

### 3<sup>rd</sup> Annual Conference on Quantum Condensed Matter (QMAT 2020)

DAY-1 (D1) (7 September, 2020)

Time			
9.18-9.28		<i>Welcome Address</i>	
		Parallel-1 (P1)	Parallel-2 (P2)
		<i>Chairperson: Pinaki Majumdar</i>	<i>Chairperson: Krishnendu Sengupta</i>
9.30-10.00	T1	T. V. Ramakrishnan, IISC, Bangalore (Large Linear Electrical Resistivity of Metals)	Amit Dutta, IIT Kanpur (Unitary preparation of topological systems: Emergent Bulk boundary Correspondence)
10.02-10.32	T2	Anindya Das, IISC, Bangalore (Anomalous Coulomb Drag between InAs Nanowire and Graphene Heterostructures )	Arnab Sen, IACS, Kolkata (Periodically driven Rydberg chains: Floquet quantum scars, dynamic freezing and prethermal phases)
10.34-11.04	T3	Anamitra Mukherjee, NISER, Bhubaneswar (Interplay of frustration and interaction at finite temperature in the Hubbard model)	Arijit Saha, IOP, Bhubaneswar (Metal-Insulator transition in a Periodically driven Interacting Triangular lattice)
11.06-11.21	T4	Priyanka Mohan, TIFR, Mumbai (Topological Transitions in Twisted Double bilayer Graphene models)	Roopayan Ghosh, IACS, Kolkata (A Floquet Perturbation Theory on periodically driven weakly interacting fermions)
11.21-11.36	T5	Debika Debnath, University of Hyderabad (Metallicity at the Cross-over Region of The Spin Density Wave and Charge Density Wave)	Sourav Bhattacharjee, IIT Kanpur (Dynamical generation of Majorana edge correlations in a ramped Kitaev chain coupled to nonthermal dissipative channels)
BREAK			
		<i>Chairperson: Tanusri Saha Dasgupta</i>	<i>Chairperson: Priya Mahadevan</i>
11.51-12.21	T6	Mandar Deshmukh, TIFR, Mumbai (On-demand Local Modification of High-Tc Superconductivity in Few Unit-cell Thick Bi <sub>2</sub> Sr <sub>2</sub> CaCu <sub>2</sub> O <sub>8</sub> + $\delta$ )	Ajay Kumar Sood, IISC, Bangalore (Probing Exciton Condensate in Excitonic Insulator by Ultrafast Spectroscopy and Raman Scattering)
12.23-12.53	T7	Ravi Prakash Singh, IISER Bhopal (Unconventional Superconductivity in Re-based Compounds)	Sajal Dhara, IIT Kharagpur (In-plane anisotropic excitons in Rhenium-based TMDs)
12.55-13.10	T8	Surajit Dutta, TIFR, Mumbai (Extreme sensitivity of hexatic vortex fluid state in a-MoGe thin film to radiofrequency perturbation)	Tania Paul, IOP, Polish Academy of Sciences, Poland (Interplay of excitonic correlation with Quantum Spin Hall effect and Superconductivity)
13.10-13.25	T9	Madhuparna Karmakar, IIT Madras (Supersolidity and melting of ordered core vortices)	Shibshankar Singha, Brahmananda Keshab Chandra College (Study of electro-mechanical coupling in few layer MoS <sub>2</sub> using Raman spectroscopy)
BREAK			
		<i>Chairperson: Sangita Bose</i>	<i>Chairperson: Chandan Mazumdar</i>
14.30-15.00	T10	Arti Garg, SINP, Kolkata (Unconventional superconductivity in a strongly correlated band insulator without doping)	Anjan Barman, SNBNCBS, Kolkata (Interface driven ultrafast spin dynamics in Ferromagnet / nonmagnet and ferromagnet/2D)

			material heterostructures)
15.02-15.32	T11	Tanmoy Das, IISC, Bangalore (Can we now predict unconventional superconductivity?: Examples in nickelate, cuprates, heavy-fermions)	Kalpataru Pradhan, SINP, Kolkata (Carrier-mediated Long-range Magnetic Order in Diluted Spin Systems)
15.34-15.49	T12	Abhishek Kumar, CSIR- National Physical Laboratory, New Delhi (Superconducting Properties of Nb/Nb-Si/Nb junction)	Arjun Unnikrishnan, IIT Bombay (Singlet ground state in the alternating spin-1/2 chain compound NaVOAsO <sub>4</sub> )
15.49-16.04	T13	Indranil Roy, TIFR, Mumbai (Robust pseudogap across magnetic field driven Superconductor to Insulator-like transition in strongly disordered NbN films)	Debasmita Maiti, SNBNCBS, Kolkata (Quantum phase diagram of a frustrated spin-1/2 system on a trellis ladder)

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DAY-2 (D2) (8 September, 2020)

Time		Parallel-1 (P1)	Parallel-2 (P2)
		<i>Chairperson: N. S. Vidhyadhiraja</i>	<i>Chairperson: Rajdeep Sensarma</i>
9.30-10.00	T1	Ganapathy Baskaran, IMSC, Chennai (T.B.A.)	Diptiman Sen, IISC, Bangalore (Periodically driven systems: resonances, freezing and emergent conservation laws)
10.02-10.32	T2	Pratap Raychaudhuri, TIFR, Mumbai (Phase fluctuations in conventional superconductors)	Arnab Das, IACS, Kolkata (Signature of Ground State Quantum Phase transition in highly excited states in integrable and quantum chaotic 1d systems)
10.34-11.04	T3	Satyabrata Patnaik, JNU, New Delhi (Pairing Mechanism in Topological Superconductors)	Soumya Bera, IIT Bombay (Exploring charge dynamics of an interacting system within time-dependent Hartree-Fock approximation)
11.06-11.21	T4	Anwesha Chattopadhyay, SINP, Kolkata (Interplay of mass imbalance and frustration in correlated band insulators)	Madhumita Sarkar, IACS, Kolkata (Dynamical Transition for a class of integrable models coupled to a bath)
11.21-11.36	T5	Archana Mishra, IOP, Polish Academy of Sciences, Poland (Dynamical torques from Shiba states in s-wave superconductors)	Asmi Haldar, IACS, Kolkata (Dynamical Freezing, Emergent Conservation laws and Statistically Significant Floquet Scars)
BREAK			
		<i>Chairperson: Siddhartha Lal</i>	<i>Chairperson: Sugata Ray</i>
11.51-12.21	T6	Vijay B. Shenoy, IISC, Bangalore (A Plate of Fractons)	Kasturi Saha, IIT Bombay (A quantum diamond microscope for mapping magnetic fields)
12.23-12.53	T7	G. J. Sreejith, IISER, Pune (An exactly model for FQHE)	Atindra Nath Pal, SNBNCBS, Kolkata (Probing formation and evolution of single molecular junction through electronic transport)
12.55-13.10	T8	Manisha Thakurathi, University of Waterloo, Canada (Theory of the fractional quantum Hall effect in Weyl semimetals)	Subhamita Sengupta, SNBNCBS, Kolkata (Effect of bias induced strain and magnetic field on temperature dependent transport in all oxide ferromagnetic-ferroelectric tunnel)

			junction SrRuO <sub>3</sub> /BaTiO <sub>3</sub> /Nb:SrTiO <sub>3</sub> )
13.10-13.25	T9	Udit Khanna, Tel-Aviv University, Israel (Fractional Edge Reconstruction in Integer Quantum Hall Phases )	Bhaskar Chandra Behera, IOP, Bhubaneswar (Unravelling Magnetism of La <sub>0.7</sub> Sr <sub>0.3</sub> MnO <sub>3</sub> /SrRuO <sub>3</sub> through Superlattice Engineering)
BREAK			
		<i>Chairperson: Arindam Ghosh</i>	<i>Chairperson: Manu Jaiswal</i>
14.30-15.00	T10	Subhro Bhattacharjee, ICTS, Bangalore (Anyon permutation symmetry protected deconfined criticality)	Arup Kumar Raychaudhuri, SNBNCBS, Kolkata (Slow relaxation and decoupling of electrons from the thermal bath as a precursor of Mott metal-insulator transition)
15.02-15.32	T11	Sourin Das, IISER Kolkata (Study of central spin model with q-body all-to-all interaction: An Exact solution)	Srimanta Middey, IISER, Bangalore (Oxygen vacancy induced electronic phenomena of KTaO <sub>3</sub> )
15.34-15.49	T12	Abhishodh Prakash, ICTS, Bangalore (A Z <sub>2</sub> gauge theoretic approach to deconfined quantum critical transitions)	Sreyan Raha, Bose Institute (Dipole and quadrupole resonance mode in non-plasmonic nanowire using Raman spectroscopy)
15.49-16.04	T13	Adhip Agarwala, ICTS, Bangalore (Gapless state of interacting Majorana fermions in a strain-induced Landau level)	Tuhin Kumar Maji, SNBNCBS, Kolkata (Broken Symmetries and the Related Interface-induced Effects at Weyl-system TaAs in Proximity of Noble Metals)

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DAY-3 (D3) (9 September, 2020)

Time		Parallel-1 (P1)	Parallel-2 (P2)
		<i>Chairperson: Sudhakar Yarlagadda</i>	<i>Chairperson: Kanishka Biswas</i>
9.30-10.00	T1	Swapn Pati, JNCASR, Bangalore (Quench Dynamics of a Few Model Low-dimensional Optical Lattice Systems: Effects of disorder and adiabatic phonons)	Dipankar Das Sarma, IISER, Bangalore (Disorder in low dimension: 50% diluted triangular magnetic spin-1/2 lattice of Y <sub>2</sub> CuTiO <sub>6</sub> )
10.02-10.32	T2	Nayana Shah, Washington University in St. Louis, US (How (not) to use the bosonization formalism for quantum junction problems)	V Ravi Chandra, NISER, Bhubaneswar (Topological magnons on the pyrochlore lattice: role of competing anisotropies)
10.34-11.04	T3	Girish S. Setlur, IIT Guwahati (Non Chiral Bosonization of a Luttinger liquid)	Avinash V. Mahajan, IIT Bombay (Experimental realisation of quantum spin liquids: some recent work)
11.06-11.21	T4	Suman Jyoti De, HRI, Allahabad (Emergence of spin-active channels at a quantum hall interface)	Palash Kumar Manna, NISER Bhubaneswar (Unraveling the spin-liquid behaviour of Ru-substituted Ba-Nb-Ir oxides)
11.21-11.36	T5	Monalisa Singh Roy, SNBNCBS, Kolkata (Interactions, Correlations and Competing Orders in Strongly Correlated One Dimensional Quantum Gases)	Sudipta Chatterjee, SNBNCBS, Kolkata (Observation of decoupling of electrons from phonon bath close to a correlation driven metal-insulator transition)
BREAK			
		<i>Chairperson: Ajit C Balram</i>	<i>Chairperson: Bhavtosh Bansal</i>
11.51-	T6	Sumathi Rao, HRI, Allahabad	Samit Kumar Ray, SNBNCBS, Kolkata

12.21		(Edge dynamics of topological phases)	(Tailoring light-matter interactions in 2D-plasmonic hybrids)
12.23-12.53	T7	Biswajit Karmakar, SINP, Kolkata (Evidence of fractional edge modes in integer quantum Hall regime)	Biswanath Chakraborty, IIT Jammu (Microcavity polariton devices based on 2D heterostructures)
12.55-13.10	T8	Ranjani Seshadri, McGill University, Montreal (Topological Insulators out-of-equilibrium: Beyond Floquet Theory)	Chandni U, IISC, Bangalore (Tailoring the transfer characteristics and hysteresis in MoS2 transistors using substrate engineering)
13.10-13.25	T9	Arnob Kumar Ghosh, IOP, Bhubaneswar (Higher order topological insulator via periodic driving)	Rup Kumar Chowdhury, IIT Kharagpur (Ultrafast Build-up of Double Fano Resonance in 2D Quantum Hybrid)
BREAK			
		<i>Chairperson: Gautom Sheet</i>	<i>Chairperson: Kalpataru Pradhan</i>
14.30-15.00	T10	Aveek Bid, IISC, Bangalore (Quantum Spin Hall effect in graphene)	Atikur Rahman, IISER Pune (Growth of clean and large-area monolayer TMDs using chemical vapor deposition)
15.02-15.32	T11	Sudhansu Sekhar Mandal, IIT Kharagpur (Unconventional Fractional Quantum Hall Effect: Filling Factor 4/11)	Sudipta Dutta, IISER Tirupati (Strain Tunable Magnetic States in 2D van der Waals Hetero-Bilayers)
15.34-15.49	T12	Arup Paul, IISC, Bangalore (Interplay of filling fraction and coherence in symmetry broken graphene p-n junction)	Sumanti Patra, SNBNCBS, Kolkata (Flatbands in transition-metal dichalcogenides – when and why do we have them?)
15.49-16.04	T13	Richa Mitra, IISC, Bangalore (Anomalous thermopower oscillations in graphene probed by local InAs nano-heater)	Sreemanta Mitra, IISC, Bangalore (Photodetector and Memory device application for Graphene based van der Waal hybrid)

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#### DAY-4 (D4) (10 September, 2020)

Time		Parallel-1 (P1)	Parallel-2 (P2)
		<i>Chairperson: Tapan Mishra</i>	<i>Chairperson: Aditi Sen De</i>
9.30-10.00	T1	Carlos Bolech, University of Cincinnati (Modeling ultracold atomic quantum gases via matrix products)	Shobhana Narasimhan, JNCASR, Bangalore (T.B.A.)
10.02-10.32	T2	Vikram Tripathi, TIFR, Mumbai (T.B.A.)	Prasenjit Sen, HRI, Allahabad (Exploring layered trichalcogenides as electrocatalysts)
10.34-11.04	T3	Pinaki Sengupta, Nanyang Technological University (T.B.A.)	Manoj Kumar Harbola, IIT Kanpur (Inverting densities to get Kohn-Sham potential)
11.06-11.21	T4	Arijit Dutta, HRI, Allahabad (A novel approach to out of equilibrium dynamics in the Hubbard model)	Subhajit Jana, IIT Kharagpur (Ultraviolet Photodetector Using Chemically Synthesized Phosphorene Nanocrystals)

11.21-11.36	T5	Souvik Bandyopadhyay, IIT Kanpur (Dissipative preparation of many-body Floquet Chern insulators)	Debjani Karmakar, BARC (Correlated electronic attributes in bimetallic nanostructures)
BREAK			
		<i>Chairperson: Achintya Singha</i>	<i>Chairperson: Rajendra Singh</i>
11.51-12.21	T6	Sunil Nair, IISER Pune (T.B.A)	Satyajit Banerjee, IIT Kanpur (Direct current imaging of a transformation in Bi <sub>2</sub> Se <sub>3</sub> topological insulator single crystal)
12.23-12.53	T7	Sian E Dutton, University of Cambridge (Magnetism and Magnetocaloric Effect in low dimensional Lanthanide Borates)	Thirupathaiah Setti, SNBNCBS, Kolkata (Electronic Structure Studies of FeSi: A Chiral Topological System)
12.55-13.10	T8	Sanjay Singh, IIT BHU (Magnetism and anomalous transport in the cubic Heusler magnet Co <sub>2</sub> FeAl)	Kapil Kumar, National Physical Laboratory, New Delhi (Magnetic doping in topological materials)
13.10-13.25	T9		Abhirami S, Indira Gandhi centre for atomic research, Kalpakkam, Tamil Nadu (Unusual proximity behaviour in Bi <sub>2</sub> Se <sub>3</sub> -Nb heterostructure)
BREAK			
		<i>Chairperson: Thirupathaiah Setti</i>	<i>Chairperson: Atindra Nath Pal</i>
14.30-15.00	T10	Indra Dasgupta, IACS, Kolkata (Tailoring spin-textures in Rashba Systems)	Surajit Saha, IISER Bhopal (Exploring the Topological Phases at Will !)
15.02-15.32	T11	Tulika Maitra (Non-collinear magnetism, spin-phonon coupling and orbital order in spinel vanadates)	Subhankar Bedanta, NISER, Bhubaneswar (Spin pumping and inverse spin Hall effect with topological insulators and antiferromagnets)
15.34-16.04	T12	Mukul Kabir, IISER Pune (T.B.A.)	Kalobaran Maiti, TIFR, Mumbai (T.B.A.)
16.06-16.21	T13	Saheli Samanta, SNBNCBS, Kolkata (Influence of simultaneous Fe and Co on magnetic and magnetocaloric effect in all d metal Heusler alloys )	Priya Tiwari, IISc, Bangalore (Electric field induced band-structure engineering in bilayer graphene heterostructure - realization of the spin-orbit valve effect)
16.21-16.36	T14	Shreya Das, SNBNCBS, Kolkata (Understanding the curious magnetic state of Sr <sub>3</sub> OsO <sub>6</sub> )	Purbasha Sharangi, NISER, Bhubaneswar (Observation of inverse spin hall effect at CoFeB/C60 interface)

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DAY-5 (D5) (11 September, 2020)

Time		Parallel-1 (P1)	Parallel-2 (P2)
		<i>Chairperson: Saurabh Basu</i>	<i>Chairperson: Vibhor Singh</i>
9.30-10.00	T1	Sumanta Tewari, Clemson University (Partially separated Andreev bound states: The last roadblock to Majorana fermions and topological quantum computation in semiconductor-superconductor heterostructures)	Ajaya Kumar Nayak, NISER, Bhubaneswar (Topological non-trivial chiral spin textures in D <sub>2d</sub> symmetry materials and frustrated magnets)
10.02-	T2	Arijit Kundu, IIT Kanpur	Ashis Kumar Nandy, NISER, Bhubaneswar

10.32		(Collective modes and correlations from Fermi arc states)	(Room Temperature & Zero-field Magnetic Skyrmions in all-Light-Metals Multilayers)
10.34-11.04	T3	Kush Saha, NISER, Bhubaneswar (Non-linear transport phenomena in two-dimensional Dirac semimetals)	Sunita Srivastava, IIT Bombay (Dual Scale assembly by evaporation of nanocolloids)
11.06-11.21	T4	Satyaki Kar, A.K.P.C. Mahavidyalaya (Quantum Oscillation and Landau-Zener transition in Nodal line semimetals under a time-periodic magnetic field)	Sandip Bera, IIT Kharagpur (Magnetic skyrmions without magnetic field )
11.21-11.36	T5	Adithi Udupa, IISC, Bangalore (Transport through time independent and time dependent barriers on surfaces of 3D Topological Insulators)	Anan Bari Sarkar, IIT Kanpur (K <sub>2</sub> CoS <sub>2</sub> : A two-dimensional in-plane antiferromagnetic insulator)
BREAK			
		<i>Chairperson: Brijesh Kumar</i>	<i>Chairperson: S. M. Yusuf</i>
11.51-12.21	T6	Subroto Mukerjee, IISC, Bangalore (Transport in the non-ergodic extended phase of quantum many-body systems)	Bikas K. Chakrabarti, SNBNCBS, Kolkata (Quantum Tunneling and Ergodicity in Quantum Spin Glasses)
12.23-12.53	T7	Subhasis Sinha, IISER Kolkata (Chaos and quantum scars in collective models)	Yogesh Singh, IISER Mohali (Field induced Quantum Critical Point in the Heavy Fermion material Yb <sub>2</sub> Fe <sub>3</sub> Si <sub>5</sub> )
12.55-13.10	T8	Yogeshwar Prasad, SINP, Kolkata (Many-body localization in presence of random power-law interactions)	Souvik Sasmal, TIFR, Mumbai (Magnetotransport properties of noncentrosymmetric CaAgBi single crystal)
13.10-13.25	T9	Sourav Chakraborty, SINP, Kolkata (Impact of Next-Nearest-Neighbor hopping on Ferromagnetism in GaMnN)	Sagarika Nayak, NISER, Bhubaneswar (Role of spin-glass like frustration on exchange bias effect in Fe/Ir <sub>20</sub> Mn <sub>80</sub> and Ni <sub>50</sub> Mn <sub>50</sub> /Co <sub>40</sub> Fe <sub>40</sub> B <sub>20</sub> bilayers)
BREAK			
		<i>Chairperson: Brijesh Kumar</i>	<i>Chairperson: Kalpataru Pradhan</i>
14.30-15.00	T10	Ujjwal Sen, HRI, Allahabad (Quantum devices in systems with impurities)	Amitava Bhattacharyya, RKMVERI, Howrah (Two-band superconductivity with unconventional pairing symmetry in HfV <sub>2</sub> Ga <sub>4</sub> )
15.02-15.32	T11	Urbasi Sinha, RRI, Bangalore (Quantum Experiments using Satellite Technology)	Jane Hesling, Journal of Physics: Condensed Matter (An Introduction to Refereeing)
15.34-16.04	T12	Saikat Ghosh, IIT Kanpur (quantum synchronization)	
16.06-16.21	T13	Ahana Ghosal, HRI, Allahabad (Population inversion and entanglement in single and double glassy Jaynes-Cummings models)	
16.21-16.36	T14	Srijon Ghosh, HRI, Allahabad (Enhancement in the performance of a quantum battery by ordered and disordered interactions)	
16.36-16.51	T15	Tapas Bar, IISER Kolkata (Dynamic hysteresis and spinodal instabilities at the Mott transition in V <sub>2</sub> O <sub>3</sub> )	