

# IISER KOLKATA NEWSLETTER



March, 2024

Indian Institute of Science Education and Research Kolkata (IISERK) is an Institute of National Importance established as an autonomous institute for higher education by the then Ministry of Human Resource Development (now Ministry of Education), Government of India, to promote high-quality education and research in basic sciences. It is one of the seven Indian Institutes of Science Education and Research and is one of the first IISERs to be established along with IISER Pune. In terms of research output, it is considered to be one of the leading institutes in India.

## Savitribai Phule Pathshala



The Institute inaugurated a new shed named "Savitribai Phule Pathshala" on the occasion of International Women's Day, on Friday, March 8, at 2.45 PM. This will be used for outdoor classes, discussions, etc.



The Institute celebrated the "Laying of the Foundation Stone of Three Semiconductor Facilities" on 13th March 2024 by Shri Narendra Modi, Honorable Prime Minister of India. The day was commemorated with lectures by Dr. Dr. Ratheesh Vijayaraghavan of IISER Kolkata and Dr. Anirban Bhattacharyya of Calcutta University. The PM's Speech was also well attended by the students, staff, and faculty members of IISER Kolkata.



The International Women's Day was celebrated at our esteemed institute on Friday, March 8, 2024. The event took place at the S.N. Bose Lecture Theater from 3:00 - 4:30 PM and was a meaningful and enriching experience. As we commemorated this significant day, we were privileged to have several distinguished women faculty members from our institute who graciously shared their invaluable experiences. Their insights and reflections undoubtedly inspired and empowered many.



Faculty members of various departments of our Institute conducted an interactive session with the school students of the Garden High School from 11-15 March, 2024. The hands on activity on Maths, Physics, Chemistry, biology and Earth Sciences were conducted for the Garden High School students of classes V-X. The interactive sessions also included concept building classes in Maths and Physics.



Sushrat Mishra (Roll No.19IP023), a Senior Research Fellow of Dr. Kajaljyoti Borah, Department of Geological Sciences attended a national conference on "Geosciences for Sustainable World (GSW), 2024" from 6-7 March at Banaras Hindu University (BHU). He has received the "best e-poster award" for their work.



Dr. Suman De Sarkar has been invited to join the Editorial Board of Tetrahedron and Tetrahedron Letters and Early Career Advisory Board of Asian Journal of Organic Chemistry



Prof. Alakesh Bisai has been invited to join the Editorial Board of Tetrahedron and Tetrahedron Letters, two leading old Journals of Organic Chemistry.



This year, the Department of Physical Sciences celebrated DPS Days 2024 from 8th to 10th March, 2024. The theme this year was '10 Years of CESSI', or 'CESSI@10', marking the tenth year of existence of the Centre of Excellence in Space Sciences India - the premier Research Centre of IISER Kolkata, associated with DPS, and initially set up with funding from the erstwhile MHRD. The event included talks from invited speakers from outside IISER Kolkata, as well as senior research students of the department. In addition, there was also a poster session featuring posters from final year MS students and research scholars of DPS.

The invited speakers and their research specializations were the following:

- Prof. Archana Pai, IIT Bombay, Physics with Gravitational Waves
- Prof. Utpal Roy, IIT Patna, Quantum & Atom Optics for Quantum Sensing
- Dr. Sankar Subramaniam, ISRO, AdityaL1 Mission
- Dr. Durgesh Tripathi, IUCAA, Sun through the Eyes of the Solar Ultraviolet Imaging Telescope
- Dr. G.C. Anupama, IIA, The Indian Astronomy Vision
- Prof. Dipankar Banerjee, ARIES, Key Challenged in Solar Physics: An Observational Perspective
- Dr. A.N. Ramaprakash, IUCAA, Innovative Instrument Concepts for Astronomy
- Prof. Bhargav Vaidya, IIT Indore, Space Plasmas: Theoretical and Modeling Perspectives

For the students, this was indeed a fantastic opportunity to get to meet renowned astrophysics researchers and solar physicists of the country. The talks were very well attended and were informative and rigorous.

An important event during DPS Days was the felicitation given to Prof. Prasanta Panigrahi - who superannuated recently from the institute. This was indeed a moment of nostalgia as Prof. Panigrahi had been a pillar in the department since its inception, and contributed immensely in its successful evolution.

There were a total of 45 posters, and nine of them were given poster awards of Rs 5000 each. The winners, with the poster topics, were:

- (1) Medha Roy Mukherjee, "Dynamics in S-wave Superconductors."
- (2) Abhirup Mukherjee, "A new auxiliary model approach for fermionic systems."
- (3) Anupama, "Investigation of BSTS topological insulator using picosecond strain pulses."
- (4) Aabir Mukhopadhyay, "Anomalous topology and synthetic flat band in multi-terminal Josephson Junctions."
- (5) Priyanka Sinha, "Magnetotransport of twisted bilayer graphene in presence of external electric field."
- (6) Anisha Majhi, "Optical manipulation of cell membrane in live cells for probing tension heterogeneity"
- (7) Biswajit Das, "Effects of hydrodynamic interaction on the irreversibility of a mesoscopic system"
- (8) Priyansh Jaswal, "Discovery of a Relationship Between the Sun's Dipole Moment and the Sunspot Cycle"
- (9) Khursid Alam, "Constraints on inflation from preheating"

Finally, this particular DPS Days had a first of its kind event - a cultural programme presented by students of DPS and staff members of IISER Kolkata, and even a performance from one of the invited speakers, Prof. Dipankar Banerjee. The programme was really high in quality, with some performers touching a level rarely seen at IISER Kolkata.



## Convergence 2024

Department of Earth Sciences, Indian Institute of Science Education and Research Kolkata



The Department of Earth Sciences celebrated the annual science day, “Convergence 2024” on March 8th 2024. The event was inaugurated by the opening remark by Prof. Soumitro Banerjee, Director, IISER Kolkata. The day was commemorated with three invited lectures by distinguished women speakers from other institutes and Universities as it coincided with International Women's Day. Departmental students presented small talks and posters. All talks and posters presented by students were evaluated by the invited speakers. In the evening, the event ended with a cultural program and quiz competition organized by students and faculty members from DES.

Invited Speakers:

- Prof. Sudipta Sengupta  
FNA, Jadavpur University
- Prof. Suparna Mukherji  
IIT Bombay, Mumbai
- Dr. Debahuti Mukherjee  
Geological Survey of India, Kolkata



# MeMApp - 2024

## Membrane Methods and Applications

27<sup>th</sup> March, 2024

Venue: Asima Chatterjee Lecture Theatre, Research Complex

BPS Student Chapter: Biophysics Week Celebration 2024

Sponsors:  Intel Chem-de-drugs



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For more Information:



Membranes play pivotal roles in key aspects of molecular and cell biology. There has been a growing push to probe these roles and understand their manifestations by a large cohort of researchers. The Biophysical Society affiliated second Asian student chapter "Gāṅgeya", the Student Chapter of Eastern India organized an event "Membrane: Methods and Applications (MeMApp)" to celebrate International Biophysics Week on March 27, 2024. The seminar series was inaugurated with the opening remarks by Prof. Soumitra Banerjee, Director, IISER Kolkata and Prof. Ashwani Kumar Tiwari, DOIRO, IISER Kolkata. The day featured five invited lectures by distinguished experts in the field of membrane biophysics.

Prof. Roop Mallik, IIT Bombay  
Prof. Subba Rao Gangi Setty, IISC Bangalore  
Prof. Aravind Penmatsa, IISC Bangalore  
Prof. Hirak Chakraborty, Sambalpur University  
Prof. Promod A Pullarkat, Raman Research Institute, Bengaluru

The symposium featured lively discussions on state-of-the-art methods and applications in membrane biophysics as well as future directions for this area of research. This event proved quite informative, greatly benefiting all its participants. We look forward to upscale the event next year and make it even more enriching for all the Biophysics enthusiasts.

## Seminars and Colloquia

[CESSI Colloquium] Sanat K Biswas (IIIT Delhi) -- Space Situational Awareness: Ensuring Safety and Security of Costly Satellites in a Crowded Space; Date: Monday, Mar 04, 2024.

[Institute Colloquium] Prof. Andrew L. Lawrence (The University of Edinburgh, UK) -- Biomimetic Chemical Synthesis; Date: Tuesday, Mar 05, 2024.

[DCS Visitor Seminar] Dr. Sudipta Seth (KU Leuven, Belgium & Max Planck Institute, Mainz, Germany) -- Correlative Smart Microscopy to Investigate Optoelectronic Devices In-Operando; Date: Wednesday, Mar 06, 2024.

[DMS Seminar] Moumita Chatterjee (Aliah University) -- Estimating Subject Specific Hazard Functions; Date: Wednesday, Mar 06, 2024.

[DPS Colloquium] Prof. Sudip Bhattacharyya (TIFR, Mumbai) -- Continuous gravitational waves from spinning neutron stars; Date: Wednesday, Mar 06, 2024.

[DBS Seminar] Dr. Srirupa Chakraborty (Assistant Professor, Northeastern University, Boston) -- Waging an in-silico War with Sugar Coated Viruses – The Glycan Menace; Date: Wednesday, Mar 06, 2024.

[A special Talk by Shri Rajesh Kamra] Shri Rajesh Kamra @ MAASTERG (DoIRO Office) -- A special Talk by Shri Rajesh Kamra G; Date: Wednesday, Mar 06, 2024.

[DMS Seminar] Dr. Ayan Pal (Department of Statistics, University of Burdwan); Date: Thursday, Mar 07, 2024.

[DPS Seminar] Dr. Sudip Bhattacharyya (TIFR, Mumbai) -- Premise of science: a philosophical perspective; Date: Thursday, Mar 07, 2024.

[DPS Seminar] Dr. Debasish Chaudhuri (Institute of Physics, Bhubaneswar) -- How inertia impacts non-equilibrium features of active Brownian particles; Date: Tuesday, Mar 12, 2024.

[DPS Colloquium] Prof. Mukund Thattai (NCBS, TIFR) -- The astonishing story of complex cells; Date: Wednesday, Mar 13, 2024.

[DBS Seminar] Dr. Radhika Venkatesan (Assistant Professor, DBS, IISER Kolkata) -- Chemical Chronicles: Decoding Plant-insect Interactions and unveiling therapeutic potentials; Date: Wednesday, Mar 13, 2024.

[DES Industry-Academia interaction] Mr. Surajit Sarkar (Sr. Area Manager, Tata Steel) -- Geology is marble-ous and gneiss: we mine and build future!; Date: Wednesday, Mar 13, 2024.

[DCS Colloquium] Dr. D. S. Reddy, Director, CSIR-IICT Hyderabad (CSIR-IICT Hyderabad) -- Natural Products and Derivatives in Drug Discovery; Date: Wednesday, Mar 13, 2024.

[Faculty Talk on "The Life of Stars"] Prof. Dibyendu Nandi (Singularity) -- Talk on "The Life of Stars"; Date: Thursday, Mar 14, 2024.

[Special Lecture] Dr. Debabrata Biswas (Senior Principal Scientist and Wellcome-Trust DBT India Alliance Senior Fellow, CSIR-Indian Institute of Chemical Biology, Kolkata) -- Special lectures on eukaryotic gene regulation; Date: Wednesday, Mar 20, 2024.

[DES Seminar] Prof. Mary Hubbard (Montana State University) -- Tracking Orogenic Origins: collaborative research in the Himalaya; Date: Wednesday, Mar 20, 2024.

[DMS Seminar] Prof. Sujit K. Ghosh (Department of Statistics, NC State University, Raleigh, USA); Date: Wednesday, Mar 20, 2024.

[DPS Seminar] Dr. Hridis Pal (IIT Bombay) -- What is so fascinating about twisted bilayer graphene?; Date: Wednesday, Mar 20, 2024.

[DBS Seminar] Dr. Nistha Ranawat (Postdoc, Burke Neurological Institute, USA. (\* IISER Kolkata Alumni Talk)) -- Anatomical and functional analysis of cervical spinal projection interneurons; Date: Wednesday, Mar 20, 2024.

[DCS Visitor Seminar] Prof. G. Satyanarayana (Indian Institute of Technology, Hyderabad) -- The Nitrile Directing Group Assisted Remote meta-Selective C-H Functionalizations; Date: Wednesday, Mar 20, 2024.

[DBS Seminar] Dr. Hemanta Sarmah (PostDoc, Columbia Stem Cell Initiative, CUIMC (\* IISER Kolkata Alumni Talk)) -- Lineage-specific spatiotemporal control of cell death in mouse embryos; Date: Wednesday, Mar 20, 2024.

[CCES Seminar] Dr. Sayantan Sarkar (Department of Environmental Engineering, IIT Mandi) -- Bounding the role of aerosol brown carbon as a climate-forcing agent in the eastern Indo-Gangetic Plain; Date: Wednesday, Mar 27, 2024.