

**The National Academy of Sciences, India
(NASI)**



Outstanding Research Contributions

of

those who have been recommended

for the

Fellowship & Foreign Fellowship

for the year 2023

Outstanding Research Contributions of those who have been recommended for the Fellowship for the year 2023

ACHARYA, Narottam (b. 1974), PhD, Scientist F, Infectious Disease Biology, Institute of Life Sciences, Bhubaneswar, for his significant contribution in the area of DNA replication in eukaryotes and vaccine development against fungal pathogen *Candida albicans*.

AGARWAL, Vivek (b. 1964), PhD, FASc, FNA, FNAE, Professor, Department of Electrical Engineering, Indian Institute of Technology Bombay, Mumbai, for his contributions to power electronics systems and photo voltaics.

ANILKUMAR, Thapasimuthu Vijayamma (b. 1961), PhD, FNAAS, Scientist G & Head, Division of Experimental Pathology, Sree Chitra Tirunal Institute for Medical Sciences & Technology, Thiruvananthapuram, for pioneering a technology for isolating extracellular matrix of mammalian gall bladder and preparing tissue-graft scaffolds, for human and veterinary regenerative medical applications.

ARVIND (b. 1968), PhD, Professor & Vice Chancellor, Punjabi University, Patiala, for his outstanding works on quantum optics and continuous variable quantum cryptography. He along with his collaborators performed first quantum computing experiment in India. He has designed new protocols for secure quantum communication and has intensively worked on popularisation of science. He also leads the photonics vertical of QuEST, a national program of DST dedicated to quantum science and technology.

ASIF, Mehar Hasan (b. 1973), PhD, Senior Principal Scientist, CSIR-National Botanical Research Institute, Lucknow, for her works on fruit ripening and plant secondary metabolite synthesis using bioinformatics and computational biology. She has extensively worked to identify structural and regulatory genes in Banana, Mango and tomato specifically involved in ripening. She identified various molecular components for secondary metabolic biosynthesis in several medicinal plants, fibre quality and drought responsiveness in cotton and arsenic tolerance in rice.

BAJAJ, Avinash (b. 1980), PhD, Professor, Regional Centre for Biotechnology, Faridabad, for his work on improved delivery of chemotherapeutic drugs and development of small bioactive molecules for combining multidrug resistant bacterial pathogens.

BASU, Anupam (b. 1957), PhD, FNAE, Pro Vice Chancellor, Sister Nivedita University, New Town, West Bengal, for his outstanding contributions in low cost embedded systems, assistive living and natural language processing.

BATRA, Punita (b. 1970), PhD, Professor H, Mathematics, Harish-Chandra Research Institute, Chhatnag Road, Jhansi, Prayagraj, for her outstanding contribution in the theory of Lie Algebras. She gave complete classification of almost compact real forms on affine Kac –Moody Lie Algebra which have been much cited.

BHAGAVATULA, Lakshmi Vara Prasad (b. 1969), PhD, FASc, Director, Centre for Nano and Soft Matter Sciences (CeNS), Bengaluru, for his major contributions in the field of synthesis of metal nanoparticles and their assemblies and applications of soft and nano-materials

BHANDARI, Rashna (b. 1972), PhD, Staff Scientist VII, Centre for DNA Fingerprinting and Diagnostics, Hyderabad, for her significant contribution towards understanding the chemistry and biology of polyphosphates and establishment of the first mouse model to study polyphosphates.

BHASKARAN, Prasad Kumar (b. 1970), PhD, Professor & Head, Department of Ocean Engineering & Naval Architecture, Indian Institute of Technology Kharagpur, Kharagpur, for his significant contributions in the field of coastal oceanography specifically regional wave prediction model for North Indian Ocean, tsunami modelling, tropical cyclones induced storm surges and coastal flooding

BISWAS, Debabrata (b. 1974), PhD, Senior Principal Scientist, Molecular Genetics Division, Indian Institute of Chemical Biology, Kolkata, for his contribution on understanding of SEC mediated transcriptional regulation and its implication on mixed lineage Leukemia fusion protein mediated leukemogenesis.

BISWAS, Ranjit (b. 1969), PhD, Senior Professor, SN Bose National Centre for Basic Sciences, Kolkata, for successfully implementing the interplay between experiments, formulation of theory, and computer simulations and making noteworthy contributions in several areas, including deep eutectic solvents and ionic liquids.

CHADA, Raji Reddy (b. 1973), PhD, Chief Scientist & Chair, Department of Organic Synthesis & Process Chemistry, Indian Institute of Chemical Technology, Hyderabad, for his outstanding contributions in organic synthesis towards human healthcare. The methodologies developed by him on the reactive sp-hybridized carbon resulted in diverse molecules having relevance to both fundamental and applied chemistry.

CHANDRA, Poonam (b. 1975), PhD, FASc, Associate Professor, National Centre for Radio Astrophysics, Tata Institute of Fundamental Research, Pune, (currently at National Radio Astronomy Observatory, 520 Edgemont Road, Charlottesville VA 23903, USA), for her fundamental contributions in the field of electromagnetic counterparts of gravitational waves. She has contributed to the study of magnetic massive stars and discovered a rare Cyclotron Maser Emission (ECME) in them.

CHATTOPADHYAY, Buddhadeb (b. 1979), PhD, Associate Professor, Centre of Biomedical Research, Lucknow, for seminal contributions towards the development of metal-catalyzed C-H borylation reaction via catalyst engineering to make high-valued N-heterocycles.

CHATTOPADHYAY, Kalyan Kumar (b. 1963), PhD, Professor & Head, Department of Physics, Jadavpur University, Kolkata, for his innovative contributions in the areas of designing novel p-type transparent conducting oxides with band engineering and anionic site doping. His in-depth research on the tunable photoluminescence (PL) from functionalized graphene quantum dots explained the origin of the tunable PL emission from such system.

CHATTOPADHYAY, Krishnananda (b. 1970), PhD, Chief Scientist & Head, Structural Biology & Bioinformatics Division, Indian Institute of Chemical Biology, Kolkata, for his significant studies on the early and unexpected events of protein conformation and conformational transition and their implications in model neurodegenerative and infectious diseases.

DAS, Amitava (b. 1973), PhD, Senior Principal Scientist, Department of Applied Biology, CSIR-Indian Institute of Chemical Technology, Hyderabad, for his phenomenal work in the area of stem cell biology for regenerative medicines. One of his research findings have led to the development of porous polyethylene glycol polyurethane scaffolds for stem cell delivery for tissue repair.

DATTA, Simanti (b. 1974), PhD, Professor, Centre for Liver Research, School of Digestive & Liver Diseases, Institute of PG Medical Education & Research, Kolkata, for her significant contribution in understanding the Biology of hepatitis B virus and the complex path physiology mechanism. Her work has great potential to be translated into effective therapy for hepatitis B which is still incurable.

DATTA, Sourav (b. 1979), PhD, Associate Professor, Department of Biological Sciences, IISER Bhopal, Bhopal, for his contribution to the understanding of plant-environment interaction. His work focuses on characterization of BBX transcription factors and their role in light signaling. He is also engaged in the characterization of MATE transporters for their role in mediating loco phosphate and aluminium stress tolerance.

DEY, Abhishek (b. 1977), PhD, FASc, Senior Professor, School of Chemical Sciences, Indian Association for the Cultivation of Science, Kolkata, for his seminal contributions towards understanding the reactivity of metallo-enzymes involved in catalyzing chemical transformations which require multiple electrons and protons electrochemically using a combination of synthesis, electrochemistry, spectroscopy and electronic structure calculations.

DUTTA, Sourabh (b. 1967), MD, PhD, FAMS, Professor of Pediatrics, Neonatology Unit, Department of Pediatrics, PGIMER, Chandigarh, for his major contribution to early diagnosis and effective treatment of neonatal sepsis. His focused research on neonatal sepsis has great potential to reduce morbidity and mortality of this disease with major public health significance.

GAUNS, Mangesh Uttam (b. 1970), PhD, Senior Principal Scientist & Head, Biological Oceanography Division, National Institute of Oceanography (NIO), Goa, for his comprehensive study on marine biodiversity and biogeochemistry of the northern Indian Ocean (NIO) which showed how bio-physical coupling changes the food web dynamics and carbon cycling seasonally.

GEORGE, Subi Jacob (b. 1977), PhD, FASc, Professor & Head, NCU & SAMat, Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore, for his remarkable impact on the understanding of the mechanism of supramolecular polymerization at different scales, and the application of supramolecular organic materials.

GHOSH, Subimal (b. 1979), PhD, Institute Chair Professor, Department of Civil Engineering, Indian Institute of Technology Bombay, Mumbai, for his contributions in hydrometeorology that provide fresh perspective on land-atmosphere interaction in the complex Indian Summer Monsoon System.

GHOSH, Sumit (b. 1980), PhD, Senior Principal Scientist, Plant Biotechnology Division, CSIR-Central Institute of Medicinal and Aromatic Plants, Lucknow, for his contribution towards novel biosynthetic pathways and discovery of a catalogue of about 20 key enzymes that catalyze crucial reactions in biosynthesis of medically important compounds. Besides, he has provided insights into the molecular basis of the fruit ripening process.

GOGATE, Parag Ratnakar (b. 1975), PhD, FNAE, Professor, Department of Chemical Engineering, Institute of Chemical Technology, Mumbai, for his seminal contribution towards design and scaling strategies of cavitation reactors.

GONGOPADHYAY, Krishnendu (b. 1978), PhD, Professor, Department of Mathematical Sciences, Indian Institute of Science Education and Research Mohali, Sector 81, SAS Nagar, for his notable contribution in the interface between Group Theory and Geometry, dealing with a broad range of issues on the theme, including classification of conjugacy classes, Symmetry groups, classification of isometries etc.

GOPALAN, Jagadeesh (b. 1966), PhD, FASc, FNAE, Professor, Department of Aerospace Engineering, Indian Institute of Science, Bangalore, for his seminal contributions in hypersonics and shock dynamics.

GULATI, Sheffali (b. 1971), MD, FAMS, Professor, Faculty I/C, Centre of Excellence & Advanced Research for Childhood Neuro developmental Disorders, Department of Pediatric, AIIMS, New Delhi, for significantly contributing to the understanding of developmental neurology and epilepsy research in India. The core area of contribution is neuro-muscular disorders.

GUPTA, Neelima (Madhukar) (b. 1956), PhD, Emeritus Professor, Department of Physics, IIT Madras, Chennai, for her significant contributions in the area of Nonlinear Dynamics and Chaos, wherein diverse issues pertaining to congestion in communication networks to multifractality in birdsong were addressed.

JAIN, Deepali (b. 1975), MD, Professor, Department of Pathology, All India Institute of Medical Sciences, New Delhi, for generating novel method of productive biomarker testing in resource constrained settings by containing conventional cytopathology with molecular technique using liquid biopsy specimens. This has led to novel understanding and more procure management of Lung tumors.

JHA, Gopaljee (b. 1980), PhD, Scientist V, National Institute of Plant Genome Research, New Delhi, for contributing to the understanding of molecular mechanism of interaction between rice and sheath blight disease causing fungal pathogen. His work on isolation of rice-associated bacterium that feeds on fungi has received wide appreciation.

JHALA, Yadvendra V. (b. 1962), PhD, FNA, Former Senior Professor, Wildlife Institute of India, Dehradun; Res. Chandrabhuvan, Darbargarh, Wadhwan City, Gujarat, for designing and supervising the monitoring system of tiger, leopard, and other wildlife species in the Indian subcontinent; particularly ecological studies using satellite telemetry, and conservation genetics which have enhanced our understanding of the behavioural ecology.

KANEKAR, Nissim (b. 1973), PhD, FASc, Professor H, National Centre for Radio Astrophysics, Tata Institute of Fundamental Research, Pune, for his significant contributions to the studies of galaxy evolution and star-forming galaxies during the epoch of galaxy assembly. His careful astronomical investigations have placed the strongest limit on possible secular variation of the fine structure constant and the electron-to-proton mass ratio.

KANUNGO, Suman (b. 1967), PhD, Scientist E, Division of Epidemiology, National Institute of Cholera & Enteric Diseases, Kolkata, for his significant contribution towards estimating disease burden and prevention of enteric infectious diseases, particularly Cholera. His work on Cholera and its vaccine has been truly translational with potential to substantially reduce its related morbidity and mortality.

KAPUGANTI, Jagadis Gupta (b. 1980), PhD, FNAAS, Scientist V, National Institute of Plant Genome Research, New Delhi, for his significant contribution in nitric oxide (NO) biosynthesis and signaling in plants. He has uncovered the role of mitochondria alternative oxidase in NO biosynthesis. In addition, he has investigated the role of this NO pathway in seed germination, plant metabolism and defense pathway.

KAPUR, Manmohan (b. 1975), PhD, Professor, Department of Chemistry, IISER Bhopal, Bhopal, for developing several innovative methodologies for C-H and C-C functionalizations via transitional metal catalysis for site-selective and catalyst-controlled functionalization of pi-deficient N-heterocycles.

KARTHIKEYAN, Ganesan (b. 1970), MD, Professor of Cardiology, Cardiothoracic Sciences Centre, All India Institute of Medical Sciences, New Delhi, for his contribution to the management of rheumatic heart disease and mechanical heart valve thrombosis. His work has impactful management of cardiovascular disease.

KEMPAIAH, Kemparaju (b. 1964), PhD, Professor, Department of Studies in Biochemistry, University of Mysore, Mysuru, for his significant contribution in the area of snake venom pharmacology, platelet and neutrophil biology. He demonstrated that NETosis is the key mechanism of viper bite induced sustained tissue decay which can be alleviated by deoxyribonuclease treatment.

KHARWAR, Ravindra Nath (b. 1967), PhD, Professor, CAS in Botany, Institute of Science, Banaras Hindu University, Varanasi, for significant contributions in the field of structural and functional diversity of microbial endophytes. He evaluated the neem tissues for endophytic microbial suites with a maiden report on actinobacteria. He has reported functionalized antimicrobial, antioxidant and anticancer compounds from fungal endophytes. Prof. Kharwar also utilized the potential of fungal endophytes in plant growth by alleviating the salt and drought stresses.

KURPAD, Anura Viswanath (b. 1959), MD, PhD, FASc, FAMS, FRCP, Professor, Department of Physiology, St. John's Medical College, Bengaluru, for his primary contribution to the field of human mutation using isotopes. This has led to generation of prime evidence towards defining protein and amino acid requirement for human consumption.

LAISHRAM, Rakesh Singh (b. 1979), PhD, Scientist F, Rajiv Gandhi Centre for Biotechnology, Trivandrum, for his significant contribution in our undertaking of eukaryotic post-transcriptional gene regulation. Specially his work has discovered the novel regulatory functions of non-genomical polyadenylation in diverse biological processes.

LUTHRA, Kalpana (b. 1965), PhD, FAMS, Professor, Department of Biochemistry, All India Institute of Medical Sciences, New Delhi, for her studies on correlation of HIV virus in the human host, particularly in the pediatric population. This along with her work in generating broadly neutralizing human monoclonal recombinant antibodies provides new insight into therapeutic antibodies.

MALL, Rajesh Kumar (b. 1965), PhD, Professor, Dean & Head, IESD, Banaras Hindu University, Varanasi, for his seminal contributions in climate science for deciphering climate change impacts on extreme weather events, crops, water, and human health and framing resilient adaptation strategies.

MANDAL, Bhabani Prasad (b. 1968), PhD, Professor, Department of Physics, Institute of Science, Banaras Hindu University, Varanasi, for his far-reaching contributions in many areas including non-Hermitian but PT symmetric Hamiltonian and Finite Field BRST transformations in Gauge Theories. In addition, he has devoted special efforts to make STEM education accessible to Visually Impaired Students.

MEHRA, Mani (b. 1979), PhD, Professor, Department of Mathematics, Indian Institute of Technology Delhi, Hauz Khas, Delhi, for his impressive contributions in developing wavelet based schemes to solve partial differential equations on topologically complicated domains.

MITRA, Rahul (b. 1966), PhD, FNAE, Professor (HAG), Department of Metallurgical & Materials Engineering, Indian Institute of Technology Kharagpur, Kharagpur, for his seminal contributions towards processing structure property relation in refractory intermetallic alloys.

MUKHERJEE, Srabani (b. 1964), PhD, Scientific G, Department of Molecular Endocrinology, National Institute for Research in Reproductive and Child Health, Mumbai, for her immense contribution in understanding the molecular mechanism involved in the pathophysiology of polycystic ovary syndrome (PCOS). She has demonstrated dysregulation on ovarian angiogenesis in women with PCOS.

MUKHERJI, Suparna (b. 1966), PhD, FNAE, Professor, Environmental Science and Engineering Department, IIT Bombay, Mumbai, for her outstanding contributions in water and waste water treatment and environmental microbiology.

MUKHOPADHYAY, Achintya (b. 1968), PhD, Professor, Department of Mechanical Engineering, Jadavpur University, Kolkata, for his outstanding contributions on reactive system design and strategies for early detection and control of failure in gas turbines.

MYLAVARAPU, Sivaram Venkata Satya (b. 1974), PhD, Professor, Regional Centre for Biotechnology, Faridabad, for his contribution towards discovery of novel molecular mechanism that regulates cell division and the intercellular communication in animal cells. His work has been published in the advanced and high impact journal of cell biology.

NANDI, Ashis Kumar (b. 1967), PhD, Professor, School of Life Sciences, Jawaharlal Nehru University, New Delhi, for his significant contributions to the understanding of Immunity Development in Plants. His group identified novel proteins that are epigenetic regulator of infection memory in plants.

NITTALA, Chalapathi Rao Venkata (b. 1969), PhD(Hyd.), PhD(UK), FASc, FNA, Professor, Department of Geology, Institute of Science, Banaras Hindu University, Varanasi, for his original and path breaking fundamental contributions on the petrogenetic and petrophysical aspects of kimberlites, lamproites, lamprophyres, their entrained xenoliths and mafic dykes which enriched understanding of the mantle processes through geological time.

PANDEY, Jitendra (b. 1962), PhD, Professor, Department of Botany, Institute of Science, Banaras Hindu University, Varanasi, for his innovative research contribution on Ganga River Ecology with special reference to ecological response index for simultaneous prediction of eutrophy and metal pollution; river ecosystem resilience index as a tool for river management.

PATRA, Abhijit (b. 1979), PhD, Associate Professor, Department of Chemistry, Indian Institute of Science Education & Research Bhopal, Bhopal, for his seminal contributions at the interface of supramolecular chemistry, polymers, and physical chemistry with significant impact in the area of functional materials.

PENMATSA, Aravind (b. 1982), PhD, Associate Professor, Molecular Biophysics Unit, Indian Institute of Science, Bangalore, has contributed in the area of Pharmacology especially role of secondary active transporter involved in the neurotransmission during multi drug efflux. He has made significant contribution in the area of understanding the neurotransmitter during antibacterial compound movement across lipid membranes and their block to affect neurological disorder.

RAJADURAI, Chandrasekar (b. 1973), PhD, FASc, FRSC, Professor, School of Chemistry, University of Hyderabad. Hyderabad, for his original contributions by developing organic nano/micro scale photonic materials and technology for use as optical-wave guides, optical resonators, nonlinear optical lasers, and optical circuits.

RAKSHIT, Sujay (b. 1970), PhD, FNAAS, Director, ICAR-Indian Institute of Agricultural Biotechnology, Ranchi, for his keen interest and involvement in genetic enhancement of crops like maize, sorghum, millets, rice, pea, and chickpea using both conventional and molecular tools. He has also been involved in the development of several varieties in maize hybrids and a forage sorghum variety.

RAMAMURTHY, P. Chandrashekarapura (b. 1973), PhD, Professor, Department of Materials Engineering, Indian Institute of Science, Bengaluru, for his outstanding contributions towards developing organic photovoltaics, sensors and ultra-thin EMI shielding coatings.

RAY CHAUDHURI, Shaon (b. 1973), PhD, Professor, Department of Microbiology, Tripura University, Tripura West, for his contribution towards developing various processes of waste water treatment and products through microbial greening with the focus to reduce, reuse and recycle for environmental substances.

RAY, Manas Chandra (b. 1963), PhD, FNAE, Professor (HAG), Department of Mechanical Engineering, Indian Institute of Technology Kharagpur, Kharagpur, for his outstanding contributions in smart composite structures, nanostructure and strain gradient elasticity.

ROY, Dipanjan (b. 1977), PhD, Associate Professor, School of AIDE, IIT Jodhpur, Karwar, Rajasthan, for using cutting edge technologies of brain imaging and mapping to study. The connectivity of different regions of the brain during normal development and life course, as well as in neurodevelopmental disorders.

SAHOO, Bijaya Kumar (b. 1977), PhD, Professor, Physical Research Laboratory, Ahmedabad, for his novel contributions to the atomic physics that has made it possible for reliable calculations of isotope shift constants of atomic systems and for identifying very neutron rich magnetic nuclei. His calculations have set new limits for the chromo electric dipole moment of the combined up- and down-quarks.

SAMANTA, Luna (b. 1970), PhD, Professor, Redox Biology and Proteomics Laboratory, Department of Zoology, School of Life Sciences, Ravenshaw University, Cuttack, for significant contribution to the field of male infertility and contraception, particularly the role of active oxygen metabolism in testicular development, aging and impairment of sperm function.

SARKAR, Jaydeb (b. 1976), PhD, Professor & Head, Statistics-Mathematics Unit, Indian Statistical Institute, 8th Mile, Mysore Road, RVCE Post, Bangalore, for his outstanding contributions in the area

of operating theory, especially on the theme of the Arveson curvature invariant and characterization of invariant subspaces of a magnificent class of operators.

SENGUPTA, Debarka (b. 1983), PhD, Associate Professor, Department of Computational Biology, Indraprastha Institute of Information Technology, New Delhi, for his immense contribution towards single cell genomics for identifications of rare-cell type discovery and integrating it with microfluids and artificial intelligent to detect tumor cells of rare phenotypes from patient blood. His work has revealed unique cancer mutations that bear clinical relevance.

SHARMA, Archana (b. 1964), PhD, FNAE, Director, Outstanding Scientist, Beam Technology Development Group, Bhabha Atomic Research Centre, Mumbai, for her excellent techno scientific progress in the field of electron beam accelerators, plasma, laser, and pulsed power technologies.

SINGH, Divya (b. 1975), PhD, Senior Principal Scientist, Division of Endocrinology, Central Drug Research Institute, Lucknow, for her significant contribution in the understanding of bone formation and fracture-repair process. She has translated her findings and a few of the lead mutations are under the clinical trial.

SINGH, Ravindra Pratap (b. 1964), PhD, Senior Professor & Head, Atomic, Molecular & Optical Physics Division, Physical Research Laboratory, Ahmedabad, for his pioneering contribution on experimental quantum optics and quantum cryptography. His outstanding experimental work includes indigenous realisation of free-space quantum key distribution. He has also contributed enormously in India's national activities in the domain of quantum communication.

SINGHAL, Rekha Satishchandra (b. 1962), PhD, FNA, Professor, Food Engineering and Technology Department, Institute of Chemical Technology, Mumbai, for her pioneering work on the amalgamation of basic and applied sciences in food chemistry. She developed microencapsulation technologies of sensitive food components and fortification of foods with iron and Vitamin B12 and D. She handled many industrial projects and consultancies.

SUNDAR, Durai (b. 1973), PhD, Institute Chair Professor, Department of Biochemical Engineering & Biotechnology, Indian Institute of Technology Delhi, New Delhi, for his contribution to natural product research for discovering biologically active compounds, in designing/analyzing genome engineering tools to develop their ability to quantitate/visualize genome editing outcomes and applications of Artificial Intelligence/Machine Learning in Biomedical Research.

SURESH, KG (b. 1968), PhD, Professor, Department of Physics, IIT Bombay, Mumbai, for his outstanding significant contribution to intermetallic compounds including magnetic, spintronic and topological aspects, with the aim of identifying novel, potential materials for applications such as magnetic refrigerators, sensors and spintronics specifically magnetocaloric materials and multifunctional Heusler alloys. He is well known for his dedicated teaching.

TANDON, Vibha (b. 1968), PhD, Professor, Special Center for Molecular Medicine, Jawaharlal Nehru University, New Delhi, for her significant contributions in the area of medicinal chemistry. One of the molecules from her research group has been identified that exerts radioprotection of the normal cells during radiotherapy of tumor patients derived xenografts.

UPADHYAY, Ranjit Kumar (b. 1967), PhD, Professor (HAG) & Head, Department of Mathematics & Computing, Indian Institute of Technology (Indian School of Mines), Dhanbad, for his outstanding contribution in the field of non-linear differential equations. He proposed a mathematical model on the issue why chaos is rarely observed in natural population. For the first time, he provided the analytic proof for finite time blow-up of L^p norm in ecological models for large initial data.

VERMA, Praveen Kumar (b. 1966), PhD, Professor, School of Life Sciences, Jawaharlal Nehru University, New Delhi, for his outstanding research focusing on interactions between plant and fungal pathogens. His work has been instrumental in elaborating fungal virulence factors and host resistance function.

YADAV, Bal Chandra (b. 1970), PhD, Professor & Head, Department of Physics, Babasaheb Bhimrao Ambedkar University, Lucknow, for his outstanding contribution to the science and technology of sensor using nanomaterials and devices. He has used various oxide materials, conducting polymers and perovskite materials to detect important gases and other parameters.

YADAV, Om Prakash (b. 1963), PhD, FNA, FNAAS, Director, Central Arid Zone Research Institute, Jodhpur, for his work to understand the adaptive mechanism of crops to drought and water limited environments to develop stress-adapted cultivars of pearl millet, maize and peanut. The results led to identification of drought tolerance and disease resistance and release of 11 commercial cultivars.

YADAVA, Devendra Kumar (b. 1966), PhD, FNAAS, Assistant Director General (Seed), Indian Council of Agricultural Research, New Delhi, for highly significant contribution in oilseed brassica breeding and seed distribution system; released 22 varieties and developed generic resources for pathogen resistance, thermo-tolerance and yield. He has developed unique genetic resources by introgressing genes for resistance to Sclerotinea stem rot, Alternaria blight and thermo tolerance through inter-generic somatic hybridization.

Science & Society

GUPTA, Nivedita (b. 1974), PhD, Scientist F & In-charge, Virology Unit, E&CD Division, Indian Council of Medical Research, V. Ramalingaswami Bhawan, Ansari Nagar, New Delhi, for her significant contribution in viral research and diagnosis to effectively combat epidemics and pandemics of viruses including high risk pathogens like Nipah, Ebola etc. She has worked tirelessly for over the past 7 years to establish a network of 132 virus research and diagnostic laboratories, which has made India self-reliant for timely detection of viral disease outbreaks and diagnostic testing including COVID-19.

KILASAVADIVOO, Sivan (b. 1957), PhD, FNAE, Former Secretary to Gol, Department of Space & Former Chairman, ISRO, ISRO Headquarters, Antariksh Bhavan, New BEL Road, Bangalore, for being the mission architect for 104 satellites launched in a single mission of PSLV. He led the flight testing of SCRAMJET engine and technology demonstration reusable launch vehicle (RLV-TD). He has established Mission Synthesis and Simulation Facility, Parallel computing facility and hypersonic Wind Tunnel Facility for ISRO's launch vehicle program.

SOMANATH, Sreedhara Panicker (b. 1963), ME, FNAE, Secretary to Gol, Department of Space & Chairman, Indian Space Research Organization, ISRO Headquarters, Antariksh Bhavan, New BEL Road, Bangalore, for his outstanding contribution in the area of space technology especially system engineering of launch vehicle. Under his able leadership ISRO has made a very successful landing on Moon on August 23, 2023, which has written the successful history of India's Moon Mission making the country's entry into the World leaders in space program.

Outstanding Research Contributions of those who have been recommended for the Foreign Fellowship for the year 2023

ATTFIELD, John Paul (b. 1962), DPhil, FNA, FRS, FRSE, FRSC, Chair, Centre for Materials Science at Extreme Conditions, University of Edinburgh, King's Building, Mayfield Rd., Edinburgh, UK, for his seminal contribution in the field of Chemistry-structure-property relationships in inorganic materials, typically transition metal oxides, nitrides of importance for electronic, magnetic and energy properties. He solved controversial 70-year old problem of how electrons order at low temperatures in original magnetic material magnetite. He is a highly decorated chemist, which include Fellow of Royal Society (2014) and Foreign Fellow, Indian National Science Academy (2019).

CHORGHAE, Mukund Shankar (b. 1953), PhD, DSc, FRSC, President & CSO THINQ Phamra/Adjunct Research Professor, Harvard University, 7 Jones Court, Hillsborough, New Jersey, USA, for his manifold contributions in many areas of Development including Process Chemistry, Development, Industrial Chemistry and Good Laboratory Practices. He is currently helping many Indian universities establish key partnerships and faculty- faculty, student exchanges and faculty sabbaticals with the universities in the USA. He is an elected fellow in prestigious academic societies and has demonstrated skills in management of academic collaborations, global development of new chemical entities.

CHOWDARI, B.V.R. (b. 1943), PhD, DLitt(hc), DSc(hc), Senior Executive Director, Nanyang Technological University, Singapore, is an internationally acclaimed Materials Scientist with over 350 publications, 25000 citations and H-index of 84. He is Fellow of Singapore Academy of Science, the President of Materials Research Society (MRS) of Singapore and President of International Union of Materials Research Society (IUMRS). His recent interests include the development of electrode and electrolyte materials for Energy Storage applications, including Li-ion batteries. He has nurtured and interacted with all the with all the Solid State Ionics research groups in India; in particular with those

from Varanasi, Roorkee, Delhi, Chennai, Coimbatore, Bengaluru, Kolkata, etc. As the Executive Director of the “National University of Singapore (NUS) – India Research Initiatives” and Senior Executive Director at the Nanyang Technological University where he led the “NTU – India Connect” initiative.

ECKERT, Jurgen (b. 1962), PhD, FNAE, Director, Erich Schmid Institute of Materials Science Leoben, Austria, for his outstanding contributions in non- equilibrium processing, disordered systems, amorphous and Nano structured materials and structure – property correlations.

GHOSH, Sankar (b. 1959), PhD, Professor & Chairman, Dept. of Microbiology & Immunology, Columbia University, College of Physicians & Surgeons, New York, for his seminal work in understanding the regulation of nuclear Factor-Kappa B (NF-Kappa B), a transcription factor that plays a critical role in regulating the expression of a large number of genes involved in the mammalian immune systems. He is an elected member of the National Academy of Sciences USA (2021) and National Academy of Medicine USA (2022).