March 10, 2025			
Venue: A/C Auditorium			
9.00 AM – 10.00 AM	**Registration**		
10.00 AM – 10.45 AM	**Inauguration**		
10.45 AM – 11.15 AM	**Tea Break**		
	Chair: Prof. G. Ambika		
11.15 AM – 12.00 AM	Plenary Talk 1	**Prof. M. Lakshmanan** (Bharathidasan University) Soliton molecules and their collisions in Manakov system	
12.00 PM – 12.45 PM	Plenary Talk 2	**Prof. Arul Lakshminarayan** (IIT Madras) Chaos and quantum-classical correspondence for channels	
12.45 M – 1.15 PM	Invited Talk 1	**Prof. Avinash Khare** (IISER Pune) Different facets of PT symmetry	
1.15 PM – 2.15 PM	**Lunch Break (UGH)**		
	Chair: Prof: Soumitro Banerjee		
2.30 PM – 3.00 PM	Invited Talk 2	**Prof. G. Ambika** (IISER Trivandrum) Relay synchronization and control in multiplex networks with directional coupling	
3.00 PM – 3.30 PM	Invited Talk 3	**Prof. Govind Krishnaswami** (CMI, Chennai) Three-rotor problem: classical and quantum aspects	
3.30 PM – 4.00 PM	Invited Talk 4	**Prof. Malay Banerjee** (IIT Kanpur) Immuno-epidemic modelling: formulation and major outcomes	
4.00 PM – 4.30 PM	**Tea Break**		
	Contributed Talks		
4.30 PM – 4.50 PM	**Venue: A/C Auditorium** **Chair: Prof. Arul Lakshminarayan** **Dr. Thounaojam Umeshkanta Singh** (Bennett University) Collective dynamics of non-isochronous Stuart-Landau oscillators: Interplay of asymmetric and symmetric couplings	**Venue: USIC** **Chair: Prof. Avinash Khare** **Dr. R. Radha** (Government College for Women) Exact solvability of spin-orbit and Rabi coupled Bose-Einstein condensates and attributes of localized solutions	
4.50 PM – 5.10 PM	**Dr. Kiran M. Kolwankar** (Ramniranjan Jhunjhunwala College) Global analysis of synchronization using invariant measure	**Dr. S. Balakrishnan** (VIT, Vellore) Role of two-qubit entangling operators in preventing the onset of chaos in duopoly games	
5.10 PM – 5.30 PM	**Dr. Nirmal Thyagu** (Madras Christian college, Chennai) Dynamic state change detection using topological data analysis and machine learning	**Dr. Sai Harshini Tekur** (Prayoga institute of Education Research) Higher-order gap ratios of singular values in open quantum systems	
5.30 PM – 5.50 PM	**Dr. Anandamohan ghosh** (IISER Kolkata) Spectral properties of β ensemble	**Dr. Priyam Das** (BS College, Bankura) Supersolid phase via roton softening in spin-orbit coupled quantum droplets	
5.50 PM – 6.10 PM	**Dr. Biswambhar Rakshit** (Amrita Vishwa Vidyapeetham, Coimbatore) Predicting aging transition using echo state network	**Dr. Anjuman Ara Khatun** (IIT Bombay) Dynamics of Janus-like swimmers in millimeter scale	
6.10 PM – 7.15 PM	**Poster Session (USIC)**		
7.30 PM – 9.00 PM	**Dinner (UGH)**		

*(UGH- University Guest House) * (USIC - University Science Instrumentation Centre)

March 11, 2025		
Venue: A/C Auditorium		
Chair: Prof. M. Lakshmanan		
9.30 AM – 10.15 AM	Plenary Talk 3	**Prof. Sudeshna Sinha** (IISER Mohali) Evolution beats random chance: Performance-dependent network evolution for enhanced computational capacity
10.15 AM – 10.45 AM	Invited Talk 5	**Prof. Lakshmi Bala** (IIT Madras) Dynamics of quantum observables: time series and networks analysis
10.45 AM – 11.15 AM	Invited Talk 6	**Prof. Awadhesh Prasad** (Delhi University) The dynamics of interacting camphor rotors
11.15 AM – 11.45 AM	**Tea Break**	
Chair: Prof. M. S. Santhanam		
11.50 AM – 12.20 PM	Invited Talk 7	**Prof. K. Murali** (Anna University) Dynamics based p-bits for invertible logic
12.20 PM – 12.50 PM	Invited Talk 8	**Prof. Nithin Nagaraj** (NIAS, Bangalore) Chaos theory meets number theory & machine learning
12.50 PM – 1.10 PM	Invited Talk 9	**Dr. Ayan Khan** (Bennett University) Dynamics of quantum droplet
1.15 PM – 2.15 PM	**Lunch break (UGH)**	
Chair: Prof. Sudeshna Sinha		
2.30 PM – 3.00 PM	Invited Talk 10	**Prof. Tanmoy Banerjee** (University of Burdwan) Cooperative dynamics in quantum domain: symmetry breaking and more
3.00 PM – 3.30 PM	Invited Talk 11	**Dr. Utpal Roy** (IIT Patna) Nonlinearity mediated atomtronics and quantum precision measurements
3.30 PM – 3.50 PM	Contributed Talk	**Dr. Ajay Nath** (IIIT Vadodara) 1D Ultradilute quantum droplets in driven bi-periodic optical lattices
3.50 PM – 4.30 PM	**Tea Break + Photo Session**	
4.30 PM – 6.15 PM	**A/C Auditorium** **Society for Nonlinear & Complex Systems (SONCOS) Annual General Meeting** **&** **Panel Discussion**	
6.15 PM – 7.30 PM	**Cultural Events (A/C Auditorium)**	
7.30 PM – 9.00 PM	**Banquet (UGH)**	

March 12, 2025			
		Chair: Prof. Lakshmi Bala	**(Venue: A/C Auditorium)**
9.30 AM – 10.15 AM	Plenary Talk 4	**Prof. M. S. Santhanam** (IISER Pune) Elections as a complex system : margins, voter turnouts and universality	
10.15 AM –10.45 AM	Invited Talk 12	**Prof. Neelima Gupte** (IIT Madras) Synchronization of Kuramoto oscillators on simplicial 4 complexes: hysteresis, cluster formation and 5 partial synchronization	
10.45 AM – 11.15 AM	Invited Talk 13	**Prof. Shyamal Kumar Dana** (Jadavpur University) Tipping phenomena in ecological systems under forcing	
11.15 AM – 11.40 AM	**Tea Break**		
		Chair: Prof. R.I. Sujith	
11.45 AM – 12.15 PM	Invited Talk 14	**Dr. V. K. Chandrasekar** (SASTRA University) Emergent dynamical states in globally coupled conformist and contrarian populations with asymmetric interactions	
12.15 PM – 12.45 PM	Invited Talk 15	**Dr. D. V. Senthilkumar** (IISER Trivandrum) Heterogeneous nucleation in adaptive networks	
12.45 PM- 1.05 PM	Contributed Talk	**Dr. Sangeetha Ujjwal** (Banaras Hindu University, Varanasi) Coupled Lorenz systems near Hopf boundary: Multistability, intermingled basins and chimeras	
1.05 PM – 2.15 PM	**Lunch Break (UGH)**		
	Contributed Talks		
2.30 PM – 2.50 PM	**Venue: A/C Auditorium** **Chair: Prof. Neelima Gupte** **Dr. Suresh Ramachandran** (SASTRA University) Dynamics and mitigation of extreme events in nonlinear oscillatory systems	**Venue: USIC** **Chair: Prof. Govind Krishnaswami** **Dr. N. D. Chavda** (The Maharaja Sayajirao University of Baroda) Structure of wavefunctions of interacting many-particle quantum systems with one-plus k-body random interactions	
2.50 PM – 3.10 PM	**Dr. Suresh Kumaraswamy** (Easwari Engineering College) Extreme events in dynamical systems	**Dr. V. Muthubalan** (SASTRA University) Spin field effect transistor - A revolution in semiconductor	
3.10 PM – 3.30 PM	**Dr. Gopal Ramupillai** (SASTRA University) Collective dynamical states: from coupled oscillators to swarmalators	**Dr. Taniya Khatun** (IIT Bombay) Experimental evidence of community switching	
3.30 PM – 3.50 PM	**Dr. Joydeb Bhattacharyya** (Karimpur Pannadevi college) Wolbachia-based mosquito control: Early warning signals and optimal interventions	**Dr. Sreeram PG** (IISER Pune) Dichotomy in the effect of chaos on ergotropy	
3.50 PM – 4. 10 PM	**Dr. Sathish Aravind M.**(Bharathidasan University) Realization of logic gates in both single nonlinear systems and coupled nonlinear oscillators	**Mr. Dweepabiswa Bagchi** (IISER Trivandrum) Quenching of chaos in externally driven metacommunities	
4. 10 PM – 4.30 PM	**Tea Break**		
	Chair: Prof. Shyamal Kumar Dana	**Chair: Prof. Awadesh Prasad**	
4.30 PM – 4.45 PM	**Ms. Ayushi Suman** (IIT Indore) Finite-size effect in Kuramoto oscillators with higher-order interactions	**Ms. Rumi Kar** (IISER Trivandrum) Higher-order interaction induced chimeralike state in a bipartite network	
4.45 PM – 5.00 PM	**Ms. Priyanka Rajwani** (IIT Indore) Stochastic Kuramoto oscillators with inertia and higher-order interactions	**Ms. Titir Mukherjee** (IISER Kolkata) Quantum Langevin equation: An approach to dissipative quantum soft impact oscillator	
5.00 PM – 5.15 PM	**Mr. Aman Mishra** (IISER Trivandrum) Revival of oscillation in diffusively coupled d-dimensional limit-cycle oscillators	**Mr. Buddha Nath Sharma** (NIT Sikkim) Detecting extreme events in the stock market using topological data analysis	
5.15 PM – 5.30 PM	**Mr. Hariharan S.** (SASTRA University) Unveiling noise-induced extreme events: From single neuron to network dynamics	**Mr. S. V. Manivelan** (M.R. Government Arts college) Self-feedback delay induces extreme events in the theoretical Brusselator system	
5.30 PM – 5.45 PM	**Mr. Naveen Mendola** (Bennett University) Collective rotational-flips and explosive synchronization in coupled nonlinear oscillators	**Mr. Shivam Singh** (Bennett University) Fragmentation and elementary excitations in ultracold systems	
5.45 PM – 6.00 PM	**Mr. Thonti Beeraiah** (IIT Madras) Strange nonchaotic attractor in a self-excited turbulent reactive flow system	**Mr. Porikshit Mondal** (IISER Trivandrum) Multi-sphere model in higher dimensional space	
6.00 PM– 7.00 PM	**Poster Session (USIC)**		
7.30 PM – 9.00 PM	**Dinner (UGH)**		

March 13, 2025			
Venue: A/C Auditorium			
Chair: Prof. K. Murali			
10.00 AM – 10.30 AM	Invited Talk 16	**Prof. R. I. Sujith** (IIT Madras) Secondary bifurcations and explosive synchronization in turbulent reacting flow systems	
10.30 AM – 11.00 AM	Invited Talk 17	**Dr. T. Kanna** (Bishop Heber college) Nonlinear waves in non-autonomous multicomponent Gross-Pitaevskii system	
11.00 AM – 11.20 AM	Contributed Talk	**Mr. Vedang Tamhane** (Xenvolt Technologies) Analysing and predicting extreme frequency deviations in power grid	
11.20 AM – 11.45 AM	**Tea Break**		
	Contributed Talks		
	Venue: A/C Auditorium	**Venue: USIC**	
	Chair: Dr. D. V. Senthilkumar	**Chair: Dr. Sangeetha Ujjwal**	
11.50 AM – 12.10 PM	**Dr. Anisha Kashyap** (IUCAA Pune) Applying recurrence methods to classify binary stars	**Dr. R. Arun** (SRM Trichy) Microwave generation and it's tunability by field and current in spin-torque nano oscillator	
12.10 PM – 12.25 PM	**Mr. Anirudh Sivakumar** (Bharathidasan University) Revealing turbulent dark matter via merging self-gravitating condensates	**Dr. N. Sinthuja** (Anna University) Dynamics of nonlinear waves in electrical transmission lines	
12.25 PM – 12.40 PM	**Mr. Senthamizhan R.** (SASTRA University) Exploring the swarmalators with data driven approach	**Mr. Sai Prasad V. R.** (SASTRA University) Effect of vaccination rate in multi-wave compartmental model	
12.40 PM – 12:55 PM	**Mr. Praveenkumar V.** (IIT Madras) Time-varying functional climate networks capture emergent phenomena prior to the Kerala floods in 2018 and 2019	**Mr. Sanjay S.** (Amrita Vishwa Vidyapeetham, Coimbatore) Exploring vortex droplets in two-dimensional harmonic traps: A photonic spin-orbit coupling perspective	
1.00 PM – 1.30 PM	**Valediction (A/C Auditorium)**		
1.30 PM – 2.30 PM	**Lunch break (UGH)**		

March 10, 2025

POSTER PRESENTATION

Name	Title
Dr. Devraj Pawar Ramniranjan Jhunjhunwala College, Mumbai	Detecting early warning signals for critical transitions in astrophysical systems
Mr. D. Aravindha Krishnan PSG College of Arts and Science, Coimbatore	Dynamics of localized structures in F = 1 spinor Bose-Einstein condensate: Effects of spin-orbit coupling and rabi coupling
Ms. Adithya L J IISER Trivandrum	Continuous time quantum walks on complex network topologies
Mr. Yuvrajsingh Pravinsingh Patil IISER Trivandrum	Dynamic stability of complex systems using Gershgorin disc theorem
Mr. Athul George IISER Trivandrum	Determination of dynamical exponents of complex systems using machine learning
Ms. Sukruta A. Pethe Ramniranjan Jhunjhunwala College, Mumbai	Nonlinear swaying of Y branch structure
Mr. Avadhut V Purohit Visvesvaraya National Institute of Technology, Nagpur	The study of classical and quantum double kicked top
Mr. Athul Mohan IISER Trivandrum	Machine learning and deep learning approach to detect dynamical states from recurrence plots and recurrence measures
Ms. Soorya PP Amrita Vishwa Vidyapeetham, Coimbatore	Collective dynamics in an ensemble of excitable and self oscillatory neurons: The role of higher-order interactions
Ms. Rakshita Sharma IISER Trivandrum	Effect of phase lag parameter on the swarmalator dynamics
Ms. Madhumitha V SASTRA University, Thanjavur	Soliton pulse compression in self-similarly designed erbium-doped photonic crystal fiber
Mr. Nisarg Vyas IISER Pune	Reservoir computing with quantum kicked top
Ms. Karthiga K SASTRA University, Thanjavur	Effects of dissipation in the anisotropic Dicke model
Mr. Harshit Sharma Visvesvaraya National Institute of Technology, Nagpur	Exact solvability of entanglement for arbitrary initial state in an infinite-range Floquet system

March 12, 2025

POSTER PRESENTATION

Name	Title
Mr. Rohan Kishor Nakade IIT Madras	Reduced order modeling of thermoacoustic systems using mean-field synchronization model
Mr. Logesh K IIT Madras	Multiple dynamical transitions in turbulent annular combustor
Mr. Asutosh Anand Singh IISER Trivandrum	The interplay of dyadic and triadic interactions in frustrated stochastic Kuramoto oscillator system
Mr. Debajyoti Guha IISER Kolkata	Novel method to distinguish between quasiperiodicity and high periodicity
Mr. Kumar Sourav Bennett University	Collective rotation flips in a ring of non-isochronous Stuart-Landau oscillators.
Mr. Adwait A. Kulkarni Ramniranjan Jhunjhunwala College, Mumbai	Understanding swaying motion of trees using nonlinear chimney model with realistic parameters
Mr. Akash Yadav IISER Trivandrum	Disparity-driven heterogeneous nucleation in finite-size adaptive networks
Mr. Karan Singh IISER Trivandrum	Graph coloring framework to mitigating cascading failure in complex networks
Mr. B. Vigneshwar NIT Trichy	Measurement induced enhancement in ergotropy
Mr. Sourav Manna IIT Madras	Entangling power, gate typicality, and measurement-induced phase transitions
Ms. Madhusmita Panda Bennett University	Projective synchronization in nonlinear electrical circuits
Ms. Mamatha K L IIT Hyderabad	Study of propagation dynamics of optical beam in an inhomogeneous nonlocal nonlinear medium
Mr. Vikram V SASTRA University, Thanjavur	Emergence and robustness of solitary states and cluster states in Prey-Predator model
Ms. Bismi I. Anna University, Chennai	Rogue waves in the multi-soliton wave background for the generalized inhomogeneous nonlinear Schrödinger equation
Dr. S.P. Godwin Rajadoss Bishop Heber College, Trichy	Elliptic waves in coupled nonlinear Schrödinger system with four-wave mixing effects