

National Conference on Quantum Matter 2022

QMAT 2022

18th September, 2022 to 22nd September, 2022

IIT Kanpur



Schedule

Day 1: 18th September, 2022

Venue: Outreach Auditorium

11:00AM-6.00 PM

Registration

12.30-2.00 PM

Lunch

6.00-6.30 PM

Inaugural Tea

6.30-7.30 PM

Inaugural Session

7.30 PM

Dinner

Day 2: 19th September, 2022

PARALLEL SESSION I

Venue: Outreach Auditorium

Chair: Krishnendu Sengupta

9:30-10:00	Subroto Mukerjee Multifractality across the many-body localization transition and the Fock space propagator
10:00-10:30	Arko Roy Fluctuations in quantum gases
10:30-10:45	Aayushi Agrawal Floquet topological phases with high Chern numbers in a periodically driven extended Su–Schrieffer–Heeger model
10:45-11:00	Nikhil Danny Babu <u>Non-equilibrium transport in chiral quantum wires coupled through a point-contact.</u>
11:00-11:30	Tea Break

Chair: Zakir Hossain

11:30 -12:00

Kausik Majumdar

[Ultra-narrow linewidth, highly polarized excitonic emission from monolayer](#)

12:00 - 12:30

Rohit Medwal

Anisotropic Spin Pumping

12:30 -12:45

Avijit Dhara

[Stacking order induced anisotropic excitonic properties in group VII TMDs](#)

12:45 -13:00

Shubhadip Moulick

Sensing remote bulk substrate defects via low frequency resistance noise in large area graphene field effect transistor

13:00 -14:30

Lunch

Chair: Amit Ghoshal

14:30 -15:00

Ajit Balram

[High-energy collective modes in fractional quantum Hall liquids: Rise of the parton](#)

15:00 - 15:30

Bhaskaran Muralidharan

[Rashba interactions in “flatland”– from topological quantum matter to emerging devices](#)

15:30 - 15:45 Junaid Majeed Bhat
Transport in spinless superconducting wires

15:45 - 16:00 Mrityunjay Pandey
Non-equilibrium magnetotransport in graphene

16:00 - 16:30 Tea Break

Chair: Krishnendu Sengupta

16:30 - 16:45 Moumita Indra
[Study of polarization for even-denominator fractional quantum Hall states in SU\(4\) Graphene](#)

16:45 - 17:00 Pushpendra Yadav
[Fluence dependent dynamics of excitons in monolayer MoSi₂Z₄ \(Z = pnictogen\)](#)

17:00 - 17:30 Anindya Das
Detection of charge neutral modes to spin-wave excitations in graphene quantum Hall.

17:30 - 18:30 Poster 1 - 48

Day 2: 19th September, 2022

PARALLEL SESSION II

Venue: PBCEC Big Classroom

Chair: Anjan Gupta

9:30-10:00	Avinash V. Mahajan Magnetism in 3d, 4d, 5d transition metal based honeycomb magnets
10:00-10:30	Sudeep Ghosh <u>Spin-triplet superconductivity in topological semimetals</u>
10:30-10:45	Rishabh Duhan <u>Vortex Dynamics in Superconducting Thin films of Re6Zr</u>
10:45-11:00	Antarjami Sahoo The Molecular Hybridization Induced Anti-damping and Enhanced Spin Pumping in Ferromagnet
11:00-11:30	Tea Break

Chair: C.S. Yadav

11:30 -12:00

Amartya Bose
Non-Equilibrium Quantum Dynamics of
Extended Systems

12:00 -12:30

Abhiram Soori
[Floquet dynamics in Josephson junctions - diode
effect and anomalous Josephson effect](#)

12:30 -12:45

Free Slot

12:45 -13:00

Sumanti Patra
Evolution of the electronic structure in twisted
bilayer transition metal dichalcogenides.

13:00 -14:30

Lunch

Chair: Arijit Kundu

14:30 -15:00

Soumya Bera
Dephasing dynamics in many-body localization
phase

15:00 - 15:30

Ashis Kumar Nandy
Vector Chirality in Antiferromagnet: An
Unconventional Way to Switch Intrinsic
Anomalous Hall Conductivity

15:30 - 15:45

Navdeep Rana
High-Harmonic Spectroscopy of Dynamical
Symmetries in Graphene

15:45 - 16:00

Free Slot

16:00 - 16:30

Tea Break

Chair: Harshawardhan Wanare

16:30 - 16:45

Shubhajyoti Mohapatra

[Spin-orbit coupling, orbitally entangled magnetic order, and collective spin-orbital excitations in Layered perovskites Sr₂MO₄ \(M=Cr, V\)](#)

16:45 - 17:00

Vasumathy Ravishankar

Phonon transport in nanostructures studied using a Monte Carlo solution of frequency-dependent Boltzmann equation

17:00 - 17:30

Seabrata Mukherjee

[Nonlinear Photonic Floquet Topological Materials](#)

17:30 - 18:30

Poster Session (1-48)

Day 2: 19th September, 2022

PARALLEL SESSION III (*Online*)

Venue: PBCEC Small Classroom

Chair: K. P. Rajeev

9:30-10:00

Yogesh Singh
Flat Bands and Dirac cones in the Kagome
Superconductor LaRh₃B₂

10:00-10:30

Vidya Kochat
Localization and Emergent Magnetic Order at
Graphene Grain Boundaries

10:30-10:45

Faruk Abdulla
[Time-reversal-broken Weyl semimetal in the
Hofstadter regime](#)

10:45-11:00

Ravi Kumar
Observation of ballistic upstream modes at
fractional quantum Hall edges of graphene

11:00-11:30

Tea break

Chair: Chanchal Sow

11:30 -12:00

Satyabrata Patnaik
Magnetoresistance and Superconductivity in the
shadow of topological systems

12:00 -12:30

Deepshikha Jaiswal Nagar

Experimental realization of multipartite entanglement in a uniform antiferromagnetic quantum spin chain

12:30 -12:45

Ravindra Pankaj

[Charge and orbital order due to cooperative Jahn-Teller effect in manganite chains](#)

12:45 -13:00

Tamal Kumar Dalui

Magnetic order and surface state gap in (Sb_{0.95}Cr_{0.05})₂Te₃

13:00 -14:30

Lunch

Chair: Amit Agarwal

14:30 -15:00

Mukul Laad

Anomalous Quantum Criticality, Subdiffusion and Ergodicity-Breaking in an Annealed-Disorder Model

15:00 - 15:30

Ranjan Modak

Entanglement revivals as a probe of scrambling in finite quantum systems

15:30 - 15:45

Anant Vijay Varma

Simulating non-Hermitian dynamics of many-body quantum systems

15:45 - 16:00

Ritu

[Topological aspects of a multi-partite non-Hermitian Su-Schrieffer-Heeger model](#)

16:00 - 16:30

Tea break

Chair: Sudipta Dubey

- 16:30 - 16:45** Surajit Bera
Renyi-entanglement entropy in Hubbard model within dynamical mean field theory
- 16:45 - 17:00** Yogeshwar Prasad
Enhanced nonergodic subdiffusive regime and many-body localization in presence of random long-range interactions
- 17:00 - 17:15** Mithun Ghosh
Momentum Space and Real Space Berry curvature Induced Hall Effect in Magnetic Weyl Semimetallic Eu₂Ir₂O₇ (111) Epitaxial Thin Film
- 17:15 - 17:30** Suryakanta Mishra
Observation of room-temperature ferroelectricity in spark-plasma sintered GdCrO₃
- 17:30 - 18:00** Thirupathaiiah Setti
Topological Properties Tuning with Fe Doping in Kagome Antiferromagnets
- 18:00 - 18:30** Eli Zeldov
Imaging the local band topology and Chern mosaic in magic-angle graphene

Day 3: 20th September, 2022

PARALLEL SESSION I

Venue: Outreach Auditorium

Chair: Saikat Ghosh

9:30 - 10:00

Urbasi Sinha

How quantum is a quantum computer?

10:00 - 10:30

Atindra Nath Pal

Transport through a single molecular junction via tuning metal/molecular interface

10:30 - 10:45

Sourav Majumder

Prospects of cooling a mechanical resonator with a transmon qubit in c-QED setup.

10:45 - 11:00

Kuljeet Kaur

[Quantum phase transition in a multilevel qubit, coupled to a transmission line.](#)

11:00 - 11:30

Tea and Coffee

Chair: Soumik Mukhopadhyay

11:30 - 12:00

Awadhesh Narayan

[Berry curvature dipole in two-dimensional materials](#)

12:00 - 12:30

Ashish Arora
Giant Faraday rotation of excitons in 2D
semiconductor monolayers.

12:30 - 12:45

Saurabh Kumar Srivastav
[Detection of edge transport in Bernal stacked
trilayer graphene](#)

12:45 - 13:00

Arka Bandyopadhyay
Electrically switchable giant Berry curvature dipole
in silicene, germanene and stanene

13:00 - 14:30

Lunch

Chair: Amit Ghoshal

14:30 - 15:00

Navaneetha Krishnan Ravichandran
Controlling heat flow by manipulating phonons
and their interactions: a bottom-up approach.

15:00 - 15:30

Tapan Mishra
Re-entrant localization transitions in quasiperiodic
lattices.

15:30 - 15:45

Suman Jyoti De
Low energy excitation between two Graphene
Quantum Hall Ferromagnet.

15:45 - 16:00

Kamal Das

[Nonlinear magnetoresistivity in two-dimensional systems induced by Berry curvature](#)

16:00 - 16:30

Tea and Coffee

Chair: Manoj Harbola

16:30 - 16:45

Rekha Kumari

Transport signatures of Floquet Majorana modes in Josephson Junctions

16:45 - 17:00

Nirnoy Basak

Charge Transport in Thin Film Weyl-Semimetal.

17:00 - 17:30

Swapan Pati

Computational Modelling of Materials for Energy Application: A Few Examples

17:30 - 18:30

Poster 1 - 48

Day 3: 20th September, 2022

PARALLEL SESSION II

Venue: PBCEC Big Classroom

Chair: Diptarka Das

9:30 - 10:00

Pinaki Majumdar (*Online*)

Correlated insulators out of equilibrium

10:00 - 10:30

Arijit Saha

[Floquet generation of Higher-Order Topological Superconductor](#)

10:30 - 10:45

Sibaram Ruidas

Noise-induced transition in many-body chaos in classical dissipative integrable and non-integrable chains

10:45 - 11:00

Md Mursalin Islam

Non-equilibrium scalar field dynamics starting from Fock states: Absence of thermalization in one-dimensional phonons coupled to fermions

11:00 - 11:30

Coffee and Tea

Chair: Rohit Medwal

11:30 - 12:00

Subhankar Bedanta

[Spin-to-charge conversion with heavy metals, topological insulators and antiferromagnets](#)

12:00 - 12:30

Ravi Prakash Singh
Unconventional Superconductivity in transition-metal monochalcogenide

12:30 - 12:45

Anurag Banerjee
Charge, bond, and pair density wave orders in a strongly correlated system

12:45 - 13:00

Tisita Das
[Complementary Effects of External Strain and Functionalization Towards Enhanced HER Activity on FePS3 Basal Plane](#)

13:00 - 14:30

Lunch

[Chair: Y N Mohapatra](#)

14:30 - 15:00

Srimanta Middey
[When two insulators meet.](#)

15:00 - 15:30

Sudip Chakraborty
[Computational Roadmap of Hybrid Perovskite Materials: Insight from Piezochromism and Rashba Effect.](#)

15:30 - 15:45

Esita Pandey

Emergence of sizeable interfacial
Dzyaloshinskii-Moriya interaction at
Cobalt/Fullerene spinterface.

15:45 - 16:00

Mandeep Kumar Hooda
Magnetotransport properties of topological
semimetal SrAgBi

16:00 - 16:30

Tea and Coffee

Chair: Sudeep Ghosh

16:30 - 16:45

Suman Rooj
[Rashba-like spin-orbit interaction in bulk MnTe
antiferromagnet.](#)

16:45 - 17:00

Pushendra Gupta
[Frequency dependent inverse spin Hall effect in
La_{0.67}Sr_{0.33}MnO₃/Pt bilayer system](#)

17:00 - 17:30

Indra Dasgupta
Electronic structure, magnetism and spin dynamics
in the layered honeycomb ferromagnet CrI₃.

17:30 - 18:30

Poster 1 - 48

Day 3: 20th September, 2022

PARALLEL SESSION III (*Online*)

Venue: PBCEC Small Classroom

Chair: Swapan K. Pati

9:30-10:00

Diptiman Sen

[Quantum criticality in a one-dimensional self-dual model with three-spin Ising interaction and a transverse magnetic field](#)

10:00-10:30

Kalpataru Pradhan

Induced Magnetism in Hubbard Superlattices

10:30-10:45

Shiladitya Karmakar

[Giant Rashba effect and Non-linear Anomalous Hall Conductivity in Janus MXene](#)

10:45-11:00

Sk Noor Nabi

[Interplay of staggered and three-body interaction potentials on the quantum phases of spin-1 ultracold atoms in optical lattices](#)

11:00-11:30

Tea break

Chair: Avinash Mahajan

11:30 -12:00

Sanjay Singh

[Atomic disorder and Berry phase driven anomalous Hall effect in a Co-based Heusler compounds](#)

12:00 -12:30

Ramesh C. Nath

Field induced quantum phase transitions in one-dimensional alternate spin-1/2 Heisenberg antiferromagnet

12:30 -13:00

Subhasis Sinha

Non-ergodic behaviour and scarring phenomena in two component Bose-Josephson junction

13:00 -14:30

Lunch

Chair: Subroto Mukerjee

14:45 -15:00

Ankur Das

A $Z \times Z$ punctured-Chern topological invariant for triple-point Nexus fermions

15:00 - 15:30

Arti Garg

[Quench Dynamics and Single Particle Excitations Across the MBL transition](#)

15:30 - 15:45

Nilanjan Roy

[Diagnostics of nonergodic extended states and many body localization proximity effect through real-space and Fock-space excitations](#)

15:45 - 16:00

Subhajit Sarkar

[Signature of discrete time crystallinity in transport through open quantum systems](#)

16:00 - 16:30

Tea break

Chair: Adhip Agarwala

16:30 - 16:45

Dasika Shishir
Widefield Microscopic AC Susceptibility
Measurements with Quantum Diamond
Magnetometer

16:45 - 17:00

Sudipta Chatterjee
Berry phase driven Anomalous Hall effect in
topological Weyl and nodal-line semimetallic
compound Co_2VAl

17:00 - 17:15

Rafiqul Alam
Investigation of non-trivial electronic band in
layered Lanthanum based Silver Antimonide
(LaAgSb_2)

17:15 - 17:30

Abhishodh Prakash
Multiversality and unnecessary criticality in one
dimension

17:30 - 18:00

Shobhana Narasimha
Identifying and manipulating defects on black
phosphorus

18:00 - 18:30

Rosario Fazio
Symmetry breaking and entanglement transitions
in driven-dissipative systems

Day 4: 21st September, 2022

PARALLEL SESSION I

Venue: Outreach Auditorium

Chair: Sudipta Dubey

9:30 - 10:00

G. J. Sreejith

[Real space entanglement spectra of parton states in fractional quantum Hall systems](#)

10:00 - 10:30

Auditya Sharma

[Novel physics in the all-band flat diamond chain](#)

10:30 - 10:45

Atasi Chakraborty

[Nonlinear anomalous Hall effects detect topological phase-transitions in moiré superlattices](#)

10:45 - 11:00

Free Slot

11:00 - 11:30

Coffee and Tea

Chair: Amit Dutta

11:30 - 12:00

Kush Saha

Nonlinear response of interaction bosons in a quasiperiodic potential.

12:00 - 12:30

Arnab Das

Dynamics and correlations at a quantum phase transition beyond Kibble-Zurek.

12:30 - 12:45

Parvinder

Seeding crystallization in time

12:45 - 13:00

Shilpi Roy

Critical analysis of the reentrant localization transition in a one-dimensional dimerized quasiperiodic lattice.

13:00 - 14:30

Lunch

Chair: Prasenjit Sen

14:30 - 15:00

Anamitra Mukherjee

Creating tunable finite temperature half-metal out of an antiferromagnetic Mott insulator.

15:00 - 15:30

Tanmoy Das

[Topological and entangled states in layered and twisted spin systems](#)

15:30 - 15:45 Souren Adhikary
[Valley polarization in two-dimensional graphene and h-BN lateral heterostructure](#)

15:45 - 16:00 Tanmoy Bera
Flux-mediated coupling in an electromechanical device.

16:00 - 16:30 Tea and Coffee

Chair: Amit Agarwal

16:30 - 16:45 Kallol Mondal
A driven fractal network: Possible route to efficient thermoelectric application

16:45 - 17:00 Suvendu Ghosh
[Revisiting quantum tunnelling through a rectangular barrier in multi-Weyl semimetals](#)

17:00 - 17:30 Free Slot

17:30 - 18:30 Poster 49 -96

18:30 - 19:00 SPONSOR-ATOS

19:30 Conference Dinner

Day 4: 21st September, 2022

PARALLEL SESSION II

Venue: PBCEC Big Classroom

Chair: Diptarka Das

9:30 - 10:00

Satyajit Banerjee

[Studying the peculiar features of the Metal
Insulation transition in NdNiO₃ thin films via
self field imaging technique.](#)

10:00 - 10:30

Sudipta Dutta

[Valley polarization in two-dimensional
borocarbonitride systems with broken inversion
symmetry](#)

10:30 - 10:45

Basudeb Mondal

Spin-Orbit coupled SU(8) Dirac Fermions on
Honeycomb lattice

10:45 - 11:00

Animesh Panda

[Quantum Oscillations in the Magnetization and
Density of states of Insulators](#)

11:00 - 11:30

Coffee and Tea

Chair: Soumik Mukhopadhyay

11:30 - 12:00	V Ravi Chandra (<i>Online</i>) Edge states in magnon dispersions of the pyrochlore Heisenberg magnets with anisotropies.
12:00 - 12:30	Kasturi Saha Development of Quantum Diamond Microscope for Magnetic Field Imaging
12:30 - 12:45	Bibhuti Bhusan Jena Engineering Spin pumping Efficiency in Bimetallic Antiferromagnet Mn₂Au Thin Films
12:45 - 13:00	Brindaban Ojha Driving skyrmions with low threshold current density in Pt/CoFeB thin film
13:00 - 14:30	Lunch
<u>Chair: Manoj Harbola</u>	
14:30 - 15:00	Free Slot
15:00 - 15:30	Rajdeep Sensarma Entanglement Entropy of an Interacting Fermi Gas
15:30 - 15:45	Sankha Subhra Bakshi Pump-probe phenomena in correlated systems
15:45 - 16:00	Devarshi Chakrabarty Realizing polarization-tunable anisotropic exciton-polaritons in a dielectric mirror platform

16:00 - 16:30

Coffee and Tea

Chair: Y. N. Mohapatra

16:30 - 16:45

Free Slot

16:45 - 17:00

Santu Prasad Jana

[Role of interface traps on Transport properties and local tunnel spectra in single and few layer MoS₂](#)

17:00 - 17:30

T.V. Ramakrishnan (*Online*)

The Mystery of Linear Resistivity in Metals

17:30 - 18:30

Posters 49-96

19:30

Conference Dinner

Day 4: 21st September, 2022

PARALLEL SESSION III (*Online*)

Venue: PBCEC Small Classroom

Chair: Arnab Ghosh

9:30-10:00	Mandar Deshmukh Berry curvature dipole senses topological transition in a moiré superlattice
10:00-10:30	Free Slot
10:30-10:45	Krishanu Roychowdhury Supersymmetry on the lattice: Geometry, Topology
10:45-11:00	Priya Tiwari Experimental observation of spin-split energy dispersion in high-mobility single-layer graphene/WSe ₂ heterostructures
11:00-11:30	Tea break

Chair: C. S. Yadav

11:30 -12:00	Sourin Das Volkov-Pankratov states in Spin Hall insulators
12:00 -12:30	Sudhansu Sekhar Mandal

[Anomalous Re-entrant Quantized 5/2 Fractional Quantum Hall State](#)

12:30 -12:45

Ranit Dutta

Electric field-tunable superconductivity in twisted bilayer graphene below magic angle

12:45 -13:00

Abhisek Samanta

Hall coefficients of multi-band and interacting systems

13:00 -14:30

Lunch

Chair: Rohit Medwal

14:30 -15:00

Ajaya Kumar Nayak

Room temperature magnetic skyrmion bubbles in centrosymmetric magnet

15:00 - 15:30

Free Slot

15:30 - 15:45

Atanu Roychowdhury

Coexisting ferromagnetic component and negative magnetoresistance at low temperature in single crystals of the VdW material GaGeTe

15:45 - 16:00

Abhirup Roy Karmakar

[Giant anomalous thermal Hall effect in tilted type-I magnetic Weyl semimetal \$\text{Co}_3\text{Sn}_2\text{S}_2\text{I}\$](#)

16:00 - 16:30

Tea break

Chair: Adhip Agarwala

16:30 - 16:45	Hemanta Kumar Kundu Fractional Interference in a Mach-Zehnder Interferometer
16:45 - 17:00	Vivekananda Adak Chiral detection of Majorana bound states: A story of clear advantage over conventional detection scheme
17:00 - 17:15	Saheli Sarkar Quantum criticality on a compressible lattice
17:15 - 17:30	Free Slot
17:30 - 18:00	Debraj Choudhury Recent results on titanate spinels
18:00 - 18:30	Netanel Lindner Against all odds: Fractional Superconductivity on quantum Hall states

Day 5: 22nd September, 2022

PARALLEL SESSION I

Venue: Outreach Auditorium

Chair: Arijit Kundu

9:30 - 10:00

Vijay B. Shenoy (*Online*)
Arboreal Topological and Fracton Phases

10:00 - 10:30

Akshay Singh
Measuring and modifying two-dimensional materials

10:30 - 10:45

Aabir Mukhopadhyay
Thermal Signature of Majorana Fermions in Josephson Junctions

10:45 - 11:00

Amulya Ratnakar
Tunneling density of states in a Luttinger liquid :
Role of non-local inter-electron interaction

11:00 - 11:30

Tea and Coffee

Chair: Somnath Bhowmick

11:30 - 12:00

Mintu Mondal
Collective excitations in quasi 1D systems,
(TaSe₄)_nI with $n = 2, 3 \& 10/3$

12:00 - 12:30

Sudipta Dubey
Localized excitons in van der Waals heterostructures

12:30 - 12:45

Free Slot

12:45 - 13:00

Soumya Ranjan Das
Reaching ultra-strong parametric coupling in a
cavity-optomechanical device

13:00 - 14:30

Lunch

Chair: Sudeep Ghosh

14:30 - 15:00

Tulika Maitra
Interplay of magnetism and band topology in
certain EuX_2Y_2 compounds

15:00 - 15:30

Prasana Kumar Sahoo
Emerging 2D Lateral Heterostructures for
Optoelectronic Applications.

15:30 - 15:45

Devendra Singh Bhakuni
[Universality, dynamical scaling and surface growth
in quantum critical systems](#)

15:45 - 16:00

Minna Theres James
Signature of Dirac fermions in type-II Dirac
semimetal NiTe_2

16:00 - 16:30

Tea and Coffee

Chair: Sudeep Bhattacharjee

16:30 - 16:45

Sayan Mondal
[Topological properties of band deformed Kane
Mele model](#)

16:45 - 17:00

Mrinal Kanti Giri

Signatures of non-trivial pairing in the quantum walk of two-component bosons.

17:00 - 17:30

Pankaj Mishra

[Anderson localization in collisionally inhomogeneous spin-orbit coupled Bose-Einstein condensates](#)

17:30 - 18:30

Poster 49 - 96

18:30 - 19:00

Conference Closing Remarks

Day 5: 22nd September, 2022

PARALLEL SESSION II

Venue: PBCEC Big Classroom

Chair: Anjan Gupta

9:30 - 10:00

Pratap Raychowdhury
Zero-point fluctuation of vortices in a
weakly pinned superconducting thin film

10:00 - 10:30

Vivek K Malik (*Online*)
Spin Reorientation and Rare-earth
ordering in Rare-earth Orthoferrites and
Orthochromites

10:30 - 10:45

Suraina Gupta
[Tuning Superconductor - Insulator
transition in Lead - Graphene hybrid
system through back - gate voltage](#)

10:45 - 11:00

Kartik Panda
[Investigation of superconducting ground
state of noncentrosymmetric
superconductor ThCoC₂ and
centrosymmetric superconductor
Sc₅Co₄Si₁₀](#)

11:00 - 11:30

Tea Break

Chair: Tulika Maitra

11:30 - 12:00

Mukul Kabir (*Online*)

Magnetism in ultrathin proximate
quantum spin liquid Na₂IrO₃

12:00 - 12:30

Prasenjit Sen

[Hierarchical Filtering by Machine](#)

[Learning: A route to identify new strong
and hard magnets](#)

12:30 - 12:45

Shoubhik Mandal

Photoluminescence study of Proximate
Quantum Spin liquid candidate α -RuCl₃

12:45 - 13:00

Rohit Mukherjee

Schwinger-Boson mean-field study of
spin-1/2 J_1 - J_2 - J_{χ}
model in honeycomb lattice: thermal Hall
signature

13:00 - 14:30

Lunch

Chair: Chanchal Sow

14:30 - 15:00

C.S. Yadav

Spin ice and spin freezing in disordered
pyrochlore zirconate: Dy₂Zr₂O₇

15:00 - 15:30

Jhuma Sannigrahi

[Unconventional magnetism as a
consequence of the orbital effect in
Ba₄Ru₃O₁₀](#)

15:30 - 15:45

Free Slot

15:45 - 16:00

Free Slot

16:00 - 16:30

Coffee and Tea

Chair: Arnab Das

16:30 - 16:45

Shubhrasish Mukherjee
Ultra-Sensitive Broadband Photodetection
Based on Graphene – TMDC Hybrid
Phototransistors

16:45 - 17:00

Subhamita Sengupta
[Aspects of tunnelling through a
ferroelectric barrier with a negative spin
polarized ferromagnetic electrode](#)

17:00 - 17:30

Free Slot

17:30 - 18:30

Posters (49-96)

18:30 - 19:00

Closing remarks

Day 5: 22nd September, 2022

PARALLEL SESSION III (*Online*)

Venue: PBCEC Small Classroom

Chair: Y N Mohapatra

9:30 - 10:00

Arup Kumar Raychaudhuri
Disordering a correlated Insulator

10:00 - 10:30

Atikur Rahman
Effect of Dielectric Environment on
Mixed-dimensional van der Waals
Heterostructure

10:30 - 10:45

Anushree Datta
[Nature of electronic correlations in twisted
bilayer graphene](#)

10:45 - 11:00

Bikash Patra
[Hybrid nodal line semimetal in transition
metal intercalated phosphorene layers](#)

11:00 - 11:30

Tea and Coffee

Chair: Sapam Ranjita

11:30 - 12:00

Biswajit Karmakar
[Temperature-dependent equilibration of
spin orthogonal quantum Hall edge modes](#)

12:00 - 12:30

Anjan Barman

Ultrafast Magnetism at the 2D
Material/Ferromagnet Interface

12:30 - 12:45

Ranjani Seshadri
Josephson Junction of Nodal
Superconductors: Role of spin-orbit
coupling

12:45 - 13:15

Vedika Khemani
Avalanches and Resonances in Many-Body
Localized Systems

13:00 - 14:30

Lunch

Chair: Adhip Agarwala

14:30 - 15:00

Sumathi Rao
Parafermions and the fractional Josephson
effect

15:00 - 15:30

Surajit Saha
Tailoring the quantum interactions in 2D
materials through interface effects: A
Raman study

15:30 - 15:45

Sudipto Das
[Emergence of novel quantized phase of 5/2
quantum Hall state in the higher
Landau-level mixing regime](#)

15:45 - 16:00

Soumya Datta

[Intertype superconductivity in anisotropic ZrB12 revealed by directional magnetic field](#)

16:00 - 16:30

Coffee and Tea

Chair: Sapam Ranjita

16:30 - 16:45

Debmalya Chakraborty
[Disorder-robust phase crystal in high-temperature superconductors from topology and strong correlations](#)

16:45 - 17:00

Indranil Roy
Direct observation of vortices in an electron fluid

17:00 - 17:15

Manjari Gupta
Mean-field analysis of disordered Bose-Hubbard model in two dimensions at fixed $n = 1$ filling

17:15 - 17:30

Pradepta Kumar Ghose
Bulk Rashba Spin Splitting and Dirac Surface State in p-Type $(\text{Bi}_{0.9}\text{Sb}_{0.1})_2\text{Se}_3$ Single Crystal

17:30 - 18:00

Subhro Bhattacharjee
Spin 3/2 Ice

18:00 - 18:30

Oindrila Deb

Hunting Majorana Bound States

18:30 - 19:00

Vote of Thanks

POSTER SESSION I
[19th and 20th September]

SL No.	Name	Institute Name	Title
1	Aamna Ahmed	IISER Bhopal	Flat-band-based multifractality in the all-band-flat diamond chain
2	Aastha Vasdev	IISER Mohali	Multi-functional properties of strained $\text{Re}_{0.2}\text{Mo}_{0.8}\text{Te}_2$
3	Ajit Kumar Dash	Indian Institute of Science (IISc), Bangalore	Controlled defect creation in monolayer MoS_2 by electron irradiation in SEM at low electron accelerating voltages
4	Amarjyoti Choudhury	IIT Roorkee	Magnetic order, electronic structure and topological properties of EuMg_2Bi_2 from first principles study
5	Shyam Sundar Yadav	Indian Institute of Science Education and Research, Mohali, Punjab	Quasi- 2D electron gas on surface of SrTiO_3 demonstrating quantum oscillations and optically transparent functionality
6	Anamika Kumari	Institute of Nano Science and Technology, Mohali	A scheme to determine the carrier density distribution, potential profile, and subband quantization of a conducting interface $\text{LaVO}_3/\text{SrTiO}_3$
7	Anshu Gupta	Quantum Materials and Devices Unit, Institute of Nano Science and Technology, Sector-81, Punjab, 140306, India.	Unusual angular dependence of the magnetoresistance in the $\text{LaVO}_3\text{-KTaO}_3$ Rashba system
8	Anumita Bose	Indian Institute of Science	Pressure-induced magnetic and topological transitions in non-centrosymmetric MnIn_2Te_4
9	Arun Kumar Maurya	INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH THIRUVANANTHAPURAM	Magnetic Order and Janus-faced Effect in Three-band Hubbard Model
10	Subhadip Pradhan	National Institute of Science Education and Research, Bhubaneswar	Tunable topology and associated anomalous Hall conductivity via controlled manipulation of vector chirality in a noncollinear antiferromagnet: MnSn
11	Ayan Banerjee	Indian Institute of Science	Non-equilibrium many body phases in a one-dimensional topological non-Hermitian system
12	Ayan Ghosh	Indian Institute of Science	Evidence of a compensated semimetal with strong correlations at the CNP of twisted double bilayer graphene
13	Biswajit Pabi	S. N. Bose National Centre for Basic Sciences	Conductance behavior of gold-ferrocene single molecular junction at room temperature
14	Chiranjit Mahato	IISER KOLKATA	Vortices in unconventional superconductors defy conventional wisdom
15	Sanjeev Kumar	Tata Institute of Fundamental Research	Counterdiabatic route for preparation of state with long-range topological order
16	Debashish Mondal	Institute of Physics, Bhubaneswar	Anomaly in dynamical quantum phase transition in non-Hermitian system with extended gapless phases
17	DEBASIS DUTTA	Indian Institute of Technology Kanpur	Tunable interband and intraband plasmons in twisted double bilayer graphene

18	DEBASMITA GIRI	Indian Institute of Technology Kanpur	Skyrme lattice in twisted double bilayer graphene
19	Debika Debnath	University of Hyderabad	Non-equilibrium Transport In a Bi-molecular Transistor: Effect of External Magnetic Field And Temperature
20	Debottam Mandal	Indian Institute of Technology Kanpur	Chiral anomaly and nonlinear magnetotransport in time reversal symmetric Weyl semimetals
21	Deepti Rana	Indian Institute of Science Education and Research, Mohali	Andreev reflection at superconducting junctions on the van der Waals Kondo lattice ferromagnet Fe₃GeTe₂
22	Dipak Mazumdar	Indian Institute of Technology Kanpur	Structural and magnetic properties of new double perovskite La ₂ MnRuO ₆ compound
23	Harsimran Kaur Mann	Indian Institute of Science Bangalore, India	Tuning of Dirac Point in h-BN/Graphene
24	Jagannath Das	Tata Institute of Fundamental Research	Mutual Chern-Simons theory for anyons on arbitrary 2D lattices: case of honeycomb Kitaev model in magnetic field
25	John Jesudasan	Tata Institute of Fundamental Research	Simple method for Fabrication of Superconductor – insulator – Ferro-magnet Tunnel junctions for Spin polarization measurements above 1.5K
26	Shubhankar Paul	Indian Institute of Technology Kanpur	Comparative study of FORC and IR imaging across the metal-insulator transition in PLD and sputtered grown VO₂ thin films
27	kanchan Meena	Sn Bose National Centre For Basic Sciences Salt Lake Sec 3 , 700106, Kolkata, India.	A Mechanism To Attract Electrons
28	KRISHNENDU PATRA	Sn Bose National Centre for Basic Sciences	Perturbing the bond disproportionated state in NdNiO ₃
29	Kuntal Bhattacharyya	University of Hyderabad	Spin-filtering effect in a correlated single-molecular spintronics-transistor: Anderson-Holstein-Caldeira-Leggett-Rashba model
30	Leela Ganesh Chandra Lakkaraju	Harish-Chandra Research Institute	Detection of an unbroken phase of a non-Hermitian system via a Hermitian factorization surface
31	Md Zahid Ansari	Tata Institute of Fundamental Research	Effects of non-magnetic impurities in a spin liquid phase of an SO(N)-symmetric model Hamiltonian
32	Md. Tahir Hossain Sarder	Indian Institute of Science Education and Research Thiruvananthapuram	NEURAL-NETWORK WAVE FUNCTION FOR 1D HUBBARD MODEL

33	MOHIT KUMAR JAT	Indian Institute of Science Bangalore	Experimental observation of spin-split energy dispersion in high-mobility single-layer graphene/WSe ₂ heterostructures.
34	Naba Prakash Nayak	IIT Bombay	Frozen conductance fluctuation in anisotropic bond disordered graphene.
35	Neeraj Kumar Rajak	IISER Thiruvananthapuram	Sub angstrom resolution thermal expansion measurements in closed cycle cryostats and Growth techniques for obtaining high quality single crystals of Bi ₂ Sr ₂ CaCu ₂ O _{8+x}
36	Nesta Benno Joseph	Indian Institute of Science Bangalore	Tunable topology and Berry curvature dipole in Janus monolayer derivatives of 1T' WTe₂
37	Nikhlesh Singh Mehta	Indian Institute of Science Education and Research Mohali	Electric field control of superconductivity at LaVO₃/SrTiO₃ interfaces
38	Ojasvi Pal	Indian Institute of Technology Kanpur	Berry curvature induced low-field magnetotransport phenomena in 3D systems.
39	Pallavi Saha	School of Physical Sciences, Jawaharlal Nehru University	Study of electric and magnetic properties of Co ₇ Zn ₈ Mn ₅
40	Pooja	Indian Institute of Technology Kanpur	Signature of topological hall effect in Cr-substituted SrRuO ₃ thin film
41	Pooja Agarwal	Saha Institute of Nuclear Physics	Measurement of Chemically Induced Surface Potential Modulation at Pd Al₂O₃ Graphene Field Effect Transistor: A Way of Enhancing H₂ Gas Sensing Response Electrostatically
42	Pragna Das	IISER BHOPAL	Phase transitions of the anisotropic Dicke model
43	Pranesh Chandra Mahato	Indian Institute of Technology Kanpur	Analysis of the critical exponents for the layered magnetic system Cr ₂ Ge ₂ Te ₆ through critical scaling analysis
44	Pritam chatterje	Institute of physics, Bhubaneswar	Tailoring phase transition from topological superconductor to trivial superconductor induced by magnetic textures of a spin-chain on a p-wave superconductor.
45	PRITAM DAS	IIT Kharagpur	Vortex beam interaction with excitons in monolayer TMDs
46	RIJU PAL	SNBNCBS, KOLKATA	Anomalous Hall Effect in a Two-dimensional van der Waals Ferromagnet Fe ₄ GeTe ₂
47	Shaktiranjan Mohanty	National Institute of Science Education and Research, Bhubaneswar	Magnetization Reversal and Domain Structures in Perpendicular Synthetic Antiferromagnets Prepared on Rigid and Flexible Substrates
48	Rajan Singh	Weizmann Institute of Science	Development of a milli-kelvin Quantum Scanning Electron Transistor (Q-SET) Microscope

POSTER SESSION II
[21st and 22nd September]

SLNo.	Name	Institute Name	Title
--------------	-------------	-----------------------	--------------

49	Sourav Biswas	Indian Institute of Technology Kanpur	Two channel Kondo effect in coupled helical liquids
50	Ritajit Kundu	Indian Institute of Technology Kanpur	Broken symmetry and competing orders in Weyl semimetal interfaces
51	Ritesh Kumar Bhola	Tata Institute of Fundamental Research	Atypical Percolation Phenomenon in site-diluted Non Bipartite lattices
52	Roumita Roy	Indian Institute of Technology Goa	Spin Orbit Coupling driven Novel Quantum Magnetism in Iridate Double Perovskites.
53	Ruchira V Bhat	Department of Physics, IIT Bombay	A local measure to probe dynamical quantum phase transitions.
54	Saikat Mondal	Indian Institute of Technology Kanpur	Disconnected entanglement entropy as a marker of edge modes in a periodically driven Kitaev chain
55	SANDIP HALDER	SAHA INSTITUTE OF NUCLEAR PHYSICS	Magnetotransport in Ferromagnet(FM)/Antiferromagnet(AFM)/Ferromagnet(FM) superlattices
56	Daloo Ram	Indian Institute of Technology Kanpur	Electronic structure and physical properties of GdAgGe single crystal
57	Saranyo Moitra	Tata Institute of Fundamental Research	Volume-law Entanglement in Fermi Liquids
58	SATYABRATA BERA	Indian Association for the Cultivation Of Science	Revisiting the nature of magnetic phase transition in layered two- dimensional metallic ferromagnets. Fe_nGeTe₂ (n = 3,4,5)
59	SAYANTAN GHOSH	Indian Institute of Technology Kanpur	Exploration of strongly correlated states in SmB₆ through a comparison of its two-coil pickup response to that of Bi₂Se₃ crystal
60	Pushpendra Yadav	Indian Institute of Technology Kanpur	Fluence dependent dynamics of excitons in monolayer MoSi₂Z₄ (Z = pnictogen)
61	Jyothis V V	National Institute of Science Education and Research, Bhubaneswar	Point degeneracies, nodal lines and edge states in pyrochlore Heisenberg magnets
62	Amitava Ghosh	Indian Institute of Technology Kanpur	Magnetism and Magnetocaloric effect in PLD-grown Gd ₂ NiMnO ₆ thin films
63	Siddhi	Indian Institute of Science (IISc) Bengaluru	Microwave single photon source using Landau-Zener transitions
64	Simrandeep Kaur	Indian institute of Science, Bangalore	Temperature dependent cloaking of the Quantum Griffiths Singularity in LaScO ₃ /SrTiO ₃ heterostructures
65	SK KALIMUDDIN	Indian Association for the Cultivation Of Science	Nonlinear Coherent Light–Matter Interaction in 2D MoSe₂ Nanoflakes for All-Optical Switching and Logic Applications
66	Sonam Bhakat	Quantum Materials and Devices Laboratory, IIT Bombay	Superconductor mediated exchange coupling between ferromagnets
67	Sonika	IIT Mandi	Planar Hall effect in Cu intercalated PdTe₂
68	Sonu Chhillar	IIT Mandi	Magnetodielectric coupling as a manifestation of metamagnetic transition and structural distortion in Ba ₃ RRu ₂ O ₉ (R = Gd, Dy)

69	PUSHPAK BANERJEE	IIT BOMBAY	Infinite Magnetoresistance and variation of the Enhanced TC with Nb film thickness in Nb/GdN bilayers
70	SOURAV KARAN	Indian Institute of Technology Kanpur	Negative differential resistance(NDR) state in the free-flux-flow regime of driven vortices in a single crystal of 2H-NbS ₂
71	Souvik Kundu	Tata Institute of Fundamental Research	Vacancy-induced emergent moments in SU(N) quantum antiferromagnets
72	Srishti Bhardwaj	Indian Institute of Technology, Roorkee	Rare-earth Metal Based Single Phase Triferroic
73	Ashutosh Dubey	Indian Institute of Technology Kanpur	The Dynamics of spinfull P,T symmetric non-Hermitian Luttinger liquids under quench
74	Sudip Malick	Indian Institute of Technology Kanpur	Large nonsaturating magnetoresistance, weak antilocalization in SrAl₂Si₂
75	SUGATA PAUL	Indian Institute of Technology Kanpur	Exploration of strongly correlated states in SmB₆ through a comparison of its two-coil pickup response to Bi₂Se₃ crystal
76	SUMANTA MAITY	Indian Institute of Technology Kanpur	Magnetization reversal of 40 nm single Fe₃O₄ nano particle using μ-SQUID
77	Sunit Das	Indian Institute of Technology Kanpur	Nonlinear magnetoconductivity in Weyl and multi-Weyl semimetals in quantizing magnetic field
78	Suprotim Saha	Indian Institute of Technology Kanpur	A Micromagnetic Simulation Study of Exchange Bias in a System of Cobalt Carbide (Co ₂ C) Nanoparticles
79	Tanmoy Mondal	Harish Chandra Research Institute	Dynamics of magnetic modes in Kagome lattice Hubbard model
80	Unmesh Ghorai	Tata Institute of Fundamental Research	Excitonic metal and non-Fermi liquid behaviour in twisted double bilayer graphene
81	Vatsana Tiwari	IISER Bhopal	Noise-induced Dynamic Localization and Delocalization
82	Vedula Ramana Bharadwaj	IISER Bhopal	Study of the AT line in the one-dimensional diluted power-law XY spin glass
83	VIKAS SAINI	Department of Condensed Matter Physics and Materials Science, Tata Institute of Fundamental Research, Homi Bhabha road, Colaba, Mumbai 400 005	Analysis of the unconventional chiral fermions in a non-centrosymmetric chiral crystal PtAl
84	Vivas Bagwe C.	Tata Institute of Fundamental Research	Growth and Characterization of amorphous Re₆Zr thin films by pulsed laser deposition.
85	Yogendra K B	Indian Institute of Science, Bangalore	Magnetic field induced Phase transitions of Kitaev model

