

## Recipients of INSA Medal for Young Scientists 2022

1. **Dr Lakshman Abhilash** (16.11.1990), PhD, Neuroscience Initiative Advanced Science Research Center at the Graduate Center of the City University of New York, New York.

Dr. Abhilash Lakshman has carried out a number of studies that ably demonstrate the inter-relationship between timing of behaviour, circadian organisation and mechanisms of entrainment in *Drosophila melanogaster*. Using early and late chronotypes, along with their ancestral, unselected control lines, Dr. Lakshman has explored the correlated evolution of circadian organisation and entrainment properties of their circadian clocks under time cues of light and temperature. His studies have helped understand the hierarchical organisation of the circadian network revealing a strong temperature sensitive clock in the stocks of *D. melanogaster*. Dr. Abhilash's research has addressed several important questions related to the nature of the circadian clock that impacts life at scales ranging from the molecular to the ecological scales.

2. **Dr Sarit S Agasti** (25.03.1983), PhD, New Chemistry Unit (NCU) and Chemistry & Physics of Materials Unit (CPMU), Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), Jakkur, Bengaluru.

Dr. Agasti has contributed significantly to the development of molecular assemblies by incorporating various dynamically interacting synthetic host-guest motifs and exploiting these systems to do useful biological work. They combined macrocyclic receptors and DNA based systems with the biological interface to develop various programmable and reconfigurable systems with relevance to both fundamental and medical research. Dr. Agasti is also actively involved in developing easy to implement and live-cell compatible super-resolution imaging strategies by using dynamic molecular interactions. He has recently developed a simple, robust, and easy-to-implement super-resolution imaging method using highly selective, strong yet dynamic supramolecular interaction between synthetic host-guest pairs.

3. **Dr Gaurav Ahuja** (24.09.1987), PhD, Department of Computational Biology, Indraprastha Institute of Information Technology-Delhi (IIIT-Delhi), New Delhi.

Gaurav Ahuja has made elegant attempts to decipher the underlying mechanisms and codes involving odorant-receptor interactions, provided an understanding of the molecular basis of loss of smell in the COVID-19 infected patients, and established a link between the diversity of olfactory receptors per cell and cancer cell stemness.

4. **Dr Arvind B** (18.07.1989), MD, DM, Department of Cardiology, All India Institute of Medical Sciences, New Delhi.

Dr. Arvind is a clinician cardiologist and a researcher. His seminal contribution involves in determining the etiology of acute pulmonary exacerbations in children with cystic fibrosis and in drug trials for the management of Junctional Ectopic Tachycardia (JET), a potentially life-threatening abnormality of cardiac rhythm that is usually seen in children after cardiac surgery. In addition, he is involved in many

other projects like identification of markers of endothelial injury and activation in patients with acute rheumatic fever and other rheumatic heart diseases.

5. **Dr Shamik Banerjee** (18.03.1982), PhD, Institute of Physics, Bhubaneswar.

For his outstanding contributions to study of asymptotic symmetries of quantum gravity and to flat space holography.

6. **Dr Dipanshu Bansal** (20.08.1989), PhD, Department of Mechanical Engineering, IIT Bombay, Mumbai.

For his fundamental contributions in time-resolved mapping of lattice dynamics in real- and momentum-space for better and accurate depiction of several ubiquitous phenomena such as thermal energy transport, phase transition, thermal conductivity etc.

7. **Dr Subhro Bhattacharjee** (14.09.1982), PhD, International Centre for Theoretical Sciences, TIFR, Bengaluru.

For his outstanding contributions to the theory of phase transitions beyond the conventional symmetry-breaking framework, the relation between transport and chaos, and an unexpected connection between granular elasticity and gauge theories.

8. **Dr Arnab Bhattacharjee** (23.12.1982), PhD, School of Computational and Integrative Sciences, Jawaharlal Nehru University, New Delhi.

Dr Bhattacharjee has developed novel multiscale computer simulation techniques to investigate the physical and molecular factors that modulate the accessibility of genes within compact genome assemblies. He has shown how the crowded nuclear environment influences the target search dynamics of DNA binding proteins, and elucidated the various transport modes of proteins on stretches of DNA, with excellent match with the experimental findings.

9. **Dr Hillol Chakdar** (12.04.1984), PhD, ICAR-NBAIM, Kushmaur, Uttar Pradesh.

Dr. Chakdar has developed cost effective and easy to implement methodology for detecting infections of plants by fungal pathogens especially two fungal pathogens of rice. This includes methodology for high throughput DNA isolation, Loop Mediated Isothermal Amplification (LAMP) and a portable device for performing isothermal amplification.

10. **Dr Debashree Chakraborty** (06.06.1982), PhD, Department of Chemistry, National Institute of Technology, Mangalore.

Dr. Chakraborty has made significant contributions in the area of molecular dynamics simulations of complex biomolecular systems using network analysis and other immunoinformatic tools. The use of immunoinformatics techniques accelerates the design, development and optimization process of drug candidates, which, otherwise, is extremely computation-intensive.