Recipients of INSA Associate Fellows (IAF)
(For the Year 2025)

1. Dr Purushothaman Chirakkuzhyil Abhilash (20.05.1978), PhD, Associate Professor, Institute of Environment & Sustainable Development (IESD), Banaras Hindu University, Varanasi

Dr PC Abhilash is working on the restoration of marginal and degraded lands for regaining ecosystem services and complexities, sustainable utilization of agrobiodiversity, nature-based solutions, and ecosystem-based adaptations for climate-resilient and planet-healthy food production.

2. Professor Arpan Banerjee (30.03.1979), PhD, Scientist VI, National Brain Research Centre, Gurgaon.

Dr Banerjee's key contributions are in the field of Cognitive Neurosciences with far-reaching significance on problems of mental health, brain injuries and neurodevelopmental disorders across adult human lifespan. He uses tools across Neuroimaging-Electrophysiology-Biophysics to marshal an integrative understanding of brain function. Recent focus of his group is utilizing big data analytic tools to characterize neurophysiological patterns of healthy lifespan ageing and to identify pathological variations of such patterns from biophysics-based computational models of disease mechanisms. He is of international renown.

3. Dr Varun Bhalerao (04.08.1983), PhD, Associate Professor, Department of Physics, Indian Institute of technology, Bombay.

For his sustained important contributions to the study of astrophysical transients and development of space instrumentation.

4. Professor Suryasarathi Bose (06.04.1980), PhD, Department of Materials Engineering, Indian Institute of Science, Bangalore, Bangalore.

Dr. Suryasarathi Bose has made pioneering contributions to the development of advanced polymer nanocomposites, significantly enhancing their electrical, thermal, and mechanical properties. His research has led to innovative approaches for aligning carbon nanotubes and graphene within polymer matrices, enabling multifunctional materials with superior performance. He has also explored sustainable materials by incorporating bio-based fillers and green processing methods. His work has wide-ranging applications in flexible electronics, energy storage, and lightweight structural components.

5. Dr Pranjal Chandra (01.01.1984), PhD, Associate Professor, School of Biochemical Engineering, Indian Institute of Technology (BHU) Varanasi, Varanasi.

Dr. Pranjal Chandra has done seminal work in developing ultra-sensitive biosensors for early disease detection, particularly in cancer and infectious diseases. He has innovated cost-effective, point-of-care diagnostic platforms using nanomaterials and electrochemical techniques, which hold the potential for scalable deployment. His

research bridges nanotechnology and biotechnology, resulting in devices with rapid response times and high specificity. His contributions are also instrumental in advancing personalized medicine and real-time health monitoring.

6. Dr Dibyendu Das (29.06.1981), PhD, Associate Professor, Department of Chemical Sciences, Indian Institute of Science Education and Research Kolkata, Mohanpur.

Outstanding work in Systems Chemistry & Supramolecular Chemistry.

7. Dr Santosh Kumar Das (14.06.1983), PhD, Associate Professor, Indian Institute of Technology Goa.

For his high impact theoretical work to see the effect of strong initial magnetic field in ultra-relativistic heavy-ion collisions. This was subsequently verified by experiments at the LHC and RHIC.

8. Dr Rajib Deb (05.04.1981), PhD, Senior Scientist, Animal Health Laboratory, ICAR-National Research Centre on Pig, Guwahati.

Dr. Deb has made remarkable contributions to animal biotechnology with a focus on advanced diagnostics, vaccines, and understanding host-pathogen interactions to improve livestock health and food safety.

9. Professor Debangshu Dey (11.04.1980), PhD, Electrical Engineering Department, Jadavpur University, Kolkata.

Dr. Debangshu Dey has made significant contributions to electrical engineering and biomedical signal processing, particularly in the application of advanced signal processing and machine learning techniques. His research includes developing wavelet-based deep learning frameworks for denoising partial discharge signals in high-voltage equipment, enhancing fault detection accuracy. He has also worked on attention-based deep learning models for driver drowsiness detection and biomedical image analysis, such as lung nodule and skin lesion classification. Additionally, he has applied empirical wavelet transforms and hybrid algorithms for condition monitoring of bearings and transformers, improving predictive maintenance strategies.

10. Dr Sandeep Eswarappa (28.05.1980), PhD, Associate Professor, Department of Biochemistry, Indian Institute of Science, Bengaluru.

Dr Sandeep has pioneered the study of translational readthrough in mammals, identifying key genes and demonstrating microRNA and ASO- mediated modulation of this process, offering a novel, mutation specific therapeutic strategy for diseases like beta-thalassemia.

11. Dr Suphiya Khan (26.02.1976), PhD, Deputy Director, Shriram Institute for Industrial Research, Gurugram

Dr Suphiya Khan’s research spans interdisciplinary fields, including water purification and technology development, with a particular focus on sustainable solutions for

fluoride contamination. Her work is a blend of academic rigor and practical innovation, which has been translated into her spin-off company, Drumlins, which aims to address critical water-related challenges.

12. Dr Prashant Kumar (03.12.1982), PhD, Scientist – SF, Atmospheric Sciences Division, Atmospheric and Oceanic Sciences and Applications Group EPSA, Space Applications Centre, ISRO, Ahmedabad.

His primary research of developing particle filter for rainfall assimilation and all sky satellite radiance is major milestone.

13. Dr Charu Lata (14.12.1981), PhD, Principal Scientist, CSIR-National Institute of Science Communication and Policy Research, New Delhi.

Dr. Charu Lata has made significant contributions towards elucidation of molecular mechanism of beneficial plant-microbe interactions leading to abiotic stress tolerance.

14. Professor Amit Mishra (01.07.1981), PhD, Professor, Department of Bioscience & Bioengineering, Indian Institute of Technology Jodhpur.

Dr. Amit Mishra has done significant work in neuronal protein quality control mechanisms involved in neurodegenerative diseases. This has been achieved by understanding the quality control functions of selective multifaceted E3 ubiquitin ligases, which barricade extreme defence against misfolded proteins aggregation. His findings provide a clear and better understanding of this innovative concept that can develop new therapeutic targets for neurodegeneration and aging.

15. Dr Kutubuddin Ali Molla (22.02.1985), PhD, Senior Scientist, Crop Improvement Division, ICAR-National Rice Research Institute, Odisha.

Dr. Molla has developed a highly compact genome editing tool, TnpB, which is one-third the size of Cas9/Cas12a. He has also developed 2 climate-resilient rice varieties.

16. Dr Rajesh Ramachandran (30.05.1976), PhD, Associate Professor, Indian Institute of Science Education and Research Mohali, Mohali

Dr. Rajesh Ramachandran is being recognized for his well-recognized work on retinal regeneration in Zebrafish, and how this is orchestrated by microRNA, the myc-pathway and histone deacetylase enzymes. His results uncover important common mechanisms in developmental programming across species.

17. Professor Chandra Shekhar Sharma (05.11.1982), PhD, Department of Chemical Engineering, Indian Institute of Technology Hyderabad, Kandi.

Dr. Chandra Shekhar Sharma has advanced the development of lithium–CO_2 batteries, successfully demonstrating their operation in simulated Martian conditions—a breakthrough with potential applications in future space missions and CO_2 utilization technologies. His research focuses on creating sustainable energy storage solutions, including biomass-derived carbon electrodes for lithium-sulphur and potassium-ion batteries, as well as high-performance supercapacitors. He has also developed eco-

friendly technologies such as electrospun nanofiber-based sanitary napkins and a method to recycle thermocol waste using orange peel extract, both of which have received significant recognition. Additionally, his work on nanofibrous seed storage bags aims to reduce agricultural losses, contributing to food security through nanotechnology-driven solutions.

18. Professor Saurabh Kumar Shrivastava (28.02.1983), PhD, Indian Institute of Science Education and Research Bhopal, Bhopal.

Contributions to Harmonic Analysis.

19. Professor Sripada S. V. Rama Sastry (13.07.1979), PhD, Indian Institute of Science Education and Research Mohali, Mohali.

Contribution to Organic synthetic methodology and total synthesis.

20. Professor Basker Sundararaju (25.07.1980), PhD, Department of Chemistry, Indian Institute of Technology Kanpur, Kanpur.

Outstanding contribution to Organometallic chemistry.

21. Dr Amit Tuli (09.09.1980), PhD, Principal Scientist & Wellcome Trust-India Alliance Intermediate Fellow, Division of Cell Biology & Immunology, CSIR-Institute of Microbial Technology, Chandigarh.

Dr. Amit Tuli's research findings have significantly contributed to the understanding of the mechanisms by which immune cell types such as macrophages and natural killer (NK) cells in our body get activated and respond to control the growth of intracellular pathogens. He gives equal importance to both the understanding of the fundamental mechanisms of the processes and their implications for disease. Thus, his work has strong translational components with thorough basic science grounding.

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