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

Time	Event	Venue	Chair
	December 22, 2023		
8:30 - 9:25	**Registration**	Auditorium	
9:30 - 10:30	**Inauguration**	Auditorium	
10:35 - 10:55	HIGH TEA	Auditorium foyer	
11:00 - 12:00	**Presidential Address** (Technical): R Balasubramanian, Institute of Mathematical Sciences, Chennai *"The product of three primes in arithmetic progression"*	Auditorium	V.Kannan
12:00 - 13:00	**P1: Plenary Lecture:** Manjul Bhargava, Princeton University, USA *"Integers expressible as the sum of two rational cubes"*	Auditorium (Online)	R. Balasubramanian
13:00 - 14:10	LUNCH	Dining Hall - 2	
14:10 - 15:10	**M1: Hansraj Gupta Memorial Award Lecture:** U K Anandvardhanan, IIT Bombay *"Distinguished representations"*	F 102	M.M. Shikare
15:10 - 15:40	In parallel sessions (Each talk: 30 minutes)		
	A1: P K Jain Award Lecture: Priyanka Grover, Shiv Nadar University, Delhi *"Subdifferential set of the joint numerical radius of a tuple of matrices"*	F 102	P.K. Jain
	A2: J B Shukla Award Lecture Tanuja Das, University of New Brunswick, Canada *"Effect of a novel generalized incidence rate function in SIR model: Stability switches and bifurcations"*	F 105 (Online)	B. Rushi Kumar
15:40 - 15:55	TEA-BREAK	LTC Foyer	
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 *"Some Matrix-variate Models Applicable in different areas"* (T1-2) Anshumali Srivastava, Rice University, USA *"Statistical Estimations from Locality Sensitive Hashing (LSH): Adaptive Sampling at the cost of random sampling"*	F 102	Bivudutta Mishra
	Track -2: (T2-1) R. Radha, Department of Mathematics, Indian Institute of Technology Madras, Chennai *"Special affine Fourier transform"* (T2-2) R Thangadurai, Harish-Chandra Research Institute, Prayagraj *"Trace of powers of algebraic numbers"*	F 105	Shiv Datt Kumar

Time	Event	Venue	Chair
17:00 - 17:45	**Paper presentations for Prize Category in parallel sessions** **(Each talk: 15 minutes)**		
	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 *"An Edge Labeling Problem of Graphs"* Amit S. Wadile, Dahiwadi College Dahiwadi, Satara *"Characterization for connectedness of essential element graph of a lattice"*	F 103	
	Panel-2 **V M Shah Prize:** Yogeshkumar K. Patel, Government Science College, Pardi, Gujarat *"Approximation of conjugate Fourier series for function in generalized Holder class by $K\lambda$ means"* **Group - 4** (Differential / Integral / Functional equations and inequalities, Special Functions, Numerical Analysis and related areas): Suma P.B., Manipal Institute of Technology, Manipal *"Approximation of nonlinear ill-posed equations in Hilbert space using Traub-like methods"*	F 102	
	Panel-3 **Group - 5** (Solid Mechanics, Fluid Mechanics, Electromagnetic Theory, Magneto-Hydrodynamics, Astronomy, Astrophysics, Relativity and related areas): Kavya N S, Kuvempu University, Shankaraghatta, Karnataka *"Gaussian noncommutative wormhole solutions in $f(Q,T)$ gravity with conformal symmetry"* **Group - 6** (Operations Research, Optimization, Computational Mathematics, Information Technology, Bio mathematics, History of Mathematics and related areas): Sonu Lamba, Indian Institute of Technology Patna *"Eyes on the Prize: Modeling Isolation and Hygiene Compliance for Taming the Direct and Indirect Transmission of Conjunctivitis"*	F 105	
17:45 - 19:15	**Contributory Paper presentations: CP1** 10 minutes each(8 mins presentation+2 mins for questions)		
IMS Subject	A1 to A10 (A6 Withdrawn)	F 207	Sajith P.
	F1 to F9 (F6 Withdrawn)	F 103	Sushil Bhunia
	C1 to C9 (C1, C6 Withdrawn)	F 104	R. Radha
	H1 to H9 (H8 Withdrawn)	F 102	T.S.L. Radhika
	I1 to I 12 (I6 Withdrawn)	F 106	Santanu Koley
	H17 to H27 (H21, H23 Withdrawn)	F 208	Sumit Kumar V.
20:00	DINNER at Dining hall 2		

December 23, 2023			
9:00 - 10:00	**M2: P.L. Bhatnagar Memorial Award Lecture:** A. K. Nandakumaran, Indian Institute of Science, Bangaluru *"Multi-scale Convergence in PDEs and Homogenization"*	F 102	Peeyush Chandra
10:00 - 10:20	TEA-BREAK	LTC Foyer	
10:20 - 12:50	**Symposium in Parallel sessions**		
	(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 *"Initial boundary value problem for 1D scalar balance laws with strictly convex flux"* (S1-2) Triveni Prasad Shukla, National Institute of Technology, Warangal *"Interaction of shock waves in a conservation law without convexity"* (S1-3) Purnima Satapathy, Visvesvaraya National Institute of Technology, Nagpur *"Insight into symmetries and their applications to Partial Differential Equations"* (S1-4) Minhajul, BITS Pilani K K Birla Goa Campus *"Interaction of shocks in drift-flux equations of two-phase flows"* (S1-5) Mohammad Zafar, National Institute of Technology, Jalandhar *"Delta Shocks and vacuum states in the Riemann solutions of Chaplygin Euler equations as pressure and magnetic field drop to zero"* (S1-6) T Raja Sekhar, Indian Institute of Technology, Kharagpur *"Two-dimensional Riemann problem and wave interactions in a thin film model of a perfectly soluble antisurfactant solution"*	F 102	N. Kishore Kumar
	(S2): Recent Trends in Graph Theory Convenor: Tarakeshwar Singh, BITS Pilani K K Birla Goa Campus **Speakers:** (S2-1) Mukti Acharya, Christ University Bangalore *"Product cordial and signed product cordial graphs"* (S2-2) Amitava Bhattacharya, Tata Institute of Fundamental Research, Mumbai *"Van der Waerden type results in Ramsey Theory "* (S2-3) Bhawani Sankar Panda, Indian Institute of Technology, Delhi *"Matching with preferences: Stable Matching and Beyond "*	F 105	Madhukar Pawar

Time	Event	Venue	Chair
	(S2-4) Suresh M Hegde, National Institute of Technology Karnataka, Surathkal *"A graph theoretic model for a generic three jug puzzle"* (S2-5) Tarakeshwar Singh, BITS Pilani K K Birla Goa Campus *"On Local Distance Antimagic Coloring of Graphs"*		
12:50 - 14:00	LUNCH at Dining Hall - 2		
14:00 - 15:00	**Contributory Paper presentations: CP2** 10 minutes each(8 mins presentation+2 mins for questions)		
IMS Subject	E2 to E5	F 103	Jagan Mohan
	B1 to B5 (B2 Withdrawn)	F 207	Sharan Gopal
	I18 to I22	F 104	Bhargav Kumar
	H10 to H16 (H11, H12 Withdrawn)	F 102	Raghu Piska
	I13 to I17	F 106	Vinayak Joshi
	H28 to H32	F 208	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 *"Large time asymptotics to solutions of some nonlinear partial differential equations"* (T1-4) Smita Bedekar, Interdisciplinary School of Scientific Computing, Savitribai Phule Pune University *"Scientific Computing through the lense of Cryptography"*	F 102	Manjul Gupta
	Track -2: (T2-3) Anuradha Kameswari, Department of Mathematics, Andhra University *"Ring Based Encryption with Lucas Sequences"* (T2-4) Ganesh Kadu, Department of Mathematics, Savitribai Phule Pune University *"Reciprocal eigenvalue properties using the Mobius and Zeta functions on Boolean algebras"*	F 105	Debopam Chakraborty
16:00 - 16:20	TEA-BREAK & Group Photo at LTC Foyer		
16:20 - 17:20	**P2: Plenary Lecture:** Helen Byrne, Oxford University, UK *"Using mathematical modelling to understand how the microenvironment influence cell behaviours in cancer and atherosclerosis"*	F 102 (On-line)	P. Veeramani
17:20 - 19:10	**Contributory Paper Presentations: CP3** 10 minutes each(8 mins presentation+2 mins for questions)		
IMS Subject	G1 to G9 (G2, G9 Withdrawn)	F 103	Farida P. B.
	B6 to B16 (B6, B8 Withdrawn)	F 207	Pratyusha C.
	C10 to C17 (C14 Withdrawn)	F 104	Rohit Gupta
	E6 to E17	F 106	Saroj Pradhan
	H48 to H59 (H - 52,55,57 Withdrawn). This session is up to 19.00	F 102	Ashok Misra
	H33 to H40 (H38 Withdrawn). This session is up to 19.00	F 208	Banashree Sen
18.50 - 19.10	**Symposium talk** Aroonkumar Beesham, National Institute for Theoretical and Comp. Sciences, South Africa *"Some comments on dark energy"*	F 102	P K Sahoo
19:15 - 20:15	**Cultural Programme at Auditorium**		
20:30 - 22:00	**CONFERENCE DINNER at Auditorium Foyer**		

Time	Event	Venue	Chair
	December 24, 2023		
9:00 - 10:00	**M3: Ganesh Prasad Memorial Award Lecture:** B. V. Rathish Kumar, Indian Institute of Technology Kanpur *"Variational Multiscale Stabilized Sub-Grid Finite Element Analysis for Fluid Flow with application in Health Care"*	F 102	B. N. Waphare
10:00 - 10:30	**In parallel sessions (Each talk: 30 minutes)**		
	A5: B N Waphare Award Lecture: Vandana P. Bhamre, Pratap College, Maharashtra *"Covering energy of posets and its bounds"*	F 102	P. K. Thiruvikraman
	A6: A. Narsinga Rao Award lecture: Shrivathsa Pandelu, University of Minnesota, USA *"Results on finite collection of polygons and a proof of the Jordan curve theorem"*	F 105	G. P. Youvaraj
10:30 - 10:45	TEA-BREAK at LTC Foyer		
10:45 - 12:05	**Contributory Paper Presentations: CP4** 10 minutes each(8 mins presentation+2 mins for questions)		
IMS Subject	A11 to A18 (A12,A15,A16 Withdrawn)	F 207	Nirman Ganguly
	F10 to F16 (F15,F16 withdrawn)	F 103	Chiranjeevi P.
	D1 to D7 (D1, D3, D7 Withdrawn)	F 104	Deepika
	E18 to E25 (E22 Withdrawn)	F 106	Santanu Koley
	I23 to I29	F 102	Praveen Kumar
	H41 to H47	F 208	Parbati Sahoo
12:05 - 13:05	**M4: Srinivasa Ramanujan Memorial Award Lecture:** D. S. Nagaraj, Indian Institute of Science Education and Research, Tirupati *"Rationality questions in algebraic geometry"*	F 102	Pratulananda Das
13:05 - 14:00	LUNCH at Dinner Hall 2		
14:00 - 15:45	**Contributory Paper Presentations: CP5** 10 minutes each(8 mins presentation+2 mins for questions)		
IMS Subject	G10 to G18 (G10, G11, G13 Withdrawn)	F 103	Satyanarayana Bhavanari
	B17 to B26 (B20, B23 Withdrawn)	F 207	Sabyasachi Dey
	D8 to D14 (D8 Withdrawn)	F 208	Debopam Chakraborty
	H60 to H71 (H61 Withdrawn)	F 102	B V Rathish Kumar
	E26 to E35 (E26 Withdrawn)	F 106	Nirman Ganguly
	I30 to I36	F 104	Sayan Ghosh
15:45 - 16:15	**In parallel sessions (Each talk: 30 minutes)**		
	A3: A. K. Agarwal Award Lecture: Apoorva Khare, IISc Bengaluru *'Determinants with any smooth function reveal all Schur polynomials'*	F 102	Michael Alphonse
	A4: Subhash Bhatt Award Lecture Projesh Nath Choudhury, IIT Gandhinagar *"Total positivity: characterizations and connections"*	F 105	Manish Kumar
16:15 - 16:30	TEA-BREAK at LTC foyer		

Time	Event	Venue	Chair
16:30 - 19:00	**Symposium in Parallel sessions**		
	(S3): Controllability and Differential Equations Convenor: Muslim Malik, Indian Institute of Technology, Mandi **Speakers:** (S3-1) Enrique Zuazua, Friedrich-Alexander-Universität Erlangen-Nürnberg *"Control and Machine Learning"*(Online) (S3-2) Raju K George, Indian Institute of Space Science and Technology, *"Controllability of LTI Networked Systems"*(Online) (S3-3) Javid Ali, Aligarh Muslim University, Aligarh *"Controllability results for Hilfer fractional differential equations via measure of noncompactness"* (S3-4) Anurag Shukla, Rajkiya Engineering College, Kannauj *"Optimal control results for second order differential equations"* (S3-5) Muslim Malik, Indian Institute of Technology, Mandi *"Controllability of Singular Switched Differential Equations on Non-uniform Time Domain"*	F 102	K. Venkata Ratnam
	(S4): Theoretical Astrophysics and Cosmology Convenor: Farook Rahaman, Jadavpur University, Kolkata **Speakers:** (S4-1) Banibrata Mukhopadhyay, Indian Institute of Science, Bangalore *"Super-Chandrasekhar white dwarf, its mass-limit and consequences"* (S4-2) Anjan Ananda Sen, Jamia Millia Islamia, New Delhi *"Cosmological Tensions and Hints for New Physics"* (S4-3) M Sami, Centre for Cosmology and Science Popularization, SGT University, Gurugram *"Outstanding issues in modern cosmology"* (S4-4) Mehedi Kalam, Aliah University, Kolkata *"Wormhole and Galactic halo dark matter"* (S4-5) Farook Rahaman, Jadavpur University, Kolkata *"A Mathematical Framework for Transforming a Static Wormhole into a Rotating Wormhole"* (S4-6) Sudhir Kumar Srivastava, DDU Gorakhpur University, Gorakhpur *"Cosmological Concepts in Religious Text"*	F 105	P. K. Sahoo
20:00	DINNER at Dining Hall 2		

Time	Event	Venue	Chair
	December 25, 2023		
8:30 - 9:30	**M5: V Ramaswami Aiyar Memorial Award Lecture:** Jaya Iyer, The Institute of Mathematical Sciences, Chennai *"Topological invariants of smooth manifolds"*	F 102	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 *"The Hilbert-Kunz multiplicity of powers of ideals"* (S5-2) Vijay Kodiyalam, The Institute of Mathematical Sciences, Chennai *" Indecomposable integrally closed modules of rank 2 over two-dimensional regular local rings"* (S5-3) Mrinal Kanti Das, Indian Statistical Institute, Kolkata *"Unimodular rows"* (S5-4) Mitra Koley, Indian Statistical Institute, Kolkata *"Singularities in Prime Characteristics"* (S5-5) Mohit Upmanyu Tata Institute of Fundamental Research, Mumbai *"AmAC subset of power series ring and its applications"*	F 102	Sajith P.
	(S6): Harmonic Analysis Convenor: Aparajita Dasgupta, Indian Institute of Technology, Delhi **Speakers:** (S6-1) Somnath Ghosh, Indian Institutes of Science, Bangalore *"Uncertainty principle for solutions of the Schrödinger equation"* (S6-2) Kalachand Suin, Seoul University, Seoul *"Bilinear maximal functions associated with degenerate surfaces"* (Online) (S6-3) Ramesh Manna, National Institute of Science Education and Research, Bhubaneswar *"Fixed time estimates for Hermite semigroup in Lebesgue and modulation spaces"* (S6-4) Lalit Mohan, Indian Institute of Technology, Delhi *"Multilinear Fourier Integral Operators on Modulation Spaces "* (S6-5) Vishvesh Mishra, Ghent University, Ghent, Belgium *"Boundedness of pseudo-differential operators on graded Lie groups"* (Online) (S6-6) D Venku Naidu, IIT Hyderabad *"Vertical operators on Bergman space over UHP"*	F 105	Akhlad Iqbal
12:00 - 13:00	General Body Meeting to be followed by Valedictory Function at F-102		
13:00	LUNCH at Dining Hall 2		