

PROGRAM SCHEDULE

INTERNATIONAL CONFERENCE On QUANTUM MANY-BODY SYSTEMS

26-28 June 2025

Organized by
Department of Physics
Manipur University, Canchipur, 795003

Day 1: 26th June, 2025

Venue: VC court Hall (Pre-lunch Sessions)

Time	Speaker	Title
08:30-09:30		Registration
09:30-10:00		Inaugural Session
10:00-10:15		Light Refreshment
1st Technical Session: Quantum many-body systems Session chair: Prof. Sadiq Rangwala, RRI Bangalore		
10:15-10:45 (I-1)	Dr. Sourav Dutta, TIFR	Progress towards the formation of ultracold molecules by associating atoms
10:45-11:15 (I-2)	Dr. Francis A. S. Chipem, Manipur University	Probing of the Reaction Pathway of Excited State Intramolecular Proton Transfer in organic Molecules
11:15-11:45 (I-3)	Prof. Bimalendu Deb, IACS, Kolkata	Equilibrium and non-equilibrium quantum phase transitions in a nonlinear cavity lattice
11:45-12:00	Tea and snacks	
2nd Technical Session: Quantum Computation Session chair: Prof. Brajesh Kumar Mani, IIT Delhi		
12:00-12:30 (I-4)	Prof. Bhanu Pratap Das, TCG CREST	Quantum computations of relativistic and many-body effects in atomic and molecular systems based on variational algorithms
12:30-13:00 (I-5)	Dr. Srinivasa Prasannaa, TCG CREST	Atomic and molecular physics calculations in the quantum computing framework
13:00-14:00	Lunch	
3rd Technical Session: Many-Body Systems and Quantum phenomena		

Venue: Seminar Hall, Dept. of Physics Session chair: Bijaya K. Sahoo, PRL		
14:00-14:30 (I-6)	Prof. Sadiq Rangwala, RRI Bangalore	Structural transitions and symmetry changes in trapped-ions clusters
14:30-15:00 (I-7)	Dr. Kuldeep Suthar, Central University of Rajasthan	Many-Body Non-Hermitian Transitions by Controlling Boundary in Hubbard Chain
15:00-15:30 (I-8)	Dr. Nilakash Sorokhaibam, Tezpur University	Quantum chaos and the arrow of time
15:30-15:40 (O-1)	Hari Sadhan Ghosh, IIT Kharagpur	Rotation-Induced Supersolidity of a Dipolar Bose-Einstein Condensate Confined in a Bubble Trap
15:40-15:50 (O-2)	M. Kaphungsing, Manipur University	Computational (DFT) and Spectroscopic Investigation of Silver (Ag ₁ , Ag ₃) Cluster Interactions with L-Methionine.
15:50-16:00 (O-3)	Peniel Bertrand Tsemo, TCG CREST	Accessing bond dissociation regimes in quantum chemistry with the Harrow-Hassidim-Lloyd (HHL) quantum algorithm
16:00-16:10 (O-4)	Kohenjit Pebam, Manipur University	Phase diagram of disordered extended Bose-Hubbard model
16:10-16:20 (O-5)	Momin Hrangbung, Manipur University	Quantum phases of extended Harper-Hofstadter Bose- Hubbard model in 2D optical lattices
16:20-16:35	Tea and snacks	

Day 2: 27th June, 2025

Venue: Seminar Hall, Dept. of Physics

Time	Speaker	Title
4th Technical Session: High precision atomic and molecular physics Session chair: Dr. Subhadeep De, IUCAA		
09:15-09:45 (I-9)	Prof. Bijaya K. Sahoo, PRL	Probing Fundamental Physics using Atoms: A journey from atomic parity violation to isotope shift studies
09:45-10:15 (I-10)	Dr. Brajesh Kumar Mani, IIT Delhi	Relativistic Coupled-Cluster Calculations of the Properties of Atomic Systems
10:15-10:45 (I-11)	Dr. H.S. Nataraj, IIT Roorkee	Study of molecular structure and properties of singly charged aluminium monohalides
10:45-11:15 (I-12)	Dr. Narendra Nath Dutta, VIT-AP University, Andhra Pradesh	Contributions of the Breit interaction in Atomic Many-Body Calculations
11:15-11:30	Tea and snacks	

	Group Photo	
5th Technical Session: Quantum Science and Technology I Session chair: Prof. Bimalendu Deb, IACS, Kolkata		
11:30-12:00 (I-13)	Dr. Subhadeep De, IUCAA	Atomic and Photonic Sensing with Unprecedented Accuracy
12:00-12:30 (I-14)	Prof. Saikat Ghosh, IIT Kanpur	Quantum Memory Sensors
12:30-13:00 (I-15)	Prof. Sankar De, SINP Kolkata	Coherent Control in Rb atoms: Non-adiabatic Transient Response in EIT and Correlated Vortex Generation
13:00-14:00	Lunch	
6th Technical Session: Ultracold Atoms Session chair: Prof. Sankar De, SINP Kolkata		
14:00-14:30 (I-16)	Dr. Sandeep Gautam, IIT Ropar	Collective Excitations in Spin-Orbit-Coupled Spinor Condensates
14:30-15:00 (I-17)	Dr. Arko Roy, IIT Mandi	From magnetism to cosmology: Exploring Collective Behaviour in Coherently coupled condensates
15:00-15:30 (I-18)	Prof. Kanhaiya Pandey, IIT Guwahati	Cooling and trapping of Rb and Yb atoms for quantum computation
15:30-15:40 (O-6)	Palki Gakkhar, IIT Delhi	Study of Nuclear Properties and Electric Dipole Polarizability of Nobelium using Fock-Space Coupled-Cluster Theory
15:40-15:50 (O-7)	Lamthaka Willingson, Manipur University	Investigation of molecular properties of a Carboplatin +Guanine biomolecular complex for chemotherapeutic treatment of metastatic breast cancer
15:50-16:00 (O-8)	P. Suraj Singh, Manipur University	Computational Vibrational Study of Quercetin in Natural Deep Eutectic Solvent (NADES) comprising Xylitol and Malonic acid.
16:00-16:10 (O-9)	Keisham Vasker Singh, Assam University Silchar	Momentum operator in Extended Generalized Uncertainty Principle
16:10-16:20 (O-10)	Bhumika Thoudam, Manipur University	Quench dynamics in two-component extended Bose-Hubbard model
16:20-16:30 (O-11)	Angom Laxmi, Manipur University	Effect of long-range interaction on localization in 2D-disordered optical lattice
16:30-17:30	Tea and snacks	
	Poster Presentation	
17:30	Felicitation Programme	

Day 3: 28th June, 2025

Venue: Seminar Hall, Dept. of Physics

Time	Speaker	Title
7th Technical Session: Quantum Science and Technology II (Online) Session chair: Prof. Saurav Dutta, TIFR		
09:15-09:45 (I-19)	Prof. Subroto Mukerjee, IISc	Vortical coefficients from the hydrodynamic flow of electrons
09:45-10:15 (I-20)	Prof. Prasanta K. Panigrahi, IISER Kolkata	Solitons, droplets and cat-like states in atomic-molecular Bose-Einstein condensate (AMBEC)
10:15-10:45 (I-21)	Dr. A. Janani, IBM Research Labs	Towards Quantum Algorithms for utility and quantum advantage
10:45-11:15 (I-22)	Prof. Sonjoy Majumder, IIT Kharagpur	Hybrid Quantum-Classical Algorithms
11:15-11:25 (O-12)	Arup Chakraborty, PRL	High-accuracy calculations of electric dipole polarizabilities in alkali atoms: Studying correlation trends using various many-body methods
11:25-11:40	Tea and snacks	
8th Technical Session: Precision AMO Physics (Online) Session chair: Prof. Saikat Ghosh, IIT Kanpur		
11:40-12:10 (I-23)	Prof. Sakemi Yasuhiro, The University of Tokyo	Search for EDM Using Radioactive Heavy Elements Trapped in Optical Lattices
12:10-12:40 (I-24)	Dr. Takatoshi Aoki, The University of Tokyo	Quantum sensing of electron’s electric dipole moment and Parity non conservation effect using ultracold atoms and molecules
12:40-13:10 (I-25)	Prof. Dima Budker, Mainz University	Solving tricky quantum optics problems with assistance from (artificial) intelligence
13:10-14:10	Lunch	
14:10	Outing	