

International Winter School 2025 ***"Frontiers in Materials Science"***

December 01-05, 2025

and

**Satellite Conference on
Computer Simulations in Chemistry, Materials and Biology**

December 06, 2025

PROGRAM

Conference Hall, JNCASR, Bengaluru

International Winter School 2025 **Frontiers in Materials Science**

December 01-05, 2025

Venue: Conference Hall

Monday, December 01, 2025

09:00 - 10:15	Registration
10:15 - 10:30	Inaugural Session
Session 1	Chair: G U Kulkarni
10:30 - 11:30	A K Cheetham <i>Low Cost Perovskite Formate MOFs for Energy Applications</i>
11:30 - 12:00	<i>Photo Session + Tea/Coffee Break</i>
Session 2	Chair: Bani K Sarma
12:00 - 13:00	G Mugesh <i>Nanomaterials as Artificial Enzymes for Biomedical Applications</i>
13:00 - 14:00	<i>Lunch Break</i>
Session 3	Chair: M Eswaramoorthy
14:00-15:00	Sheikh Saqr Materials Lecture E W “Bert” Meijer <i>From Supramolecular Polymers to Functional Materials and Chiral Systems</i>
15:00-15:30	<i>High Tea</i>
Session 4	Chair: A Sundaresan
15:30 - 16:30	J Paul Attfield <i>New Materials from High Pressure</i>
16:30 - 17:30	A Ajayaghosh <i>Photoresponsive Supramolecular Materials: Construction and Application</i>

Tuesday, December 02, 2025

Session 5	Chair: K S Narayan
09:15 – 10:15	Alla Zak <i>Inorganic Nanoparticles and Nanotubes: State of the Art, Recent Advances in Synthesis, Properties, and Applications</i>
10:15 – 11:15	Reshef Tenne <i>Inorganic Nanotubes: From WS₂ to "Misfit" Compounds and Recent Advances</i>
11:15 – 11:45	<i>Tea/Coffee Break</i>
Session 6	Chair: Ranjani Viswanatha
11:45 – 12:45	Pavan Nukala <i>Absorption with Electrons and X-rays to Understand Dynamics of Materials at Various Energy Scales: Case-Studies</i>
12:45 – 14:00	<i>Lunch Break</i>
14:00 – 15:30	<i>Coffee + Poster</i>
Session 7	Chair: Sarit S Agasti
15:30 – 16:30	Kimoon Kim <i>Spatiotemporal Control of Chemical Reactions with Sound</i>
16:30 – 17:30	Nicola Kelly <i>Solving Problems using Neutron Scattering</i>

Wednesday, December 03, 2025

Session 8	Chair: S Balasubramanian
09:15 – 10:15	M L Klein <i>Understand the Properties of Teflon with Machine Learned Potentials</i>
10:15 – 11:15	Aninda J Bhattacharyya <i>Aqueous Batteries</i>
11:15 – 11:45	<i>Tea/Coffee Break</i>
Session 9	Chair: N S Vidhyadhiraja
11:45 – 12:45	Tanusri Saha-Dasgupta <i>Designing 2D Ferromagnetism</i>
12:45 – 14:00	<i>Lunch Break</i>
14:00 – 15:30	<i>Coffee + Poster</i>
Session 10	Chair: Abhishek Kumar
15:30 – 16:30	T Govindaraju <i>Protein-derived Biomaterials</i>
16:30 – 17:30	Arindam Chowdhury <i>Sensitized Emission Imaging as a Tool to Study Nanoscale Energy Transfer</i>

Thursday, December 04, 2025

Session 11	Chair: Sebastian C Peter
09:15 – 10:15	Richard Remsing <i>Modeling Dynamic Disorder in Materials</i>
10:15 – 11:15	Timothy S Fisher <i>Cylindrical Graphite: From Clean Solar Synthesis to Material Characterization</i>
11:15 – 11:45	<i>Tea/Coffee Break</i>
Session 12	Chair: Medha Dandu
11:45 – 12:45	Alannah Hallas <i>Understanding the Role of Entropy in High Entropy Oxides</i>
12:45 – 14:00	<i>Lunch Break</i>
14:00 – 15:00	Oral Presentation by Students
15:00 – 15:30	<i>Tea/Coffee Break</i>
Session 13	Chair: Jayanta Halдар
15:30 – 16:30	Chandrabhas N <i>Spectroscopy: An Ideal Tool to Elucidate Physical Properties of Materials</i>
16:30 – 17:30	Praveen K Vemula <i>Chemical Nanomaterials in Clinical Translational Research</i>



Friday, December 05, 2025

Session 14	Chair: Premkumar Senguttuvan
09:15 – 10:15	U Ramamurty <i>Microstructures and Mechanical Properties of 3D Printed Alloys</i>
10:15 – 11:15	Andrew Goodwin <i>Structural Complexity and Ion Transport in Prussian Blue Analogues</i>
11:15 – 11:45	<i>Tea/Coffee Break</i>
Session 15	Chair: Pratap Vishnoi
11:45 – 12:45	Jer-Lai Kuo <i>A Neural Network Assisted Exploration on the Complex Landscape of Bio-Molecules with First Principles Accuracy</i>
12:45 – 13:45	<i>Lunch Break</i>
Session 16	Chair: Sridhar Rajaram
13:45 – 14:45	Animesh Pandey <i>Geometric Modelling of Defects on Elastic Surfaces</i>
14:45 – 15:45	Srimanta Middey <i>Engineering Collective Quantum Phenomena in Oxide Heterostructures</i>
15:45 – 16:00	Conclusion
16:00 – 16:30	<i>High Tea</i>
16:30 – 18:00	Musical Concert

**Satellite Conference on
Computer Simulations in Chemistry,
Materials, and Biology**

Venue: Conference Hall

Saturday, December 06, 2025

09:10 - 09:15	Welcome
Session 1	Chair: K N Ganesh, JNCASR
09:15 - 09:40	Ruchi Anand, IIT Mumbai <i>Combating Antibiotic Resistance: A War at the Microscopic Level</i>
09:40 - 10:05	Ganapathy Ayappa, IISc, Bengaluru <i>Quantifying Kinetics and Interactions of Small Molecule Antimicrobials and Surfactants with the Bacterial Cell Envelope</i>
10:05 - 10:30	Aman Jindal, JNCASR <i>Molecular Insights into Short-Range Solvation Structure of Chloride Ions</i>
10:30 - 11:00	<i>High Tea + Group Photo</i>
Session 2	Chair: Sir A K Cheetham, UC, Santa Barbara
11:00 - 12:00	Felicitations
Session 3	Chair: Prabal Maiti, IISc, Bengaluru
12:15 - 12:40	Jer-Lai Kuo, Academia Sinica, Taipei <i>Ab Initio Anharmonic Algorithm to Understand the Quantum Resonance in the Vibrational Spectra of Water</i>
12:40 - 13:05	Subir K Das, JNCASR <i>Faster Solidification of Hotter Fluid: Simulation Evidence of Mpemba Effect in a Few Model Systems</i>
13:05 - 14:00	<i>Lunch Break</i>

Session 4		Chair: R Murugavel, IIT, Mumbai
14:00 - 14:25	Andrew Goodwin , Oxford University <i>Coarse-Grained Simulations of Disordered Materials</i>	
14:25 - 14:50	Ananth Govind Rajan , IISc, Bengaluru <i>Designing Functionalized 2D Material Membranes for Seawater Desalination: New Insights from Ab Initio Force Fields</i>	
14:50 - 15:15	Disha Brahma , JNCASR <i>Modelling Aqueous ZnCl₂ Electrolytes using Machine-Learned Potentials</i>	
15:15 - 15:45	Tea/Coffee Break	
Session 5		Chair: Tapas K Maji, JNCASR
15:45 - 16:10	Richard Remsing , Rutgers University <i>Hidden Electronic Disorder in Solid and Liquid Electrolytes</i>	
16:10 - 16:35	Shobhana Narasimhan , JNCASR <i>Engineering Electron and Hole Gases at Interfaces</i>	
16:35 - 17:00	Sharan Shetty , Shell Tech Centre, Bengaluru <i>Role of Metal-Support 'Dynamics' in Cu Nanoparticle Sintering</i>	
17:00	Vote of Thanks	