

IISER KOLKATA

Newsletter



May, 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.

On 3rd May 2024, the Institute organized a press conference at Press Club Kolkata on three notable achievements of the Institute in the field of research.

Three notable achievements:

A. Key for locking an overactive protein might help treat cancer.

Cancers like colorectal carcinoma and diabetes-related complications are often caused by faulty signaling at the cellular level in our bodies. Prof. Rahul Das and his team at the Department of Biological Sciences, IISER Kolkata, have discovered a mechanism which points towards a protein that might be the culprit causing such problems.

B. A sustainable way to transform CO₂.

Net zero carbon emission is one of the missions India aims to achieve by 2070. Prof. Swadhin Mondal and his team at the Department of Chemical Sciences, IISER Kolkata, have joined the league of sustainability researchers by developing a new method to utilize carbon dioxide from the environment to produce olefins in the lab. Olefins are a group of chemicals that are widely used in the pharmaceutical and cosmetic industries.

C. Coconuts Offer Safe Hydration Lifeline in Polluted Regions, New Research Suggests.

In the raging heat wave, fluid intake is paramount for keeping us safe. What could be more soothing than fresh coconut water when you are out in the heat? But do you worry if the coconut has been grown in arsenic-contaminated soil? Prof. Gopala Krishna Darbha and his team at the Department of Earth Sciences, IISER Kolkata, have found that coconut water is safe, in spite of the presence of arsenic in the soil.



Press Conference regarding the notable achievements in the field of research by Prof. Soumitro Banerjee, Prof. Swadhin Kumar Mandal, Dr. Rahul Das, and Dr. Anirban Banerjee at Press Club Kolkata.



Forty students and five teachers from the Delhi Public School, Howrah, visited IISER Kolkata for an educational tour on 8th May 2024. The educational tour was aimed to expose students to diverse educational environments and opportunities that will broaden their perspectives and inspire their academic pursuits. They visited the Department of Biological and Chemical Sciences labs and interacted with the faculty members and the students of IISER Kolkata.

Stars of the Month



Ananya Chatterjee: Ananya is a PhD Student from the Department of Biological Sciences, working under the supervision of Dr. Partha Pratim Datta, stood second based on an evaluation test at the "3rd National Workshop on Electron Tomography of Biological Specimens", 22-26th April, 2024, organized by AIIMS Delhi.



Abhishek Mandal: Abhishek is a PhD student of the Department of Earth Sciences under the supervision of Dr. Gopala Krishna Darbha, embarked on a remarkable journey to the Arctic in March 2024, marking a historic milestone as the first winter expedition sanctioned by NCPOR for environmental pollutant monitoring. Despite facing numerous challenges posed by harsh Arctic conditions (temperature of minus 45 °C), limited access to resources, and fierce competition for selection, Abhishek was one of only 19 individuals chosen from India for this prestigious expedition. With the IISER Kolkata proposal accepted for the second time, Abhishek will venture once again to the Arctic for the summer expedition 2024-2025, affirming the enduring impact of their research in this critical area.



Dishari Dasgupta: Dishari is a 2nd year PhD Student from the Department of Biological Sciences, working under the supervision of Dr. Anindita Bhadra. She is a PMRF fellow at the 'Dog Lab' and has been successful in securing a prestigious grant of \$1500 (for a year) for one of her ongoing experiments from the International Primatological Society. This grant will fund the field work for the experiment.



Sreya Das: a PhD student under the supervision of Dr. Sreeramaiah N. Gangappa from the Department of Biological Sciences has been selected as one of the "top 25 inspiring women scientists in Plant Biology" in the "Early Career Researcher" category. More details can be found at: <https://blog.aspb.org/25-inspiring-women-in-plant-biology/>



Soumili Roy: a PhD student under the supervision of Dr. Dibyendu Das from the Department of Chemical Sciences has received the Carl Storm International Diversity (CSID) Fellowship award which provides financial support to attend the Gordon Research Conference (GRC), Systems Chemistry 2024.



Sandip Samanta: a PhD student of Dr. Somnath Basu has been invited to speak at the online workshop "Advances in Homotopy Theory VI", to be held between June 17 and 19th. The link is given below: [Advances in Homotopy Theory VI-BIMSA](#)

This is a prestigious international workshop in topology that is held twice-yearly and alternates between the Southampton Centre for Geometry, Topology and Applications and the Beijing Institute of Mathematical Sciences and Applications. The workshop aims to promote exciting new work in homotopy theory, with an emphasis on younger mathematicians, and to showcase the wide relevance of the subject to other areas of mathematics and science.



Mr. Jeeban Kumar Nayak (19RS027), PhD student of Prof. Nirmalya Ghosh, and Mr. Anand Dev Ranjan (20RS068), PhD student of Prof. Ayan Banerjee of Department of Physical Sciences, have been awarded the 2024 Optics and Photonics Scholarship by SPIE, the international society for optics and photonics, for potential contributions to optics, photonics, or a related field.

Jeeban's primary research interest is investigating spin-orbit interactions of light in nanostructures, and on developing various microscopy and sensing technologies with potential applications in biomedical research, chemical sciences, and metrology.



Anand's research focuses on developing cost-effective biosensors, supplemented by a need for more congenial fabrication strategies. Specifically, his work focuses on 'microbubble lithography' - a technique for developing microscopic patterns of diverse materials using microbubbles created by a high-intensity laser spot inside optical tweezers.

This month, the Society is awarding \$303,000 in scholarships to 72 outstanding SPIE Student Members, based on their potential contribution to optics and photonics, or a related discipline. This ambitious effort reflects the Society's commitment to education as well as to the future generations of optical scientists and engineers around the world.

Prof. Supriyo Mitra, Department of Earth Sciences has been selected for the INSA Associate Fellows 2024.

Seminars and Colloquia

[DBS Talk] Prof. Prosenjit Mondal -- "Exploring inter-organ crosstalk to uncover mechanisms that regulate β -cell function and mass, Date: Wednesday, May 01, 2024.

[Institute Colloquium] Prof. Satrajit Adhikari (IACS, Kolkata) -- Role of Electron-Nuclear Coupling on Photoelectron Spectra, Reactive Scattering Processes and Phase Transition of Solids, Date: Friday, May 03, 2024.

[DBS Seminar] Dr. Tanaya Basu Roy (Molecular Biophysics Unit, Indian Institute of Science, Bangalore, India) -- The Multifaceted MazE9 Antitoxin from Mycobacterium tuberculosis, Date: Wednesday, May 08, 2024.

[DMS Seminar] Jaydeb Sarkar (Indian Statistical Institute, Bangalore Centre) -- Commutant lifting theorem on the polydisc, Date: Wednesday, May 08, 2024.

[DPS Seminar] Dr. Atindra Nath Pal (S. N. Bose National Centre for Basic Sciences, Kolkata) -- Exploring Layered Semimetals and Magnets: Emergent Topological and Electronic Phases, Date: Wednesday, May 15, 2024.

[DBS Seminar] Dr. Ashif Akram (NIH Postdoctoral Fellow, Kansas State University, USA) -- A minimalist model for bio-molecular condensates, Date: Tuesday, May 21, 2024.

[Institute Colloquium] Prof. Gautami Bhowmik (University of Lille) -- On the Telhcid Problem, Date: Wednesday, May 22, 2024.

[DCS Seminar] Dr. Tanay Debnath (Fulbright-Nehru Postdoc Fellow) -- Computational Investigation of Unnatural Base Pairs (UBPs) incorporated-DNA in aqueous solution and Taq DNA Polymerase, Date: Wednesday, May 22, 2024.

[DBS Seminar] Dr. Sashi Gujar (Executive Director, Cancer Immunotherapy, Innovation & Global Partnerships, Faculty of Medicine, Dalhousie University, Halifax, Nova Scotia, Canada) -- 'Cancer-killing' Oncolytic Viruses as Cancer Immunotherapy Agents, Date: Wednesday, May 22, 2024.

[Institute Colloquium] Prof. Marc Bourdon (University of Lille) -- Lie groups and quasi-isometries, Date: Wednesday, May 29, 2024.