

RECENT TRENDS IN CONDENSED MATTER PHYSICS RELATED TO QUANTUM MATERIALS 2024

SCHOOL OF PHYSICAL SCIENCES
INDIAN ASSOCIATION FOR THE CULTIVATION OF SCIENCE (IACS)
2A & 2B RAJA S.C. MULICK ROAD, JADAVPUR, KOLKATA 700032

DATE: 15TH AND 16TH FEBRUARY, 2024 VENUE: C.V. RAMAN HALL, IACS

PROGRAM SCHEDULE

DAY 1

FEBRUARY 15TH, THURSDAY

9:00 – 10:00	REGISTRATION	
10:00 – 10:15	HIGH TEA	
10:15 – 10:30	WELCOME ADDRESS	
SESSION 1: CHAIR: PROF. INDRA DASGUPTA		
10:30 – 11:00	PROF. ARTI GARG (SINP KOLKATA)	Pair-density wave pinned by strong impurities in high temperature superconductors
11:00 – 11:30	PROF. SUVANKAR CHAKRAVERTY (INST MOHALI)	Anomalous Shubnikov-De Haas oscillations and Room temperature spin polarizations at Oxide interfaces
11:30 – 11:45	TEA BREAK	
SESSION 2: CHAIR: PROF. KRISHNENDU SENGUPTA		
11:45 – 12:15	PROF. YASIR IQBAL (IIT MADRAS)	Dynamics of $K_2Ni_2(SO_4)_3$ governed by proximity to a 3D spin liquid model
12:15 – 12:45	PROF. SUBHABRATA DHAR (IIT BOMBAY)	Valley Polarization Properties of Monolayer MoS_2 Grown by Chemical Vapor Deposition
12:45 – 13:15	PROF. ARIJIT HALDAR (SNBNCBS KOLKATA)	Higher-order topology in quantum spin models
13:15 – 14:45	LUNCH BREAK	

SESSION 3: CHAIR: PROF. DURGA BASAK		
14:45 – 15:15	PROF. PRAVAT KUMAR GIRI (IIT GUWAHATI)	Optical Studies on Many-body Effects in 2D Tungsten Disulfide and Single Photon Emission from 2D Hexagonal Boron Nitride
15:15 – 15:45	PROF. DEBRAJ CHOUDHURY (IIT KHARAGPUR)	Resistive-state switching in some Titanate-spinel compounds
15:45 – 16:00	TEA BREAK	
SESSION 4: CHAIR: PROF. MINTU MONDAL		
16:00 – 16:15	RITWIK DAS (IACS KOLKATA)	In-plane magnetization orientation driven topological phase transition in OsCl ₃ monolayer
16:15 – 16:30	MOHAMAD NUMAN (IACS KOLKATA)	Interplay between Lattice and Magnetism: Insights into the Multiferroicity in distorted diamond spin chain compound Cu ₃ Nb ₂ O ₈
16:30 – 16:45	SOMSUBHRA GHOSH (IACS KOLKATA)	Hilbert space fragmentation: en route to Real Eigenvalues in Non-Hermitian Systems
16:45 – 17:00	SHAMEEK MUKHERJEE (IACS KOLKATA)	Linear magnetoelectric coupling without long-range magnetic order and rare-earth-free large magnetocaloric effect in Co ₃ V ₂ O ₈
17:00 – 18:30	POSTER SESSION	
19.30 – 22.30	BANQUET DINNER	

DAY 2

FEBRUARY 16TH, FRIDAY

SESSION 5: CHAIR: PROF. SUBHAM MAJUMDAR		
10:00 – 10:30	PROF. AKSHAY NAIK (IISC BANGALORE)	2D Nanomechanics: Beyond precision sensors
10:30 – 11:00	PROF. SUMIRAN PUJARI (IIT BOMBAY)	Punctured-Chern topological invariants for semi-metallic band structures
11:00 – 11:30	PROF. SRIMANTA MIDDEY (IISC BANGALORE)	Quantum fluctuations lead to glassy electron dynamics in the good metal regime of electron doped KTaO ₃
11:30 – 11:45	TEA BREAK	
SESSION 6: CHAIR: PROF. SAURAV GIRI		
11:45 – 12:15	PROF. SAMBUDDHA SANYAL (IISER TIRUPATI)	Quantum Matter in pyrochlore magnets
12:15 – 12:45	PROF. DEBANGSU ROY (IIT ROPAR)	Spin-orbit torque integration with static field: a generalized method to achieve initialization-free multistate memory behavior of SOT induced magnetization switching
12:45 – 13:15	PROF. ABHRADEEP PAL (IIT BOMBAY)	Superconducting devices with ferromagnetic insulators
13:15 – 14:45	LUNCH BREAK	
SESSION 7: CHAIR: PROF. ARNAB SEN		
14:45 – 15:15	SAIKAT DAS (IIT KHARAGPUR)	5d Transition Metal Oxide-based Quantum Materials for Spintronics
15:15 – 15:30	MOUMITA INDRA (IIT BOMBAY)	Double roton-minima in bosonic fractional quantum Hall states

15:30 – 15:45	SK KALIMUDDIN (IACS KOLKATA)	Exceptionally Slow, Long Range, and Non-Gaussian Fluctuations Anticipate the Critical Singularity Far Away from the Charge Density Wave Transition
15:45 – 16:00	TEA BREAK	
SESSION 8: CHAIR: PROF. SUBHADEEP DATTA		
16:00 – 16:15	INDRAJIT SAU (IACS KOLKATA)	Sublattice scars and beyond in two-dimensional U(1) quantum link lattice gauge theory
16:15 – 16:30	KUSAMPAL YADAV (IACS KOLKATA)	Tuning anomalous Hall effect in strain coupled epitaxial ferromagnetic thin film heterostructures
16:30 – 16:45	SOURAV MONDAL (IACS KOLKATA)	Excitonic Rydberg States in a Tri-layer to Monolayer H ₂ -Aided CVD-Grown Large-Area MoS ₂ Film with Excellent UV to Visible Broad Band Photodetection Applications
SESSION 9: CHAIR: PROF. DEVAJYOTI MUKHERJEE		
16:45 – 17:00	TANIMA KUNDU (IACS KOLKATA)	Modulation of Structural and Electronic Phases in Two-dimensional PdSe ₂
17:00 – 17:15	ANIRBAN DAS (IACS KOLKATA)	Stability of Discrete Time Crystal without disorder in the thermodynamic limit
17:15 – 17:30	SUBHAM PARAMANIK (IACS KOLKATA)	Formation of Dual Bands in Mixed-Halide Perovskites during Photoinduced Halide Segregation
17:30– 17:45	SUDIPTA CHATTERJEE (SNBNCBS KOLKATA)	Destabilization of a correlated insulator
17:45 – 18:00	PRIZE DISTRIBUTION FOLLOWED BY CONCLUDING REMARKS	
18.00 – 18.30	HIGH TEA	