

49th Unit Day and In House Symposium 2025



Solid State and Structural Chemistry Unit
19-20 December 2025
Venue: RBM and AG-09/11,
Chemical Science Building, Indian Institute of Science,
Bangalore, Karnataka

Day-1: December 19, 2025

09:00 – 09:45 : Opening Session (RBM)

Inaugural Program

09:45 – 10:15 : Session Break

Photo + High Tea

10:15 - 11:45 : Technical Session-I (Chair: Dibyendu Mondal)

10:15 – 11:00 : **Prof. Sriram Ramaswamy, Department of Physics, IISc**

Title : Self-Driven Matter: Fundamentals and Frontiers

11:00 – 11:15 : Dibyendu Mondal

Title : tRNA Sensing by a Riboswitch

11:15 – 11:30 : Sanjoy Patra

Title : Wavelength-dependent Intramolecular Singlet Fission Through An Excimer-like Intermediate

11:30 – 11:45 : Md Afsar Reja

Title : Field-Tunable Quantum Metric in Few-Layer Phosphorene

11:50 – 12:40 : Minute Madness : Poster Pitch Session (Chair: Professor Naga Phani)

12:50 – 15:15 : Lunch Break and Poster Session.

15:15 – 16:00 : Technical Session-II (Chair: Parna Roy)

15:15 – 15:30 : Barnali Mondal

Title : Modulation doping induced bulk metallization in correlated insulator Vanadium dioxide (VO₂)

15:30 – 15:45 : Telna Thomas

Title : Enhancing cycling stability of KMFP cathodes for high energy density Li-ion batteries

15:45 – 16:00 : Rohit Rohj

Title : Ultralow Thermal Conductivity Approaching the Disordered Limit in Crystalline TiCuZrSe₃

16:00 – 16:30 : Tea Break

16:30 – 18:00 : Technical Session-III (Chair: Suchetana Bandyopadhyay)

16:30 – 17:15 : **Prof. Ambarish Ghosh, CeNSE, IISc**

Title : Electrons and Helium: From Exploding Bubbles to Scalable Qubits and Curved Wigner Crystals

17:15 – 17:30 : Anuj Kumar Palariya

Title : Transparent conductors for emerging solar cells

17:30 – 17:45 : Suraj Halder

Title : Theoretical analysis of coherence control in NV-based quantum sensors

17:45 – 18:00 : Susanta Manna

Title : LnS-NbS_2 A New Family of Misfit Nanotubes: Insights into Atomic Structure and Charge-Transfer Modulations

Day-2: December 20, 2025

09:00 – 10:30 : Technical Session-IV (Chair: Jagriti Rani Singh)

09:00 – 09:45 : **Prof. Navaneetha K. Ravichandran, Mechanical Engineering, IISc**

Title : TBD

09:45 – 10:00 : Nikita Rao

Title : Structural change in soil-based alkali activated binders induced by carbon sequestration

10:00 – 10:15 : Shivani Nirmal

Title : Decoding Cr^{3+} Ion-Pair NIR Luminescence Mechanisms in Alumino-Borate Host

10:15 – 10:30 : Simaran

Title : Energy Transfer–Driven Colour Tunability in $\text{Tb}^{3+}/\text{Eu}^{3+}$ -Doped $\text{KLa}(\text{WO}_4)_2$ Phosphor

10:30 – 11:00 : Tea Break

11:00 – 12:30 : Technical Session-V (Chair: Shovik Ray)

11:00 – 11:45 : **Prof. Tapajyoti Das Gupta, IAP, IISc**

Title : TBD

11:45 – 12:00 : Debopam Sarkar

Title : Engineering Molecular Bistability: Stimuli-Driven Spin-State Switching in Metallosupramolecular Systems

12:00 – 12:15 : Atandrita Bhattacharyya

Title : Probing the multiexcitonic triplet state in series of pentacenic singlet fission dimers

12:15 – 12:30 : Uddipan Ghosh

Title : Superbunched source of light based on nanocrystals

12:30 – 13:00 : Student Award Distribution and Closing Remarks.

Poster Presentations		
SI No.	Name	Title of the Poster
1	Amiya Mondal	Electric field-induced Berry curvature dipole in quasi-one-dimensional Bi ₄ X ₄ (Br,I)
2	Dr. Veeramani Rajendran	Impurity Driven Phase Competition Enabling Super-Broadband NIR Luminescence in Langasite - Structured Phosphors
3	Sounak Ghosh	Magnetic Bistability in Discrete Metallosupramolecular Coordination Cages
4	Moon Kedia	Reversible Electronic and Spin State Switching in Multifunctional Molecular Architectures
5	Rittika Dey	Probing carrier losses in perovskite device stacks
6	Indranil Roy	Intramolecular Vibrations Dictate Population Flow to the Dark States in Electronic Polaritons
7	Sayan Ghosh	Prominent Signatures of Energy Transfer in Action-Detected Spectra of a Cyanobacterial Photosynthetic Protein
8	Muhammed Shahsad	Crystal Engineering of Tetrabromophthalic Anhydride-Based Charge Transfer CoCrystals for Long-Lived Luminescence
9	Manpreet Yadav	Atomic Scale Structure and Dynamics analysis of NASICON electrode by MAS NMR
10	Amit Roy	Atomic Level Investigation of Pharmaceutical Compounds During Co-crystallization Process
11	Manoj Kumar Sharma	Synergy between Inter- and Intramolecular Interactions on Relaxation Pathways of Oligomeric Pentacene Assemblies
12	Parineeta Gogoi	Interplay of Charge and Energy Transfer in Layered Quantum Dot Assemblies
13	Swapnil Shukla	Structural and Optical Properties of Germanium-Based Hybrid Perovskites
14	Sharat Sapna Anuj	Nuances to using relaxation-time analysis for tracking charge transport in Li ₇ La ₃ Zr ₂ O ₁₂
15	Vijayata Kalidas Jagtap	Investigation of Li ⁺ Induced Luminescence Enhancement in La ₂ Zr ₂ O ₇ : Eu ³⁺ Phosphors for WLEDs and Latent Fingerprint Visualization Applications