

## RECIPIENTS OF INSA ASSOCIATE FELLOWS (IAF)-2026

### SECTIONAL COMMITTEE – I (*Mathematical Sciences*)

1. **Dr Swarnendu Sil** (09.05.1984), PhD, Assistant Professor, Department of Mathematics, Indian Institute of Science, Bangalore.

Dr. Swarnendu Sil's research contributions are in Calculus of variation, Partial differential Equations and Geometric analysis. Some of his important contributions are in developing tools of direct methods in calculus of variation in the context of differential forms, developing approximation results for the Yang-Mills functional in dimension 4, and developing regularity results for Hodge-Maxwell systems. His works have appeared in prestigious journals like the J. Eur. Math. Soc. (JEMS), Commun. Math. Phys, Adv. Math., J. Funct. Anal, etc.

### SECTIONAL COMMITTEE – II (*Physics*)

1. **Dr Sudipta Sarkar** (16.08.1981), PhD, Associate Professor, Indian Institute of Technology Gandhinagar, Gujarat.

Dr. Sudipta Sarkar is a gravitational physicist at IIT Gandhinagar whose research focuses on black hole physics, gravitational waves, and quantum field theory in curved spacetime. His work has made important contributions to black hole thermodynamics, particularly in extending the laws of black hole mechanics and entropy to higher-curvature theories such as Lanczos–Lovelock and Gauss–Bonnet gravity. He has also explored connections between gravity and thermodynamics, including deriving gravitational field equations from thermodynamic principles. More recently, his research includes studies of photon spheres, black hole shadows, and gravitational wave signatures, providing observational probes of strong gravity. Overall, his work bridges classical gravity, quantum effects, and astrophysical observations, advancing our understanding of gravity beyond general relativity.

2. **Professor Sayantan Majumdar** (18.01.1980), PhD, Raman Research Institute, Bengaluru.

Dr. Sayantan Majumdar at the Raman Research Institute works in experimental condensed matter physics, with a focus on soft matter and statistical physics. His research explores glassy dynamics, jamming, and non-equilibrium behavior in systems such as colloids, granular materials, and active matter. Using advanced imaging and rheological techniques, he studies how disorder, fluctuations, and interactions give rise to emergent phenomena like slow relaxation, dynamical heterogeneity, and mechanical rigidity. His work also investigates active systems, where energy is injected at the particle level, leading to novel collective behavior. Overall, his contributions help uncover universal principles governing non-equilibrium and complex materials.

### SECTIONAL COMMITTEE – III (*Chemistry*)

1. **Dr Ekambaram Balaraman** (01.06.1980), PhD, Associate Professor and Chair, Department of Chemistry, IISER Tirupati, Tirupati.

Prof. (Dr.) Ekambaram Balaraman has made pioneering contributions to non-precious metal catalysis, developing innovative systems for energy and environmental applications. His research focuses on hydrogen generation from sustainable feedstocks, green synthesis from renewable alcohols, and CO<sub>2</sub> valorization, addressing key challenges in energy efficiency and sustainability.

2. **Dr Tharamani C. Nagaiah** (15.05.1977), PhD, Associate Professor, Department of Chemistry, Indian Institute of Technology Ropar, Rupnagar.

Dr. Tharamani C. Nagaiah has made pioneering contributions to the development of non-noble metal catalysts with high activity for hydrogen generation from industrial H<sub>2</sub>S and HCl electrolysis for clean chlorine production. She has also developed electrochemical sensors for detecting small cell lung cancer, cholesterol, and dopamine.

3. **Professor Ravi Prakash Singh** (15.12.1976), PhD, Department of Chemistry, Indian Institute of Technology Delhi, New Delhi.

Prof. R. P. Singh has made seminal contributions to asymmetric catalysis, photocatalysis, and catalytic C–H and C–F activation. His group has developed highly enantioselective catalytic systems, advancing vinylogous nucleophile chemistry and addressing key challenges in regioselective transformations.

#### **SECTIONAL COMMITTEE – IV (*Earth & Environmental Sciences*)**

1. **Dr Bhasker Kundu** (16.07.1984), PhD, Associate Professor, Department of Earth and Atmospheric Sciences, National Institute of Technology, Rourkela, Odisha

He has made outstanding contributions in solid earth geophysics, in general, and kinematic and dynamic models, in particular, in improving the understanding various geodynamics and geological process in Central India.

#### **SECTIONAL COMMITTEE – V (*Engineering & Technology*)**

1. **Professor Jitendra Shital Sangwai** (14.12.1977), PhD, Department of Chemical Engineering, Indian Institute of Technology Madras, Chennai.

Prof. Jitendra Sangwai has made outstanding contributions to petroleum engineering, advancing gas hydrate science, carbon sequestration, and enhanced oil recovery. His innovations in reservoir modelling, nanotechnology, and sustainable energy processes have significantly influenced both fundamental understanding and real-field applications.

2. **Dr Sriparna Saha** (19.01.1982), PhD, Associate Professor, Department of Computer Science and Engineering, Indian Institute of Technology Patna, Bihar

Prof. Sriparna Saha has made significant contributions to multimodal AI and natural language processing, advancing models for healthcare, mental health, and low-resource languages. Her work is distinguished by large-scale datasets, interdisciplinary applications, and sustained impact across academia and industry.

3. **Professor Rahul Vaish** (15.12.1979), PhD, Dean Faculty, Indian Institute of Technology Mandi, Mandi.

Outstanding contributions in developing an excellent array of new multifunctional materials with impressive combination of piezoelectric and ferroelectric properties, including the microstructure-property correlation.

4. **Professor Sandip Kumar Saha** (13.02.1979), PhD, Department of Mechanical Engineering, Indian Institute of Technology Bombay, Mumbai.

Prof. Sandip Saha has contributed significantly to the fundamental understanding of transport characteristics in thermal energy storage for solar thermal and high-power electronics cooling applications. His unique design methodologies and innovative solution techniques for complex thermal systems have resulted in development of novel clean energy technologies.

#### **SECTIONAL COMMITTEE – VI (*General Biology*)**

1. **Dr Rohini Garg** (19.09.1982), PhD, Associate Professor, Department of Life Sciences, Shiv Nadar Institution of Eminence, Gautam Buddha Nagar, Uttar Pradesh.

Her research has established key epigenomic resources for rice and chickpea and revealed how DNA methylation, chromatin accessibility, and novel enhancers regulate stress responses and seed traits in crops. Her research has addressed the presence and role of alternative DNA secondary structures, relating molecular dynamics with functional plant traits, and other basic issues. She has contributed towards development of the first reference (de novo) transcriptome sequence assemblies and their annotation, in crops relevant to India. Her work has generated comprehensive genomic and epigenomic datasets, and the creation of a global gene expression atlas spanning multiple biological conditions, all of which have enhanced the precision and efficiency of breeding programs.

#### **SECTIONAL COMMITTEE – VII (*Molecular and Cellular Biology*)**

1. **Dr Amitesh Anand** (01.07.1985), PhD, Reader (Assistant Professor), Department of Biological Sciences, Tata Institute of Fundamental Research, Mumbai.

Dr Anand's research provides new understanding of microbial evolution and of how bacteria might adapt their respiratory mechanisms to survive in adverse conditions. His mechanistic investigations into the electron transport system of bacteria could help us to find new therapies against pathogens.

#### **SECTIONAL COMMITTEE – VIII (*Biomolecular, Structural Biology and Drug Discovery*)**

1. **Dr Debarka Sengupta** (29.11.1983), PhD, (Institute Chair Professor) Associate Professor of Computational Biology and Computer Science, Indraprastha Institute of Information Technology, Delhi.

His outstanding contributions are in the area of single-cell omics analysis, using Big Data techniques. He also has significant translational research in the field of cancer diagnosis and treatment. Also, AI based personalized anti-cancer therapy recommendations.

#### **SECTIONAL COMMITTEE – IX (*Health Sciences*)**

1. **Dr Ramachandran Thiruvengadam** (03.04.1983), PhD, Associate Professor, Translational Health Science and Technology Institute, Faridabad.

Dr Thiruvengadam contributed significantly in developing tools and interventions that can be deployed at public health scale to reduce the risk of adverse pregnancy outcomes such as preterm birth and foetal growth restriction. As part of the country's response to the COVID-19 pandemic, he coordinated the effort to characterize the clinical and immunological aspects of the disease including the determinants of seroconversion, clinical profile and longevity of immune response and reinfection. Further, he contributed to the understanding of the effects of COVID-19 on pregnancy outcomes

which has guided the immunization policy of pregnant women. He coordinated studies to evaluate the effectiveness of Covishield vaccines against delta and omicron variants of SARS-CoV-2.

2. **Professor Prosenjit Mondal** (04.05.1978), PhD, Indian Institute of Science Education and Research Berhampur, Odisha.

Dr Prosenjit's research efforts in the last ten years in India (IIT Mandi and IISER Berhampur) have been focused on understanding the pathogenesis of diabetes and Metabolic dysfunction-associated fatty liver disease(MAFLD), emphasizing the mechanisms of Inter-organ communication in maintaining systematic homeostasis in the body. He has developed experimental animal models to interrogate the phenotype, designed a cell-based study to analyze the mechanism, and finally, involved small molecules to rescue the phenotype *in vitro* and *in vivo*.

3. **Dr Savneet Kaur** (22.10.1978), PhD, Associate Professor, Liver Physiology and Vascular Biology Lab, Department of Molecular and Cellular Medicine, Institute of Liver and Biliary Sciences, New Delhi.

Dr Savneet's research has immensely contributed to the understanding of angiogenesis and lymphangiogenesis in liver physiology and pathology. She was the first one to document a paracrine role of bone marrow (BM)-derived endothelial progenitor cells (BM-EPC) in intrahepatic angiogenesis and fibrosis in patients with cirrhosis. Her studies have shown the therapeutic benefits of lymphangiogenesis in attenuating lymph drainage, portal hypertension and endotoxemia, and have provided a novel paradigm of treating advanced liver diseases. Savneet has carried out all her research projects in prestigious Indian labs by bagging competitive fellowships and grants. She has several patents and high impact publications both as first and lead authors and continues to bag competitive grants which places her in the top category of scientists.

#### SECTIONAL COMMITTEE – X (*Agricultural Sciences*)

1. **Dr Aashish Ranjan** (25.02.1982), PhD, Staff Scientist V, DBT-National Institute of Plant Genome Research, New Delhi.

Dr Aashish Ranjan has made notable contributions to understanding the genetic and physiological basis of photosynthesis, leaf development, and environmental adaptation in rice. His work identified photosynthetically efficient wild rice accessions and revealed key developmental and biochemical traits limiting photosynthesis in cultivated varieties. Through integrated phenotyping, transcriptomics, and genetic approaches, he uncovered regulators of leaf growth, sucrose partitioning, and stress-responsive pathways that influence yield and biomass accumulation. His research provides important strategies to optimize photosynthetic efficiency, source–sink dynamics, and crop performance under changing climatic conditions.

2. **Dr Prashant Misra** (07.02.1981), PhD, Principal Scientist, Plant Sciences and Agrotechnology Division, CSIR-Indian Institute of Integrative Medicine, Jammu.

Dr Prashant Misra has made significant contributions in the area of secondary metabolite synthesis in medicinal and aromatic crops at a molecular level. He has elucidated pathways involved in the synthesis of biomolecules of industrial importance in Cannabis and Cymbopogon. He has deciphered regulatory network and identified key genes for improving trichome density and modulating essential oils and cannabinoids synthesis.

3. **Dr Ram Swaroop Meena** (19.05.1977), PhD, Associate Professor, Department of Agronomy, Institute of Agricultural Sciences, Banaras Hindu University, Varanasi.

Dr Ram Swaroop Meena has made significant contributions to natural resource management and soil health. He has developed a new and affordable biochar separation technique and model for CO<sub>2</sub> sequestration in agricultural ecosystems. His research has led to the evaluation of the energy flow, atmospheric CO<sub>2</sub> capture and carbon credit in agriculture with a focus on nutrient dynamics in rice-based diversified cropping systems.

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