i>Chairing</i>
December 22, 2023		
8:30 - 9:25	Registration	
9:30 - 10:30	Inauguration	
10:35 - 10:55	HIGH TEA	
11:00 - 12:00	Presidential Address (Technical): R Balasubramanian, Institute of Mathematical Sciences, Chennai <i>“to be announced”</i>	Past President, IMS (to be announced)
12:00 - 13:00	P1: Plenary Lecture: Manjul Bhargava, Princeton University, USA <i>“to be announced”</i>	R. Balasubramanian
13:00 - 14:10	LUNCH	
14:10 - 15:10	M1: Hansraj Gupta Memorial Award Lecture: U K Anandvardhanan, IIT Bombay <i>“Distinguished representations”</i>	M.M. Shikare
15:10 - 15:40	In parallel sessions (Each talk: 30 minutes)	
	A1: P K Jain Awardee Lecture: Priyanka Grover, Shiv Nadar University, Delhi <i>“Subdifferential set of the joint numerical radius of a tuple of matrices”</i>	P.K. Jain
	A2: J B Shukla Awardee Lecture Tanuja Das, University of New Brunswick, Canada <i>“Effect of a novel generalized incidence rate function in SIR model: Stability switches and bifurcations”</i>	B. Rushi Kumar
15:40 - 15:55	TEA-BREAK	
16:00 - 17:00	Invited lectures in parallel sessions (Each talk: 30 minutes)	
	Track -1: (T1-1) A M Mathai, Emeritus Professor, McGill University, Canada <i>“Some Matrix-variate Models Applicable in different areas”</i> (T1-2) Anshumali Srivastava, Rice University, USA <i>“Statistical Estimations from Locality Sensitive Hashing (LSH): Adaptive Sampling at the cost of random sampling”</i>	B. N. Waphare
	Track -2: (T2-1) R. Radha, Department of Mathematics, Indian Institute of Technology Madras, Chennai <i>“Special affine Fourier transform”</i> (T2-2) R Thangadurai, Harish-Chandra Research Institute, Prayagraj <i>“Trace of powers of algebraic numbers”</i>	Shiv Datt Kumar

<i>Time</i>	<i>Event</i>	<i>Chairing</i>
17:00 - 17:45	Paper presentations for Prize Category in parallel sessions (Each talk: 15 minutes)	
	<p>Panel-1 Group - 1 (Discrete Mathematics (Combinatorics, Graph Theory, Posets), Lattice Theory, Set Theory, Logic, Number Theory and related areas): Arun J. Manattu, Cochin University of Science and Technology, Kerala <i>"An Edge Labeling Problem of Graphs"</i> Amit S. Wadile, Dahiwadi College Dahiwadi, Satara <i>"Characterization for connectedness of essential element graph of a lattice"</i></p>	
	<p>Panel-2 V M Shah Prize: Yogeshkumar K. Patel, Government Science College, Pardi, Gujarat <i>"Approximation of conjugate Fourier series for function in generalized Holder class by $K\lambda$ means"</i> Group - 4 (Differential / Integral / Functional equations and inequalities, Special Functions, Numerical Analysis and related areas): Suma P.B., Manipal Institute of Technology, Manipal <i>"Approximation of nonlinear ill-posed equations in Hilbert space using Traub-like methods"</i></p>	
	<p>Panel-3 Group - 5 (Solid Mechanics, Fluid Mechanics, Electromagnetic Theory, Magneto-Hydrodynamics, Astronomy, Astrophysics, Relativity and related areas): Kavya N S, Kuvempu University, Shankaraghatta <i>"Gaussian noncommutative wormhole solutions in $f(Q,T)$ gravity with conformal symmetry"</i> Group - 6 (Operations Research, Optimization, Computational Mathematics, Information Technology, Bio mathematics, History of Mathematics and related areas): Sonu Lamba, Indian Institute of Technology Patna <i>"Eyes on the Prize: Modeling Isolation and Hygiene Compliance for Taming the Direct and Indirect Transmission of Conjunctivitis"</i></p>	
17:45 - 19:15	Contributory Paper presentations: CP1	
IMS Subject	A1 to A10	Sajith P.
	F1 to F9	Sharan Gopal
	C1 to C9	R. Radha
	H1 to H9	T.S.L. Radhika
	I1 to I9	Santanu Koley
	H15 to H23	Sumit Kumar V.
20:00	DINNER	

<i>Time</i>	<i>Event</i>	<i>Chairing</i>
December 23, 2023		
9:00 - 10:00	M2: P.L. Bhatnagar Memorial Award Lecture: A. K. Nandakumaran, Indian Institute of Science, Bengaluru <i>“Multi-scale Convergence in PDEs and Homogenization”</i>	Peeyush Chandra
10:00 - 10:20	TEA-BREAK	
10:20 - 12:50	Symposium in Parallel sessions	
	<p>(S1): Hyperbolic PDEs and Shock Waves Convenor: Tungala Raja Sekhar, IIT Kharagpur Speakers: (S1-1) Manas Ranjan Sahoo, National Institute of Science Education and Research, Bhubaneswar <i>“Initial boundary value problem for 1D scalar balance laws with strictly convex flux”</i> (S1-2) Triveni Prasad Shukla, National Institute of Technology, Warangal <i>“Interaction of shock waves in a conservation law without convexity”</i> (S1-3) Purnima Satapathy, Visvesvaraya National Institute of Technology, Nagpur <i>“Insight into symmetries and their applications to Partial Differential Equations”</i> (S1-1-4) Minhajul, BITS Pilani K K Birla Goa Campus <i>“Interaction of shocks in drift-flux equations of two-phase flows”</i> (S1-5) Mohammad Zafar, National Institute of Technology, Jalandhar <i>“Shocks and vacuum states in the Riemann solutions of Chaplygin Euler equations as pressure and magnetic field drop to zero”</i> (S1-6) T Raja Sekhar, Indian Institute of Technology, Kharagpur <i>“Two-dimensional Riemann problem and wave interactions in a thin film model of a perfectly soluble antisufractant solution”</i></p>	N. Kishore Kumar
	<p>(S2): Recent Trends in Graph Theory Convenor: Tarakeshwar Singh, BITS Pilani K K Birla Goa Campus Speakers: (S2-1) Mukti Acharya, Christ University Bangalore <i>“Product cordial and signed product cordial graphs”</i> (S2-2) Amitava Bhattacharya, Tata Institute of Fundamental Research, Mumbai <i>“Van der Waerden type results in Ramsey Theory ”</i> (S2-3) Bhawani Sankar Panda, Indian Institute of Technology, Delhi <i>“Hardness and Approximation Results of Roman 3-Domination in Graphs”</i> (S2-4) Suresh M Hegde, National Institute of Technology Karnataka, Surathkal <i>“A graph theoretic model for a generic three jug puzzle”</i> (S2-5) Tarakeshwar Singh, BITS Pilani K K Birla Goa Campus <i>“On Local Distance Antimagic Coloring of Graphs”</i></p>	Madhukar Pawar
12:50 - 14:00	LUNCH	

<i>Time</i>	<i>Event</i>	<i>Chairing</i>
14:00 - 15:00	Contributory Paper presentations: CP2	
IMS Subject	E1 to E5	Jagan Mohan
	B1 to B5	Sushil Bhunia
	I15 to I19	Bhargav Kumar
	H10 to H14	Raghu Piska
	I10 to I14	Anil
	H24 to H28	Ch. S. Rao
15:00 - 16:00	Invited lecture in Parallel sessions (Each talk: 30 minutes)	
	Track -1: (T1-3) Ch. Srinivasa Rao, Department of Mathematics, Indian Institute of Technology Madras, Chennai <i>“Large time asymptotics to solutions of some nonlinear partial differential equations”</i> (T1-4) Smita Bedekar, Interdisciplinary School of Scientific Computing, Savitribai Phule Pune University <i>“Scientific Computing through the lense of Cryptography”</i>	Manjul Gupta
	Track -2: (T2-3) Anuradha Kameswari, Department of Mathematics, Andhra University <i>“Ring Based Encryption with Lucas Sequences”</i> (T2-4) Ganesh Kadu, Department of Mathematics, Savitribai Phule Pune University <i>“Reciprocal eigenvalue properties using the Mobius and Zeta functions on Boolean algebras”</i>	Debopam Chakraborty
16:00 - 16:20	TEA-BREAK & Group Photo	
16:20 - 17:20	P2: Plenary Lecture: Helen Byrne, Oxford University, UK <i>“to be announced”</i>	P. Veeramani
17:20 - 19:00	Contributory Paper Presentations: CP3	
IMS Subject	G1 to G9	Farida P. B.
	B6 to B16	Sabyasachi Dey
	C10 to C18	Rohit Gupta
	E6 to E17	Saroj Pradhan
	H47 to H56	P. S. Rao
	H29 to H39	Banashree Sen
19:15 - 20:15	Cultural Programme	
20:30 - 22:00	CONFERENCE DINNER	

<i>Time</i>	<i>Event</i>	<i>Chairing</i>
December 24, 2023		
9:00 - 10:00	M3: Ganesh Prasad Memorial Award Lecture: B. V. Rathish Kumar, Indian Institute of Technology Kanpur <i>“Variational Multiscale Stabilized Sub-Grid Finite Element Analysis for Fluid Flow with application in Health Care”</i>	Bivudutta Mishra
10:00 - 10:30	In parallel sessions	
	A5: B N Waphare Aawardee Lecture: Vandana P. Bhamre, Pratap College, Maharashtra <i>“Covering energy of posets and its bounds”</i>	Michael Alphonse
	A6: A. Narsinga Rao Award lecture: Shrivathsa Pandelu, University of Minnesota, USA <i>“Results on finite collection of polygons and a proof of the Jordan curve theorem”</i>	G. P. Youvaraj
10:30 - 10:45	TEA-BREAK	
10:45 - 11:45	M4: Srinivasa Ramanujan Memorial Award Lecture: D. S. Nagaraj, Indian Institute of Science Education and Research, Tirupati <i>“Rationality questions in algebraic geometry”</i>	Pratulananda Das
11:45 - 13:05	Contributory Paper Presentations: CP4	
IMS Subject	A11 to A17	Nirman Ganguly
	F10 to F16	Chiranjeevi P.
	D1 to D7	Deepika
	E18 to E25	Ashok Misra
	I20 to I26	Praveen Kumar
	H40 to H46	Prakash Kumar
13:05 - 14:00	LUNCH	
14:00 - 15:45	Contributory Paper Presentations: CP5	
IMS Subject	G10 to G18	Satyanarayana Bhavnari
	B17 to B26	Pratyusha C.
	D8 to D15	M Pitchamani
	H57 to H65	B V Rathish Kumar
	E26 to E34	Vamsikrishna Narla
	I27 to I35	Sayan Ghosh
	A18, H66 to H68	Parbati Sahoo
15:45 - 16:15	In parallel sessions (Each talk: 30 minutes)	
	A3: A. K. Agarwal Awardee Lecture: Apoorva Khare, IISc Bengaluru <i>‘Determinants with any smooth function reveal all Schur polynomials’</i>	P. K. Thiruvikraman
	A4: Subhash Bhatt Awardee Lecture Projesh Nath Choudhury, IIT Gandhinagar <i>“Total positivity: characterizations and connections”</i>	Manish Kumar
16:15 - 16:30	TEA-BREAK	

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16:30 - 19:00	Symposium in Parallel sessions	
	<p>(S3): Controllability and Differential Equations Convenor: Muslim Malik, Indian Institute of Technology, Mandi Speakers: (S3-1) Enrique Zuazua, Friedrich-Alexander-Universität Erlangen-Nürnberg <i>“Control and Machine Learning”</i> (S3-2) Raju K George, Indian Institute of Space Science and Technology, <i>“Controllability of LTI Networked Systems”</i> (S3-3) Javid Ali, Aligarh Muslim University, Aligarh <i>“Controllability results for Hilfer fractional differential equations via measure of noncompactness”</i> (S3-4) Anurag Shukla, Rajkiya Engineering College, Kannauj <i>“Optimal control results for second order differential equations”</i> (S3-5) Muslim Malik, Indian Institute of Technology, Mandi <i>“Controllability of Singular Switched Differential Equations on Non-uniform Time Domain”</i></p>	K. Venkata Ratnam
	<p>(S4): Theoretical Astrophysics and Cosmology Convenor: Farook Rahaman, Jadavpur University, Kolkata Speakers: (S4-1) Banibrata Mukhopadhyay, Indian Institute of Science, Bangalore <i>“Super-Chandrasekhar white dwarf, its mass-limit and consequences”</i> (S4-2) Anjan Ananda Sen, Jamia Millia Islamia, New Delhi <i>“Cosmological Tensions and Hints for New Physics”</i> (S4-3) Aroonkumar Beesham, National Institute for Theoretical and Comp. Sciences, South Africa <i>“Some comments on dark energy”</i> (S4-4) M Sami, Centre for Cosmology and Science Popularization, SGT University, Gurugram <i>“Outstanding issues in modern cosmology”</i> (S4-5) Mehedi Kalam, Aliah University, Kolkata <i>“Wormhole and Galactic halo dark matter”</i> (S4-6) Farook Rahaman, Jadavpur University, Kolkata <i>“A Mathematical Framework for Transforming a Static Wormhole into a Rotating Wormhole”</i> (S4-7) Sudhir Kumar Srivastava, DDU Gorakhpur University, Gorakhpur <i>“Cosmological Concepts in Religious Text”</i></p>	P. K. Sahoo
20:00	DINNER	

<i>Time</i>	<i>Event</i>	<i>Chairing</i>
December 25, 2023		
8:30 - 9:30	M5: V Ramaswami Aiyar Memorial Award Lecture: Jaya Iyer, The Institute of Mathematical Sciences, Chennai <i>"Topological invariants of smooth manifolds"</i>	J. K. Verma
9:30 - 12:00	Symposium in Parallel sessions	
	(S5): Commutative Algebra Convenor: Vijay Kodiyalam, The Institute of Mathematical Sciences, Chennai Speakers: (S5-1) Jugal Kishore Verma, Indian Institute of Technology, Bombay <i>"The Hilbert-Kunz multiplicity of powers of ideals"</i> (S5-2) Manoj Kummini, Chennai Mathematical Institute <i>"Polynomial invariant rings for finite p-groups"</i> (S5-3) Mrinal Kanti Das, Indian Statistical Institute, Kolkata <i>"Unimodular rows"</i> (S5-4) Mitra Koley, Indian Statistical Institute, Kolkata <i>"Singularities in Prime Characteristics"</i> (S5-5) Mohit Upmanyu Tata Institute of Fundamental Research, Mumbai <i>"AmAC subset of power series ring and its applications"</i>	R Thangadurai
	(S6): Harmonic Analysis Convenor: Aparajita Dasgupta, Indian Institute of Technology, Delhi Speakers: (S6-1) Somnath Ghosh, Indian Institutes of Science, Bangalore <i>"Uncertainty principle for solutions of the Schrödinger equation"</i> (S6-2) Kalachand Suin, Seoul University, Seoul <i>"Bilinear maximal functions associated with degenerate surfaces"</i> (S6-3) Ramesh Manna, National Institute of Science Education and Research, Bhubaneswar <i>"Fixed time estimates for Hermite semigroup in Lebesgue and modulation spaces"</i> (S6-4) Lalit Mohan, Indian Institute of Technology, Delhi <i>"Multilinear Fourier Integral Operators on Modulation Spaces "</i> (S6-5) Vishvesh Mishra, Ghent University, Ghent, Belgium <i>"Boundedness of pseudo-differential operators on graded Lie groups"</i> (S6-6) D Venku Naidu, IIT Hyderabad <i>"Hardy inequalities on metric measure spaces"</i>	G. Ramesh
12:00 - 13:00	General Body Meeting to be followed by Valedictory Function	
13:00	LUNCH	