Recipients of INSA Young Associates (IYA) (For the Year 2025)

1. Dr Chirodeep Bakli (08.05.1986), PhD, Associate Professor, School of Energy Science and Engineering, Indian Institute of Technology Kharagpur, Kharagpur.

Dr. Chirodeep Bakli has made significant contributions to the field of micro- and nanofluidics, focusing on interfacial phenomena and energy conversion processes. His research has elucidated the complex interplay between surface wettability, slip length, and fluid structuring at the nanoscale, challenging traditional assumptions and enabling the design of smart surfaces for optimized fluid transport. By investigating electrokinetic effects and electric double layer dynamics, he has advanced the efficiency of energy conversion devices at micro- and nano-scales. Additionally, his work extends to renewable energy applications, including solar and wind energy systems, and the development of nanostructured materials for enhanced thermal and fluid performance in sustainable technologies.

2. Dr Prarabdh Chandrakant Badgujar (25.06.1986), PhD, Assistant Professor, Dept. of Food Science and Technology, National Institute of Food Technology, Entrepreneurship and Management (NIFTEM-K), Sonipat.

Dr. Badgujar has designed a low-cost meat storage structure which does not involve direct use of electricity.

3. Dr Indranath Chakraborty (02.02.1989), PhD, Assistant Professor, School of Nano Science and Technology, Indian Institute of Technology Kharagpur, Kharagpur.

Outstanding work in the chemistry of new materials.

4. Dr Tanmoy Chakraborty (12.01.1988), PhD, Associate Professor, Department of Electrical Engineering and Yardi School of Artificial Intelligence, Indian Institute of Technology Delhi, New Delhi.

Dr. Tanmoy Chakraborty has made significant contributions to natural language processing and computational social science, focusing on misinformation detection, hate speech moderation, and multilingual Artificial Intelligence systems. He developed frameworks like SpotFake for multimodal fake news detection and SAFE-MEME for robust hate speech detection in memes, and led the creation of MenstLLaMA, a specialized large language model for menstrual health education in India. His research also includes studies on code-mixed language processing and the influence of Hinglish in online engagement, as well as advancements in low-resource taxonomy expansion using large language models, contributing significantly to AI-driven solutions for societal challenges as well.

5. Dr Sucharita Dey (20.11.1982), PhD, Assistant Professor, Department of Bioscience & Bioengineering. Indian Institute of Technology Jodhpur, Jodhpur.

Dr Dey developed a scalable AI/ML- based strategy for proteome-wide prediction of homo-obligomeric protein complexes uncovering hundreds of novel assemblies, including experimentally validated megadalton structures.

6. Dr Amaranatha Reddy Devulapalli (04.04.1987), PhD, Assistant Professor, Indian Institute of Information Technology, Design & Manufacturing, Kurnool.

Dr. Amaranatha Reddy Devulapalli has made significant contributions to nanomaterials research, focusing on sustainable energy and environmental applications. His work encompasses the synthesis and characterization of materials for solar fuel generation, including hydrogen production via photoelectrochemical water splitting, and the photocatalytic conversion of CO₂ into valuable chemicals. He also explores photocatalytic methods for decontaminating pollutants in water and air, and develops energy storage solutions like supercapacitors and photodetectors, advancing green hydrogen technologies and sustainable nanomaterials.

7. Dr Uttam Kumar Ghorai (15.07.1986), PhD, Assistant Professor and Head, Department of Industrial Chemistry & Applied Chemistry, Ramakrishna Mission Vidyamandira, Belur Math, Howrah.

Outstanding work in materials chemistry and electrochemistry with practical applications.

8. Dr Sreetosh Goswami (25.04.1990), PhD, Assistant Professor, Centre of Nanoscience and Engineering, Indian Institute of Science, Bangalore, Bangalore.

Dr. Sreetosh Goswami has made significant contributions to the field of molecular electronics and neuromorphic computing. His research focuses on developing molecular memristors capable of storing and processing data in multiple states, exemplified by the creation of a "brain-on-a-chip" that can handle16,500 distinct conductance states within a molecular film, marking a substantial advancement over traditional binary computing systems, His research team introduced linear, symmetric, self-selecting 14-bit kinetic molecular memristors, which hold promise for enhancing the efficiency of analog computing platforms. Additionally, his earlier work demonstrated the use of solution-processable metal-coordinated azo aromatics to create robust resistive memory devices, contributing to the development of low-cost, scalable memory technologies.

9. Dr Purvi Gupta (15.06.1987), PhD, Assistant Professor, Department of Mathematics, Indian Institute of Science, Bengaluru.

Contributions to complex dynamics, Novel notions of Hardy spaces & Bergman kernel.

10. Dr Durga Prasada Rao Hari (01.07.1986), PhD, Assistant Professor, Department of Organic Chemistry, Indian Institute of Science Bangalore, Bengaluru.

Outstanding work in developing novel organic transformations and synthesis.

11. Dr Kinjalk Lochan (25.06.1985), PhD, Associate Professor, Indian Institute of Science Education and Research Mohali, Mohali.

For innovative contributions to the quantum field theory effects in non – inertial frames and curved space times.

12. Dr Bhanu Prakash (01.06.1985), PhD, Associate Professor, Department of Botany, Institute of Science, Banaras Hindu University, Varanasi.

Dr. Bhanu Prakash has done significant work in the formulation of plant-based antimicrobial and insecticidal agents to extend the shelf-life of agricultural commodities.

13. Dr Amiya Kumar Samal (13.05.1988), PhD, Assistant Professor, Department of Geology, Banaras Hindu University, Varanasi.

Contributed remarkably to identification and characterization of Large Igneous Provinces of India

14. Dr Nitika Sandhu (06.09.1986), PhD, Molecular Geneticist cum Rice Breeder, School of Agricultural Biotechnology, Punjab Agricultural University, Ludhiana.

Dr. Sandhu has made significant contributions in broadening rice gene and germplasm pool through molecular mapping and introgression of a spectrum of QTL/genes associated with grain yield and adaptability of rice under direct-seeded cultivation conditions.

15. Dr Asmita Sengupta (22.03.1986), PhD, Fellow, Ashoka Trust for Research in Ecology and the Environment, Srirampura, Bengaluru

Sengupta Asmita's research has chiefly developed along two (not mutually exclusive) trajectories: plant-animal interactions and human wildlife-interactions. She has worked on seed dispersal ecology and various aspects of the human-wildlife interface such as primate tourism across Asia and assessing the factors underlying human-wildlife coexistence.

16. Dr Swati Singh (28.02.1988), DM, Clinician Scientist, Consultant Ophthalmologist, LV Prasad Eye Hospital, Hyderabad

Dr Swati Singh is a clinician-scientist who has done research in clinical and basic science disciplines. Her primary area of work is on the lacrimal glands. She has developed of a novel, reliable, and easy technique for assessing lacrimal and salivary glands in patients with dry eye disease. She has also developed an

animal model for this. She has developed "Ocular surface and adnexa" discipline in Ophthalmology which targets patients with ocular adnexal and surface problems.

17. Dr Somlata (31.01.1983), PhD, Assistant Professor, Multidisciplinary Centre for advanced Research and Studies, New Delhi

Dr Somlata is recognized for fundamental discoveries in the trogocytosis ("eating up") of host cells by parasites. The committee also appreciates her finding of phosphorylation pathways that affect cytoskeletal components during trogocytosis by Entamoeba histolytica, and important pathogen.

18. Dr Rahul Srivastava (02.08.1985), PhD, Assistant Professor, Indian Institute of Science Education and Reaserch Bhopal, Bhopal.

For important contributions to neutrino, Dark Matter physics and beyond standard model phenomenology.

19. Dr Swati Tripathi (26.02.1986), PhD, Scientist-E, Birbal Sahni Institute of Palaeosciences, Lucknow.

Contributed to Quaternary Palynology

20. Dr Mohit Verma (23.12.1986), Principal Scientist, Advanced Seismic Testing and Research (ASTaR) Laboratory, CSIR – Structural Engineering Research Center, Chennai.

Dr. Mohit Verma has made significant contributions to structural dynamics, particularly in hybrid simulation techniques for seismic and thermo-mechanical testing of structures. His research includes developing real-time hybrid testing frameworks and impedance matching strategies to enhance the accuracy and efficiency of dynamic substructuring experiments. He has also applied fuzzy logic and multi-criteria decision-making models for structural health assessment, exemplified by his work on ranking and evaluating telecommunication towers based on visual inspections. Additionally, he has investigated the dynamic responses of off shore wind turbine platforms, contributing to the design of resilient floating structures under extreme environmental conditions.
