

IISER KOLKATA Newsletter



March, 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.



NEW DUAL DEGREE BS-MS PROGRAM

IISER Kolkata has initiated a new dual degree BS-MS program in Computational and Data Sciences. The new program will be interdisciplinary in nature, commencing from the coming Academic Session 2025 with a major focus on Computational and Data Sciences in the context of natural and mathematical sciences.

TWO-YEAR MS PROGRAM ON SUSTAINABILITY SCIENCE

The institute is contemplating a new two-year MS program on sustainability science. This program will introduce students having a background in science and engineering to an understanding of the complex problem of sustainability, the underlying physical and chemical science, as well as processes and inculcate a “system” thinking in understanding and seeking solutions to sustainability problems in the environment, industry, built world and society.



JOINT MOU WITH UNIVERSITY AT BUFFALO

All IISERs including IISER Kolkata have signed a joint MoU with University at Buffalo for research collaboration in frontier areas, with student and faculty exchanges.



INTER INCI ENTREPRENEURIAL SUMMIT 2025

The Inter INCI Entrepreneurial Summit 2025, hosted by IISER Kolkata, brought together leading student innovators, deep-tech founders, and ecosystem enablers from across premier institutes including IISERs, IISc, NISER, CEBS, and others. Held over two action-packed days, the summit featured high-impact workshops, mentorship sessions, investor networking, and panel discussions that empowered young entrepreneurs to transform their ideas into scalable ventures.

The highlight of the event was Innovatopia — a startup pitching competition showcasing transformative innovations across diagnostics, therapeutics, AI, and agritech. Here are the top three winning teams:

1st Place – BubbleSense (IISER Kolkata)

A microfluidic biosensor chip for rapid multi-disease detection using Microbubble Lithography, aimed at revolutionizing diagnostics in low-resource settings.

Team Members: Anand Dev Ranjan, Om Khare, Ankita Choudhury

2nd Place – MediPolyTech (IISER Tirupati)

A nanoparticle-based drug delivery system targeting antibiotic-resistant bacteria using a three-layered POx structure to combat antimicrobial resistance (AMR).

Team Members: Ramita, Monica R, Sabari

3rd Place – Nevx (CEBS)

An AI-powered retinal screening system for early detection of diabetic retinopathy, offering an affordable and scalable solution for rural healthcare.

Team Members: Harsh Nagpal, Tanish, Ayush Kumar Patel

The jury panel consisted of Mr. Soujit Das (Senior Manager, IIM Calcutta Innovation Park), Ms. Poyini Bhatt (Former CEO, SINE IIT Bombay), Mr. Anil Kondreddy (CEO ASPIRE BioNEST, Hyderabad Central University, Hyderabad), Mr. Jaydip Mukherjee (Founder Snap-E-Cabs, Kolkata) and Mr. Khalid Wani (Serial Entrepreneur and TEDx Speaker, Mumbai).



INTERNATIONAL VISIT

Mr. Stéphane Thys, head of International Outreach and Promotion (International Relations central Office) at the University of Lille, France & Prof. Sébastien Clausen, Vice Dean for International Relations for the Faculty of Sciences and Technology, University of Lille, visited IISER Kolkata on 24th March 2025 to discuss on collaborative research on Photonics. A MoU has been proposed between the two institutions.



INTERNATIONAL WOMEN'S DAY



IISER Kolkata celebrated International Women's Day on March 17, 2025. The event featured two distinguished speakers from AIIMS Kalyani:

- Dr. Mahuya Chattopadhyay, Professor & Head of the Department of Ophthalmology
- Dr. Jayeeta Bhowmik, Associate Professor & Head of the Department of Medical Gastroenterology

As part of the celebration, the Institute felicitated six distinguished women faculty members and a senior woman non-teaching staff member of IISER Kolkata in recognition of their contributions.

VISIT OF PROF. PARAS N PRASAD, UNIVERSITY AT BUFFALO, USA

Prof. Paras N Prasad (Distinguished Professor of Chemistry, Physics, Medicine and Electrical Engineering & Executive Director, Institute for Lasers, Photonics and Biophotonics, University at Buffalo, USA) visited IISER Kolkata and delivered an Institute Colloquium on 25.03.2025 entitled "Convergence of Nanotechnology, Photonics, and Biotechnology to address Global Challenges in Energy, Healthcare, and Environment" and also spearheaded the signing of an MoU between all the seven IISERs and the University at Buffalo, USA.



SCHOOL STUDENTS VISIT

Students of class IX and XI from PM SHRI Kendriya Vidyalaya Ranaghat, Nadia, West Bengal, visited the Department of Biological Sciences at the Indian Institute of Science Education and Research (IISER) Kolkata under the 'PM SHRI School Field Visit' program on March 25, 2025.



LEARNING BRIDGES: ALGORITHMS AND EXPERIMENTS IN BIOPHYSICS (ALEX)



"Gāngeya" the Student Chapter of Eastern India organized an event "Learning Bridges: Algorithms and Experiments in Biophysics (ALEX)" to celebrate International Biophysics Week on March 18, 2025. This event served as a platform for academic exchange and discussion within the Biophysics community.

TCS RESEARCH TEAM VISIT

TCS Research Team visited the IISER Kolkata - Research Innovation and Scientific Entrepreneurship [RISE] Foundation on 10th March, 2025. During the visit, TCS researchers had a discussion with the RISE Foundation and IISER Kolkata Faculty. They also presented various funding opportunities for IISER Kolkata researchers to collaborate in the area of Data Science Application in Chemical and Biological Systems.



VISIT OF PROF. DR. H.C. KARI TAPANI RISSANENIS

Prof. Dr. H.C. Kari Tapani Rissanenis, Professor and Head of Organic Chemistry of University of Jyväskylä, Finland visited IISER Kolkata from March 21-27, 2025 as foreign faculty in GIAN course on "Supramolecular Crystallography and Soft-oxometalates".



Prof. Sunil Kumar Khare, Director IISER Kolkata attended the Visitor's Conference 2024-25 held at Rashtrapati Bhavan on March 3-4, 2025.

Prof. Sunil Kumar Khare, Director, IISER, Kolkata, Invited as Guest Speaker in National Summit of Institutional Leaders (NSIL), 2025 held at Doon University, Dehradun during 1-2 March, 2025.

Theme: Fostering Academic Excellence: Leadership and Collaboration in Action.

Presented by: School of Media and Communication Studies, Doon University, Dehradun.



Scan to watch

THE SUNIL CHANDRA BOSE ENDOWMENT LECTURE

The Sunil Chandra Bose Endowment Lecture, held on March 6, 2025, was jointly organized by the West Bengal Academy of Science and Technology (WAST) and the Indian Institute of Science Education and Research (IISER), Kolkata. The Department of Biological Sciences, IISER Kolkata, hosted the event at the Meghnad Saha Auditorium as well as virtually via YouTube. The keynote address was delivered by Prof. P. Arun, CEO of Tata Medical Centre, Kolkata, and a senior consultant in Head and Neck Surgery.

His lecture, titled "The Surgeon as a Scientist: Negotiating Research in the Clinical Sciences?", focused on the evolving role of modern surgeons as both practitioners and researchers, balancing clinical

expertise with scientific inquiry to drive medical advancements.

He elaborated on the challenges medical professionals face, including time constraints, funding limitations, and ethical considerations, while engaging in basic science research.

He further emphasized the importance of bridging the gap between research and clinical practice to enable evidence-based, cutting-edge surgical procedures. The event was hosted by Prof. Jayasri Das Sarma, Professor at the Department of Biological Sciences, IISER Kolkata. It was attended by over 120 participants, including research scholars and undergraduate and postgraduate students from across West Bengal.

The Secretary of WAST and the Head of the Department of Biological Sciences, IISER Kolkata, also graced the occasion with their esteemed presence. The lecture was highly successful and well-received by the audience.



FACULTY ACHIEVEMENTS



Prof. Sayan Bhattacharyya has been invited to join The Editorial Advisory Board of the Wiley Journal “Small Methods”.

Prof. Prasanta Sanyal has been nominated as a Member of the Research Advisory Council of Birbal Sahni Institute of Palaeosciences (BSIP), Lucknow for three years.



Prof. Nirmalya Ghosh has been elected as a Fellow of the Optical Society of America.

STUDENT'S ACHIEVEMENTS

Suman Samanta received “Outstanding Paper in Biotechnology” Award at the 7th Regional Science and Technology Congress 2024-25, jointly organized by Bidhan Chandra Krishi Viswavidyalaya (BCKV) and Department of Science and Technology, Government of West Bengal held on 14th & 15th January, 2025.





Arpita Pal received “Best Poster Award” at Tropical Infectious Diseases Gordon Research Conference, organized by Gordon Research Conferences in Renaissance Tuscany Il Ciocco, Lucca, Italy during 1st -7th February, 2025.

Ms. Anushree Sinha has been selected for a travel grant to present a poster at the 69th Annual Meeting of the Biophysical Society, to be held from February 15-19, 2025, in Los Angeles, California, USA.



Mr. Hindol Chatterjee, PMRF Student has been declared a winner of a Best Poster Award at the 47th Annual Indian Biophysical Society Meeting. This award has been instituted by the American Chemical Society and the Biophysical Society (USA).

Mr. Sujit Rajak has received the Best Poster award in the recently concluded DAE-BRNS National Laser Symposium (NLS 33) held at Medi-Caps University, Indore, March 6-9, 2025 on his work “Experimental observation of Spin-dependent dispersion of light in Plasmonic crystals”.



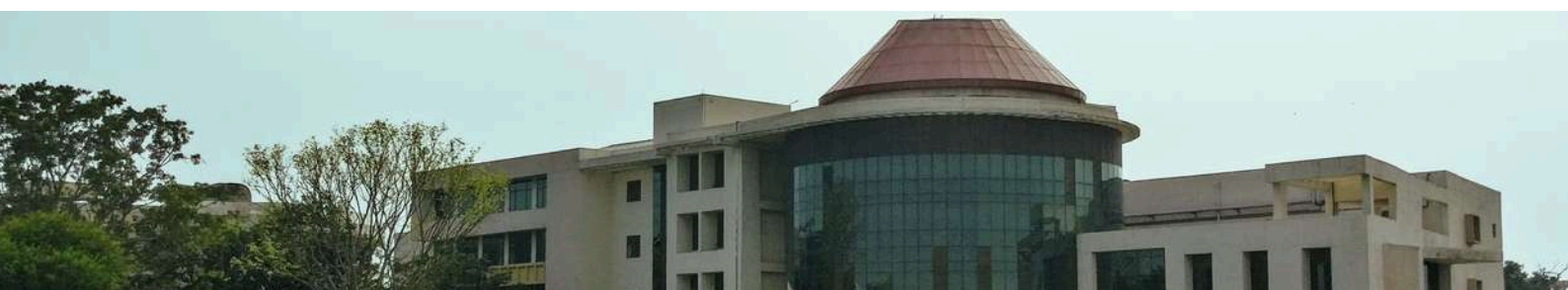
Ms. Tanvi Prashant Shirude from the Department of Biology has been selected for the "Kyoto University Short-Term Academic Research (KU-STAR)" Program for India 2025. She was chosen from among 519 applicants. As part of this program, she will conduct research at Kyoto University for 59 days, from May 20, 2025, to July 17, 2025.

Dr. Debmalya Chakraborty, former Ph.D student from IISER Kolkata has been offered the position of Assistant Professor at the Physics Department of IISER Mohali.



Dr. Mrinmay Baidya, former Ph.D student of the Department of Chemical Sciences, IISER Kolkata has been awarded with the prestigious Alexander von Humboldt fellowship.

Dr. Ayan Chatterjee has been awarded the prestigious Alexander von Humboldt postdoctoral fellowship. Dr. Chatterjee will conduct research at Max-Planck-Institute for Polymer Research at Mainz, Germany with Prof. Tanja Weil.



IISER Kolkata's team 'Bubblesense', comprising of Mr. Anand Dev Ranjan won the gold medal at 'Innovatopia' - the first Inter-INCI E-Summit held at IISER Kolkata on March 22. They showcased their idea on multiple pathogen detection on a single microfluidic chip using microbubble lithography - a technology developed in the Light Matter lab led by Prof. Ayan Banerjee. The team won a cash award of Rs 50,000 by Prof. S. Sivaram of IISER Pune, Advisory Board Member of RISE Foundation IISER and co-hosts of this year's E-Summit.



CENTER OF EXCELLENCE IN SPACE SCIENCES INDIA (CESSI)

CESSI Patents Granted in the month of March 2025:

A METHOD & APPARATUS OF MEASURING INTERFEROMETRIC WEAK VALUE AMPLIFICATION OF SMALL OPTICAL ROTATION, Indian Patent No. 560551, patent application no 202331058260, Date of grant: 18/2/2025.

Inventors: Athira B S, Ankit K Singh, Niladri Modak, Mintu Karmakar, Ritwik Dhara, Dibyendu Nandi, Nirmalya Ghosh.

CESSI Publication List for the month of March 2025

- [5 February 2025] “Tidal Reconstruction of Neutron Star Mergers from Their Late Inspiral”, Souradeep Pal and Rajesh Kumble Nayak, The Astrophysical Journal, Volume 980, Number 1.
- [14 February 2025] “Swift-BAT GUANO Follow-up of Gravitational-wave Triggers in the Third LIGO–Virgo–KAGRA Observing Run”, R K Nayak and S Pal with LIGO ScienceCollaboration, The Astrophysical Journal, Volume 980, Number 2.
- [18 February 2025] “Spatially resolved spin angular momentum mediated by spin–orbit interaction in tightly focused spinless vector beams in optical tweezers”, 2025, Kumar, R. N., Roy, S., Gupta, S. D., Ghosh, N., & Banerjee, A., Advanced Photonics Nexus, Vol. 4, Issue 2.
- [13 March 2025] “The Solar Ultraviolet Imaging Telescope on Board Aditya-L1”, 2025, Tripathi, D. et al. (including Ramprakash, A. N., Banerjee, D., Nandy, D., and Sankarasubramaniam, K.), Solar Physics, Volume 300, article number 30.
- [28 February 2025] “Near- and Mid-ultraviolet Observations of X-6.3 Flare on 2024 February 22 Recorded by the Solar Ultraviolet Imaging Telescope on board Aditya-L1”, 2025, Roy, S., Tripathi, D., Padinhatteeri, S., Ramaprabhakar, A. N., Sarwade, A. R., V. N., N., Sarkar, J., Gopalakrishnan, R., Deogaonkar, R., Sankarasubramanian, K., Solanki, S. K., Nandy, D., and Banerjee, D., The Astrophysical Journal Letters, Volume 981, Number 1, L19.
- [18 March 2025] “The Fluxgate Magnetometer (MAG) on Board Aditya-L1 Spacecraft”, 2025, Yadav, V. K. et al. (including Srivastava, N.), Solar Physics, volume 300, article number 33.
- [27 February 2025] “Simulating the Arrival of Multiple Coronal Mass Ejections That Triggered the Gannon Superstorm on 2024 May 10”, 2025, Thampi, S. V., Bhaskar, A., Mayank, P., Vaidya, B., and Venugopal, I., The Astrophysical Journal, Volume 981, Issue 1, 76.

IISER Kolkata participated with a dedicated stall in the celebration of the 130th Birth Anniversary of S.N. Bose, organized by Vigyan Bharati at the IIT Kharagpur Research Park, Newtown, Kolkata.



The Dean of International Relations and Outreach (DoIRO), Prof. Debasis Koley (1st from right) attended one Day symposium on “Brain Mind and Consciousness” at AIIMS Kalyani on 22nd March, 2025.

Seminars, Lectures and Colloquia

[Space Astronomy Guest Lecture] Saugata Barat (University of Amsterdam) -- Space Astronomy Guest Lecture, Date: Monday, Mar 03, 2025.

[Gluon - The Physics Journal Club] Prof. Nissim Kanekar (NCRA, TIFR), Date: Wednesday, Mar 05, 2025.

[DBS seminar] Sharon Mary Jose -- Evolutionary divergence of copper-ATPase domains sheds light on trafficking regulation of human homologs ATP7A and ATP7B, Date: Wednesday, Mar 05, 2025.

[DPS Colloquium] Prof. Nissim Kanekar (NCRA-TIFR) -- The atomic gas properties of galaxies at cosmic noon Date: Wednesday, Mar 05, 2025.

[DMS Seminar] Somnath Hazra (Faculty in TCG Crest) - Homogeneous Operators in The Cowen-Douglas Class Date: Wednesday, Mar 05, 2025.

[DCS Visitor Seminar] Dr. Arghyadeb Chakraborty (University of Bochum, Germany) -- Cryogenic Spectroscopy of Transient Molecules and Clusters: Implication in Astrochemistry and Atmospheric Science, Date: Wednesday, Mar 12, 2025.

[DMS seminar] Prof. Claus Koestler (University College Cork, Ireland) -- An operator algebraic proof of Thoma's theorem, Date: Wednesday, Mar 12, 2025.

[DPS Seminar] Dr. Avik Banerjee (Crete Center for Theoretical Physics) -- Nambu-Goto equation from three-dimensional gravity, Date: Tuesday, Mar 18, 2025.

[DBS Seminar] Dr. Sangram Bagh -- “Genetically Engineered Bacteria Identify Prime Numbers, Vowels, and Answer Math Questions”, Date: Wednesday, Mar 19, 2025.

[DBS Seminar] Abhishek Guha -- DBS Seminar, Date: Thursday, Mar 20, 2025.

[Special Colloquium] Prof. Dr. Kari Tapani Rissanen (University of Jyväskylä, Finland), Date: Tuesday, Mar 25, 2025.

[Institute Colloquium] Prof. Paras N. Prasad (University at Buffalo) -- Convergence of Nanotechnology, Photonics, and Biotechnology to Address Global Challenges in Energy, Healthcare, and Environment, Date: Tuesday, Mar 25, 2025.

[DPS Seminar] Prof. Ajit M Srivastava (Institute of Physics, Bhubaneswar) -- Detecting gravitational waves with pulsars as resonant Weber detectors, Date: Tuesday, Mar 25, 2025.

[DMS Seminar] Krishanu Maulik (ISI Kolkata) -- Step Reinforced Random Walk with Regularly Varying Memory, Date: Wednesday, Mar 26, 2025.