

INDIAN NATIONAL SCIENCE ACADEMY
Bahadur Shah Zafar Marg, New Delhi 110002

**Minutes of the General Body Meeting of the Indian National Science Academy
held on 9 May 2024 in INSA premises in hybrid mode.**

The following Fellows attended the meeting:

(in person)

1. Professor Ashutosh Sharma, President
2. Dr Madhu Dikshit, Vice-President (Fellowship Affairs)
3. Professor Indranil Manna, Vice-President (Science & Society)
4. Professor Narinder K Mehra, Vice-President (International Affairs)
5. Dr VM Tiwari, Vice-President (Publications/ Informatics)
6. Professor A Ajayaghosh
7. Professor DM Banerjee
8. Professor Arup Bose
9. Professor Dipshikha Chakravorty
10. Professor Swades De
11. Professor Srubabati Goswami
12. Professor Anil Kumar Gupta
13. Professor Krishan Lal
14. Professor RK Mallik
15. Professor Maithili Sharan
16. Professor Sunil Kumar Singh
17. Professor Qudsia Tahseen
18. Professor GD Yadav

(online)

1. Professor Amit Agrawal
2. Professor Nahid Ali
3. Professor DJ Bagyaraj
4. Professor H Balaram
5. Professor RNK Bamezai
6. Professor SS Banga
7. Dr Nita Bhandari
8. Professor SV Bhat
9. Professor Shinjini Bhatnagar
10. Dr Praveen Chaddah
11. Professor Asit Kumar Chakraborti
12. Professor Supriya Chakraborty
13. Professor PK Chattaraj
14. Professor BS Daya Sagar
15. Dr VK Gahalaut
16. Professor Pradyut Ghosh
17. Dr PK Ghosh
18. Professor Subrata Ghosh
19. Professor Herbert Gleiter
20. Professor Chanda Jayant Jog

21. Professor Dinakar Kanjilal
22. Professor Rama Kant
23. Professor Anil Kumar
24. Professor Sandeep Kunnath
25. Dr UC Lavania
26. Professor AN Lahiri Majumder
27. Professor Gobinda Majumder
28. Professor BD Malhotra
29. Professor G Marimuthu
30. Professor Sushmita Mitra
31. Dr JP Mittal
32. Professor NK Mukhopadhyay
33. Dr Ashok Pandey
34. Dr SK Parida
35. Professor G Parthasarathy
36. Professor Manoj Prasad
37. Professor AS Raghavendra
38. Professor MV Rajam
39. Professor HA Ranganath
40. Professor NV Chalapathi Rao
41. Dr Kalachand Sain
42. Dr Manmohan Sarin
43. Professor Maya Shankar Singh
44. Professor Pradhyumna Kumar Singh
45. Professor RS Singhal
46. Dr Sneh Lata Singla- Pareek
47. Professor AK Singhvi
48. Professor Rakesh Tuli

Note: Some Fellows who joined the meeting with different names (reflected in the list like.... Prakruthi Parthasarathy, 744324, shyam, iPhone, User)

President, INSA welcomed all the participant Fellows. Thereafter, the regular agenda items were taken up.

1. Condolence at the passing away of the following distinguished INSA Fellows and Foreign Fellows:

The sad demise of Dr Nitya Anand, Professor Shashi Bhushan Bhatia, Professor Bimla Buti, Professor Suraj Narayan Gupta, Professor MS Jairajpuri, Professor Narayan Panicker Kochupillai, Professor T Parthasarathy, Professor Sisir K Sen, Professor Mohan R Wani, Fellows and Professor John Graham Ramsay, Professor Jamshed Rustom Tata, Foreign Fellows were reported. The obituary notes were read by the President, INSA and everyone present stood in silence for a minute as a mark of respect to the deceased.

2. Confirmation of minutes of 89th Anniversary General Meeting held on 6-8 December, 2023.

The minutes of the 89th Anniversary General Meeting held on 6-8 December 2023 were presented by Dr Madhu Dikshit, Vice-President, INSA. The minutes were already uploaded on the INSA website. No comments were received. Thereafter, the minutes were confirmed.

3. Announcement of names of recipients of the INSA Young Associates (IYA)/ INSA Associate Fellows (IAF), 2024.

Professor Madhu Dikshit, Vice-President announced the twenty INSA Young Associates and twenty INSA Associate Fellows 2024 enclosed in ***Annexure-I*** and ***Annexure-II***.

4. Announcement of the name of recipients of the INSA Distinguished Lecture Fellows (IDL 1 and IDL2), 2024.

Professor Madhu Dikshit, Vice-President announced the sixteen INSA Distinguished Lecture Fellows (IDL-1: 7 and IDL-2:9) 2024 enclosed in ***Annexure-III*** and ***Annexure-IV***.

5. Announcement of the name of recipients of the INSA Chairs for Inviting Overseas Scientists 2024.

Professor Madhu Dikshit, Vice-President announced the four INSA Overseas Chairs 2024 at ***Annexure-V***.

6. To read as required under Rule 40(c) the name of nominees for election as INSA Fellow and Foreign Fellow received from 16 November 2023 to 30 April 2024.

Dr Madhu Dikshit read the names of those whose nominations were received for election as INSA Fellows.

7. INSA Women Associates (IWA)

President briefly informed about the INSA initiative on the INSA Women Associates. The Academy's primary objective is to foster science across the country through various initiatives. These initiatives include identifying and nurturing talents in science, establishing connections with other global academies, advising the government on scientific matters, publishing books and journals, and promoting research by supporting scientists to participate in national and international conferences. Throughout its existence, the fellows of the Academy have made significant contributions to Indian science. However, the number of women fellows remains notably low. The idea is to network and encourage women scientists engaged in remarkable research in science management and growth. This effort aims to diminish the gender gap within STEM in the foreseeable future. The Council approved the proposal and guidelines of INSA Women Associates (IWA).

8. Any other Item.

A. A New Vice President (Science Policy) of INSA Council.

President, INSA informed the Fellows that the Council unanimously agreed to the inclusion of a new Vice-President (Science Policy) in the INSA Council. He briefed the Fellows about the newly established Policy Centre of INSA. This policy centre can apply for different grants and projects. One such project proposal was submitted to DST and DST has sanctioned the Centre of Policy Research (CPR) with a total budget of Rs.75 lakhs for one year. He reiterated this is a very important activity of INSA for the future. Hence, a new Vice-President will take care of all policy aspects.

B. Two new members are included in the INSA Council:

President, INSA informed the Fellows that the Council unanimously agreed to the inclusion of two more members in the INSA Council. The Academy has now included two more categories of INSA Fellowship from this year, i) Science in Translation and ii) Science for Society, in addition to the regular ten Sectional Committees. Hence, two more members may be added to the INSA Council from these categories. Accordingly, Rule 4 and additional rules will be circulated to the fellowship for voting.

The meeting ended with a vote of thanks to the Chair.

RECIPIENTS OF INSA YOUNG ASSOCIATES (IYA)

(For the year 2024)

1. **Dr Gaurav Ahuja** (24.09.1987), PhD, Associate Professor, Indraprastha Institute of Information Technology, New Delhi.

Dr. Ahuja is a computational biologist who using a variety of approaches including AI/ML to identify alternative functions of cellular metabolites. His group has developed many tools, especially in the areas of olfaction and structure-activity relationships. His collaborative work in identifying human carcinogens using a multiparametric approach is noteworthy.

2. **Dr Mrinmoyee Basu** (17.08.1985), PhD, Assistant Professor, Department of Chemistry, Birla Institute of Technology and Science Pilani, Pilani.

Recommended for her outstanding work on semiconductor, especially on nanomaterials for photoelectrochemical reactions like water splitting, CO₂ reduction, and sensing, and vertically grown nanomaterials to enhance light-matter interaction and charge carrier properties.

3. **Dr Sayantani Bhattacharyya** (04.09.1981), PhD, Reader-F, National Institute of Science Education and Research Bhubneswar, Khurda.

Pioneering work on fluid-gravity correspondence.

4. **Dr Pankaj Chauhan** (08.04.1984), PhD, Associate Professor, Department of Chemistry, Indian Institute of Technology Jammu, J&K.

Recommended for his outstanding work in the field of organocatalysis especially on enantioselective reactions, photochemical and electrochemical organic synthesis, synthesis of new polycyclic frameworks, atrop-/enantio-selective synthesis of medium-sized bridged biaryls, generation of remote stereogenic centers, photochemical generation of triplet carbene intermediates, and electro-organic synthesis of valuable building blocks and heterocycles, as well as the merger of chiral organocatalysis with photoredox catalysis and electrochemical synthesis to develop relay catalytic transformations.

5. **Dr Ved Vivek Datar** (13.11.1987), PhD, Assistant Professor, Department of Mathematics, Indian Institute of Science, Bengaluru.

For fundamental contributions to the differential geometry of Kähler manifolds that explore their connections to mathematical physics and complex algebraic geometry.

6. **Dr Sourav Dutta** (05.03.1984), PhD, Reader, Department of Nuclear and Atomic Physics, Tata Institute of Fundamental Research Mumbai, Mumbai.

Outstanding contribution to the understanding of cooling of trapped ions and experiments with strongly coupled atom-cavity systems.

7. **Dr Kalikrishna Hazra** (20.09.1984), PhD, Senior Scientist, Crop Production Division, ICAR-Indian Institute of Pulses Research, Kanpur.

Dr. Hazra developed sustainable phosphorus management modules. He has also carried work on mechanistic comprehension of c-sequestration and strategies for enhanced c-storage.

8. **Dr Neha Jain** (06.09.1981), PhD, Associate Professor, Department of Bioscience and Bioengineering, Indian Institute of Technology, Jodhpur.

Dr Jain has been working on understanding neurodegenerative disease, in particular on understanding the role of microbial amyloids in these diseases, deciphering the role of immune activation by hetero-amyloids and identifying strategies to combat the formation of amyloid.

9. **Dr Md Iqbal Raja Khan** (15.01.1987), PhD, Assistant Professor, Department of Botany, School of Chemical & Life Sciences, Jamia Hamdard, New Delhi.

Dr. Khan has worked on GABA as a new significant plant signaling molecule. They have elucidated its role in mitigating salt and ER stress in wheat plants.

10. **Dr Veda Krishnan** (23.03.1986), PhD, Scientist (Senior scale), Division of Biochemistry, ICAR- Indian Agricultural Research Institute, New Delhi.

Dr. Veda investigated the effect of genetic variability in staple crops like rice and pearl millet on carbohydrate quality and their glycaemic potential using various invitro digestion models.

11. **Dr Gaurav Majumdar** (07.08.1984), PhD, Assistant Professor, Department of Zoology, University of Allahabad, Prayagraj.

Dr. Gaurav Majumdar has made significant contributions to the area of chronobiology in avian system. Notable findings include photoperiod impact on peptides in retinas, with which birds can differentiate between summer and winter seasons. Dr. Majumdar studies on neuroplasticity have implication in neurodegenerative diseases.

12. **Dr Surendra Kumar Makineni** (27.06.1986), PhD, Assistant Professor, Department of Materials Engineering, Indian Institute of Science Bangalore, Bengaluru.

For pioneering contribution to the development of lightweight cobalt-base superalloys for high-temperature applications and advanced correlative microscopy techniques to study the atomic-scale structure and composition of defects, grain, and phase boundaries that control the overall properties of engineering alloys.

13. **Dr Awadhesh Narayan** (19.10.1988), PhD, Assistant Professor, Solid State and Structural Chemistry Unit, Indian Institute of Science Bengaluru, Bengaluru.

Recommended for his outstanding work in the field of quantum theory of materials, especially, on predictions of electrically tunable Berry curvature dipole in graphene analogs, discovery of a new two-dimensional structure of WS₂ with topological properties and a Berry curvature dipole, development of the theory of high critical temperatures in two-dimensional magnetic materials, demonstration of strain as a control parameter over polar metallicity, innovative approaches to control exceptional points in non-Hermitian quantum systems, machine-learning method for identifying non-Hermitian topological phases, and a new framework to classify exceptional points using techniques from tropical geometry.

14. **Dr Ratna Pal** (04.06.1987), PhD, Assistant Professor, Department of Mathematics, Indian Institute of Science Education and Research Mohali, Mohali.

For contributions to the area of higher dimensional complex dynamics, specially the relation between Hénon maps with bi-holomorphic escaping sets.

15. **Dr Bahni Ray** (26.04.1982), PhD, Associate Professor, Department of Mechanical Engineering, Indian Institute of Technology Delhi, New Delhi.

For her outstanding contributions to understanding micro-scale mechanisms of absorption of hydrophilic and hydrophobic particles through droplets for pollution mitigation.

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

For her significant contributions to multimodal information processing through deep-learning architectures, covering diverse applications, including sentiment and emotion-aware dialogue systems, disease prognosis, hate speech detection, depression detection, recommendation systems, and task-oriented dialogue systems in sales and healthcare domains.

17. **Dr Jogender Singh** (28.03.1988), PhD, Assistant Professor, Indian Institute of Science Education and Research Mohali, Mohali.

Outstanding work unveiling mechanistic underpinnings associated with reductive stress using *C. elegans* as a model system. Discovered the interplay between hypoxia and reductive stress.

18. **Dr Swatantra Pratap Singh** (15.08.1985), PhD, Associate Professor, Environmental Science and Engineering Department, Indian Institute of Technology Bombay, Mumbai.

For his significant contributions to water and wastewater treatment and pollution control research, leading to cost-effective novel membrane technology and environmental nanotechnology-based solutions.

19. **Dr Rishitosh Kumar Sinha** (21.10.1987), PhD, Scientist/Engineer SE, Physical Research Laboratory, Ahmedabad.

Rishitosh Sinha has conducted detailed investigation of the morphology and topography of the landing sites of Chandrayaan-2 and 3. The Chandrayaan-3 Pragyan rover traverse map around the landing site was designed by him.

20. **Dr Surendra Nadh Somala** (20.08.1986), PhD, Associate Professor, Indian Institute of Technology Hyderabad, Sangareddy.

For his significant contributions to earthquake engineering, including seismic hazard assessment and performance assessment of critical infrastructure such as bridges and offshore wind turbines.

RECIPIENTS OF INSA ASSOCIATE FELLOWS (IAF)

(For the year of 2024)

1. **Dr Tanushree Bhattacharya** (30.04.1979), PhD, Associate Professor, Department of Civil and Environmental Engineering, Birla Institute of Technology, Mesra, Ranchi.

Tanushree Bhattacharya contributed significantly to the monitoring, assessment and remediation of environmental pollutants that led to the appraisal of metal contamination in ground water and soils, and provided implications on health hazards.

2. **Professor Parag Ratnakar Gogate** (30.06.1975), PhD, Professor of Chemical Engineering and Controller of Examinations, Chemical Engineering Department, Institute of Chemical Technology, Mumbai.

For his significant contributions to the fundamental understanding of the governing mechanisms and the design of cavitation reactors for process intensification of different chemical, physical, and biotechnological applications.

3. **Professor Chidambaram Gunanathan** (05.06.1977), PhD, School of Chemical Sciences, National Institute of Science, Education and Research Bhubaneswar, Jatani.

Recommended for his outstanding work on catalysis and sustainable chemistry, especially on efficient and selective catalytic transformations using bio-renewable alcohols and industrial feedstocks with no hazardous waste, chemoselective hydroelementation reactions, amine-amide metal-ligand cooperation in pincer catalysts for sustainable catalytic transformations, direct catalytic cross-coupling of secondary alcohols, alpha-alkylation and olefination of nitriles, ketazine synthesis, alpha-alkylation of ketones and beta-naphthol, N,N-dialkylation of acylhydrazides, selective hydrogenation of epoxides, self-coupling of secondary alcohols, alkenylation of organic compounds, cross-coupling of silanes and silanols, and selective reduction of esters, demonstrating his significant contributions towards advancing sustainable chemical transformations.

4. **Dr Anzar Ahmad Khuroo** (26.10.1974), PhD, Associate Professor, Centre for Biodiversity and Taxonomy, Department of Botany, University of Kashmir, Srinagar.

Dr Khuroo made extensive contributions to ecology of invasive alien species causing change in biodiversity pattern, and spread of exotic species as impacted by climate change in Kashmir mountains of the Western Himalayas.

5. **Dr Girdhari Lal** (09.08.1978), PhD, Scientist F, National Centre for Cell Science, Pune.

Dr Lal's laboratory is working on cellular and molecular mechanisms of inflammation and tolerance in relation to inflammatory diseases, autoimmunity and tumours. Further, they are investigating the role of chemokine receptors and their therapeutic importance in inflammation and autoimmunity.

6. **Dr Biswanath Maity** (26.12.1982), PhD, Associate Professor, Centre of Biomedical Research (CBMR), SGPGI Campus, Lucknow.

Dr. Maity has made significant contributions towards understanding the impact of G-protein regulation in chemotherapy-induced heart complications, drug-induced liver injury, non-alcoholic fatty liver disease and disease, etc and on synthesis/characterization of nanostructures that can help cell-selective delivery of drugs.

7. **Professor Sukhendu Mandal** (31.03.1977), PhD, Indian Institute of Science Education and Research Thiruvananthapuram, Trivandrum.

Recommended for his significant contributions in the field of metal nano-clusters, inorganic materials, and solid-state chemistry with especial focus on synthesizing new stable metal clusters and cluster-assemblies and exploring their physical and chemical properties; for example stabilization of Cu in a zero-oxidation state, synthesis of a new silver nanocluster with a hexagonal close-packed Ag₁₄ unit containing S₂- templated Ag₂S quantum dot-like core and a 2D cluster-assembled material, developing a nickel-based thiolate complex for electrochemical ammonia production from dinitrogen, and synthesizing a phosphine and halide-protected Au nanocluster useful for efficient Ullmann coupling reactions.

8. **Professor Supriyo Mitra** (12.11.1976), PhD, Department of Earth Sciences, Indian Institute of Science Education and Research Kolkata, Nadia.

Supriyo Mitra's seismological study revealed flexural underthrusting of India beneath Himalaya, thinned-continental crust beneath Shillong Plateau, and continent-oceanic transitional crust beneath Bengal Basin, and entire Indian crust seismogenic.

9. **Professor Vineeth N Balasubramanian** (29.11.1978), PhD, Department of Computer Science and Engineering, Indian Institute of Technology Hyderabad, Sangareddy.

For his outstanding contributions to the fields of deep learning, computer vision and explainable AI, especially in the development of fundamental methods for learning robust and reliable deep learning models in continually evolving environments.

10. **Dr Dimple Notani** (02.08.1976), PhD, Associate Professor, National Centre for Biological Sciences, TIFR Bangalore, Bangalore.

Outstanding contribution towards 3-D organization of genome that dictates spatio-temporal control of gene expression. Pioneering work identifying novel mechanisms that control enhancer – promoter interactions.

11. **Professor Ajith Parameswaran** (27.05.1980), PhD, Professor (H), International Centre for Theoretical Sciences, Tata Institute of Fundamental Research Bengaluru, Bangalore.

Outstanding contributions on gravitational lensing of gravitational waves.

12. **Dr Manas Ranjan Sahoo** (12.06.1983), PhD, Associate Professor, School of Mathematical Sciences, National Institute of Science Education and Research Bhubaneswar, Khurda.

For contributions to study the initial boundary value problems extending earlier results for the pure initial value problem in the area of partial differential equations.

13. **Professor Raghunath Sahoo** (28.02.1976), PhD, Indian Institute of Technology Indore, Simrol.

Outstanding work in field of QGP & phenomenology specially in small systems with application of ML techniques.

14. **Professor Neelima Satyam** (06.08.1979), PhD, Department of Civil Engineering Indian Institute of Technology Indore, Simrol.

For her significant contributions to the field of geotechnical and earthquake engineering, including landslide hazard assessment, liquefaction studies, and seismic microzonation. The liquefaction hazard assessment tool developed by her has become an industry standard for assessing liquefaction susceptibility.

15. **Professor Kamal Priya Singh** (13.07.1979), PhD, Indian Institute of Science, Education and Research Mohali, Mohali.

Pioneering work on novel electronic, optical and magnetic properties of silk and implications on understanding proteins.

16. **Professor Kashmir Singh** (24.01.1976), PhD, Department of Biotechnology, Panjab University, Chandigarh.

Prof Singh has made significant contribution in the field of plant functional genomics and metabolic engineering with a special focus on important medicinal plants of Himalayan region.

17. **Professor Neetu Singh** (20.06.1979), PhD, Center for Biomedical Engineering, Indian Institute of Technology Delhi, New Delhi.

For her significant contributions to the development of new-age materials and technologies for healthcare, including a simple drug screening platform to monitor cancer cells and bacteria and a drug delivery platform with RBC membrane towards personalized medicine.

18. **Dr Sudhir Pratap Singh** (15.12.1977), PhD, Scientist-D, Center of Innovative and Applied Bioprocessing (CIAB), NABI, Mohali.

Dr Singh generated metagenomic resources from thermal spring, cold lake, ethnic fermented food products, and acidic mine, and discovered novel genes encoding enzymes with superior catalytic properties of high-value to agriculture biotechnology.

19. **Dr Surya Prakash Singh** (15.04.1978), PhD, Principal Scientist, Department of Polymers and Functional Materials, CSIR-Indian Institute of Chemical Technology, Hyderabad.

Recommended for his significant contributions in the field of materials and molecules, especially for the development of photonic devices such as organic thin-film solar cells (OPV), dye-sensitized solar cells (DSSC), and perovskite solar cells, design and development of new light-harvesters like small molecule electron donors, soluble fullerene and non-fullerene electron acceptors, photosensitizers, and hole-transport materials, resulting in power conversion efficiencies over 10% for non-fullerene acceptors, over 13% for DSSCs, and over 22% for perovskite solar cells, as well as indoor solar cells with a remarkable efficiency of 38%.

20. **Professor Timir Tripathi** (28.01.1981), PhD, Department of Zoology, School of Life Sciences, North-Eastern Hill University, Shillong.

Dr. Tripathi is a molecular biophysicist interested in understanding protein function through its interactions and dynamics. He has published good quality work in multiple areas with a special emphasis on redox proteins from *Fasciola gigantica*, a disease causing organism in ruminants.

**Recipients of INSA Distinguished Lectures-1
(for current INSA Associate Fellows and INYAS only)
(for the year 2024)**

**(Subject to deliver the lecture during the
Anniversary General Meeting of the Academy)**

Sectional Committee - II : Physics

Astronomy, Astrophysics, Nuclear and High Energy Physics, Atomic, Molecular and Optical Physics, Statistical Physics, Theoretical Physics, Mathematical and Computational Physics, Condensed Matter including Soft, Liquids and Nano Materials, Cosmic Radiation, Cosmology, Space Physics, Basic Planetary Sciences, Lasers and Optoelectronics, Plasma Physics, Solar Physics, Atmospheric Physics

Sharma, Veerendra Kumar (b 09.08.1985), PhD, Scientific Officer (G), Solid State Physics Division, Bhabha Atomic Research Centre, Mumbai.

Outstanding contribution on the understanding of dynamical process in soft materials. Developed a model that captures the crossover from non Gaussian to Gaussian sub-diffusion in glass.

Sectional Committee - III : Chemistry

Analytical Chemistry, Inorganic Chemistry, Organic Chemistry, Physical Chemistry, Theoretical and Computational Chemistry, Structural Chemistry, Chemistry of Materials, Medicinal and Pharmaceutical Chemistry, Bio-organic, Bio-inorganic and Bio-physical Chemistry

Dey, Ramendra Sundar (b 14.03.1983) PhD, Scientist-D, Institute of Nano Science & Technology, Mohali.

Recommended for his outstanding work on self-sustainable and low-cost energy storage and conversion systems, especially on O₂ electrocatalysis, biofuel cells, CO₂ and N₂ fixation, super capacitors and developing highly efficient catalysts for ammonia production, solving the problem of microsupercapacitors with laser-irradiated grapheme.

Sectional Committee - IV : Earth & Environmental Sciences

Surface and Solid Earth Science, Applied Atmospheric Chemistry and Physics, Climate Sciences, Meteorology, Geo Engineering, Ocean Sciences, Geo Sciences and Applied Planetary Sciences

Vikram, Vishal (b 12.07.1985), PhD, Associate Professor, Department of Earth Sciences, Indian Institute of Technology Bombay, Mumbai

Vikram Vishal built geologic CO₂ storage potential map based on basin-specific know-how; formulated new protocols for pore size estimation, and developed FEM-based volume correlation model for quantification of 3D strain in rocks.

Sectional Committee - V : Engineering & Technology

Electrical Engineering, Telecommunication Engineering, Electronics and Optoelectronics, Chemical Engineering, Civil Engineering, Environmental Engineering, Mechanical Engineering, Aeronautical Engineering, Metallurgical Engineering, Computer Science and Engineering including Software and Data science, Information Science and Technology, Advanced Materials (such as Bio-materials, Hybrid Materials and Nano Materials), Polymer Science & Engineering

Tanveer, M (b 18.04.1983), PhD, Associate Professor, Optimization for Machine Learning (OPTIMAL) Research Lab, Indian Institute of Technology, Indore.

The nominee has made outstanding contributions to machine learning research by developing novel shallow and deep learning algorithms for classification, regression, and clustering problems. The developed algorithms have been implemented for the diagnosis of Alzheimer's disease, Schizophrenia disease, Parkinson's disease, and Epilepsy.

Sectional Committee - VIII : Biomolecular, Structural Biology and Drug Discovery

Biochemistry, Biophysics, Molecular Biology, Pharmacology, Structural Biology, Bioinformatics, Computational Biology, System Biology

Panda, Jiban Jyoti (b 10.05.1982) PhD, Scientist E, Institute of Nano Science and Technology, Punjab.

Dr. Panda works in the area of nanomedicine wherein her group develops biomolecular self-assembled nanostructures for therapeutic applications. Her work effectively combines a variety of tools including biochemical, biophysical, molecular and cell biological approaches for potentially treating Brain/CNS associated disorders.

Sectional Committee - IX : Health Sciences

Basic and Clinical Medical Sciences—Communicable and Non-communicable Diseases, Epidemiology, Anthropology, Psychology, Cognitive and Neurosciences, Medical Genetics and Genomics, Public Health, Nutrition, Immunology

Sharma, Tarun Kumar (b 08.09.1985) PhD, Associate Professor and Head of Medical Biotechnology Department, Gujarat Biotechnology University, Gandhinagar, Gujarat.

Dr Sharma has been working in the field of aptamer technology, diagnostics and biosensing. He has developed a panel of aptamers that can accurately diagnose pulmonary and extrapulmonary TB, leading to several patents. In addition, he has developed an aptamer and paper-based microfluidic assay for the point-of-care detection of krait envenomation, and another assay that can differentiate the venoms of elapids (Cobra and Krait and vipers) and of vipers (Russell's and saw-scaled viper). In addition, he has been working on developing a novel biosensing strategy based on peroxidase-like activity of nanoparticles.

Sectional Committee - X : Agricultural Sciences

Agriculture, Horticulture, Forestry, Fisheries, Food Science, Veterinary Science, Pathogen Biology and Host Pathogen Interaction Both Plant and Veterinary Importance

Rai, Amit Kumar (b 20.07.1984) PhD, Scientist-D, National Agri-Food Biotechnology Institute, Mohali

Dr Rai has contributed in the area of Food Science and Biotechnology for the development of functional fermented products rich in bioactive peptides and isoflavones.

**Recipients of INSA Distinguished Lectures-2
(for INSA Fellows only except those covered under IDL-1)
(for the year 2024)**

**(Subject to deliver the lecture during the
Anniversary General Meeting of the Academy)**

Sectional Committee - II: Physics

Astronomy, Astrophysics, Nuclear and High Energy Physics, Atomic, Molecular, and Optical Physics, Statistical Physics, Theoretical Physics, Mathematical and Computational Physics, Condensed Matter including Soft, Liquids, and Nano Materials, Cosmic Radiation, Cosmology, Space Physics, Basic Planetary Sciences, Lasers and Optoelectronics, Plasma Physics, Solar Physics, Atmospheric Physics

Gopakumar, Rajesh (b 14-12-1967), PhD, Senior Professor and Centre Director International Centre for Theoretical Sciences (ICTS-TIFR), Bengaluru.

Outstanding work on gauge string/gravity duality and quantum field theory

Sectional Committee - III: Chemistry

Analytical Chemistry, Inorganic Chemistry, Organic Chemistry, Physical Chemistry, Theoretical and Computational Chemistry, Structural Chemistry, Chemistry of Materials, Medicinal and Pharmaceutical Chemistry, Bio-organic, Bio-inorganic and Bio-physical Chemistry

Natarajan, Srinivasan (b 27.05.1960) PhD, Solid State and Structural Chemistry Unit, Indian Institute of Science, Bengaluru.

Recommended for his outstanding and consistent contributions in the area of Inorganic Materials Chemistry, especially on the basic understanding of framework structured compounds, identifying new intermediates and pathways for the synthesis of metal-organic frameworks (MOFs), investigating the role of kinetic and thermodynamic factors in their formation, pioneering the use of MOFs for applications in metal-centered luminescence, solvent-dependent room temperature ferroelectric behavior, heterogeneous catalysis, and as precursors for the synthesis of ceramics, work on Li-cathode battery materials, inorganic pigments, new electrocatalysts, and non-linear optical materials, and stabilization of transition metal ions in tetrahedral environments.

Sectional Committee - IV: Earth & Environmental Sciences

Surface and Solid Earth Science, Applied Atmospheric Chemistry and Physics, Climate Sciences, Meteorology, Geo Engineering, Ocean Sciences, Geo Sciences and Applied Planetary Sciences

Gupta, Harsh Kumar (b 28.06.1942), PhD, CSIR- National Geophysical Research Institute, Hyderabad.

Harsh Gupta discovered enormously thick (65-70 km) crust below the Himalaya and Tibetan plateau, and identified common characteristics of water reservoir triggered earthquake sequences, discriminated from the normal earthquake sequences.

Sectional Committee - V: Engineering & Technology

Electrical Engineering, Telecommunication Engineering, Electronics and Optoelectronics, Chemical Engineering, Civil Engineering, Environmental Engineering, Mechanical Engineering, Aeronautical Engineering, Metallurgical Engineering, Computer Science and Engineering including Software and Data science, Information Science and Technology, Advanced Materials (such as Bio-materials, Hybrid Materials and Nano Materials), Polymer Science & Engineering

Pal, Sankar Kumar (b 13.09.1950) National Science Chair, Gol Indian Statistical Institute, Kolkata.

The nominee has made fundamental contributions to machine intelligence research by developing various modern and classical approaches. He pioneered the development of fuzzy set theory, and neuro-fuzzy and rough-fuzzy computing and their applications in pattern recognition, image/video processing, machine learning, case-based reasoning, granular computing, data mining, machine-mind development, and knowledge-based systems.

Sectional Committee - VI: General Biology

Taxonomy, Structure, Ecology, Environmental Biology, Evolution, and Behaviour of Plants, Animals, and Microbes including Unicellular Eukaryotes

Sharma, Eklabya (b 11.05.1958), Strategic Advisor and Distinguished Senior Fellow, Ashoka Trust for Research in Ecology and the Environment (ATREE), Bengaluru.

Dr. Sharma has made highly impactful contributions to the biodiversity conservation, natural resource management, bio-geochemical cycling, climate change impact

assessment leading to the development of policies for sustainable management of the Himalayan ecosystem.

Sectional Committee - VII: Molecular and Cellular Biology

Cell Biology, Physiology, Development, Genetics, Genomics, and other Omics of Plants, Animals, and Microbes including Unicellular Eukaryotes

Vaidya, Vidita Ashok (b 15.11.1970), Professor (H), Department of Biological Sciences, Tata Institute of Fundamental Research, Mumbai.

Dr Vidita Vaidya for her path-breaking work towards understanding molecular, cellular, and neurophysiological aspects of the biology of anxiety and depression.

Sectional Committee - VIII: Biomolecular, Structural Biology and Drug Discovery

Biochemistry, Biophysics, Molecular Biology, Pharmacology, Structural Biology, Bioinformatics, Computational Biology, System Biology

Udgaonkar, JB (b 22.03.1960) Indian Institute of Science Education & Research, Pune.

Prof. Udgaonkar is an outstanding scientist who has contributed immensely to our knowledge of protein folding using a variety of biophysical approaches. His group has extensively characterized folding, unfolding, and aggregation pathways of multiple proteins, including prion proteins and alpha-synuclein, with important implications for understanding protein misfolding-based diseases.

Sectional Committee - IX: Health Sciences

Basic and Clinical Medical Sciences—Communicable and Non-communicable Diseases, Epidemiology, Anthropology, Psychology, Cognitive and Neurosciences, Medical Genetics and Genomics, Public Health, Nutrition, Immunology

Somasundaram, Kumaravel (b 08.10.1962) PhD, Professor and Chair, Department of Microbiology and Cell Biology, Indian Institute of Science, Bengaluru.

Professor Somasundaram has made outstanding contributions to cancer genetics, particularly about glioblastoma, the most common and aggressive brain tumor in adults, working in collaboration with clinicians. His work has led to the identification of certain sub-types of this tumor with distinct characteristics and a better understanding of the genetic and biological mechanisms underlying the occurrence of this tumor.

Sectional Committee - X: Agricultural Sciences

*Agriculture, Horticulture, Forestry, Fisheries, Food Science, Veterinary Science,
Pathogen Biology and Host-Pathogen Interaction Both Plant and Veterinary Importance*

Lal, Rup, (b 27.09.1953), PhD, INSA Senior Scientist, University of Delhi, New Delhi.

Dr Ruplal explored the physiology, genetics & Biochemistry of hexachlorocyclohexane (HCH) degradation (the first to discover associates in genes with IS6100. He is currently developing bioremediation tech for the remediation of HCH residues.

Recipients of INSA Overseas Chair 2024

Sectional Committee - II: Physics

Astronomy, Astrophysics, Nuclear and High Energy Physics, Atomic, Molecular and Optical Physics, Statistical Physics, Theoretical Physics, Mathematical and Computational Physics, Condensed Matter including Soft, Liquids and Nano Materials, Cosmic Radiation, Cosmology, Space Physics, Basic Planetary Sciences, Lasers and Optoelectronics, Plasma Physics, Solar Physics, Atmospheric Physics

1. Prof. Chris Jarzynski, Department of Physics, University of Maryland, College Park, MD 20742

Christopher Jarzynski, a Princeton University alumnus (1987) with a Ph.D. from UC Berkeley (1994), specializes in molecular-level statistical mechanics and thermodynamics. His research spans areas like nonequilibrium thermodynamics, biophysics, molecular machines, and quantum thermodynamics. He has received numerous awards including the 2019 Lars Onsager Prize, 2020 Guggenheim Fellowship, and was elected to the National Academy of Sciences in 2020.

Sectional Committee - III : Chemistry

Analytical Chemistry, Inorganic Chemistry, Organic Chemistry, Physical Chemistry, Theoretical and Computational Chemistry, Structural Chemistry, Chemistry of Materials, Medicinal and Pharmaceutical Chemistry, Bio-organic, Bio-inorganic and Bio-physical Chemistry

1. Prof Varinder Aggarwal, School of Chemistry, University of Bristol, UK

Varinder K. Aggarwal, a distinguished organic chemist, held professorial positions at Bath University, Sheffield University, and currently Bristol University, where he chairs the Synthetic Chemistry department. Elected as a Fellow of the Royal Society in 2012, his research focuses on developing innovative methods for synthesizing complex molecules, with applications ranging from medicine to vaccine development, particularly targeting diseases like tuberculosis.

Sectional Committee - IV : Earth & Environmental Sciences

Surface and Solid Earth Science, Applied Atmospheric Chemistry and Physics, Climate Sciences, Meteorology, Geo Engineering, Ocean Sciences, Geo Sciences and Applied Planetary Sciences

1. Prof. Mrinal K Sen, Department of Earth and Planetary Sciences, Jackson School of Geosciences & Morgan J. Davis Centennial Chair in Geosciences

Mrinal Sen is a prominent figure in seismic wave propagation, renowned for his expertise in anisotropy and geophysical inverse problems. Sen has pioneered the application of global optimization techniques like simulated annealing and genetic algorithms in geophysical contexts and developed innovative approaches for characterizing uncertainties and probability distributions in model space. He has also contributed significantly to parameter estimation in anisotropic media and reservoir characterization using seismic and well-log data, particularly focusing on high-resolution velocity estimation in structurally complex regions and model-based inversion for reservoir properties.

Sectional Committee - V: Engineering & Technology

Electrical Engineering, Telecommunication Engineering, Electronics and Optoelectronics, Chemical Engineering, Civil Engineering, Environmental Engineering, Mechanical Engineering, Aeronautical Engineering, Metallurgical Engineering, Computer Science and Engineering including Software and Data science, Information Science and Technology, Advanced Materials (such as Bio-materials, Hybrid Materials and Nano Materials), Polymer Science & Engineering

1. Prof. Rama Chellappa, Departments of Electrical and Computer Engineering and Biomedical Engineering, Johns Hopkins University.

Rama Chellappa, a distinguished professor at Johns Hopkins University, is a renowned authority in artificial intelligence, specializing in computer vision, pattern recognition, and machine learning. His work encompasses diverse applications like biometrics, smart cars, forensics, and healthcare imaging, with notable contributions in advanced facial recognition systems and interdisciplinary collaborations. Recognized with prestigious awards from the IEEE, including election to the National Academy of Engineering, was shaped by early mentorship and a strong academic journey from South India to Purdue University.