UNIT DAY AND IN-HOUSE SYMPOSIUM

Solid State and Structural Chemistry Unit

13th–14th December 2024

Venue: A. V. Rama Rao Auditorium
New Chemical Science Building,
Indian Institute of Science,
Bangalore, Karnataka

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Soft Copy of the Schedule

Day-1: December 13, 2024

09:00 – 09:45 : **Opening Session**

Welcome: Student Representatives
Inauguration: Bharat Ratna Professor C. N. R. Rao
Opening Remarks: Professor G. Rangarajan, Director IISc
Opening Remarks: Professor G. Mugesh, Dean of Chemical Sciences
Chair's Annual Report: Professor Satish Patil

09:45 – 10:15 : ***Session Break***

Photo + High Tea

10:15 - 12:00 : **Technical Session-I**

[**Session Chairs**: Prof. Anshu Pandey and Prof. Sayam Sengupta]

10:15 - 11:00 : Prof. Sayam Sen Gupta
Title: Bio-inspired Iron complexes for sustainable oxidation reactions.

11:00 - 11:15 : Parna Roy
Title : Development of Custom-Engineered Quantum Emitter for Microscopy.

11:15 - 11:30 : Atandrita Bhattacharyya
Title : Low- and high-frequency vibrations synergistically enhance singlet exciton fission through robust vibronic resonances.

11:30 - 11:45 : Shilpa Debnath
Title : Anomalous Photophysics of Azulene Derivatives.

11:50 – 12:40 : ***Minute Madness : Poster Pitch Session***

[**Session Chair**: Prof. NagaPhani]

12:50 – 14:30 : ***Lunch Break and Poster Session***.

14:30 – 16:00 : **Technical Session-II**

[**Session Chairs**: Prof. Satish Patil and Prof. Kanishka Biswas]

14:30 - 15:15 : Prof. Kanishka Biswas
Title : Emphanisis: Local off-centering of atoms with warming

15:15 - 15:30 : Dibyendu Mondal
Title : How does NiCo Riboswitch Sense Transition Metal Ions as it folds?

15:30 - 15:45 : Nesta Joseph
Title : Chirality-Tunable Nonlinear Hall Effect.

15:45 - 16:00 : Neeraj Pal
Title : Probing the Structural Phase Transformation of Sulfur in its Mixture with High Surface Area Carbon

16:00 – 16:30 : ***Tea Break***

16:30 – 18:00 : **Technical Session-III**

[**Session Chairs**: Prof. Abhishake Mondal and Prof. Sreetosh Goswami]

16:30-17:15 : Prof. Sreetosh Goswami

Title : Molecular Neuromorphic Building Blocks for Artificial Intelligence

17:15-17:30 : Shubham Debadatta

Title : Dynamic nuclear polarization mechanism in isolated NV-Centers at high magnetic fields.

17:30-17:45 : Debopam Sarkar

Title : Probing Stimuli Responsive Molecular Bistability in Metallosupramolecular Complexes.

17:45-18:00 : Sharat Sapna Anuj

Title : Using Impedance Spectroscopy to probe Interfaces in Solid State Batteries.

Day-2: December 14, 2024

09:00 – 10:30 : **Technical Session-IV**

[**Session Chairs**: Prof. Awadhesh Narayan and Prof. Rajeev Ranjan]

09:00 - 09:45 : Prof. Rajeev Ranjan

Title : Can polycrystalline piezoelectrics show single crystal like ultra-High-field driven strain?

09:45 - 10:00 : Sayan Ghosh

Title : Probing the initial steps of photosynthesis using Fluorescence-detected 2D Electronic Spectroscopy.

10:00 - 10:15 : Sayak Mondal

Title : Crystal structure and structural phase transition of the triclinic (T) phase in doped VO 2 systems.

10:15-10:30 : G Sivakumar

Title : Tunable Metal-to-Metal Charge Transfer (MMCT) and s-p Emissions in Bi3+ Activated Garnets.

10:30 – 11:00 : ***Tea Break***

11:00 – 12:30 : **Technical Session-V**

[**Session Chairs**: Prof. Govardhan Reddy and Prof. Pavan Nukala]

11:00 - 11:45 : Prof. Pavan Nukala

Title : Visualizing long range low power solid state amorphization in In2Se3 ferroelectric phase change memory.

11:45 - 12:00 : Navyashree V

Title : Sensing Platform for π-electron Rich Analytes

12:00 - 12:15 : Astha Tyagi

Title : From Emission to Detection: Unlocking the Multifunctionality of Tb/Eu/Li-Doped $CaMoO_4$.

12:15-12:30 : Susanta Manna

Title : Probing the Supression of Charge Density Waves on Individual Misfit Nanotube using sub-μ Syncrotron Radiation.

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

Poster Presentations		
Sl No.	**Name of Participant**	**Title of the Poster**
1	Afsar Reja	Emergence of tunable exceptional points in altermagnet-ferromagnet junctions
2	Akshay Mahajan	Modulation of Polarization and Charge Doping Induced Depolarization along with Band Structure Engineering in Janus Sliding Ferroelectrics
3	Amit Chakraborty	Delocalised Polarons in Diketopyrrolopyrrole-based Conjugated Polymers: Implications for Near-Infrared Electrochromism and Beyond
4	Ankur Bhaumik	Granular Oscillators for Computing
5	Archita Sarkar	Photoactivated Stepwise Spin-State Switching in 3d-5d Molecular Assemblies: A Structural Matrix Approach
6	I.G. Shanmugapriya	Exploring Cobalt Substituted Telluro - Borate for Efficient Oxygen Evolution Reaction in Alkaline Medium: Synthesis, Structure and Material Properties.
7	Indranil Roy	Vibronic Coupling through Intramolecular Vibrations dictates relaxation to Dark States in Electronic Polaritons
8	Jesman Skopi	Behaviour of Intercalation Compounds for Li redox Chemistry: A Case Study of Misfit Layered Compounds
9	Poulomi Mukherjee	Investigating the thermal activation of quantum cutting observed in Yb3+ doped lead halide perovskite nanocrystals

10	Rohit Rohj	Ultralow thermal conductivity approaching the disordered limit in crystalline TlCuZrSe3
11	Sanjoy Patra	Singlet Fission in a Contorted Naphthalenediimide Dimer Proceeds Through a Coherently Coupled Triplet Pair State
12	Shovik Ray	Structure determination of co-amorphous systems of active pharmaceutical ingredients using NMR crystallography
13	Simran	Enhanced Photoluminescence and Energy Transfer Driven Color Tunability in Tb3+ Activated KLa(WO4)2, Phosphors Co-Doped with Li+, Ca2+, Bi3+ and Eu3+ for Smart LED Applications
14	Sk Habibullah	Metal Ion Driven RNA Folding
15	Subhankar Mandal	Unlocking The Reaction Mechanism of Anode-Protected Aqueous Organic Zinc-Ion Battery
16	Suprabha Pradhan	Switchable Magnetic Materials Based on Metall supramolecular Architectures
17	Swapnil Shukla	Disorder Induced Glassiness in MgMn2O4 Spinel
18	Telna Thomas	Enhancing cycling stability of LMFP cathodes for high energy density Li ion batteries
19	Vaibhav Sharma	The effect of Ti-doping on the structure and cycle life of high voltage cathode material LNMO
20	Veeramani Rajendran	Cr-Activated pc-NIR LEDs: Unveiling the Local Atomic Structure of Cr in In1-xCrxGaO3 to Correlate Anomalies in Infrared Luminescence
21	Vishnu Priya H. R.	Exploring Aluminum-Ion (Al3+) Insertion in Ammonium Vanadium Bronze (NH4V4O10) for Aqueous Aluminum-Ion Rechargeable Batteries