

IISER KOLKATA

Newsletter



February, 2025

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.



**Autumn
2025**

ADMISSIONS OPEN

PROGRAMS OF STUDY

- Doctor of Philosophy
- Integrated PhD
- Master of Science
- MS by Research



**IISER Kolkata Summer
Research Programme 2025
Applications Open**



NATIONAL SCIENCE DAY 2025

The Indian Institute of Science Education and Research (IISER) Kolkata celebrated National Science Day on 28th February 2025, under the leadership of Prof. Sunil Kumar Khare, Director, IISER Kolkata, and the guidance of Prof. Debasis Koley, Dean of International Relations and Outreach, and Prof. Anirban Banerjee, Associate Dean of International Relations and Outreach. The event, supported by faculty and staff, engaged students from 25+ schools, with a total footfall of over 450 students.

Held at the Rabindranath Tagore Auditorium from 10:00 AM to 4:00 PM, the program featured interactive exhibits, live models, poster presentations, lab visits, and popular science talks, fostering curiosity and scientific enthusiasm. Shri Kumar Sunny Raj, IPS, Superintendent of Police, Ranaghat Police District, graced the event as the Chief Guest.

The Popular Science Talk series featured:

Prof. Dirk Scherler (GFZ Helmholtz Centre for Geosciences, Germany) – “Four Good Reasons to Study Earth Science”

Prof. Subhajit Bandyopadhyay (IISER Kolkata) – “The Delightful Science of Chocolate Making”

Dr. Kripabandhu Ghosh (IISER Kolkata) – “Data Science and Beyond”

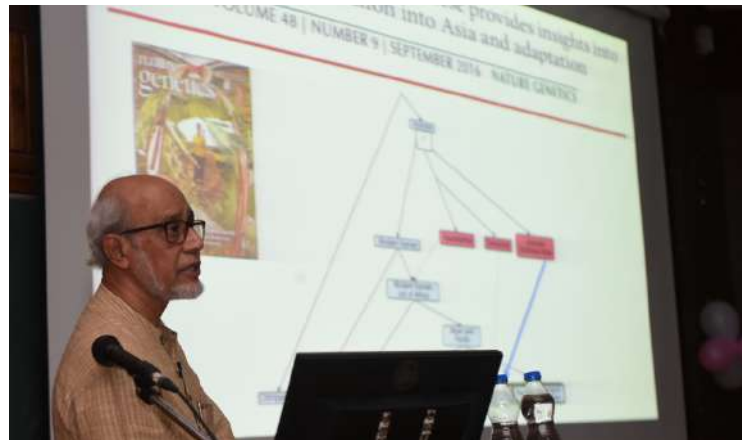
The event was a grand success, providing students with a hands-on scientific experience and inspiring the next generation of young minds.

CNR Rao Foundation Prize certificates were awarded to 8 students of IISER Kolkata on this day.



INQUIVESTA XI

Inquivesta, which is hosted by the students of IISER Kolkata, is the first and one of the largest science college festivals in India. It was created in 2011 with the aim of promoting science in an entertaining and engaging manner to a wider audience. Since then, Inquivesta has successfully organized ten editions under the tagline "Being Inquisitive". These editions have included a variety of events that showcase science, technology, and innovation, as well as workshops, guest lectures, celebrity appearances, and engaging competitions in fine arts, sports, and adventure. Inquivesta attracts a diverse audience ranging from school and college students to working professionals.



Microplastic Research Innovations and Sustainable Management 2025 (MPRISM-2025) - Workshop

IISER Kolkata successfully hosted Microplastic Research Innovations and Sustainable Management 2025 (MPRISM-2025), India's first international conference dedicated to microplastics, on February 15-16, 2025. This pioneering event brought together leading researchers, policymakers, and industry experts to address the growing environmental threats posed by plastics and microplastics in various ecosystems.

MPRISM-2025 attracted over 150 participants from four international and 61 national institutes, fostering interdisciplinary discussions across environmental sciences, nanotechnology, agriculture, and public health. The conference featured 76 oral presentations spread across 15 technical themes, and the students also showcased their research work through posters (56), covering wide aspects in the field of microplastic research including recent and advanced detection technologies, environmental fate, ecotoxicology, artificial intelligence and machine learning in environmental research, and remediation strategies.

The event received support from esteemed national and international funding agencies, including the Ministry of Earth Sciences (MoES), National Remote Sensing Centre (NRSC-ISRO), Anusandhan National Research Foundation (ANRF), DST-DAAD, SPARC, and NICES, alongside sponsorships from industry leaders like Agilent, Shimadzu, Thermo Scientific, Frontiers, and Swan Environmental.

The Chairperson of the conference was Prof. Sunil K Khare (Director, IISER Kolkata), and the conference was inaugurated by Dr. Prakash Chauhan (Director, NRSC-ISRO), with distinguished guests Dr. G. Srinivasa Rao (Deputy Director, NRSC-ISRO) and Dr. Pravakar Mishra (MoES). Dr. Gopala Krishna Darbha (IISER Kolkata) and Dr. Kiran Bala (IIT Indore) convened the event. Renowned experts, including Prof. Thorsten Schäfer (FSU Germany), Prof. Regina Nogueira (LUH Germany), Dr. Dirk Weichgrebe (LUH Germany), Prof. Maryam Salehi (UoM, USA), Dr. Mahua Saha (NIO, Goa), Dr. Subrata Hait (IIT Patna), and Dr. Hitesh S. Pawar (ICT, Mumbai), presented key insights on microplastics in ecosystems, their role as pollutant carriers, and policy interventions for plastic waste management.

MPRISM-2025 marked a significant milestone in India's fight against microplastic pollution, fostering international collaboration and advancing research-driven solutions. The conference featured insightful discussions on knowledge exchange, emphasizing the creation of a national-level database and the standardization of methodologies for microplastic characterization. It served as an excellent platform for both budding researchers and experienced scientists to collaborate and explore innovative strategies for mitigating microplastic pollution. A key highlight was the selection of outstanding studies from the conference for publication in the Environmental Science and Pollution Research journal (Springer), ensuring the global dissemination of cutting-edge findings.



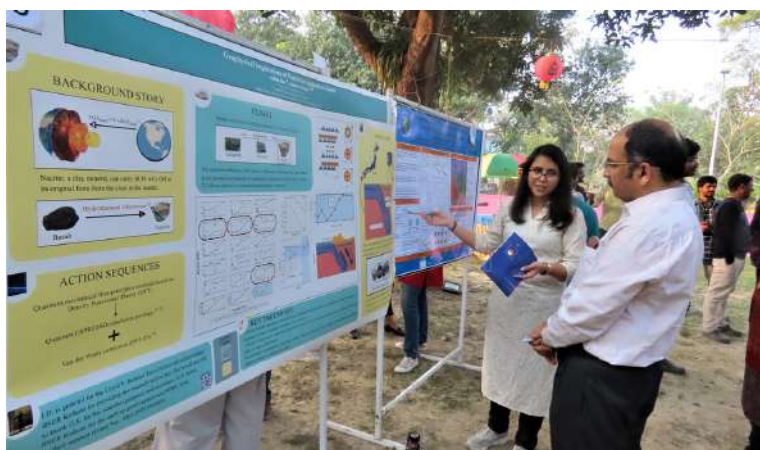
CONVERGENCE 2025 - Department of Earth Sciences Day at IISER Kolkata:

On February 5, 2025, the Department of Earth Sciences (DES) at IISER Kolkata celebrated its annual Department Day, CONVERGENCE 2025. The event aimed to foster engaging interactions among students, research scholars, and scientists through a series of invited talks, research presentations, poster sessions, and cultural activities.

The scientific oral session featured keynote addresses by three distinguished experts: Dr. Srinivasa Sarma D, Chief Scientist, Geochemistry, CSIR-NGRI, Hyderabad; Dr. Sambuddha Misra, Associate Professor, Centre for Earth Sciences, IISc Bangalore; and Dr. Dhanyalekshmi Pillai, Associate Professor and Head, Department of Earth and Environmental Sciences, IISER Bhopal. Their lectures covered critical aspects of Earth Sciences, focusing on Solid Earth Studies, Earth Surface Processes, Environment and Climate Studies, and Planetary Sciences.

In addition to the keynote lectures, research scholars from DES presented their latest findings, leading to insightful discussions among faculty, students, and attendees. A poster presentation session featured contributions from both internal and external students, showcasing innovative research across various Earth Science themes.

The event concluded with a cultural program, providing a platform for informal interaction and strengthening the collaborative spirit of the Earth Sciences community. CONVERGENCE 2025 successfully brought together researchers and students from diverse backgrounds, encouraging academic dialogue and inspiring future research in Earth Sciences.



Faculty Members Achievements



On the 6th of February 2025, Prof. Ananda Dasgupta had delivered an invited popular level talk titled "Disturbing the universe" as part of the programs that the Birla Industrial and Technological Museum had arranged for the viewing of Planetary Parade – The Cosmic Alignment of Six Planets.



Prof. Nirmalya Ghosh (DPS and CESSI)

Prof. Nirmalya Ghosh of DPS and CESSI has been elected as a Fellow of OPTICA (Optical Society of America) 2025 for his exceptional scientific contributions to optical polarization and related phenomena and development of novel experimental polarimetry systems for diverse applications. Note that Optica, Advancing Optics and Photonics Worldwide, is the society dedicated to promoting the generation, application, archiving and dissemination of knowledge in the field. Founded in 1916, it is the leading organization for scientists, engineers, business professionals, students and others interested in the science of light. Optica's renowned publications, meetings, online resources and in-person activities fuel discoveries, shape real-life applications and accelerate scientific, technical and educational achievement.

Prof. Ghosh has also received Scientific and Useful Profound Research Advancement (SUPRA) grant of approx. 4 Crore for the project proposal titled, "Probing near-field assisted spin-orbit interaction effects for fabricating novel spin-orbit interaction meta-devices". It may be pertinent to note SERB-SUPRA is a scheme beyond usual core research grants and is purposefully designed for high quality proposals consisting of new hypotheses or that can challenge existing ones and may offer disruptive technologies at the cutting edge. This scheme seeks to explore new scientific breakthroughs, with long-term impact on our fundamental scientific understanding.

Students Achievements



Kushagra Advani and Snigdha Ghosh (5th-year Chemistry BS-MS students) participated in Asian Paints Alchemy 2024, the second edition of this prestigious competition, and their work and presentation earned them the 1st Runner-up award, which includes a cash prize of ₹50,000 each and full tuition support for pursuing a PhD in India. They were the only undergraduates to receive the award this year. Note that this event is open to Master's students, PhD candidates, and young professionals.

Hearty congratulations to the students!

Congratulations

Abhisruta Maity, Ayush Chandra, Sankarshan Mondal & Tarak Sanjay Yadav for being selected as part of the 2025 ANU Future Research Talent (FRT) program.

The FRT program provides successful scholars an opportunity to travel to ANU to undertake research projects, and each FRT scholar receives A\$8,500 to support their travel to Australia and cover living costs there.



Abhisruta Maity



Sankarshan Mondal



Ayush Chandra



Tarak Sanjay Yadav

" I am happy to share with you the good news that for the first time in the history of IISER Kolkata, a student team of very heterogeneous composition (BSMS, PhDs of different departments) with faculty mentors as mentors, have been awarded a grant-in-aid under the NIDHI PRAYAS (PRomoting and Accelerating Young and ASpiring Technology entrepreneurs) Cycle 2 - a seed-funding scheme for translation of technological innovation ideas sponsored by the Dept. of Science and Technology, Govt. of India. The team submitted a proposal on 'The Water Toxin Chip', with the funding amount requested being Rs 10 lakhs, for a period of 15 months, to the Savli Technology and Business incubator (STBI), Vadodara - a NIDHI-PRAYAS hub situated in Gujarat. A prototype of the water toxin chip needs to be delivered at the end of 15 months.

The team consisted of:

Mr. Om Khare (21MS084, DPS major) : Lead

Ms. Ankita Choudhary (21IP033 DPS IP student): Member

Mr. Anand Dev Ranjan (20RS068 DPS RS): Member

Mr. Chandan Kumar (23RS048, DCS RS): Member

Prof. Ayan Banerjee (DPS): Mentor

Prof. Raja Shanmugam (DCS): Mentor

This is a perfect example of interdisciplinary science being translated in search of a product that would have high technological and social impact. Incidentally, the team was handheld by RISE Foundation IISER during the drafting of their proposal and also in preparing their presentations (which went for two rounds), which also serves as a very good example of the synergistic relationship between IISER Kolkata and the RISE Foundation.

Hopefully this award will contribute substantially in driving an innovation ecosystem on campus among faculty and students ”.

*~ Prof. Ayan Banerjee
Dean of Student Affairs*



Ankita Choudhary
DPS IP student



Anand Dev Ranjan
DPS RS



Om Khare
DPS major



Chandan Kumar
DCS RS



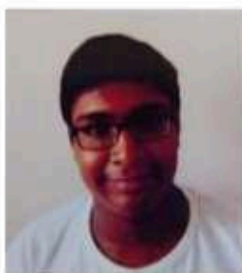
Prof. Ayan Banerjee (DPS)
Mentor



Prof. Raja Shanmugam (DCS)
Mentor



Mr. Pritam Sadhu



Mr. Dhee Pradhan



Mr. Shuvam B. Seal



Mr. Ayush Chandra

IISER Kolkata students participated in the **Cheminigma** (Chemistry based competition consisting of theoretical quiz, experimental laboratory handling and presentation rounds) and **Decoherence** (Physics based competition consisting of astronomy, theoretical and experimental rounds along with presentation) national level competitions of **Pravega 2025**, the **annual science, technology and cultural fest** organized by **IISc Bangalore**

Cheminigma - Team Chemasters consisting of Mr. Pritam Sadhu (Roll No. 22MS140), Mr. Dhee Pradhan (Roll No. 22MS127), and Shuvam Banerji Seal (Roll No. 22MS076) bagged the **1st prize**.

Decoherence - Team Orion 2.0 consisting of Ayush Chandra (22MS0107), Susnata Chattopadhyay (22MS077) Alekhya Kundu (23MS169) emerged as champions. Sthaman Sinha(22MS106) was also an integral part of the team, but could not attend the final round.



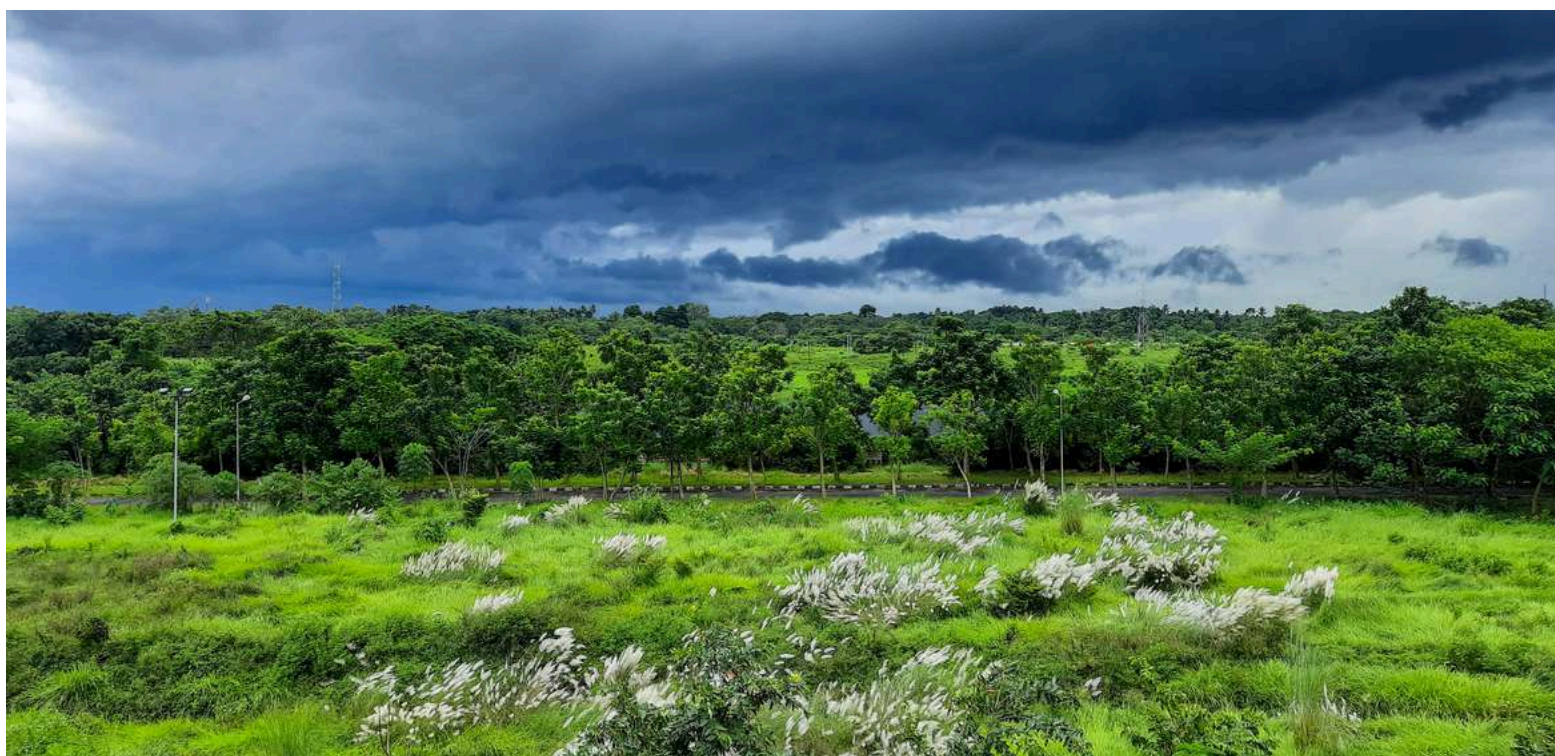
Mr. Susnata Chattopadhyay



Mr. Alekhya Kundu



Mr. Sthaman Sinha





IISER Kolkata was the co-organiser with Science City for the Kavya Path Pratiyogita of "Town Official Language Implementation Committee (TOLIC)" scheduled on 18th February 2025 at Science City Seminar Hall. Fifty-three participants from different Scientific Institutes of Kolkata participated in the event, making it a great success. Mr. Hiralal Pasi, Mr. Joy Chakraborty and Mr. Prosenjit Ghosh participated in the event.

Prof. Sunil Kumar Khare, Director IISER Kolkata having additional responsibility as Vice Chancellor for the newly established Netaji Subhash Chandra Bose Institute of Higher Learning (Deemed University) Andaman and Nicobar Islands, appeared on Doordashan and highlighted the salient features of NEP.



Scan to watch the programme.



Prof. Sunil Kumar Khare, Director of IISER Kolkata, was Invited to the First Alumni Meet of IIIT Kalyani held on 22nd January 2025.



Seminars, Lectures and Colloquia

[Institute Colloquium] Prof. Raffaele Mezzenga (ETH Zurich) -- Amyloid-metal Supramolecular Hybrids for Health and Environmental Remediation Technologies
Date: Monday, Feb 03, 2025.

[CCES Seminar] Dr Sambuddha Misra (Centre for Earth Sciences, IISc Bangalore) -- How Biology Modulates Seawater Chemistry: Evidence from Porewater Geochemistry, Date: Tuesday, Feb 04, 2025.

[DPS Colloquium] Prof. Debades Bandyopadhyay (Aliah University, New Town) -- Hundred years of Bose-Einstein Condensation : Application to Astrophysics, Date: Wednesday, Feb 05, 2025.

[DBS Seminar] Dr.Rajeswari Basu -- " BIOCHEMICAL and BIOANALYTICAL APPROACHES INTERROGATING NUANCES IN INFECTION", Date: Wednesday, Feb 05, 2025.

[DMS seminar] Dr. Irfan Habib (IISC, Bangalore) -- Dynkin's result beyond finite type and combinatorics of the embedding problem for Kac-Moody Lie algebras, Date: Wednesday, Feb 12, 2025.

[DBS Seminar] Ms. Anushka Mondal -- Connexin43 functions as a non-canonical phenotypic stability factor in promoting hybrid Epithelial/Mesenchymal phenotype in cancer cells, Date: Wednesday, Feb 12, 2025.

[DCS Visitor Seminar] Dr. Amitrajit Mukherjee (KU Leuven, Belgium) -- Machine Learning for Microscopy Data Analytics: Toward Real-time Optical Characterization of Semiconductor Nanocrystals, Date: Thursday, Feb 13, 2025.

[DPS Seminar] Dr. Debraj Das (ICTP, Trieste) -- First-Passage Processes: Martingales and Defects, Date: Wednesday, Feb 19, 2025.

[CCES Seminar] Dr. Arjun Datta (IISER Pune) -- Full-wave ambient noise interferometry and a cryoseismology application, Date: Wednesday, Feb 19, 2025.

[DBS Seminar] Mr. Arunava Seth -- Discovery of Leishmania bicarbonate transporter critical for parasite virulence, Date: Wednesday, Feb 19, 2025.

[Special Talk] Prof. C. S. Rajan (Ashoka University, Delhi) -- $1+2+3+\dots = -1/12$, Date: Monday, Feb 24, 2025.

[Special Talk] Prof. B. Ramakrishnan (Chennai Mathematical Institute) -- Simultaneous non-vanishing of central L-values with large squarefree level, Date: Monday, Feb 24, 2025.

[Special Talk] Prof. S.D. Adhikari (RKMVERI, Belur) -- Set addition and zero-sum theorems, Date: Tuesday, Feb 25, 2025.

[DES Seminar] Prof. Dr. Dirk Scherler (GFZ Potsdam, Germany) -- Measuring and monitoring the dynamics of mountainous glacial landscapes on decadal to centennial time scales, Date: Thursday, Feb 27, 2025.