

67th DAE SOLID STATE PHYSICS SYMPOSIUM

December 20-24, 2023

GITAM Deemed to be University, Visakhapatnam

Program Overview

Day 1: Wednesday, December 20, 2023

(Venue: Yellapragada Subbarao Auditorium)

08:30-09:30	Registration
09:30-10:30	Inaugural Function
10:30-11:10	PL-01: Deepak Dhar, IISER Pune <i>A new approach to the equation of state for hard spheres</i> Session Chair: D. D. Sharma, IISC Bangalore
11:10-11:40	High Tea
11:40-12:20	PL-02: D. D. Sarma, IISC Bangalore
12:20-13:00	<i>Dynamics of Organic moieties in Hybrid Halide Perovskites and why we should care about it</i> PL-03: Hari Srikanth, University of South Florida, USA <i>Thermomagnetic spin transport in rare-earth (RE) iron garnet heterostructures</i> Session Chair: Ashok K. Ganguli, IISER Berhampur
13:00-13:15	Group Photo
13:15-14:30	Lunch
14:30-16:30	PL-04: Ashok K. Ganguli, IISER Berhampur <i>Superconductivity and magnetism in metal chalcogenides</i> PL-05: S. Sastry, JNC SAR, Bengaluru <i>Plasticity and Yielding in Amorphous Solids</i> PL-06: S. M Sharma, BARC, Mumbai <i>TBA</i> Session Chair: Deepak Dhar, IISER Pune

16:30-18:30	Tea and Poster Presentation
	a0001 to a0008, b0001 to b0007, c0001 to c0023, d0001 to d0012, e0001 to e0008, f0001 to f0014, g0001 to g0012, h0001 to h0011, i0001 to i0007, j0001 to j0006, k0001 to k0016, l0001 to l0019, m0001 to m0007, y0001 to y0023
18:30-19:30	Evening Talk- K S Krishna, Dean, School of Science, GITAM <i>Magnetic Field Signatures: an approach for dating the ocean floor</i> Session Chair: G. Amarendra, NFC Hyderabad

Day 2: Thursday, December 21, 2023

(Auditorium 1- Shivaji Auditorium

Auditorium 2- Mother Teresa Auditorium)

09:30-11:00	Session 1: Soft matter and Biophysics <i>(Venue: Auditorium 1)</i> Session Chair: S. Sastry, JNC SAR, Bengaluru
	IT-1: B. V. R. Tata, GITAM University, Vizag <i>Soft and Responsive Hairy Balls: Unusual Dynamics and Yielding of Dense Colloidal Microgel Glasses</i> IT-2: Tapomoy Bhattacharjee, NCBS, Bengaluru <i>Single-cell morphology dictates bacterial population growth under 3D confinement</i> IT-3: Basavaraj M. Gurappa, IITM, Chennai <i>Association between like charged surfactants and particles in solution</i>
09:30-11:00	Session 2: Magnetism <i>(Venue: Auditorium 2)</i> Session Chair: S. M. Yusuf, BARC, Mumbai

	<p>IT-4: Anushree Roy, IIT, Kharagpur <i>Raman Fingerprints of Magnetoelastic Coupling in Complex Oxide Systems</i></p> <p>IT-5: Saurabh Giri, IACS, Jadavpur <i>Magnetolectric coupling without long-range magnetic order in multiferroics</i></p> <p>Contributed Oral Presentations k0019, k0021</p>
11:00-11:30	Tea Break
11:30-13:00	<p>Contributed Oral Presentations <i>(Venue: Auditorium 1)</i></p> <p>Session Chair: Chaitanya Varma, GITAM a0011, a0016, b0019, b0031, c0002, c0020</p>
11:30-13:00	<p>Contributed Oral Presentations <i>(Venue: Auditorium 2)</i></p> <p>Session Chair: Vaishali Bambole, Univ. of Mumbai c0021, c0027, c0119, d0042, e0006, f0005</p>
13:00-14:00	Lunch Break
14:00-16:00	<p style="text-align: center;">Session 3: Strongly correlated system and Superconductivity</p> <p style="text-align: center;"><i>(Venue: Auditorium 1)</i></p> <p style="text-align: center;">Session Chair: Anil K. Bhatnagar, Univ. Hyderabad</p> <p>IT-6:Pratap Raychaudhuri, TIFR, Mumbai <i>Visualising vortex liquid states in superconducting thin films</i></p> <p>IT-7: Ajay K. Mishra, BARC, Mumbai <i>Quest for Room Temperature Superconductivity in Hydrogen Rich Materials</i></p> <p>Contributed Oral Presentations</p>

	g0022, m0012
14:00-16:00	<p>Session 4: Novel materials for energy conversion & storage</p> <p><i>(Venue: Auditorium 2)</i></p> <p>Session Chair: B. V. R. Tata, GITAM University, Vizag</p> <p>IT-8: Neetu Jha, ICT, Mumbai</p> <p><i>Quest for Pt-free ORR electrocatalyst for Fuel Cell Application</i></p> <p>IT- 9: R. S. Dhaka, IIT Delhi</p> <p><i>Development of cost-effective energy storage devices</i></p> <p>IT-10: Arup K. Rath, NCL, Pune</p> <p><i>Near-infrared quantum dots for next-generation solar cells</i></p> <p>Contributed Oral Presentations</p> <p>d0020, j0006</p>
16:00-18:00	<p>Tea and Poster Presentation (<i>Venue: Auditorium 1</i>)</p> <p>a0009 to a0016, b0008 to b0014, c0024 to c0047, d0013 to d002, e0009 to e0014, f0015 to f0030, g0013 to g0020, h0012 to h0016, i0008 to i0011, j0007 to j0009, k0017 to k0032, l0020 to l0038, m0008 to m0013, t0001 to t0043</p>
18:00-19:30	Cultural Programs

Day 3: Friday, December 22, 2023

09:30-11:00	<p>Session 5: Novel experimental techniques for condensed matter</p> <p><i>(Venue: Auditorium 1)</i></p> <p>Session Chair: Sugata Ray, IACS, Jadavpur</p>
	<p>IT-11: Sandip Ghosh, TIFR, Mumbai</p> <p><i>Modulated Optical Spectroscopy For Studying Electronic Bandstructure Of Semiconductors</i></p>

	<p>IT-12: Harish N S Krishnamoorthy, TIFR, Hyderabad <i>Nanophotonics with Topological Insulator Materials</i></p> <p>IT-13: S.K. Sharma, BARC, Mumbai <i>Positronium: A Versatile Probe for Material Characterization and Advanced Physics Experiments</i></p>
09:30-11:00	<p>Young Achiever Award Presentations <i>(Venue: Auditorium 2)</i></p> <p>Session Chair: K. Maiti, TIFR, Mumbai</p>
11:00-11:30	Tea Break
11:30-13:00	<p>Contributed Oral Presentations <i>(Venue: Auditorium 1)</i></p> <p>f0063, g0016, h0021, j0025, l0022, l0099</p> <p>Session Chair: Kavita Chandu, GITAM</p>
11:30-13:00	<p>Young Achiever Award Presentations <i>(Venue: Auditorium 2)</i></p>
13:00-14:00	Lunch Break
14:00-16:00	<p style="text-align: center;">Session 6: Multifunctional materials</p> <p style="text-align: center;"><i>(Venue: Auditorium 1)</i></p> <p style="text-align: center;">Session Chair: Mala N. Rao, BARC Mumbai</p>
	<p>IT-14: Sugata Ray, IACS, Jadavpur <i>Planning new ways of introducing ferroelectricity along with magnetism</i></p> <p>IT-15: Tathamay Basu, Rajiv Gandhi Institute of Petroleum Technology, India <i>Spin-driven ferroelectricity from 4d-4f cross-coupling in the strongly correlated system, Ba₃HoRu₂O₉</i></p> <p>IT-16: D. Bhattacharyya, BARC, Mumbai</p>

	<p><i>Probing electronic & local structures of electrode materials of Li ion batteries by Operando XAS measurements using Indus-2 synchrotron radiation source</i></p> <p>Contributed Oral Presentations</p> <p>h0050, i0015</p>
14:00-16:00	<p style="text-align: center;">Session 7: Topological materials</p> <p style="text-align: center;"><i>(Venue: Auditorium 2)</i></p> <p style="text-align: center;">Session Chair: K. V. Ramesh, GITAM</p> <p>IT-17:Nitesh Kumar, SNBNCBS, Kolkata</p> <p><i>From large to zero anomalous Hall effect in the ferromagnetic state of a layered magnet</i></p> <p>IT-18: Surajit Saha, IISER, Bhopal</p> <p><i>TBA</i></p> <p>IT-19:Srijani Mallick, CNRS, France</p> <p><i>Spin-Orbitronics and Superconductivity with KTaO3 based two-dimensional Electron Gases</i></p> <p>Contributed Oral Presentations</p> <p>e0039, i0057</p>
16:00-18:00	<p style="text-align: center;">Tea and Poster Presentations (Venue: Auditorium 1)</p>
	<p>a0017 to a0023, b0015 to b0020, c0048 to c0078, d0022 to d0031, e0015 to e0025, f0031 to f0057, g0021 to g0033, h0017 to h0028, i0012 to i0022, j0010 to j0016, k0033 to k0053, l0039 to l0061, m0014 to m0022</p>

	<p style="text-align: center;">Session 8: Surface and Interface Physics</p> <p style="text-align: center;"><i>(Venue: Auditorium 1)</i></p> <p>Session Chair: Bharat Jalan, University of Minnesota, USA</p>
09:30-11:00	<p>IT-20: Krishnakumar Menon, SINP, Kolkata <i>Spectromicroscopy of Surfaces and Interfaces</i></p> <p>IT-21: Indranil Sarkar, INST, Mohali <i>Interface electronic structure driven control of spin pumping in ferromagnet/non-magnetic heterostructures</i></p> <p>IT-22: Mayank Srivastava, IISC, Bangalore <i>Two-Dimensional Materials: Technological Challenges Ahead</i></p>
09:30-11:00	<p>Thesis Presentation</p> <p style="text-align: center;"><i>(Venue: Auditorium 2)</i></p>
11:00-11:30	Tea Break
11:30-13:00	<p style="text-align: center;">Session 9: Single crystals and semiconductors</p> <p style="text-align: center;"><i>(Venue: Auditorium 1)</i></p> <p>Session Chair: Anil K Chauhan, BARC Mumbai</p>
	<p>IT-23: Bharat Jalan, University of Minnesota, USA <i>Modern Approaches in Epitaxy of Quantum Materials</i></p> <p>IT-24: R. Radhakrishnan Sumathi, Leibniz-Institut für Kristallzüchtung, Germany <i>Crystalline materials: Embracing the redefinition of physical unit “kg-mass”</i></p> <p>IT-25: Swastik Mondal, CSIR-Central Glass and Ceramic Research Institute <i>High-resolution surface charge density from conventional bulk single-crystal X-ray diffraction data</i></p>
11:30-13:00	Thesis Presentation

	<p style="text-align: center;"><i>(Venue: Auditorium 2)</i></p> <p>Session Chair: Dr. A.Thamizhavel, TIFR Mumbai</p>
13:00-14:00	Lunch Break
14:00-16:00	<p style="text-align: center;">Session 10: Physics at quantum scale and photonics</p> <p style="text-align: center;"><i>(Venue: Auditorium 1)</i></p> <p style="text-align: center;">Session Chair: Krishnakumar Menon, SINP, Kolkata</p>
	<p>IT-26:Sushil Majumdar, TIFR, Mumbai</p> <p><i>Machine Learning Approach towards Estimation of Complex Fields From Far-field Measurements</i></p> <p>IT-27:Gopal Dixit, IITB, Mumbai</p> <p><i>Attosecond Physics: Let there be light and electron</i></p> <p>IT-28:Himanshu Singhal, RRCAT, Indore</p> <p><i>Generation of attosecond pulses and their characterization using FROG-CRAB technique</i></p> <p>Contributed Oral Presentations</p> <p>f0006, m0013</p>
14:00-16:00	<p style="text-align: center;">Session 11: Advanced materials for energy and environment</p> <p style="text-align: center;"><i>(Venue: Auditorium 2)</i></p> <p style="text-align: center;">Session Chair: R. Mittal, BARC Mumbai</p>
	<p>IT-29:Samaresh Das, IIT Delhi</p> <p><i>Infrared and THz Detectors based on Layered Materials</i></p> <p>IT-30: Mayank K Gupta, BARC, Mumbai</p> <p><i>Fast Ion Dynamics and Phonons in solid Ionic conductors: A Perspective from Neutron Scattering Experiments and Simulations</i></p> <p>IT-31: Manju Unnikrishnan, CSIR-IMMT, Bhubaneswar</p> <p><i>Designing Transparent Conducting Materials for Smart Devices through Band gap Engineering</i></p>

	IT-32: N.S. Ramgir, BARC, Mumbai <i>ZnO: An Efficient Chemiresistive Gas Sensing Material of the Past, Present And Future</i>
16:00-18:00	Tea and Poster Presentation (Venue: Auditorium 1)
	a0024 to a0031, b0021 to b0026, c0079 to c0113, d0032 to d0037, e0026 to e0038, f0058 to f0071, g0034 to g0054, h0029 to h0046, i0023 to i0029, j0017 to j0024, k0054 to k0069, l0062 to l0088, m0023 to m0029
18:00-19:30	Interaction with Sponsors

Day 5: Sunday, December 24,2023

09:30-11:00	Session 12: Spin liquids and low dimensional magnetism <i>(Venue: Auditorium 1)</i> Session Chair: V. K. Aswal, <i>BARC Mumbai</i>
	IT-33: Narayan Mohanta, IIT Roorkee <i>Magnetic skyrmions and resonant spin excitation in two dimensions</i>
	IT-34: A. K. Bera, BARC, Mumbai <i>Emergent many-body composite excitations and novel quasi particles of 1D quantum spin-1/2 trimer-chains</i>
	Contributed Oral Presentations k0024, l0025
11:00-11:30	Tea Break
11:30-13:15	Poster Presentations (Venue: Auditorium 1) a0032 to a0036, b0027 to b0032, c0114 to c0142, d0038 to d0045, e0039 to e0048, f0072 to f0082, g0055 to g0069, h0047 to h0058, i0030 to i0036, j0025 to j0029, k0070 to k0079, l00089 to l0106, m0030 to m0035
13:15-14:00	Lunch Break

14:00-15:30	Award Presentations and Concluding Session <i>(Venue: Auditorium 1)</i>
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