

SCHEDULE | WEDNESDAY, FEBRUARY 21 (PSB-3201)

08:00 – 08.45	Registration	
08.45 – 09.00	Inauguration: Prof. J. N. Moorthy (Director, IISER TVM)	
Chair: Prof. Carstensen	09.00 – 09:40	Prof. A. K. Pani (BITS-Goa & IIT Bombay)
	Title	<i>On Theoretical and Computational Studies of The Vlasov-Navier-Stokes system</i>
	09.40 – 10:20	Prof. Volker John (WIAS Berlin)
	Title	<i>Finite element methods respecting the discrete maximum principle for convection-diffusion equations</i>
10:20 – 10:40	Coffee/Tea break	
Chair: Prof. T. Gudi	10.40 – 11:20	Prof. Praveen C (TIFR-CAM)
	Title	<i>Lax-Wendroff flux reconstruction method for hyperbolic conservation laws</i>
Chair: Dr. Sudeep Kundu	11:25 – 12:45	Contributed talks: FEM - 1 (4 talks, Room: PSB-3201)
	11.25–11:45	Debendra Kumar Swain (IIT Goa): A priori error estimates of a three-step two-level finite element Galerkin method for a 2D-Boussinesq system of equations
	11.45–12:05	Vivek Singh Yadav (IISER-TVM): Numerical analysis and simulation of avascular prostate tumor growth model with drug interaction using space-time adaptivity
	12:05–12:25	Gopika P B (IISER-TVM): Numerical simulation of drug-induced alterations in cardiac electromechanical activity
	12:25–12:45	Archana Arya (IIIT Delhi): Higher order mixed finite elements for Maxwell's equations
Chair: Dr. Suresh Kumar Nadupuri	11:25 – 12:45	Contributed talks: PINNs & HPC - 1 (4 talks, Room: PSB-3105)
	11.25–11:45	Sapna Baluni (IIT BHU): Quasi-Projective synchronization of time-varying delayed quaternion valued neural networks with mismatched parameters and interaction terms
	11.45–12:05	Mahesh Nadda (IIT Jammu): LSTM-based machine learning model to predict moisture reduction rates for CFD-DEM-based drying simulation in fluidized bed dryer
	12:05–12:25	Mahesh Tom (IISc Bangalore): An Approach for Quantifying errors due to initial condition uncertainty in Physics-Informed Neural Networks using Autoencoders
	12:25–12:45	Prajwal Prakashrao Jadhav (ICTS Bangalore): Machine learning (ML) based parametrization for submesoscale geophysical flows
Chair: Dr. Manoj Kumar Yadav	11:25 – 12:45	Contributed talks: High-order methods (4 talks, Room: PSB-1104)
	11.25–11:45	Srilakshmi Katuri (VIT-AP): Derivative free iterative method for solving Fuzzy nonlinear equations
	11.45–12:05	Gopika Dinesh K C (Amrita Vishwa Vidyapeetham): Efficient eighth order iterative method for solving non linear equations
	12:05–12:25	Mani Sandeep Kumar Mylapalli (GITAM Visakhapatnam): Stability Analysis of an Optimal Sixteenth-Order Iterative Scheme
	12:25–12:45	Mahipal Jetta (Mahindra University): A Fourth Order Nonlinear Partial Differential Equation Model for Multiplicative Noise Removal
12:45 – 14:10	Lunch	
Chair: Prof. Utpal Mann	14.10 – 14:50	Prof. Rathish B V (IIT Kanpur)
	Title	<i>PDE Based Image Analysis: Theory, Computation and Application</i>
	14.50 – 15:20	Industry talk (Binary Semantics)
	Title	<i>TBA</i>
15:20 – 15:30	Group Photo I	

SCHEDULE | WEDNESDAY, FEBRUARY 21 (PSB-3201)

15:30 – 15:55		
Chair:	16:00 – 17:40	Contributed talks: FEM - 2 (5 talks, Room: PSB-3201)
Dr. Bikram Bir	16:00–16:20	Shivangi Joshi (BITS Hyderabad) : A nonconforming least-squares spectral element method for Stokes problems with discontinuous viscosity and singular forces
	16:20–16:40	Nishant Ranwan (IISER-TVM) : Existence of a weak solution to the fluid-structure interaction problem of blood flow in coronary artery
	16:40–17:00	Nagula Harish Mallesham (ICT IOCB) : Efficient MATLAB assembly of the finite element stiffness matrices
	17:00–17:20	Anagha Mahesh U S (Amrita Vishwa Vidyapeetham) : Efficient eighth order method for solving nonlinear equations
	17:20–17:40	Gowri Maya Venugopal (IISc Bangalore) : Anisotropic quad-dominant mesh adaptations for high-order Discontinuous Galerkin methods
Chair: Dr.	16:00 – 17:40	Contributed talks: Convection Dominated Flow - 1 (5 talks, Room: PSB-3105)
Chirala Satya-narayana	16:00–16:20	Mijanur Rahaman (IIT Guwahati) : An HOC approach on non-uniform grids for advection-diffusion problems
	16:20–16:40	Samala Rathan (IPE Visakhapatnam) : A high-resolution third-order hybrid WENO scheme for solving hyperbolic conservation laws
	16:40–17:00	Lavanya V Salian (IPE Visakhapatnam) : A new central compact finite difference scheme with high spectral resolution for dispersive equations
	17:00–17:20	Gayatri Das (NIT Rourkela) : Numerical simulation of BBM-Burger equation
	17:20–17:40	Mayuri Verma (BITS Hyderabad) : Optimal control of weights in weighted least squares kinetic upwind method
Chair: Dr.	16:00 – 17:40	Contributed talks: Singularly Perturbed (5 talks, Room: PSB-1104)
Gone Neelakan-tam	16:00–16:20	Neha Kumari (NIT Patna) : A robust numerical method for two parameter singularly perturbed parabolic differential equations with discontinuous initial condition
	16:20–16:40	Vishwas Sundrani (VNIT Nagpur) : A non-uniform Haar wavelet method for a singularly perturbed convection-diffusion type problem with integral boundary condition on an exponentially graded mesh
	16:40–17:00	Mrityunjoy Barman (SOA Bhubaneswar) : Richardson Extrapolation of the Numerical Solution to a Singularly Perturbed Degenerate Parabolic Problem with Two Parameters
	17:00–17:20	Vikas Maurya (RGIPT Amethi) : Efficient pricing of options under a jump-diffusion system with a non-smooth payoff: Novel implicit-explicit methods for numerical valuation
	17:20–17:40	Gobinda Garai (IISER-TVM) : On the Convergence of Parallel-in-Time Method for the Reaction-Diffusion System
20:00		
Dinner at VFR		

SCHEDULE | THURSDAY, FEBRUARY 22 (PSB-3201)

08:30 – 09:00			Registration
Chair: Prof. Amiya K. Pani	09.00 – 09:40	Prof. Carsten Carstensen (HU Berlin)	
	Title		<i>Lower eigenvalue bounds for the harmonic and bi-harmonic operator</i>
	09.40 – 10:20	Prof. Thirupathi Gudi (IISc, Bengaluru)	
	Title		<i>Convergence of Adaptive FEM for Nonlocal Kirchhoff Problem</i>
10:20 – 10:40			Coffee/Tea break
Chair: Dr. Sheetal D.	10.40 – 11:20	Dr. Sérgio S Rodrigues (RICAM Linz, Austria)	
	Title		<i>Stabilization and observer design for parabolic control systems with explicit input feedback and output injection operators</i>
Chair: Dr. Shweta Srivastava	11:25 – 12:45	Contributed talks: FEM - 3 (4 talks, Room: PSB-3201)	
	11.25–11:45	Benedikt Gräßle (HU Berlin):	A posteriori error analysis for lowest-order discretisations of fourth-order problems
	11.45–12:05	Ishani Choudhary (IIIT Delhi):	Adaptive finite elements for Hodge Laplacian problems
	12:05–12:25	Subham Nayak (IISER-TVM):	Convergence of Adaptive Crouzeix-Raviart and Morley FEM for Distributed Optimal Control Problems
	12:25–12:45	Sumit Mahajan (IIT Roorkee):	A posteriori error estimates for the generalized Burgers-Huxley equation with weakly singular kernels
Chair: Dr. Chandhini	11:25 – 12:45	Contributed talks: PINNs & HPC - 2 (4 talks, Room: PSB-3105)	
	11.25–11:45	Debdeep Roy (IIT Indore):	Dynamic analysis of a dimensionally homogeneous fractional order Rosenzweig-MacArthur model with harvesting
	11.45–12:05	Priyanka Chandra (VIT Vellore):	An accelerated finite element method to study the gyrotactic-nanofluid flow via stretching surface using machine learning algorithm
	12:05–12:25	Akanksha Sharma (MANIT Bhopal):	An advancement in Option Price Prediction Using a Hybrid Deep Learning Framework
	12:25–12:45	Ravi Mahla (NIT Warangal):	Mixed Convection Jeffrey Fluid Flow Between Rotating Discs Under the Influence of Magnetic Field and Thermal Radiation Using ANN-based Computational Approach
Chair: Dr. Neetu Garg	11:25 – 12:45	Contributed talks: Math-Bio (4 talks, Room: PSB-1104)	
	11.25–11:45	Niraj Rathore (Central Uni of Karnataka):	Relative exploration of blood flow models for arterial disease treatment using GO-nanoparticle
	11.45–12:05	Sangeeta Devi (NIT Kurukshetra):	Numerical investigation of Human liver structure in the context of non-singular operators
	12:05–12:25	Zaffar Mehdi Dar (VIT Vellore):	A Virtual Element Approach to Study the Transportation of Nerve Impulses: An Application in Prosthetic Implants
	12:25–12:45	Amrutha Sreekumar (SRM-AP):	Exploring the Impact of PTH and Denosumab Therapy on Bone Remodeling: A Mathematical Investigation
12:40 – 14:00			Lunch
Chair: Dr. Arun K.R.	14.00 – 14:40	Prof. Jitendra Kumar (IIT Ropar)	
	Title		<i>Integrating Continuum and Discrete Approaches for Enhanced Simulations of Particulate Systems: A Multiscale Bi-directional Modeling Perspective</i>
	14.40 – 15:20	Prof. Apala Majumdar (Uni Strathclyde)	
	Title		<i>Solution Landscapes in the Landau-de Gennes theory for Nematic Liquid Crystals: Analysis, Computations, and Applications</i>

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15:20 – 15:40		Coffee/Tea break
Chair: Dr	15.40 – 16:20	Prof. Jim Thomas (ICTS-TIFR, TIFR-CAM, Bangalore)
Sudarshan K.	Title	<i>Passive tracer dispersion in the ocean</i>
Chair: Dr.	16:25 – 18:05	Contributed talks: FEM - 4 (5 talks, Room: PSB-3201)
Samala Rathan	16:25–16:45	Sudeep Kundu (RGIPT Amethi): Stabilization of nonlinear ODEs and PDEs based on the Hamilton Jacobi Bellman and Isaacs approach
	16:45–17:05	Neetu Garg (NIT Calicut): Numerical Simulations for Time-Fractional Reaction-Diffusion Equations
	17:05–17:25	Aparna Bansal (IIT Roorkee): Nitsche method for Navier-Stokes equations with slip boundary conditions
	17:25–17:45	Tooba M Shaikh (IISER-TVM): Adaptive FEM for optimal control problem governed by Stokes Equation
	17:45–18:05	Maria Robert (NIT Calicut): Pontryagin's principle for the optimal control of monodomain model with control-state constraints
Chair: Dr.	16:25 – 18:05	Contributed talks: Convection Dominated Flow - 2 (5 talks, Room: PSB-3105)
Vivek Singh Yadav	16:25–16:45	V P M Senthil Nayaki (PSNA CET): A study on MHD free convection in a rectangular cavity filled with hybrid Nanofluid
	16:45–17:05	V Selva Sharmila (DSCE Bangalore): Numerical Study on Magneto Marangoni-Driven Convection in Williamson Hybrid Nanofluid flow with Thermal radiation over an Exponentially stretching surface in a Porous medium.
	17:05–17:25	Tahera Begum (Jamia Millia): Numerical investigation of boundary layer flow past a stretching cylinder
	17:25–17:45	Priyadharsini M (VIT Chennai): Effects of Inclined Magnetic Field and Thermal Radiation on Hybrid Nanofluid Flow: A numerical study
	17:45–18:05	Vivek Kumar (NIT Kurukshetra): Computational Analysis of Radiative Hybride Nanofluid Flow Past A Convective Heated Curved Stretching Surface with Cross Diffusion
Chair: Dr.	16:25 – 18:05	Contributed talks: Analysis - 1 (5 talks, Room: PSB-1104)
Suresh K. Nadupuri	16:25–16:45	Abhishake Rastogi (LUT Finland): Inverse Learning in Hilbert Scales
	16:45–17:05	Suma P B (MIT Manipal): Applicability of Homeier-like method to ill-posed Hammerstein-type operator equation in Hilbert Scales
	17:05–17:25	Shubham Garg (IIT Jodhpur): Mathematical Analysis of Coupled Mode Theory
	17:25–17:45	Bhumika Mundiya (Marwadi University): The performance of Euclidean and Mahalanobis distance measures in Spectral clustering
	17:45–18:05	Arijit Das (NIT Trichy): The nonlinear collisional fragmentation model: An analytical and numerical approach
20:00		Dinner at VFR

SCHEDULE | FRIDAY, FEBRUARY 23 (PSB-3201)

08:45 – 09:00		
Registration		
Chair: Prof. Volker John	09.00 – 09:40	Prof. G D Veerappa Gowda (TIFR-CAM)
	Title	<i>Convergence of a second order scheme for non-local conservation laws</i>
	09.40 – 10:20	Prof. Manoranjan Mishra (IIT Ropar)
	Title	<i>Understanding Interplay of Viscous Fingering and Chemical Reaction through a Non-Modal Analysis</i>
10:20 – 10:40		
Coffee/Tea break		
Chair: Dr. Dhanya R.	10.40 – 11:20	Prof. Martin Falcke (MDC Berlin)
	Title	<i>Multi-scale modeling of ventricular cardiac myocytes of rabbit and rat</i>
Chair: Dr. Sudeep Kundu	11:25 – 12:45	Contributed talks: FEM - 5 (4 talks, Room: PSB-3201)
	11.25–11:45	Bikram Bir (IIT Bombay): A discontinuous Galerkin finite element method for the Chemotaxis-Navier-Stokes equations
	11.45–12:05	Harpal Singh (IIT Roorkee): Divergence-conforming discontinuous Galerkin finite element methods for stationary generalized Oseen equations with control constraints
	12.05–12:25	Krishan Kumar (IIT Bombay): Discontinuous Galerkin method for the Vlasov-Burgers' equation
	12.25–12:45	Ayush Agrawal (IIT Roorkee): LDG method for non-linear fractional order Rayleigh–Stokes problem
Chair: Dr. Chandhini	11:25 – 12:45	Contributed talks: PINNs & HPC - 3 (4 talks, Room: PSB-3105)
	11.25–11:45	Sandeep Kumar (NIT Rourkela): Solving Degasperis–Procesi Equation Boundary Value Problem Using Physics-informed Neural Networks
	11.45–12:05	Jain M Francis (NITK Surathkal): Physics-Informed Residual Neural Network for Solving Advection-Diffusion Equations
	12.05–12:25	Ajitha S (CET Trivandrum): Machine Learning in Artificial Intelligence using Linear Algebra Applications
	12.25–12:45	Rakesh Kumar (NIT-AP): Artificial Neural Network-Based Dynamical Analysis to Solve a Bio-Mathematical Model of Drug Diffusion through the compartments of Blood and Tissue Medium
Chair: Dr. Samala Rathan	11:25 – 12:45	Contributed talks: Miscellaneous - 3 (4 talks, Room: PSB-1104)
	11.25–11:45	Manasa Bhat (IIT Indore): Controlling the vibration of Rayleigh waves using a nonlocal nonlinear metasurface
	11.45–12:05	Dipendu Pramanik (IIT Indore): Love-like wave field with the effect of energy source and sliding interfaces in a coated fractured poro-viscoelastic layer
	12.05–12:25	Smita Deb (IIT Ropar): Critical transitions in spatial systems induced by Ornstein-Uhlenbeck noise: Spatial mutual information as a precursor
	12.25–12:45	Rahul Som (IIT Indore): Flexural edge wave propagation on a viscoelastic plate resting on an elastic foundation
12:40 – 14:00		
Lunch		
Chair: Prof. M.P. Rajan	14.00 – 14:40	Prof. Sundar S (IIT Madras & NIT Mizoram)
	Title	<i>A shock-capturing meshless geometric conservation weighted least square method for solving shallow water equations</i>
	14.40 – 15:10	Talks from Industry: COMSOL (TBA)
15:10 – 15:20		
Group Photo II		

SCHEDULE | FRIDAY, FEBRUARY 23 (PSB-3201)

15:20 – 15:40	Coffee/Tea break	
Chair: Dr. Arbaz Khan	15:40 – 16:20	Prof. Natesan Srinivasan (IIT Guwahati)
	Title	<i>A Novel Operator-Splitting NIPG FEM for 2D Time-Fractional Diffusion Problem</i>
Chair: Dr. Mrityunjay Barman	16:25 – 18:25	Contributed talks: Fractional (5 talks, Room: PSB-3201)
	16:25–16:45	Rakesh Kumar Meena (SVNIT Surat): A Study of the Multi-Dimensional Time Fractional Korteweg-de Vries Equation Using RPS Method
	16:45–17:05	Reema Gupta (NIT Rourkela): A numerical technique based on the Jacobi wavelets for solving stochastic fractional integro-differential equation
	17:05–17:25	Varsha R (NIT Calicut): An approximate analytical method for solving time fractional KdV equations.
	17:25–17:45	M Amreen (VIT Vellore): A Novel Method for Identifying the Initial Basic Feasible Solution to a Transportation Problem
	17:45–18:05	Priyanka (IIT Ropar): Numerical Insights into Instabilities and Mixing in Two-Layer Channel Flows
Chair: Dr. Mahipal Jetta	16:25 – 18:25	Contributed talks: Radial Basis Function (6 talks, Room: PSB-3105)
	16:25–16:45	Rohit Verma (MIT VPU): Computational study on 2D three-phase lag bioheat model during cryosurgery using RBF meshfree method
	16:45–17:05	Harshad Sakariya (SVNIT Surat): Numerical study of time fractional Fitzhugh-Nagumo equation using radial basis functions
	17:05–17:25	Manoj Kumar Yadav (Mahindra University): Fourth order RBF-HFD scheme for time-fractional Burgers' equation
	17:25–17:45	Chirala Satyanarayana (Mahindra University): Fourth order RBF-HFD scheme for pricing European type Asian Option
	17:45–18:05	Rajni (IIT Indore): Dynamics of a population model in the two-patch environment: Effect of prey and predator dispersal
	18:05–18:25	Muhammed Rafeek K V (Central Uni of Karnataka): Observability of Consensus of Multi-Agent Networks Under Signed Laplacian Dynamics.
Chair: Dr. Abhishake Rastogi	16:25 – 18:25	Contributed talks: Analysis - 2 (6 talks, Room: PSB-1104)
	16:25–16:45	Prakrati Kushwah (NIT Trichy): Adomian(-Padé) series solutions for the nonlinear hyperbolic aggregation population balance equation: Derivation, analysis, and performance
	16:45–17:05	Amit Kumar Chaurasiya (Mahindra University): Exponential discriminant analysis via Weeks' method
	17:05–17:25	Hardeep Singh Saluja (Aligarh Muslim University): Dynamical System for Additively Structured Monotone Inclusion and Fixed Point Problem
	17:25–17:45	Shafeequdheen P (SRM-AP): Reconstruction of 2D-simple manifold from a level set using shape gradient
	17:45–18:05	Sahil Kundu (IIT Ropar): Reactive Flow in Vuggy Porous Media Based On Darcy-Stokes-Brinkman Model: Existence and Uniqueness
	18:05–18:25	Hemalatha K (VIT Vellore): A novel approach for addressing the Interval-Valued Pythagorean Fuzzy Transportation Problem
20:00	Conference Dinner at VFR	

SCHEDULE | SATURDAY, FEBRUARY 24 (PSB-3201)

08.45 – 09.00			Registration
Chair: Dr.	09.00 – 09:40	Prof. Kamana Porwal (IIT Delhi)	
Praveen C.	Title	<i>Pointwise adaptive finite element method for the Signorini problem</i>	
Chair:	09:45 – 11:05	Contributed talks: FEM - 6 (4 talks, Room: PSB-3201)	
Bikram Bir	09:45–10:05	Raksha Devi (IIT Roorkee): Discontinuous Galerkin time stepping method for the nonlinear parabolic problems with variable delay	
	10:05–10:25	Kush Pandya (IISc Bangalore): Multi-Fidelity Aerodynamic Shape Optimization with Discontinuous Galerkin Methods	
	10:25–10:45	Thivin Anandh (IISc Bangalore): GPU-Accelerated FEM based Lagrangian Particle Tracking for Human Air Pathways	
	10:45–11:05	Abhilash Chand (NIT Rourkela): Numerical simulation of Rosenau-Hyman equation with non-periodic boundary conditions by the local discontinuous Galerkin method	
Chair:	09:45 – 11:05	Contributed talks: PINNs & HPC - 4 (4 talks, Room: PSB-3105)	
Dr. Ajitha S	09:45–10:05	Marsaline Beno M (SXCCE Nagercoil): Advancing DeepFake Detection: A Novel DeepNet Approach	
	10:05–10:25	Brahmaiah Gandham (Mahindra University): Optimizing Parallel Computing Performance through Thread Pinning in High-Performance Computing Environments	
	10:25–10:45	Gone Neelakantam (Mahindra University): Machine Learning based Intelligent Decision Support System for PHEVs in Smart Cities Using Fog Computing	
	10:45–11:05	G Kiruthika (KSRIET) & G Ramya (PVKKIT): Computation of the Zagreb indices of the medical diagnostics pattern of the 2D-Deep learning neural networks	
Chair: Dr. V Selva	09:45 – 11:05	Contributed talks: Analysis-3 (4 talks, Room: PSB-1206)	
Sharmila	09:45–10:05	Pradeep (IIT BHU): The analytical solutions of the Riemann problem to the one-dimensional non-ideal flow of dusty gas with external force	
	10:05–10:25	Vaishnavi S (VIT Chennai): Investigation of Wave Spectral Characteristics During Hurricane Fiona- A Numerical Approach.	
	10:25–10:45	Athul S Murali (SRM-AP): Impact of anisotropic permeability on shear-induced oscillatory flow through deformable porous medium	
	10:45–11:05	Anupam Kumar Pandey (IIT BHU): Alterations in pressure distribution due to swallowing disorder in oesophagus	
Chair: Dr. Shweta	09:45 – 11:05	Contributed talks: Motion Equation (4 talks, Room: PSB-1207)	
Srivastava	09:45–10:05	Bhawana Tripathi (VNIT Nagpur): Levenberg-Marquardt method with general convex penalty under conditional stability assumptions	
	10:05–10:25	Rahul Mishra (VNIT Nagpur): Numerical study of singularly perturbed boundary value problems by reduction of order	
	10:25–10:45	Sanjay C P (ICTS Bangalore): Internal gravity waves and tracer dispersion in the ocean	
	10:45–11:05	Amjad Hasan P (ICTS Bangalore): Interaction of baroclinic flow with a gaussian vortex	
11:05 – 11:25			Coffee/Tea break
Chair: Prof.	11.25 – 12:05	Prof. Daniele Boffi (KAUST, Saudi Arabia)	
Natesan Srinivasan	Title	<i>From interface problem to FSI: the role of the distributed Lagrange multiplier in a fictitious domain approach</i>	
	12.05 – 12:45	Prof. Arbaz Khan (IIT Roorkee)	
	Title	<i>Recent advances in numerical approximation of linear elasticity/ poroelasticity with uncertain inputs</i>	
12:45 – 12:55			Closing Remarks
12:55 – 14:15			Lunch