

# 31<sup>st</sup> Raman Memorial Conference - 2025

21<sup>st</sup> & 22<sup>nd</sup> February, 2025

"Quantum Science and Technology (पुंजकीय विज्ञान आणि तंत्रज्ञान)"

"Celebrating 100 years of Quantum Physics"

Friday, February 21<sup>st</sup> 2025

Time (IST)	Topic
08:30 am – 09:00 am	<b>Reporting</b>
9:00 am – 9:40 am	<b>Inauguration</b>
9:40 am – 10:10 am	<b>High Tea - Break</b>
<b>Session Chair: Prof. A. G. Banpurkar, Department of Physics, SPPU</b>	
10:10 am - 11:00 am	<b><u>Keynote</u></b> <b>Speaker: Dr. PS Anil Kumar</b> Professor, Department of Physics, Indian Institute of Science, Bengaluru <i>Quantum Materials and Heterostructures</i>
<b>Session Chair: Prof. N. B. Chaure, Department of Physics, SPPU</b>	
11:00 am - 11:50 am	<b><u>Invited talk-I</u></b> <b>Speaker: Dr. Viresh Dutta</b> Professor Indian Institute of Technology, Delhi <i>India's Energy Transition: An Overview</i>

	<b><u>Oral Presentation (OP) - I</u></b>	
	<b>Oral Presentation Session 1 (Raman Hall)</b>	<b>Oral Presentation Session 1 (Bhiday Hall)</b>
11:50 am -12:30 pm	<b>OP-13</b> Dr. Sameena Mulani: Perovskite MnFeO <sub>3</sub> nanoparticles for bifunctional photocatalytic application	<b>OP-04</b> Ms. Shweta Desai: Synthesis of CeO <sub>2</sub> / g-C <sub>3</sub> N <sub>4</sub> nanocomposites with improved photocatalytic activity for degradation of Rhodamine-B dye
	<b>OP-08</b> Ms. Monika Jawale: NMR and $\mu$ SR study of the S=1/2 1D Heisenberg antiferromagnetic Chain Cu(Ampy)ClBr	<b>OP-06</b> Ms. Mayuri Khade: Advanced CuWO <sub>4</sub> /C <sub>3</sub> N <sub>4</sub> Nanocomposites for Enhanced Photocatalytic Hydrogen Production and Efficient Dye Degradation under Visible Light.
	<b>OP-26</b> Ms. Tanushree Sukul: Electrocatalytic Reduction of CO <sub>2</sub> to Formate Using Bismuth-Tin Bimetallic Catalyst: Mechanistic Insights and Performance Evaluation	<b>OP-21</b> Ms. Sushma Lembhe: Investigation of CQD-TiO <sub>2</sub> Photocatalyst for Methyl Orange Degradation
	<b>OP-19</b> Ms. Sharon Alex: Deciphering Strain and Ligand Effects in 2D-2D Pt@Ti <sub>3</sub> C <sub>2</sub> Tx-rGO Aerogel for Oxygen Reduction Reaction	<b>OP-16</b> Ms. Pranali Waghmaitar: Exploring Pt/Ti <sub>3</sub> C <sub>2</sub> Tx Nanocomposite via $\gamma$ -Radiolysis: Revealing Strong Metal-Support Interaction (SMSI) toward MOR and HER Electrocatalysis
12:30 pm – 12:40 pm	<b><u>The Pune Knowledge Cluster (PKC)</u></b>	
12:40 pm - 01:10 pm	<b>Thesis Presentation (TP) – I (Raman Hall)</b> <b>TP-02</b> Ms. Sandhya Gadge: Engineering Semiconducting Metal Oxide Nanocomposites for Efficient Hydrogen Production and Sustainable Environmental Remediation	
01:10 pm- 02:10 pm	<b>Lunch Break</b>	
<b>Session Chair: Prof. S. I. Patil, Department of Physics, SPPU</b>		

02:10 pm- 03:00 pm	<p style="text-align: center;"><b><u>Invited Talk-II</u></b>  <b>Speaker: Dr. Ram J. Choudhary</b>  Scientist  UGC-DAE Consortium for Scientific Research, University Campus, Indore  <i>Tunable Ferromagnetic and Antiferromagnetic States in the Charge Transfer materials: A Case Study of SrCoO<sub>x</sub> Thin Films</i></p>	
03:00 pm - 03:50 pm	<b><u>Oral Presentation (OP) - II</u></b>	
	<b>Oral Presentation Session 2 (Raman Hall)</b>	<b>Oral Presentation Session 2 (Bhiday Hall)</b>
	<p style="text-align: center;"><b>OP-23 Ms. Swapnali Walake:</b>  Voltametric investigation of band edge parameters and electrochemical performances of Hercynite nanoparticles for the Electrolysis of Water in acidic and basic medium</p>	<p style="text-align: center;"><b>OP-31 Ms. Yogita Padwal:</b>  Engineered BiVO<sub>4</sub>/C Nanocomposites for Superior Photocatalytic Dye Degradation and Sustainable Water Remediation</p>
	<p style="text-align: center;"><b>OP-30 Ms. Vrushali Kalokhe:</b>  Phase-dependent broad-range photodetection by iron oxide nanorods</p>	<p style="text-align: center;"><b>OP-11 Ms. Sandhya Deshmukh:</b>  LaB<sub>3</sub>O<sub>6</sub>: Eu<sup>3+</sup> A Novel Approach for Radiation Dosimetry</p>
	<p style="text-align: center;"><b>OP-22 Mr. Suyog Mane:</b>  Composition-dependent band structure parameters and band-gap bowing effect in a caesium lead mixed halide system: a cyclic voltammetry investigation</p>	<p style="text-align: center;"><b>OP-15 Ms. Suman Pattanshetti:</b>  Melting of harder-than-diamond lonsdaleite using machine learned potential</p>
	<p style="text-align: center;"><b>OP-17 Mr. Rahul Kumar</b>  Activation cross section measurements and estimation of photon induced nuclear reactions for Manganese</p>	<p style="text-align: center;"><b>OP-01 Mr. Akash Khaire:</b>  Interface defects study of the CFTS absorber layer and CFTS/CdS interface layers using SCAPS-1D simulation</p>
	<p style="text-align: center;"><b>OP-20 Ms. Shruti Shah:</b>  Stabilizing TiO<sub>2</sub>/ CsPbI<sub>2</sub>Br Perovskite Buried interface for all Inorganic Perovskite Towards Highly Efficient Photodetectors</p>	<p style="text-align: center;"><b>OP-07 Ms. Nikita Kapadi:</b>  Interplay of Ca<sup>2+</sup> and Sn<sup>4+</sup> compositional engineering in BaTiO<sub>3</sub> electroceramic for piezo energy harvesting and actuator applications</p>
03:50 pm – 04:00 pm	<b>Tea Break</b>	
04:00 pm – 05:00 pm	<b>Thesis Presentation (TP) – II and III (Raman Hall)</b>	

	<b>TP-04 Mr. Vaibhav Walve:</b> Understanding the interplay of correlated orders in layered materials
	<b>TP-01 Ms. Pratibha Shinde:</b> Photoelectrochemical Investigation of ZnO based photoanodes for water splitting application
<b>Session Chair: Dr. S. S. Dahiwale, Department of Physics, SPPU</b>	
05:00 pm – 05:50 pm	<b><u>Invited Talk III (Online)</u></b> <b>Speaker: Dr. Makoto Shinde</b> Research Associate Rapidus Corporation, New York, United States <i>Fabrication of 2nm GAA logic devices: A correction to Moore's law from the quantum perspective</i>
05:50 pm - 06:50 pm	<b>Poster Presentation (PP-01 to PP-83)</b>
06:50 pm - 07:30 pm	<b>Cultural Program</b>
07:30 pm - 08:30 pm	<b>Dinner</b>

**Important Note:**

Invited Talk: **40 min talk + 10 min discussion**

Oral Presentation: **8 min Presentation + 2 min discussion for each presentation**

Thesis Presentation: **20 min Presentation + 10 min discussion for each presentation**

**Saturday, February 22<sup>nd</sup> 2025**

Time (IST)	Topic
09:00 am – 09:30 am	<b>Breakfast</b>
9:30 am – 10:30 am	<b>Thesis Presentation (TP) - IV and V (Raman Hall)</b>
	<b>TP-03 Ms. Swati Rahane:</b> Spectroscopic Insights into Halide Perovskites for Solar Energy Conversion

	<b>TP-05 Ms. Pranjali Yedewar:</b> Developing High Performance Dielectrics for Electrowetting Based Applications and Electric Signal Generation
10:30 am – 10:40 am	<b><u>Tea Break</u></b>
<b>Session Chair: Prof. S. R. Jadkar, Department of Physics, SPPU</b>	
10:40 am – 11:30 pm	<b><u>Invited Talk IV</u></b> <b>Speaker: Dr. Amit Pawbake</b> Postdoctoral Researcher, Centre national de la recherche scientifique, Grenoble, France  <i>Magneto-Raman Spectroscopy of van der Waals Antiferromagnet</i>

11:30 am – 12:10 pm	<b><u>Oral Presentation (OP) - III</u></b>	
	<b>Oral Presentation Session 1 (Raman Hall)</b>	<b>Oral Presentation Session 2 (Bhiday Hall)</b>
	<b>OP-03 Ms. Anupama Kadam:</b> Advanced Optical Liquid Crystal Biosensor for Real-Time Detection of Protein-Ligand Interactions via Non-Covalent Mechanisms	<b>OP-02 Ms. Amruta Lohar:</b> Optical Properties of ZnSe Nanoplatelets
	<b>OP-12 Ms. Sweta Kapade:</b> Luminescence Properties of Eu Doped Ba <sub>2</sub> Al <sub>2</sub> SiO <sub>7</sub> Phosphor	<b>OP-18 Ms. Reshma Jadhav:</b> Enhancement in optical properties of ferroelectric liquid crystal by incorporation of Lithium Vanadate Nanobelts
	<b>OP-28 Mr. Vinayak Lembarkar:</b> Synthesis of Morphological-based Novel Ternary Composite of TiO <sub>2</sub> /gC <sub>3</sub> N <sub>4</sub> /CuFe <sub>2</sub> O <sub>4</sub> Heterojunction for Supercapacitor A	<b>OP-14 Ms. Nazmeen Sayyed:</b> Electrochemical Quartz Crystal Microbalance Studies of Cobalt-Nickel Nanoelectrocatalyst for Ethanol Electrooxidation
	<b>OP-24 Ms. Swaranjali Shinde:</b> Electrowetting on dielectric (EWOD) for the microfluidic-chip application	<b>OP-09 Ms. Minal Chopade:</b> Exploring Bismuth Halides For High Performance Photodetectors.

**Session Chair: Prof. A. G. Banpurkar, Department of Physics, SPPU**

12:10 pm- 01:00 pm

**Invited Talk V**

**Speaker: Dr. Rahul Maitra**

Associate Professor

Indian Institute of Technology, Bombay

*Quantum Subspace Optimization and Energy Landscape Burrowing*

01:00 pm - 02:15 pm

**Lunch Break**

**Oral Presentation (OP) -IV**

**Oral Presentation Session 1 (Raman Hall)**

**Oral Presentation Session 2 (Bhiday Hall)**

**OP-33 Ms. Vandana Patil:**

The Synergy of AI and IoT: Unlocking New Frontiers in  
Automation and Innovation

**OP-27 Ms. Vidya Doiphode:**

Synthesis and Characterization of ZnO/Bi<sub>2</sub>S<sub>3</sub> core-shell  
heterostructure for photoelectrochemical water splitting  
application.

**OP-05 Mr. Maruti Salve:**

Investigation of low-cost solution-processed CdTe thin films for  
the development of solar cells

**OP-10 Ms. Pooja More:**

Solvothermal ZnO Synthesis for Dye-Sensitized Solar Cells:  
Investigating Temperature and Ball Milling Effects

**OP-32 Dr. Vishal Bharud:**

Agricultural Soil Analysis and Evaluation through Gamma Ray  
Attenuation

**OP-25 Ms. Tanuja Shinde:**

Electrochemical insertion of Li ions in V<sub>2</sub>O<sub>5</sub> electrode for  
improved supercapacitive performance

**OP-29 Mr. Vishnu Gore:**

Ion-exchange route to boost PEC performance of ZnO by  
architecting type-II ZnO-NiO heterostructure

03:00 pm - 03:15 pm

**Break**

03:15 pm - 04:15 pm	<p style="text-align: center;"><b><i>In conversation with Legends:</i></b></p> <p style="text-align: center;"><b>Interview with an Eminent Scientist</b>  <b>“Dr. R. Krishnan”</b>  Director, Indian Institute of Tropical Meteorology, Pune  <b>by Dr. Deepti Sidhaye</b>  Assistant Professor, Department of Physics, SPPU</p>
04:15 pm - 04:45 pm	<b>Valedictory Function</b>
04:45 pm - 05:00 pm	<b>High Tea</b>

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