

# National Workshop on Fluorescence & Raman Spectroscopy

## FCS XVI

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### Programme Outline

In-Person Workshop  
6th-8th Dec, 2025

Conference  
8th-10th Dec, 2025

SINP, KOLKATA  
DECEMBER 6-10, 2025



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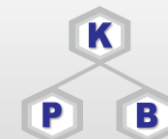
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# 6th December

08:00-8:30	Breakfast			
08:30-9:30	Registration (Workshop+Conference)			
09:30 -10:30	Sudipta Maiti: Measuring Dynamics			
Venue	LH-I	3424	3423	LH-II
10:40-11:25	<b>Bidyut Sarkar</b> (Shiv Nadar University, Delhi NCR) <i>FCS and FLCS</i>	<b>Sabyasachi Rakshit</b> (IISER Mohali) <i>Introduction to Atomic Force Microscopy</i>	<b>Jyotishman Dasgupta</b> (TIFR Mumbai) <i>Resonance Raman Spectroscopy</i>	<b>Trevor Smith</b> (Uni. Of Melbourne) <i>Evanescent-wave Microscopy &amp; sm-Polarization</i>
11:25-12:10	<b>Gilad Haran</b> (Weizmann Institute of Science) <i>Single Molecule Spectroscopy</i>	<b>Shubhasis Halder</b> (SNBNCBS, Kolkata) <i>Magnetic Tweezers</i>	<b>Debanjan Bhowmik</b> (RGCB, TVM) <i>Surface Enhanced Raman Spectroscopy</i>	<b>Anindya Datta</b> (IIT Bombay) <i>Time-resolved Fluorescence Spectroscopy</i>
12:10-12:55	<b>Padmaja P. Mishra</b> (SINP, Kolkata) <i>Single Molecule FRET</i>	<b>Dulal Senapati</b> (SINP, Kolkata) <i>Atomic Force Microscopy Imaging</i>	<b>Chandrabhas Narayana</b> (RGCB, TVM) <i>Raman Instrumentation</i>	<b>Sobhan Sen</b> (JNU, New Delhi) <i>Femtosecond Optical Gating</i>
12:55-13:15	Hands-on briefing			
13:15-14:15	Lunch Break			

14:15-16:15	Hands-on Session-1				
	FCS	Raman	sm-FRET	Confocal	
16:15-16:45	Tea Break				
16:45-18:45	Hands-on Session-2				
	FCS	AFM	sm-FRET	Confocal	
18:45-19:45	Round Table 1				
	FCS	Raman	Force Spectroscopy	Confocal	sm-FRET
19:45-21:30	Dinner				

## NATIONAL ORGANIZING COMMITTEE (Fluorescence Society)

**Prof. Anindya Datta, IIT Bombay**  
**Prof. Sudipta Maiti, BITS Pilani Hyderabad**  
**Prof. Sobhan Sen, JNU, Delhi**  
**Prof. Jyotishman Dasgupta, TIFR Mumbai**  
**Dr. Debanjan Bhowmik, RGCB, Thiruvananthapuram**

# 7th December

08:30-9:30	Breakfast			
09:30 -10:30	Gilad Haran: Single molecule Raman			
Venue	LH-I	3424	3423	LH-II
10:40-11:25	Sudipta Maiti (BITS Pilani) <i>Two Colour FCS</i>	ASR Koti (TIFR Mumbai) <i>Atomic Force Spectroscopy</i>	Sayan Bagchi (NCL Pune) <i>2D-IR Spectroscopy</i>	Mahesh Hariharan (IISER TVM) <i>Transient Absorption Spectroscopy</i>
11:25-12:10	Don C Lamb (Universität München) <i>3D Single Molecule Tracking</i>	Padmaja P. Mishra (SINP, Kolkata) <i>Optical Tweezer</i>	Jyotishman Dasgupta (TIFR Mumbai) <i>Femtosecond Stimulated Raman Spectroscopy</i>	Somnath Biswas (TIFR Mumbai) X-ray Probe
12:10-12:55	Sobhan Sen: Non-Linear Optics			
12:55-13:55	Lunch Break			

	Hands-on Session-3			
13:55-15:55	FCS	Raman	sm-FRET	Confocal
15:55-16:25	Tea Break			
	Hands-on Session-4			
16:25-18:25	FCS	AFM	sm-FRET	Confocal
	Round Table 2			
18:25-19:25	FCS	Raman	Force Spectroscopy	Confocal sm-FRET
19:25-21:25	Dinner			

## Conveners (SINP, Kolkata)

**Prof. Padmaja Prasad Mishra**  
**Dr. Barun Kumar Maity**  
**Dr. Srestha Basu (Treasurer)**  
**Prof. Dulal Senapati**  
**Prof. Montu K Hazra**

# 8th December

08:00-08:30	Breakfast
08:30-09:30	Registration (Conference Only)
09:30-09:50	Inauguration
09:50-11:20	Chair: Jyotishman Dasgupta
	<b>Sudipta Maiti</b> , BITS Pilani <i>(Cholesterol Makes Synaptic Vesicle Membranes Softer and Enhances Neuronal Exocytosis)</i>
	<b>Gilad Haran</b> , Weizmann Institute of Science <i>(The Curious Case of Protein Translocation by a Nanomachine)</i>
	<b>Mahesh Hariharan</b> , IISER Thiruvananthapuram <i>(Keeping the Chromophores Crossed for Efficient Photoinduced Symmetry-Breaking Charge Separation)</i>
	<b>Mikayel Aznauryan</b> , University of Bordeaux <i>(Molecular Behaviour and Interactions of Disordered Translation Factors from Nanoscale to Mesoscale)</i>
11:20-11:30	Tea Break
11:30-13:20	Chair: Oishee Chakrabarti
	<b>Dibyendu Kumar Das</b> , IIT Kanpur <i>(Single Molecule Imaging Conformational Dynamics of MERS Coronavirus Spike Trimers During Cellular Entry)</i>
	<b>Bidyut Sarkar</b> , Shiv Nadar University Delhi NCR <i>(Towards Decoding Functional Noncoding RNAs)</i>
	<b>Gunjan Mehta</b> , IIT Hyderabad <i>(Single-Molecule Tracking of Aurora Kinase B in Live Yeast Cells to Quantify Its Dynamics, Turnover, and Target-Search Mechanism)</i>
	<b>Shirsendu Ghosh</b> , IIT Jammu <i>(Microvillar Cartography: Investigating the Significance of Membrane Topography in Immune Signaling via Super-resolution)</i>
	<b>Balaji Jayaprakash</b> , IISc Bengaluru <i>(Wearable Wireless fNIRS-HDOT a New Tool for following Neuronal Dynamics in Human Brain During Cognitive Tasks)</i>
13:20-13:30	Photo session
13:30-14:30	Lunch Break

14:30-16:30	Chair: Sobhan Sen
	Poster-1
16:30-18:40	Chair: Udayaditya Sen
	<b>Saptarshi Mukherjee</b> , IISER Bhopal <i>(Conformational Selectivity of G-quadruplex Nucleic Acids in Liquid-Liquid Phase Separation Revealed by Single Molecule-FRET)</i>
	<b>Bidisha Sinha</b> , IISER Kolkata <i>(Regulation of mechanical heterogeneities of the cell membrane across length-scales)</i>
	<b>Kanchan Garai</b> , TCIS Hyderabad <i>(Single Particle Investigation of The Role of apoE in Promoting Liquid to Solid Transition of The Tau Condensates)</i>
	<b>Prasun K Mandal</b> , IISER Kolkata <i>(Do Different Regions of Solar Spectrum Control the Formation, Fate and Dynamics of Exciton in Perovskite Nanocrystals Differently?)</i>
	<b>Shubhasis Haldar</b> , SNBNCBS Kolkata <i>(Covalent Magnetic Tweezers: A New Window to See Biology)</i>
	Technical Talk: <b>Dr. Mathias Bayer</b> , Simco Global <i>(PicoQuant Enabling Single Photon Counting Microscopy Applications)</i>
18:40-23:00	Banquet Dinner

**Research Talk: 20mins (17+3 mins)**

**Oral Talk: 10 mins (8+2 mins)**

**Students Fellowship talk: 10 mins**

**Technical talk:**

Simco Global: 20 mins

Atos: 20 mins

Specialise Instrument: 5 mins

Edmund Optics: 10 mins

Horiba: 5 mins

**Editorial talk "Willey": 10 mins**

# 9th December

<b>08:30-09:30</b>	<b>Breakfast</b>	
	Chair: Anindya Datta	
<b>9:30-11:20</b>	<b>H. Raghuraman</b> , SINP Kolkata <i>(Monitoring the Structural Dynamics of Ion Channels by Site-directed Fluorescence)</i>	
	<b>Hajin Kim</b> , UNIST South Korea <i>(Periodic DNA Stiffness Encodes the Mechanical Behaviors of the Genome)</i>	
	<b>Harekrushna Sahoo</b> , NIT Rourkela <i>(Impact of Micro- and Macro-Environment on Protein Conformation and Dynamics)</i>	
	<b>Kaushik Sengupta</b> , SINP Kolkata <i>(Changes of structure and dynamics of lamin A mutants on nuclear homeostasis)</i>	
	<b>Sourav Haldar</b> , CDRI Lucknow <i>(New Insights into Viral Fusion and Novel Antiviral Strategies)</i>	
<b>11:20-11:30</b>	<b>Tea Break</b>	
<b>Chair:</b>	Kanchan Garai	Navendu Mondal
<b>11:30-13:20</b>	<b>Oishee Chakrabarti</b> , SINP Kolkata <i>(The Good, The Bad and The Ugly....Mitochondria)</i>	<b>Dulal Senapati</b> , SINP Kolkata <i>(Rotor in Resistance: Photo-physical Investigation on a Fluorogenic Molecular Viscometer)</i>
	<b>Arindam Chowdhury</b> , IIT Bombay <i>(Visualizing Ribosomal-RNA Methylation Proteins in Action)</i>	<b>Jyotishman Dasgupta</b> , TIFR Mumbai <i>(Probing Singlet Exciton Fission in Molecular Cyclophane Dimers)</i>
	<b>Sayan Bagchi</b> , NCL Pune <i>(A Multiscale Spectroscopic View of Biomolecular Condensates: From Ultrafast Dynamics to Molecular Partitioning)</i>	<b>Anindya Datta</b> , IIT Bombay <i>(Beyond biexponential decays)</i>
	<b>Sobhan Sen</b> , JNU Delhi <i>(Mechanistic Insight into Kinetics of Ligand-Binding to DNA G-Quadruplex)</i>	<b>ASR Koti</b> , TIFR Mumbai <i>(Protein Stability in Ionic Liquids)</i>
	<b>Krishnananda Chattopadhyay</b> , IICB Kolkata <i>(Conformational Fluctuations Induced by the Crowder Can Modulate The Phase Separation of an IDP)</i>	<b>Nakul C. Maiti</b> , IICB Kolkata <i>(Understanding the Redox Switching of Cysteine Residues in SARS-CoV-2 Main Protease by Raman Spectroscopy)</i>
<b>13:20-14:20</b>	<b>Lunch break</b>	

	Chair: Sobhan Sen	
<b>14:20-16:20</b>	<b>Poster-2</b>	
<b>16:20-18:00</b>	Chair: Umakanta Tripathy	
	<b>Ankona Datta</b> , TIFR Mumbai <i>(Multiplexed Imaging of Bio-Analytes Within Cellular-Recycle Compartments)</i>	
	<b>Nagma Praveen</b> , IIT Kanpur <i>(Biological Nanoparticles at Membrane Interfaces: Viruses and LNPs)</i>	
	Technical Talk "Atos"	
	Technical Talk "Specialise Instrument"	
	Technical Talk "Edmund Optics"	
<b>18:00-18:30</b>	Editorial talk "Willey"	
	Technical Talk "Horiba"	
	<b>Tea Break</b>	
<b>18:30-20:10</b>	Chair: Arindam Chowdhury	
	<b>Snigdhavev Chakraborty</b> , IIT Madras Mihir Chowdhury Student Fellowship (MCSF) Award Talk	
	<b>Antony V Fernando C</b> , IIT Jodhpur PicoQuant Student Fellowship (PQSF) Award Talk	
	<b>Sombuddha Sengupta</b> , IIT Bombay R S Daryan Student Fellowship (RSDSF) Award Talk	
	<b>Tapasi Sen</b> , INST Mohali <i>(Empowering single-molecule sensing with DNA-based metal nanostructure assemblies)</i>	
	<b>Somnath Biswas</b> , TIFR Mumbai <i>(Tracking Coherent Vibronic and Vibrational Motions in an Ultrafast Proton Transfer Reaction)</i>	
	<b>Debanjan Bhowmik</b> , RGCB Thiruvananthapuram <i>(Membrane-Mimetic and Dye-Functionalized AgNPs Enable SERS Detection of Lipophilic Amyloid-<math>\beta</math> Oligomers)</i>	
<b>20:10-21:40</b>	Dinner/ Final Poster	

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# 10th December

08:30-09:30	<b>Breakfast</b>
	<b>Chair:</b> Somnath Biswas
9:30-11:20	<b>Don C Lamb</b> , Universität München <i>(Using two- and three-color FRET to Elucidate Protein Dynamics)</i>
	<b>Manas Kumar Sarangi</b> , IIT Patna <i>(Modulating Photo-Induced Optoelectronics Traits of Halide Perovskite Nanocrystals)</i>
	<b>Bikash Chandra Swain</b> , IECB Bordeaux <i>(The Disordered C-terminal Region of Eukaryotic Translation Initiation Factor 4B Dynamically Binds RNA)</i>
	<b>Samsuzzoha Mandal</b> , Stanford University <i>(Multimodal Imaging and Structural Biology Approaches in Advancing Molecular Therapeutics)</i>
	<b>Susmita Roy</b> , Sapienza University of Rome <i>(Structural Changes Induced by Electric Currents in a Single Crystal of Pr<sub>2</sub>CuO<sub>4</sub>)</i>
	<b>Tapas Paul</b> , Harvard Medical School <i>(DNA-Guided Nucleases: Expanding the Landscape of Prokaryotic Defense)</i>
	<b>Apurba Lal Koner</b> , IISER Bhopal <i>(Far-red Emissive Fluorogenic Probes for Biological Applications)</i>
11:20-11:30	<b>Tea Break</b>
	<b>Chair:</b> Gilad Haran
11:30-13:20	<b>Dibyendu K. Sasmal</b> , IIT Jodhpur <i>(Single Molecule Conformational Dynamics of T-cell Receptor and DNA Holliday Junction)</i>
	<b>Umakanta Tripathy</b> , ISM Dhanbad <i>(Inhibition of hIAPP Aggregation: Integrated In-silico, In-vivo, and Multi-spectroscopic Approach)</i>
	<b>Deepak Kumar Sinha</b> , IACS Kolkata <i>(Intra-Cluster Receptor Density Modulates TNFR1 Signaling Outcomes: Mechanistic Insights)</i>
	<b>Tushar Kanti Mukherjee</b> , IIT Indore <i>(Coalescence-Driven Local Crowding Promotes Liquid-to-Solid-Like Phase Transition in a Homogeneous and Heterogeneous Droplet Assembly: Importance of Interfacial Properties)</i>
	<b>Debashis Panda</b> , RGIPT India <i>(Facet-Engineered Perovskite Nanocrystals: Enhancing Stability and Directional Energy Flow)</i>
13:20-14:20	<b>Lunch Break</b>

	<b>Chair:</b> Bidisha Sinha
14:20-16:20	<b>Jaladhar Mahato</b> , Columbia University <i>(Dynamic Heterogeneity: Insights from Single-Molecule Spectroscopy)</i>
	<b>Sarthak Mandal</b> , NIT Tiruchirappalli <i>(Designing Small Molecular Luminescent Systems for Tuning Photophysics and Applications)</i>
	<b>Pramit K Chowdhury</b> , IIT Delhi <i>(Mechanistic Insights into Huntington Protein Aggregation Through Crowding, Phase Separation, and Polyphenol Intervention)</i>
	<b>Navendu Mondal</b> , IIT Delhi <i>(Combining Vibrational Spectroscopy with Fluorescence Detection: An Emerging Tool relying on Vibrationally Promoted Electronic Resonance)</i>
	<b>Prashant Chandra Singh</b> , IACS Kolkata <i>(Understanding of the Interaction of Monomeric <math>\alpha</math>-Synuclein with Lipids using Vibrational Sum Frequency Generation Spectroscopy)</i>
	<b>Sabyasachi Rakshit</b> , IISER Bhopal <i>(Tip-Links as Mechanical Filters of Sound Intensity and Frequency in Hearing)</i>
16:20-17:30	<b>Valedictory programme</b>
	<b>High-Tea</b>

