Editorial*

Anindita Bhadra, Guest Editor

The decision to establish a national young academy was taken by the Indian National Science Academy (INSA) in December 2014. The Indian National Young Academy of Science (INYAS) came into existence with the first meeting of the 20 founding members in June 2015. INYAS was envisaged to act as a platform for interaction, collaboration, and discussion on matters of research, science outreach, and policy by young scientists. One of the major goals included in the vision of INYAS was to take the wonder of science to children, to motivate them to engage in scientific thought and practice logical reasoning. Children are highly influenced by their immediate environment, and hence, INYAS proposed to make scientific thought accessible to the public, so that parents and teachers can be brought under the influence of science. Through this dual approach of interacting with society, INYAS was projected to contribute to the process of developing scientific temper among the people of India.

Email: abhadra@iiserkol.ac.in

Over the last six years, INYAS has grown, not only in the strength of its membership but also through its activities, primarily focused on the engagement of science with society. INYAS has been actively engaged in science outreach among middle and high school students through workshops, science camps, etc. In addition, INYAS has successfully organized and participated in various national and international meetings, workshops and conferences to highlight the research of its members and other young scientists and enable networking between early and mid-career researchers. The pandemic has been a life-changing experience for one and all. The need for the engagement of scientists with the public, to spread awareness and address concerns about COVID-19, and to propagate best practices has never been so eminent in

*Vol.26, No.9, DOI: <https://doi.org/10.1007/s12045-021-1220-2>

the recent past. INYAS has risen to the occasion and conducted a large number of virtual events both focused on COVID-19, as well as general science outreach. The most recent initiative of INYAS is a three-minute thesis competition, which should be of interest to students pursuing a PhD.

This issue of *Resonance* features articles by the members and alumni of INYAS and is an outcome of a symposium organized during the Mid-Year Meeting of the Indian Academy of Sciences (IASc) in June 2018. The symposium entitled “Living in a changing environment” showcased work by some INYAS members, spanning topics ranging from hazardous chemicals to sustainable solutions to cancer to urban ecology, and had Dr Harini Nagendra, a bright young urban ecologist, as the keynote speaker. This symposium was a tribute to Dr Vijay Pal Yadav, a founding member of INYAS, whom we lost to cancer on 24th November 2017. Vijay was an environmental biologist, and this was a fitting tribute to his memory. We are thankful to Prof. Ram Ramaswamy for the invitation to organize the symposium. He and Prof. N. Sathya-murthy encouraged us to put together this special issue, which is representative of the diversity of disciplines reflected among the membership of INYAS.

Recent times have seen a surge in concern over climate change, and the need for immediate climate action is imminent. India is home to several biodiversity hotspots and fragile ecosystems, one of which is the Himalayas. Nelofar Jan, Salika Ramazan and Riffat John describe some impacts of climate change on the Himalayas, in terms of melting glaciers, receding tree lines, and occurrence of typically lower altitude plants at higher altitudes due to the warming.

As children, we played a game of making ‘paper’ using a plastic ruler and juice squeezed out of orange peels. Mudrika Khandelwal and Chandra S. Sharma describe how this very idea has been put to excellent use for making a new material that is useful and eco-friendly, using citrus fruit peels to recycle thermocol, a common source of environmental pollution. Sustainable solutions are the need of the present times for a better future, and their work

is an example of how simple ideas can be put to the test in a scientific endeavour. Their second article describes two amazing innovations of Nature that can inspire scientists—the lotus leaf and the foot of the gecko.

We are well aware of the role of DNA as the genetic material, but how much do we know of the various other functions it serves in the living world and the applications that it can be put to in various fields of research? Tanya Mathur, Surabhi Singh and Rohini Garg's article discuss just these questions. Follow this up with the article by Motiur Rahaman, Mandrita Mukherjee, and Nishant Chakravorty, which describes a simple tool to detect genetic disorders like β -thalassemia, and you have a full spectrum of basic to applied research in molecular biology. Durba Sengupta and Anu Raghunathan write about a threat to human health and well-being—antibiotic resistance. They prescribe a ten-point list that we need to follow for fighting this devil.

This issue has three articles on detection methods, spanning the fields of optics, chemistry and archaeology. Saravanan Rajamani and Mahesh Kumar provide a brief overview of photodetectors that have large-scale applications—from security systems to medical research. This is well complemented by V Ramanathan's article on Raman spectroscopy. Ariba Parveen and Jai Prakash describe biosensing through liquid crystals. M B Rajani and Viraj Kumar take us back in time through their description of a new finding using remote sensing that could change the current understanding about Odantapuri, an important Mahavihara established in the 8th century.

Students are often divided by their love (or fear) of mathematics. While the beauty of mathematics is used as a figurative expression, Tarakanta Nayak brings out its real beauty through the iterative use of complex polynomials. Besides these articles, this issue also carries a book review by Sveta Chakrabarti and an interesting scientific crossword by Shobhana Narasimhan and Madhavan Mukund.

EDITORIAL

We encourage young people, especially students, to engage with INYAS by following us virtually and participating in our activities. We are thankful to the editorial board of *Resonance* for enabling the publication of this special issue.