



CONTENTS

	Page
Important Events/Meetings	2
National Science Day Celebrations	5
Publications	6
INYAS Activities	7
Annexure-I	14
Annexure-II	15
Annexure-III	20
Annexure-IV	21
H R Activity	22

Important Events/ Meetings

- In 88th Anniversary General Meeting (14-16 December 2022) the following activities: Presidential address, one public lecture, two award lectures and INSA Anniversary lectures were organized :

Presidential Address (14 December, 2022)

Pandemics: the battles reshaping the future delivered by Professor **Chandrima Shaha**, President, INSA.

Anniversary Lectures (14-16 December, 2022)

SESSION 1

Chair: Professor **Ritabrata Munshi**, FNA, ISI, Kolkata

Sectional Committee I:

- Galois Representations* by Professor **EP Ghate**, FNA, TIFR, Mumbai.
- Graphon-valued Stochastic Processes* by Professor **SR Athreya** FNA, ISI, Bengaluru.

SESSION 2

Chair: **Dr Subeer S Majumdar**, FNA, Gujarat Biotechnology University, Gandhinagar

Sectional Committee VI:

- Emergence of Novel Foraging Skills in Monkeys Inhabiting Human Dominated Landscapes* by Professor **Mewa Singh** FNA, University of Mysore, Mysore
- Sectional Committee VI: *It's a Nematode World* by Professor **Qudsiya Tahseen** FNA, AMU, Aligarh

SESSION 3

Chair: Professor **Anurag Sharma**, FNA, IIT, Delhi

Sectional Committee II:

- Geometrical Singularities in the Model of Hard Rigid Rotors on a Lattice* by Professor **Deepak Dhar** FNA, IISER, Pune.
- Thermonuclear Supernovae as Cosmological Probes* by Professor **GC Anupama** FNA, IIA, Bengaluru.

SESSION 4

Chair: Professor **AS Raghavendra**, FNA, University of Hyderabad, Hyderabad

Sectional Committee VII:

- Biotechnology Based Interventions Involving Animals for Enhancing Quality of Animal and Human Lives* by **Dr Subeer S Majumdar** FNA,

Gujarat Biotechnology University, Gandhinagar.

- Understanding the Social Language of Bacteria: Speak or not to Speak?* by **Dr Subhadeep Chatterjee** FNA, CDFD, Hyderabad.

SESSION 5

Chair: Professor **Sourav Pal** FNA, Ashoka University, Sonipat

Sectional Committee III:

- Design and Development of Heterogeneous Catalysts for Sustainable Chemical Industry* by Professor **M Lakshmi Kantam**, FNA, ICT, Mumbai.
- Molecules to Materials by De Novo Design* by Professor **JN Moorthy** FNA, IISER, Thiruvananthapuram.

SESSION 6

Chair: Professor **NR Jagannathan** FNA, Sri Ramachandra Inst. of Higher Education and Research, Chennai

Sectional Committee IX:

- Preclinical Studies with Ayurvedic Drugs to Predict their Efficacy Against COVID-19 Pathologies* by **Dr Madhu Dikshit** FNA, CDRI, Lucknow.
- Multi-disciplinary Approach to Understand Complex Diseases with Public Health Significance* by **Dr Shinjini Bhatnagar** FNA, THSTI, Faridabad.

SESSION 7

Chair: Professor **DM Banerjee** FNA, University of Delhi

Sectional Committee IV:

- Advent of Plate Tectonics and the Supercontinent Cycle-selected Indian Examples* by Professor **Somnath Dasgupta** FNA, ISI, Kolkata.
- A Narrative of Mathematization of Earth System Science* by Professor **RN Singh** FNA, IIT, Gandhinagar.

SESSION 8

Chair: Professor **Pinakpani Chakrabarti** FNA, Bose Institute, Kolkata

Sectional Committee VIII:

- Gut Instincts and Gut Reactions: Molecular Mechanisms Underlying the Biology* by Professor **Sandhya S. Visweswariah** FNA, IISc, Bengaluru
- Of Genomes, Methylomes & Acetylomes* by Professor **DN Rao** FNA, IISc, Bengaluru

SESSION 9

Chair: Professor **Gautam Biswas** FNA, IIT, Kanpur

Sectional Committee V:

- (i) *Towards Quieter Technologies* by Professor **ML Munjal** FNA, IISc, Bengaluru
- (ii) *Pattern Recognition, Machine Intelligence to Data Science: Evolution, Challenges and Concerns* by Professor **Sankar K Pal** FNA, ISI, Kolkata

SESSION 10

Chair: Professor **Mewa Singh** FNA, University of Mysore, Mysore

Sectional Committee X:

- (i) *Genomics-assisted Breeding of Climate-resilient Crop Varieties* by **Dr NK Singh** FNA, IARI, New Delhi

Award Lectures

- (i) **Chairperson:** Professor **Chandrima Shaha**, President, INSA

Professor Vishwa Nath Memorial Lecture (2018) on *World's Most Radiation-resistant Bacterium: Deinococcus radio durans and What Can You Do With It?* By Professor **SK Apte**, FNA, UM-DAE-CEBS, Mumbai.

- (ii) **Chairperson:** Professor **Debashish Chowdhury**, FNA, IIT Kanpur

Homi Jehangir Bhabha Medal Lecture (2020) on *The Fascinating Physics of Strongly Correlated Quantum Impurities* by **Professor HR Krishnamurthy**, FNA, IISc, Bengaluru.

INSA Website

A new format of the INSA Website has been launched by Professor **Chandrima Shaha**, President, INSA during the Anniversary General Meeting on 15 December, 2022.

Book Release Ceremony

Chairperson: Professor **Chandrima Shaha**, President, INSA A recorded address by **Dr (Mrs) N Kalaiselvi**, DG CSIR was played just before the book release ceremony.

Jiddi The Zealous Ones authored by Professor **Sulabha K Kulkarni**, FNA, CMET, Pune was released by Dr Madhu Dikshit, FNA

Public Lecture

Chairperson: Professor **DV Khakhar**, Vice-President, INSA

Lecture on *The Future of Our Universe* by Professor Ashoke Sen, FNA, ICTS, Bengaluru.

- **On 16th December 2022**, in the Anniversary General Meeting the sad demise of Professor Krishna Manda Venkata Apparao, Professor Kankan Bhattacharyya, Professor Sukumar Shyamlal Merh, Professor Ashoke Nath Mitra and Professor Salem Ramachandrarao Venkatasubba were reported.

- During the Anniversary General Meeting, President, INSA presented scroll/ lapel pin / stole to the 52 Fellows (those who were inducted virtually in the previous meeting) w.e.f. 1.1.2023 and inducted to the Fellowship. In addition, Professor SR Athreya and Professor EP Ghate handed over the scroll, lapel pin and tie. INSA Medal for Young Scientist Award were presented to 35 Young awardees (14 from 2021 and 21 from 2020). INSA Teachers Award were presented to 25 Teacher awardees (12 from 2021 and 13 from 2020). President, INSA presented mementos to 2 outgoing INSA Office-Bearer and Council member.

- The tenure of the Presidentship of Professor Chandrima Shaha completed on 31.12.2022, Professor Ashutosh Sharma, FNA, former DST Secretary, took over as the President of the Indian National Science Academy for next three years and addressed (online) the Fellows during Anniversary General Meeting on 16th December, 2022.

- Professor Chandrima Shaha, President, INSA delivered the National Academy of Sciences Foundation Day Lecture titled: "Creativity and innovation during the pandemics" on Dec 4, 2022.

- Council Meeting (in Hybrid mode) was held on 5 January, 2023 in INSA premises. Following INSA Awards 2022 were announced :

1. Recipients of INSA Awards at Annexure-I

2. Recipients of INSA Young Scientist Award 2022 at Annexure-II

3. Recipients of Professor Har Swarup Memorial Award 2022 at Annexure-III

4. Recipients of INSA Teachers Award 2022 at Annexure-IV.

In addition, Book of Nomination for INSA Indian and Foreign Fellowship has been uploaded on INSA Website and forwarded to all Fellows. Nominations of Indian Fellowship for the year 2023 have also been forwarded to respective sectional committee members for their consideration during the meeting in February, 2023.

- The Joint Meeting in hybrid mode was conducted on 2nd February, 2023. First Meeting of all Sectional Committees (except SC-IV which was held on 10th February and SC-II on 17th February) to shortlist the nominations for INSA Fellowship were held in online/hybrid mode.
- Nominations for vacancies in INSA Council for 2024 have been invited from all Fellows of INSA.
- Meeting of Selection Committee for Foreign Fellowship (2023) was held online on 6th March, 2023.

The following award lectures were delivered during the month of March :

1. *Professor SK Joshi Memorial Medal (2021) Lecture on Exploration of the Universe Through a New Low Frequency Window from Space* by Professor **S Ananthakrishnan**, FNA at Physics Department, SP Pune University on 11 March, 2023 under the aegis of INSA Pune Local Chapter.

2. *Professor Vishnu Vasudeva Narlikar Memorial Lecture (2021) on Dilation Theory of Quantum Dynamical Semigroups* by Professor **BV Rajarama Bhat**, FNA at Maths Department, IISc, Bengaluru on 20 March, 2023 under the aegis of INSA Bengaluru Local Chapter.

3. Srinivasa Ramanujan Medal Lecture (2022) on **History and Development of Algebraic Number Theory** by Professor **SK Khanduja**, FNA at IISER, Mohali on 21 March, 2023 under the aegis of INSA Chandigarh Local Chapter.

- **INSPIRE** : The Selection committee meetings of Chemical Sciences (Hybrid mode) and Mathematical Sciences (Online) were held in December 2022.

The Selection committee meetings of Life Sciences- Plant, Animal & Agriculture (Hybrid), Physical Sciences (Online), Life Sciences-Biomedical (Online), Engineering Sciences & Technology (Online), Material Sciences (Online) and Earth & Atmospheric Sciences (Hybrid) were held in January 2023.

The Apex Committee meeting was held on 3rd February 2023 in which 115 INSPIRE Faculty Fellows were recommended.

- Professor Sir Robin Grimes, Foreign Secretary of the Royal Society visited the Academy on 7th December 2022. The Vice President (International Affairs) Professor NK Mehra along with the Executive Director Dr Arvind C. Ranade welcomed Professor Robin Grimes. Dr R Bhuvaneshwari, Scientist C (International Affairs) and Dr Brotati Chattopadhyay, AED (Council), Ms. Swati Saxena,

Science & Innovation Network, British High Commission were also present. Deliberations were held to strengthening the relations and partnership with the Academy through joint workshops/seminars.

- The Academy nominated Professor Ganapati D Yadav, Fellow of this Academy as an expert to the GEO-7 Multidisciplinary Expert Scientific Advisory Group (MESAG).

- The 8th edition of India International Science Festival-2022 (IISF) was organized at Maulana Azad National Institute of Technology (MANIT), Bhopal from 21st to 24th January 2023. The theme of IISF 2022 was 'Marching towards Amrit Kaal with Science Technology and Innovation'. The Academy on the invitation of Department of Science and Technology, Govt. of India participated in this 4 day Mega Science Expo. The panels showcasing the different activities of the Academy in the areas of science promotion, history of science and science outreach were exhibited in the event. Some of important and popular publications of the Academy were also displayed to create awareness among the researches, students and public at large.



INSA has been invited as the Guest academy in the G-Science Academies meeting in Tokyo, from 7-8, March 2023. President INSA has nominated Vice-President (International Affairs) to attend the same on behalf of the Academy.

Professor Narinder K Mehra Vice President (International Affairs) attended virtual meeting for ISC members and the ISC affiliated bodies with the ISC president.

The Academy has nominated Professor Sandeep Verma, Fellow of this Academy for 'Titular Member' in IUPAC.

The President, INSA & the Co-Chair of S20 Engagement Group Prof. Ashutosh Sharma and Vice-President (International Affairs), Professor Narinder K Mehra attended the Science 20 Inception meeting held in Puducherry from 30-31 January 2023.

S20 Activities: INSA as the Knowledge Partner coordinates the preparation of policy contents (including but not limited to policy briefs, reports, white papers, communiqué, follow-up briefs, etc.) with inputs and drafts from Expert Committee, Policy Drafting Committee, Transdisciplinary Disruptive Science Committee, Secretariat, G20 Member Academies, and other stakeholders.

Professor **Narinder K Mehra** Vice President (International Affairs) and Dr R Bhuvaneshwari, Scientist (International) participated virtually in the International Conference on Science and Technology for Sustainability 2022-Disaster and Health on 25th & 26th January 2023 organised by Science Council of Japan.

Professor **Narinder K Mehra** addressed the participants of the Science Conference dedicated to the day of Russian Science on Joint Russian-Indian interdisciplinary research organised by Russian Academy of Science and the Russian Centre for Science Information (RCSI) held virtually on 08 February 2023.

The 3rd INSA-Royal Society Yusuf Hamied Bilateral Workshop/Meeting (Online) held on 23rd and 24th February 2023. The workshop aims to give senior academicians from India and the Royal Society the opportunity to arrange scientific meetings on topics of vital shared importance, and to benefit from each other's experiences and expertise.

The financial support has been sanctioned to Professor Renee Borges to participate in the "IUBS 34th General Assembly" from 9th to 12th March 2023 at Tokyo, Japan.

- S20 India 2023: The S20 India main theme is "Disruptive Science for Sustainable Development" with three subthemes as under that will focus on critical components encompassing major facets of the stream while emphasizing disruptive aspects that tie into the main theme.

- Clean Energy for a Greener Future
- Universal Holistic Health: Cure and Prevention of Disease
- Connecting Science to Society and Culture

- Professor **Narinder K Mehra**, Vice President (International Affairs) participated in the Panel Discussion "Science in Society and Science for Society" in the G-Science Academies (S7) International Symposium Meeting held on 07 March 2023 in Tokyo, Japan.

- Professor **Renee M Borges**, Centre for Ecological Sciences, Indian Institute of Sciences (IISc), Bengaluru has been appointed as the General Secretary of International Union of Biological Science (IUBS) for the period 2022-2025.

- The Annual Meeting of INSA ISC National Committee for International Union of Geological Science (IUGS) & International Union for Quaternary Research (INQUA) was held on 21st March 2023.

ISRF: Seven ISRF fellows have joined the respective host institutions for ISRF fellowship.

Committee meeting to select the candidates for award of Fellowship under India Science and Research Fellowship 2022-23 programme, was organized on February 20, 2023. Recommendations have been sent to DST for their concurrence and further approval of MEA/MHA.

Non ISC conference support

- Eight Indian scientists were supported by the Academy for attending the Non ISC (International Science Council) sponsored conferences abroad.

Lectures by INSA Fellows/Young scientist awardees/ teacher awardees/ INYAS members to young students and teachers of schools and colleges in the remote /rural areas

The Academy supports a scheme under which lecture-cum-interaction meetings were organized at schools/colleges in areas which were away from the urban areas. 2016 onwards INSA young scientists and INSA teacher awardees were included in this programme. In the year 2017 the Academy decided to include members of Indian National Young Academy of Sciences (INYAS) in this programme 16 lectures were delivered during this period.

National Science Day Celebrations

The Indian National Science Academy and Indian National Young Academy of Sciences (INYAS) jointly organised National science day on 28 February 2023, at INSA Auditorium, New Delhi. A Lecture was delivered on **Need of learning Science for Human Wellbeing** by Dr Anil Kumar Rajvanshi, Padma Shri Awardee, Director & Honourable Secretary, Nimbkar Agricultural Research Institute. The session was chaired by Professor Ashutosh Sharma, President of INSA. Professor Narinder K Mehra, Vice

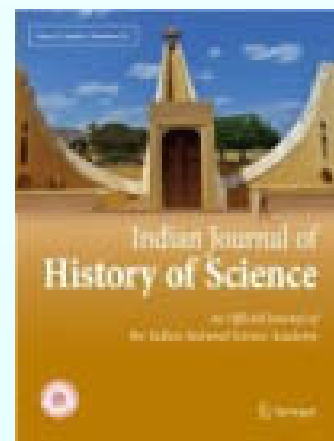
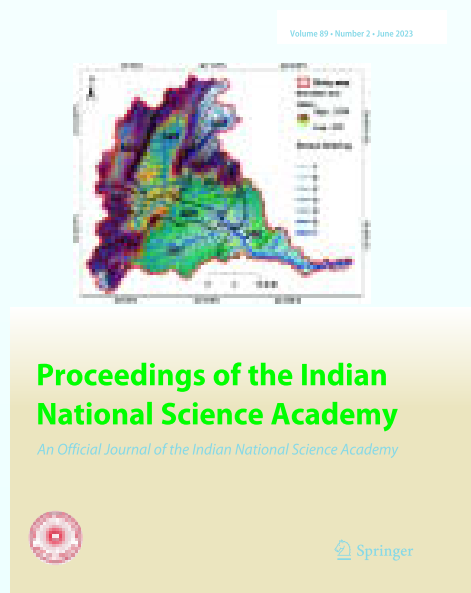
President, INSA and Professor Sanjay Puri, Vice President, INSA addressed the participants. The newsletter of the Indian National Young Academy of Sciences (INYAS) was also released. Around 200 students attended the programme.

- Science and Society Advisory Committee Meeting was held on 24 March 2023 in hybrid mode at INSA, New Delhi.

Publications

- The December 2022 issue (57.4) of IJHS is published online. The issue includes papers on the concept of midnight sun mentioned in Greek and Indian astronomical texts, William Roxburgh's contribution in the field of medical botany specially dysentery, physics and physicists at Banaras Hindu University during 1916-60, Dr Gopaul Chunder Roy (1844-87) contribution in the field of medical sciences, rock paintings of India and their techniques, pigment and conservation, journey of natural pigments from antiquity to the present, a note on the Indian Social Science Academy, Allahabad. The issue also features a review of the book *Gaṇitagannaḍi: An astronomical text of 1604 CE in Kannada by Śankaranārāyaṇa Joisaru of Śrngeri* and a project report on medical system and practices of the tribes of Jungle Mahals. An obituary on the life and contributions of Lalit K. Gurjar is also published.
- Books: Jiddi-The Zealous Ones (2022) (Author: Sulabha K Kulkarni): Published.

- Biodiversity in India: Status, Issues and Challenges (2022) (Editor: Ravinder Kohli et al.) (in collaboration with M/s Springer): Published.
- Proceedings of the Indian National Science Academy: Vol 88 No. 4 December 2022 issue: Published.
- Proceedings of the Indian National Science Academy: Vol 89 No.1 March 2023 issue: Published.
- Indian Journal of Pure and Applied Mathematics: Vol 53 No.4 December 2022 issue: Published .
- Indian Journal of Pure and Applied Mathematics: Vol 54 No.1 March 2023 issue: Published .
- INSA News Letter (September-November 2022): Published.
- Abstract booklet (INSA AGM Meeting): Published.
- Brochures (INSA Council, INSA Fellows-2022; effective from 01 January 2023): Published.



The Indian National Science Academy established Indian National Young Academy of Sciences (INyas) in December 2014. Following outreach activities have been carried out by INyas members

1. Department of Biosciences and Biomedical Engineering, IIT Indore and Indian National Young Academy of Sciences (INyas) jointly organised a 6-Days Active Learning and Hands-on Workshop on "Microbial Biomass and Bioproducts

6 Days Active Learning and Hands-on Workshop on
"MICROBIAL BIOMASS AND BIO-PRODUCTS CHARACTERISATION USING HIGH-END INSTRUMENTS"
 From 12th December - 17th December 2022
 (Under the Karyashala Scheme - An Initiative by SERB, Govt. of India)
 Organized By
 BSBE, IIT Indore and INyas

Karyashala
 The goal of "KARYASHALA" is to give students, chiefly from research and academic institutions, practical learning experience in handling/troubleshooting of high-end scientific instruments and other such skill development on topics needed for research work. The programme is designed to assist motivated researchers who have a strong desire to achieve success in their pursuits of scientific and technical research.

About IIT Indore
 Indian Institute of Technology Indore (IIT Indore) is a prestigious institution in the state of Madhya Pradesh, established in 2009. The Department of Biosciences and Biomedical Engineering (BSBE) at IIT Indore applies scientific and engineering approaches to advance fundamental understanding and applications in biology and biomedical engineering. The mission of BSBE is to have an international influence, develop future leaders in the field of biosciences and bioengineering, and foster an environment conducive to the successful pursuit of academic activities in research and education.

Course Details
 This workshop will revolve around acquainting the enthusiastic participants with advanced analytical instruments such as Gas Chromatography, High-Performance Liquid Chromatography, UV-visible Spectrophotometer, Scanning Electron Microscopy and Confocal Microscopy required for varying applications such as therapeutic, nano-biotechnology and environmental engineering. This active learning and training workshop is designed to provide theoretical and practical knowledge of handling photosynthetic microbes in laboratories along with the working of high-end instruments by expert researchers and scientists from premier organisations in India.

Course Faculty

 Dr. Kiran Saha Associate Professor, Department of BSBE, IIT Indore	 Dr. Anil Chandra Associate Professor, Department of BSBE, IIT Indore	 Dr. Parashram H. Shrivastava Professor, Department of HNSL, IIT Indore
 Dr. Abhishek Joshi Associate Professor, Department of BSBE, IIT Indore	 Dr. Pritam Sangwan Scientist E & Joint Director, Centre for Fire, Explosive & Environment Safety (CFEES), DRDO, New Delhi	 Dr. Harishankar S. Parnik Assistant Professor, School of Biotechnology, DAAN, Indore

How To Apply
 Applicants can fill the google form available by clicking on the below link, or may proceed by scanning the following QR code:
<https://forms.gle/4UJPCU4e2ER13o9p>

For further updates please visit:
<https://ites.gatech.com/newscenter/karyashala2022>

Course Registration Fee: 400 INR
 Course Coordinator: Dr. Kiran Saha
 For any queries please contact:
 Dr. Tanmay Ghosh or Dr. Abreyee Ghosh
 Email ID: sp@bsbe-tech@gmail.com

Who Can Apply
 Undergraduate, postgraduate students, early career researchers and faculties from academic institutions in India. The event will be physically conducted at IIT Indore.

Important Dates

- Last date of Application: 30th November 2022
- List of selected candidates will be announced on: 28th November 2022
- Workshop dates: 12th - 17th December 2022

Characterisation Using High End Instruments" from 12th December - 17th December 2022 in offline mode at IIT Indore under the Karyashala Scheme- An Initiative by SERB, Govt. of India. This workshop revolved around acquainting the enthusiastic participants with advanced analytical instruments such as Gas Chromatography, High-Performance Liquid Chromatography, UV-visible Spectrophotometer, Scanning Electron Microscopy and Confocal Microscopy required for varying applications such as therapeutic, nano-biotechnology and environmental engineering. This active learning and training workshop was designed to provide theoretical and practical knowledge of handling photosynthetic microbes in laboratories along with the working of high-end instruments given by expert researchers and scientists from premier organisations in India. Undergraduate, postgraduate students, and early career

researchers from academic / research institutions in India attended this event.

2. INYAS envisages the balance of the scientific temperament of S&T stakeholders. One such significant activity of INYAS is to project the status and the challenges faced by the young researchers of our country through white papers (WPs). Postdoctoral researchers are the critical class of trained workforce for any country's STI growth. In this regard, INYAS has prepared a structured questionnaire and is conducting a national survey among postdoctoral and/or early-career researchers. INYAS aims to project their status, challenges, and viewpoints/expectations for having an ecosystem of "Brain Pool" in the country. The survey is focused on the reality check of facts and figures of postdoctoral fellowships in India, and the outcome will be shared with all participants and policymakers, including all national funding agencies.

Digital Survey for Fate and Future of Postdoctoral Fellow Working in India

Take part in this survey and contribute in shaping future India

Scan the QR Code and take the survey

Or Click the Link <https://tinyurl.com/38c7d386>

3. A conference on basics of Research Methodology was organised by INYAS in collaboration with CUPB and AIIMS Bathinda.

National Conference on Basics of Research Methodology

Date: Dec. 03, 2022 Venue: Seminar Hall, CUP

Organized by
Indian National Young Academy of Sciences (INYAS)

In collaboration with
Central University of Punjab, Bathinda & AIIMS, Bathinda

Patrons

Prof. Chand Kumar Singh
Executive Director
AIIMS, Bathinda

Prof. B. J. Tripathi
Vice-Chancellor
CUP, Bathinda

Organizing Committee

Secretaries

Dr. Praveen Singh, MD
FRCR, Department of Radiology
AIIMS, Bathinda
INYAS Member

Dr. Jyoti K. Panwar
FRCG, Department of Geology
CUP, Bathinda
INYAS Member

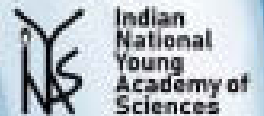
Members

Prof. Anoop Mehta, Director, R & D, CUP
Dr. Raj Kumbhakar Singh, Department of Geology, CUP
Dr. L. T. S. Gana, Department of Geography, CUP
Dr. Rajal Malhotra, Department of Geology, CUP

4. Pharmacy is a subject of great scope in industry as well as academia. To make the next-generation pharmacy graduates aware on the key state of art information, INYAS-NCR chapter in collaboration with Amity Institute of Pharmacy, Amity University Noida (Uttar Pradesh) organised a talk on 'The key aspects of pre-formulation studies'. The event was held on December 09, 2022 from 11 am onwards on Zoom platform. It targeted to give adequate exposure to the undergraduate and postgraduate students of Pharmaceutical Sciences. The resource person invited was Mr Vaibhav Kumar, who has a rich experience of teaching as well as industrial lead roles. He has a total Industrial Experience - 15 yrs. He has also worked with Sun Pharmaceutical Industries Limited erstwhile Ranbaxy Laboratories Limited from Jan 2007 to Oct 2020. At present, he is Heading center of excellence



Guest LECTURE



The Key Aspects of Pre-Formulation Studies

Mr. Vaibhav Kumar

Head Center of Excellence Lab, Mylan Laboratories Limited

COORDINATORS



Dr. Rajendra S. Dhaka
Assistant Professor, IIT
Cholayam - 505003 India



Dr. Kalpana Nagpal
Assistant Professor, IIT
KGP Durgam Chaitanya - 751005



Zoom

SCAN TO JOIN
VIA ZOOM



Friday, 09 December 2022



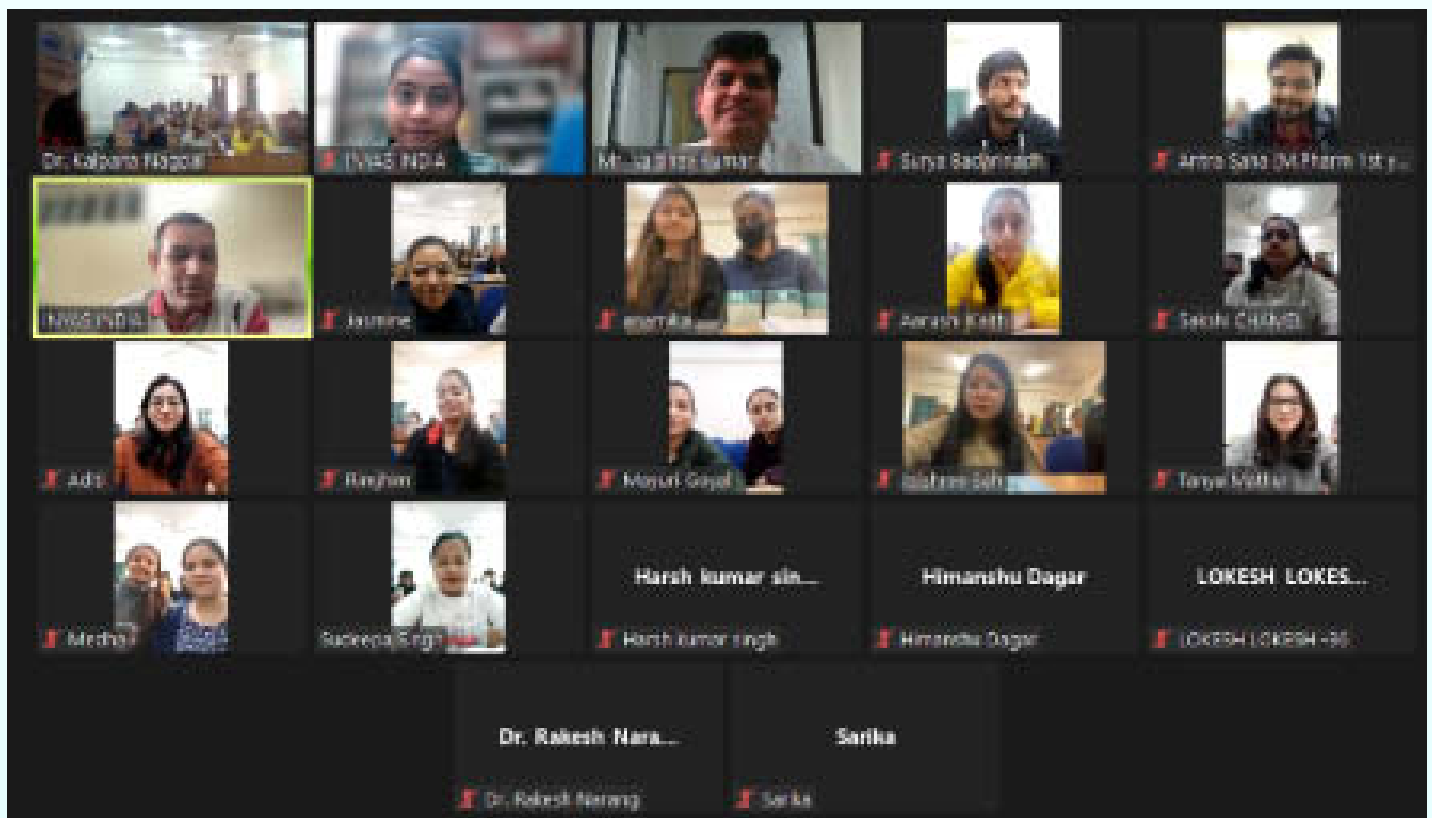
11:00AM onwards

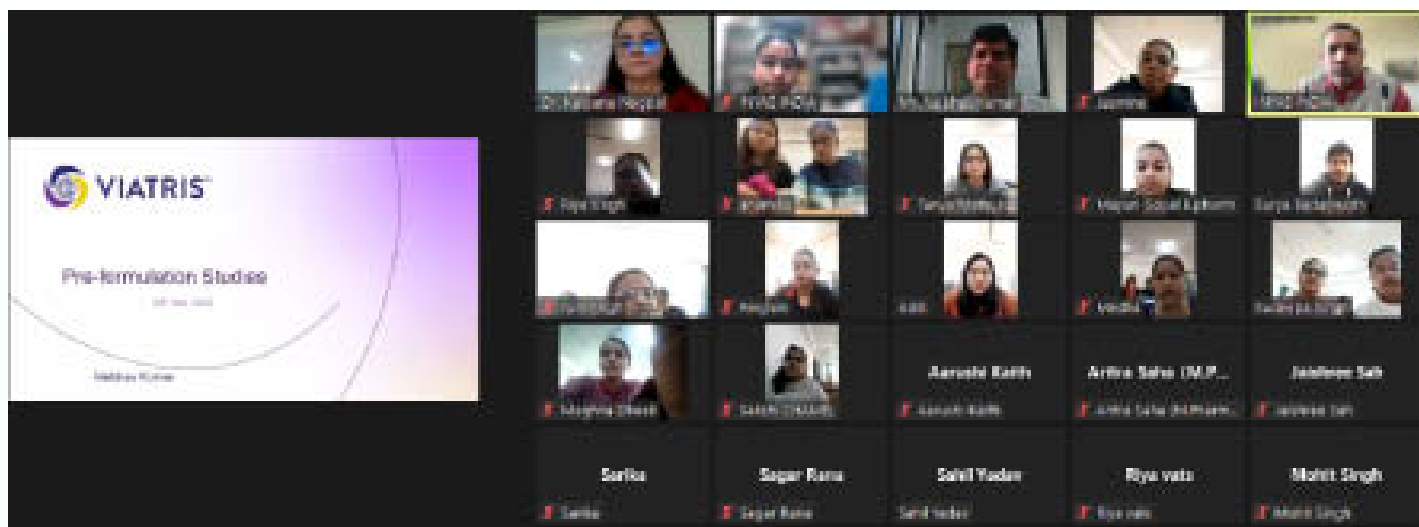


Live Streaming link available

Organizers

NCR Chapter, Indian National Young Academy of Sciences (INYAS) and AIP, Amity University (Noida)





laboratory in Mylan. His expertise are in risk assessment, method development, method validations, method transfers of analytical methods for determination of trace level nitrosamine impurities in drug substances as well as drug products. The knowledge about the Pre-formulation studies will assist the scientists in screening lead candidates based on their physicochemical and biopharmaceutical properties. This will create awareness about the evaluations of medicinal compounds before actually converting them into the dosage forms like Tablet, Capsules, Injections, Syrups etc. This topic is not only the inherent part of Pharmacy curriculum, but also hold a good scope to gain knowledge if you are looking for good job opportunities in academia and industry.

5. "INyas Science Camp - 2022" was organised by the Mumbai chapter of INyas and INSA in collaboration with D. Y. Patil Education Society, Kolhapur during 16-17

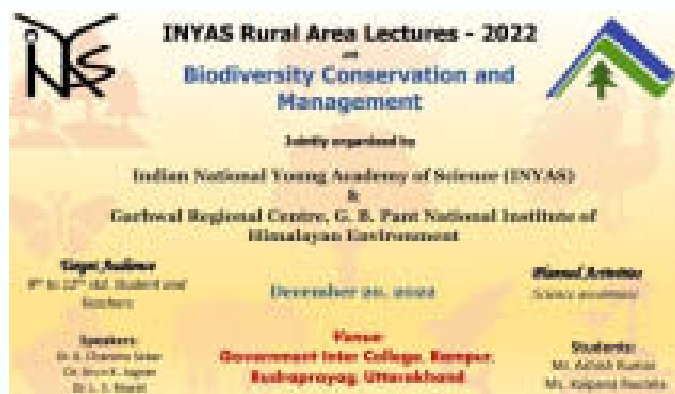


December 2022 at D. Y. Patil Vidyaniketan School, Kolhapur. This camp aimed to develop scientific attitude and understanding of basic science among the school children nearby Kolhapur. A number of 500 students participated in this event at D. Y. Patil Vidyaniketan School, Kolhapur. The activities included: Science experiment demonstrations and hands on training in three dedicated sessions in Physics, Chemistry and Biology followed by Science Quiz sessions.

6. "वज्जिज्ञान उत्सव-2022" (Vidnyan utsav-2022) was organised by the INyas and Marathi Vidnyan Parishad, Gadhinglaj, Kolhapur during 14-17 December 2022 at various rural places in Kolhapur. This combo event aimed to develop scientific attitude and understanding of basic science among the rural area school children. The event was organized for rural area (class 7th to 9th school



7. Indian Himalayan Region is a global biodiversity hotspots comprises enormous diversity. The biodiversity of the region provides various livelihood options through diverse ecosystem goods and services. However, modern urbanization and climate change events has placed a huge pressure on the biodiversity of the region which ultimately affect the livelihood options of the people. Therefore, there is an urgent need to develop strategies and awareness for conservation and sustainable utilization of Himalayan biodiversity. Keeping this in view, a one-day training program under the INYAS Rural Area Lectures-2022, was jointly organized by Indian National Young Academy of



**One day Training Program
on
Biodiversity Conservation and Management
under
INYAS Rural Area Lectures- 2022
& In-house project**

Organized by:

- **Indian National Young Academy of Science (INYAS)**
- **Garhwal Regional Centre, G. B. Pant National Institute of Himalayan Environment**

Date:
20 December 2022
10:00 AM Onwards
(9th to 12th Students & Teachers)

Highlights:

- **Biodiversity documentation and assessment**
- **Impact of Climate Change on biodiversity**
- **Management and conservation approaches**

Venue:
Government Inter College, Rampur (District Rudraprayag) Uttarakhand

Organizing Team

◆ **Dr. Arun Jugran, Sci. D**
(INYAS Member)

◆ **Mr. Ashish Kumar, Senior Project Fellow**

◆ **Miss Kalpana Rautela, Senior Research Fellow**

◆ **Dr. K. Chandra Sekar, Sci. F**
(Head GRC)

Science and Garhwal Regional Centre, G.B. Pant National Institute of Himalayan Environment, Uttarakhand on 20 December 2022 at Government Inter College, Rampur, district Rudraprayag, Uttarakhand. The program aimed to make an effort to strengthen science based understanding on Himalayan biodiversity to promote its conservation and awareness among students/science teachers on relevant concepts.

8. INYAS announced the results of memberships for 2023. This year 27 new members have been selected for INYAS. The selection process was highly competitive and the success rate has been below 10%. 18 new organizations have been added in the INYAS map through 2023 membership. With conscious and continuous efforts, INYAS maintained a healthy gender ratio and geographical representation among the selected candidates.

9. An International Webinar titled “Inputs to Policy on Empowering Young Scientists” was conducted jointly by the Office of the Principal Scientific Adviser (PSA) to the Government of India, the Indian National Young Academy of Sciences (INYAS),

and the Indian Institute of Technology Banaras Hindu University. The webinar, organised on January 9, 2023, is a part of the Office of PSA's initiative on Empowering Young Scientists with the aim to collate inputs on a new policy document to nurture and empower the next generation of young scientists and researchers (≤ 45 years) in India that would translate into excellence in scientific and technological leadership for furthering the research and development in the country.

10. INYAS announced the winners of Saransh-2022: Three Minute Thesis Competition for PhD students.

11. Office of the Principle Scientific Advisor to Gol, IIT (BHU) Varanasi and INYAS jointly organized a "National Brainstorming Session on Empowering Young Scientists (EYS) of India" during 24-25 January 2023 at IIT (BHU), Varanasi. The aim of this session was to explore the best international practices for empowering young scientists in India in the current research ecosystem. This brainstorming session served as an input to a policy document to be prepared for empowering young scientists in India.

12. The Eighth Annual General Body Meeting of Indian National Young Academy of Sciences (INYAS) was held at the INSA premises during 17th to 19th February 2023. Professor Ashutosh Sharma, President, INSA was chief guest. Smt Meeta Rajivlochan (IAS) Secretary (Youth Affairs), Department of Youth Affairs, Ministry of Youth Affairs & Sports, Govt. of India was Guest of Honour. Evening lecture and interactive session on the topic *Empowering the young and the restless* was organised on 17th February evening.

13. To celebrate the National Science day and to know the real story behind this day and the saga involved, SPSTI in association with Chandigarh chapters of INYAS, NASI and INSA had organised a hybrid lecture by former Vice Chancellor of Panjab University and a renowned scientist Prof Arun Kumar Grover on "C V Raman and the 1930 Nobel prize in physics" at the seminar hall of Central Instrumentation Laboratory at Panjab University Chandigarh. The lecture witnessed the participation of a huge number of students from Physics and other allied subjects.

14. INYAS in association with Indian Institute of Technology, Ropar celebrated #International Women Day 2023 with plethora of activities and lectures by eminent speakers. The guest of honor, Dr. SARMISHTHA BHATTACHARYA talked about the Cyclotron to probe nuclei and its applications. Doctor Lipika Gautam,

discussed the Antibiotic Resistance: The road to post-antibiotic era. Doctor Subina Narang shared about Retinopathy of prematurity followed by Poster making, slogan writing and Rangoli making competitions for all students. Ms. Anita Budhiraja, of NIELIT discussed on the topic, Women Empowerment by skill development followed by a talk of Ms. Arvinder Kaur, on Women Nutrition and Health.

15. A national-level mentoring symposium 'Gurukul in emerging areas in modern biology and medicine' was jointly organized by the Indian National Young Academy of Sciences (INYAS), in collaboration with the Department of Molecular Biology and Biotechnology, Tezpur University, on 2-3rd March 2023. More than 120 students and research scholars from different institutes participated in the event along with 28 scientific posters. They were been mentored by twenty resource persons from different reputed organizations in India. With scientific poster sessions, group mentoring sessions, and evening cultural programs performed by the students, it was a vibrant atmosphere.

16. INYAS Kolkata Bhubaneswar chapter organized an online poster competition on "Achievements of Women in Science" to mark and celebrate International Women's Day (IWD) 2023. The result of the competition is announced in an online event on March 10, 2023. The program is available on the INYAS Youtube channel.

17. A two-days programme was organized with the stakeholders on the theme "Bioinoculant based farming" at Kothiyara village, Rudraprayag district, Uttarakhand on 14-15, March 2023. The program was jointly organized by Indian National Young Academy of Science (INYAS, Roorkee-Srinagar Chapter) and GBPNiHE, Srinagar Garhwal, Uttarakhand. The purpose of the program was to create awareness on organic and bioinoculant based farming among local farmers of Jakholi Block, Uttarakhand and promote the use of bioinoculants and organic farming to the local farmers. A total of 70 farmers (Male and Females) along with some social activists of the nearby areas actively participated in the program.

18. International Women's Day was celebrated at IIT Indore on March 17th, 2023, which was jointly conducted by the Women Cell-IIT Indore and INYAS. On March 9th and March 16th various competitions such as poster making and essay writing were organized for IIT Indore and Simrol Govt school students.

Recipients of INSA Awards

Name of Award

Name of Awardee

For the Awards due for the year 2021

- | | |
|--|--|
| 1. Professor SK Joshi Memorial Medal (2021) | Professor S Ananthkrishnan, FNA |
| 2. Professor Vishnu Vasudeva Narlikar Memorial | Lecture (2021) Professor BV Rajarama Bhat, FNA |
| 3. Professor Vishwa Nath Memorial Lecture (2021) | Dr Sagar Sengupta, FNA |

For the Awards due for the year 2022

- | | |
|---|---|
| 1. INSA-Vainu Bappu Memorial Award (2022) | Professor AR Choudhuri, FNA |
| 2. Jagadis Chandra Bose Memorial Lecture (2022) | Professor Katepalli R Sreenivasan, Foreign Fellow |
| 3. Srinivasa Ramanujan Medal (2022) | Professor SK Khanduja, FNA |
| 4. Jagadis Chandra Bose Medal (2022) | Dr Paturu Kondaiah, FNA |
| 5. Silver Jubilee Commemoration Medal (2022) | Dr Manoj Prasad, FNA |
| 6. Golden Jubilee Commemoration Medal
(Chemical Sciences) (2022) | Professor TK Chakraborty, FNA |
| 7. Professor Brahm Prakash Memorial Medal (2022) | Professor V Kumaran, FNA |
| 8. Professor K Naha Memorial Medal (2022) | Professor AK Jain, FNA |
| 9. Professor Mihir Chowdhury Memorial Medal (2022) | Professor TK Chandrashekar, FNA |
| 10. Professor Deepak Gaur Memorial Medal (2022) | Professor Narinder K Mehra, FNA |
| 11. Professor S Swaminathan 60th Birthday
Commemoration Lecture (2022) | Professor Ashwini Nangia, FNA |
| 12. Professor Darshan Ranganathan Memorial Lecture
(2022) | Professor Ramanathan Sowdhamini, FNA |
| 13. Dr Biren Roy Memorial Lecture (2022) | Professor Sunil Mukhi, FNA |

Name of Oration

Name of Awardee

- | | |
|-------------------------------------|------------------------------------|
| 1. Anandibai Joshee Oration (2022) | Professor MV Padma Srivastava, FNA |
| 2. Kadambini Ganguly Oration (2022) | Professor Mitali Chatterjee, FNA |

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.
11. **Dr Siddhartha Chaudhuri** (30.07.1982), PhD, Adobe Tower, Prestige Tech Park, Bengaluru.
For his fundamental scientific contributions to scalable computational and data driven approaches towards shape understanding, synthesis and re-construction of high quality three-dimensional digital object.
12. **Dr Sabyasachi Das** (30.12.1986), PhD, Manipal University College Malaysia, Bukit Baru, Melaka, Malaysia.
Dr Sabyasachi Das has made seminal contributions in malaria research of public health importance notably on the drug resistant strains in Indian isolates. He discovered the existence of novel polymorphisms in Kelch protein sequences associated with the Artemisinin resistant Plasmodium falciparum in Indian population. Also, he has developed innovative nano mediated drug delivery systems against bacterial infections.
13. **Dr Tamal Das** (13.07.1982), PhD, TIFR Hyderabad, Hyderabad.
Dr Das' research is in collective cellular dynamics that governs embryonic development, wound healing and cancer. Using epithelial monolayers as a model tissue system, his group evaluates forces and stresses that work at cellular and multicellular levels. These studies shed light on the role of so-called leader cells and how individual cells in a tissue tune their mechanosensing ability and structural organization in normal and diseased conditions.
14. **Dr Sonali Garg (19.09.1987), PhD, Department of Environmental Studies, Systematics Lab, University of Delhi, Delhi.**
Dr Sonali Garg has carried out original and creative research on systematics, taxonomy and biogeography of frogs and other amphibian taxa of the Western Ghats and the northeast Indian region. She has employed traditional and modern molecular tools to circumscribe new species, solve existing taxonomic confusions, and published four dozen new frog species. Dr. Garg has reported a number of novel reproductive and ecological behaviors in frogs that were hitherto unknown to science. She has made sustained and focused research contribution in an area of important global biodiversity and conservation significance located in India.
15. **Dr Srimonta Gayen** (01.04.1982), PhD, Indian Institute of Science, Bangalore.
For his significant contributions on the reversible epigenetic modifications and their role in development and disease. Dr Gayen's work focused on the mechanism of epigenetic regulation through the study of X-chromosome inactivation, imprinting, and stochastic allelic, transcriptional bursting during early-mammalian development. His work has potential applications in developing a clinical strategy to prevent the gender bias issue in babies born through in vitro fertilization (IVF) and enhancing of IVF success rate.
16. **Dr Jino George** (01.04.1982), PhD, Department of Chemical Sciences, IISER Mohali, Mohali
Dr Jino George has contributed significantly toward the development and utilization of techniques for controlling chemical as well as physical properties of molecules exploiting the light-matter strong coupling inside Fabry-Perot (FP) cavity. His group has introduced cavity catalysis by strong coupling of the C=O stretching mode of an ester to a FP cavity mode. Further, he introduced the concept of cooperative vibrational coupling that utilizes the coupling of the normal modes of solvent molecules to the cavity modes. He demonstrated that cooperative coupling indeed holds great promise in speeding up chemical reaction rates many fold. This work is a real breakthrough in the field of 'chemistry under vibrational strong coupling' and has a tremendous transformative potential. Additionally, his group recently demonstrated the electronic band structure modification of 2D materials under strong coupling.

17. **Dr Amalendu Ghosh** (07.05.1984), PhD, Advanced Centre for Plant Virology, ICAR-Indian Agricultural Research Institute, New Delhi.

Dr Ghosh has done excellent work on understanding the biology of the interactions between several insects and the viruses that they vector. He has identified insect genes that are involved in development/virus transmission and has made formulations of dsRNA constructs that he is evaluating for application in insect control. He has also developed multiplex PCR assays for identifying insect vectors of tospoviruses.

18. **Dr Sakshi Goel** (09.10.1990), PhD, Department of Biological Sciences & Bioengineering, Indian Institute of Technology, Kanpur (IITK), Kanpur.

Dr Sakshi Goel, has demonstrated functional significance of a homeobox gene, DLX1 in prostate cancer progression and metastases. Moreover, she also identified therapeutic strategy to target DLX1-positive subset for the treatment of advanced stage prostate cancer. She has also contributed to research projects ongoing in the lab to explore the mechanistic insights of various molecular aspects involved in the progression of prostate and colorectal cancer.

19. **Dr Subhojoy Gupta** (08.02.1983), PhD, Department of Mathematics, Indian Institute of Science, Bangalore.

Subhojoy Gupta's main research area is the geometry of Riemann surfaces. More specifically, Gupta's work concerns understanding parameter spaces of Riemann surfaces with additional geometric structures. A point of the Teichmüller space $T_g, g > 1$, is a compact connected marked genus g Riemann surface S . The space of quadratic differentials on S may be identified with the cotangent space of T_g at S . A major theme of the work of Subhojoy deals with relation among several geometric objects that arise in the theory of Riemann surfaces, namely, projective structures on S , the space of meromorphic quadratic differentials on S , the space of measured foliations on S with "crown structures" and the Teichmüller space of such S . In a significant work, he has shown that the Teichmüller space is not biholomorphic to a bounded symmetric domain with C^2 boundary. Another important result of his is the determination of the image of the monodromy map of meromorphic projective structure (with poles of order greater than 2) as the set of non-degenerate framed representations.

20. **Dr Mohit Kumar Jolly** (15.01.1990), PhD, Biological Sciences Building, Indian Institute of Science, Bangalore.

Dr Jolly has used a systems-level approach of integrating mechanism- and data-based mathematical models with experimental and clinical data related to metastasis and drug resistance to provide important insights into the dynamics of how cancer cells adapt and survive therapeutic attacks, causing tumors at different organs in the body. This improved dynamical understanding has led to potentially better intervention strategies to curtail cancer metastasis and therapy resistance.

21. **Dr Nirupam Karmakar** (23.09.1987), PhD, Indian Institute of Tropical Meteorology, Pashan, Pune.

Dr Karmakar has contributed extensively to the understanding of active and break phases of Indian monsoon, and contributed to their relationship with intra-seasonal oscillations and demonstrated that extreme rainfall in the break phases reduces the intensity of following active phase. His study highlights the redistribution of monsoon rainfall periodic and non-periodic modes and provide a way to understand the intraseasonal variability under a global warming scenario.

22. **Dr Mehak Zahoor Khan** (05.06.1991) PhD. National Institute of Immunology, New Delhi.

Dr Mehak's work unveiled the mechanistic understanding of how protein kinase G (PknG) maintained redox homeostasis of *Mycobacterium tuberculosis* (Mtb) through a central metabolic regulator. Her work showcased PknG as a promising drug target to shorten the tuberculosis treatment duration and reduce disease relapse. Additionally, she discovered that oxidative stress altered the conformation of a novel transcription factor-AosR (Actinomycetes oxidative stress response regulator) through intrasubunit disulfide bond formation. Deletion of AosR or its target gene *cysM* dampened the pathogen's ability to combat oxidative stress, attenuating Mtb's intracellular survival.

23. **Dr Vidya Kochat** (26.12.1986), PhD, Materials Science Centre, Indian Institute of Technology, Kharagpur, West Bengal.

For her outstanding work on topological defects and their implications on transport in graphene and on localization phenomena in disordered graphene.

24. **Dr Manas Shreekanth Kulkarni** (06.10.1984), PhD, International Center for Theoretical Sciences (of Tata Institute of Fundamental Research), Bengaluru.

For his groundbreaking work on the phenomena of localization, chaos and transport in isolated and open systems, both quantum and classical.

25. **Dr Modhu Sudan Maji** (13.07.1982), PhD, Department of Chemistry, Indian Institute of Technology Kharagpur, Kharagpur.

Dr Maji has contributed significantly to the synthesis of natural products in fewer steps employing novel strategies. One such notable reaction is organo-catalytic alkenylation of indoles and pyrroles using aldehydes as alkenylating agents under sequential Brønsted acid and tertiary-amine catalysis. In addition to the development of organocatalysis, he has employed new methodologies using Co catalysts. He has demonstrated for that enolizable ketones are efficient directing groups for several transformation involving CH bonds. Application of his methods have led to the synthesis of isoquinoline and acridone based alkaloids and other important heterocycles are also realized. The annulative- π -extension reaction paved the way to several polyaromatic hydrocarbons which are highly valuable precursors for the synthesis of organic semiconducting materials.

26. **Dr Vijay Singh Meena** (14.11.1988), PhD, CIMMYT-Borlaug Institute for South Asia (BISA), Pusa, Samastipur, Bihar.

Dr Vijay Singh Meena has done excellent work in the field of natural resource management for sustainable agricultural production. He identified carbon management index as the key indicator to measure soil degradation in different agro-ecosystems.

27. **Dr Poonam Mehra** (16.11.1988), PhD, Department of Plant Molecular Biology, University of Delhi, New Delhi.

Dr Poonam focused on understanding the mechanisms of phosphate deficiency in modern rice and developing possible approaches to alleviate the problems. She employed multifaceted techniques integrating several functional genomics tools and identified novel candidate genes to impart low phosphate tolerance in rice. Her team genetically engineered three candidate genes to generate low phosphate tolerant rice by enhancing phosphate use efficiency (PUE) or increasing phosphate acquisition efficiency (PAE). Dr Poonam's contributions paved the way for improving low phosphate tolerance of elite rice genotypes through biotechnological interventions.

28. **Dr Sandip Mondal** (25.09.1986), PhD, Department of Electrical Engineering, Indian Institute of Technology Mumbai, Mumbai.

For his contributions on the development of 96 layer-based, low temperature (< 200°C) solution processed tunable flash memory device without the traditional tunneling and blocking layer, and in the development of ultrahigh speed (nano-second) Capacitance Voltage measurement technique for characterizing the electronic deep traps in solution processed dielectric aluminum oxide phosphate. These resulted some outstanding publications.

29. **Dr Subhronil Mondal** (30.03.1987), PhD, Indian Institute of Science Education and Research (IISER), Kolkata.

Dr Mondal's research has contributed to studies on spatio-temporal variation of local and regional ecological patterns to examine if local patterns scale up to global patterns. He analyzed different macroecological megatrends to test the established notion that ecological interactions vary predictably with latitudes and through marine molluscs of the last ~200 Ma and established that ecological interaction show neither proportional nor inverse relationship with latitudes.

30. **Dr Subham Mukherjee** (17.05.1988), PhD, Department of Geology, University of Delhi, Delhi

The nominee has made cutting-edge contributions integrating the fields of petrology, geochemistry and geodynamics. Through his innovative studies he has resolved the antiquity of the CGGC in the East Indian shield and for the first time quantified the nature of crust-mantle interaction vis-a-vis repeated felsic magmatism during ~1.70 to ~1.45 Ga and characterized the response of the resulting magmatic rocks during the subsequent super-continental cycles. The fundamental work of the nominee and his co-workers modelled the mechanism and fixed the timing of emergence of the continents (>3 Ga) above the sea level.

31. **Dr Swarnava Mukhopadhyay** (12.11.1986), PhD, School of Mathematics, TIFR, Mumbai.

Swarnava Mukhopadhyay works mainly in Algebraic Geometry and Representation Theory. Swarnava with his collaborators defined special polynomials called graph potentials and constructed a TQFT, which was used to construct mirror partners (in the sense of mirror symmetry) of moduli spaces of vector bundles and to decompose their derived categories. Swarnava used conformal embedding and developed a widely applicable framework for proving/disproving rank-level dualities. By analyzing boundary behavior, he gave applications to the birational geometry of moduli of

curves. In another work, Swarnava realized twisted conformal blocks as crossed modular categories and computed their crossed S matrices. This generalized and proved a Verlinde type conjecture which was open for twenty years.

- 32. Dr Vignesh Muthusamy** (06.09.1986), PhD, Division of Genetics, ICAR-Indian Agricultural Research Institute, New Delhi.

Dr Vignesh Muthusamy has made significant contributions for developing nutritionally-rich maize hybrids through genomics-assisted breeding. He has successfully developed provitamin-A rich maize inbreds through marker-assisted selection, which were used to develop world's first provitamin-A rich maize hybrid 'Pusa Vivek QPM- 9 Improved'

- 33. Dr Lakshmi Prasad Natarajan** (19.07.1987), PhD, Department of Electrical Engineering, Indian Institute of Technology Hyderabad, Sangareddy.

For his work in cutting-edge coding theory at a very high level of sophistication, including his recent major contribution to a new family of capacity-achieving codes and his earlier work on algebraic coding techniques, index coding, and broadcast channels with side information.

- 34. Dr Saraswati Nayar** (19.01.1986), PhD, Division of Plant Molecular Biology, Rajiv Gandhi Centre for Biotechnology, Thiruvananthapuram.

Dr Nayar demonstrated for the first time the LONELY GUY, a putative cytokinin activating enzyme, has a role in cell division, cell growth, and chloroplast function of *Chlorella*. LONELY GUY's overexpression led to the formation of a stay-green phenotype and a high biomass-producing strain in *Chlorella*. She also characterized a MADS box transcription factor (TF) for the first time in *Coccomyxa subellipsoidea*, a unicellular green microalga. She discovered that this TF homodimerizes to localize precisely in the nucleus.

- 35. Dr Venkatesh Rajendran** (04.05.1987), PhD, Department of Mathematics, IISc, Bengaluru.

The area of specialisation of R Venkatesh is Kac-Moody algebras and their representations. He obtained a uniqueness theorem for tensor products of irreducible integrable highest weight representations of symmetrizable Kac-Moody algebras, vastly generalising the result for finite dimensional simple Lie algebras obtained by C S Rajan. He obtained a formula for the root multiplicities of a symmetrizable Kac-Moody algebra in terms of the chromatic polynomial of its Dynkin graph. As a consequence, the chromatic polynomial is related to the q-Kostant partition formula. He later generalized this result to the case of Borcherds algebra. Venkatesh obtained a generalisation of a result of G Fourier and P Littelmann concerning fusion product of Demazure submodules of certain integrable highest weight module over an affine Kac-Moody algebra associated to a finite dimensional semi simple Lie algebra. Recently he has developed a Borel-de Siebenthal theory of maximal closed subroot systems for affine reflections system. In the case of real affine Lie algebras, a complete classification of maximal closed subroot system has been obtained.

- 36. Dr K Sony Reddy** (15.08.1986), PhD, School of Biotechnology, KIIT University, Bhubaneswar.

Dr K Sony Reddy has made outstanding contributions in the biology of malarial parasite infection. Most significant contribution is on elucidating the molecular mechanisms of erythrocyte invasion by Plasmodium falciparum. He demonstrated the existence of the essential parasite ligand pfRH5 on the parasite surface in the form of multiprotein complex consisting of two proteins one of them being CyRPA. Most importantly, he demonstrated that CyRPA antibodies potently neutralized the parasite by abrogating complex formation, suggesting this as a potential target.

- 37. Dr Anand Sawant** (02.09.1987), PhD, School of Mathematics TIFR, Mumbai.

Anand Sawant works in the emerging area of A^1 homotopy theory. He has made important progress in recasting this highly abstract theory in terms of relatively concrete geometric concepts. In 2015 Anand, along with Hogadi and Balwe, constructed counterexamples to a conjecture of Asok-Morel regarding the notion of connected components in A^1 homotopy theory. His work with Balwe sheds new light on the important case of anisotropic groups, and is a key input in the characterisation of anisotropic groups in terms of the failure of homotopy invariance of torsors. In another pair of works with Balwe, Anand studies in detail A^1 connected components of birationally ruled surfaces, thereby

proving a conjecture of Morel in this context. His recent work with Balwe and Hogadi, is about the interaction of R-equivalence with homotopy theory for norm varieties, and presents a refinement of a result on 0-cycles for these varieties due to Karpenko-Merkurjev.

38. **Dr Asmita Sengupta** (22.03.1986), PhD, Ashoka Trust for Research in Ecology and the Environment Royal Enclave, Bengaluru.

Dr Asmita Sengupta has carried out researches on rhesus macaque, a well-researched primate species. Her research work marks an important effort on the ecology of this primate species, in particular with reference to its role in seed dispersal and recruitment of forest species. Her research confirmed that gut-digested seeds from the rhesus macaque readily germinate and are protected from fungal and other pest attacks. Dr. Sengupta has quantified the impact of providing food subsidies to wildlife on their ecological functions. She has demonstrated that large-scale deforestation or environmental pollution can modify ecosystem structure and function which is comparable to a seemingly benign action such as human feeding of wildlife.

39. **Dr Aakansha Sharma** (08.03.1993), PhD, Department of Zoology, University of Delhi, Delhi.

Dr Aakansha Sharma has made important contributions to our understanding of transcriptome-wide changes and overall molecular differences between crucial seasonal metabolic and reproductive life-history states of birds. Several of her research findings are novel to our understanding of the mechanisms behind seasonal migration in birds. Dr. Aakansha has raised new important questions with regard to the differences in the control strategy between spring and autumn migrations which occur before and after the breeding season, respectively. Her research demonstrates the context and nature of migratory journey in birds.

40. **Dr Suhas Suresh Shetye** (28.11.1983), PhD, National Institute of Oceanography, Dona Paula, Goa.

Dr Suhas S Shetye made noteworthy contributions to regional and global carbon biogeochemical processes and acidification of the Southern and North Indian Oceans are based on large dataset. His work highlights the difference in the pH within the oxygen minimum zone of the Arabian Sea and Bay of Bengal; provides rates of ocean acidification in the northern Indian Ocean and its impact on calcareous organisms. His work on CO₂ sequestration in the ocean using natural material such as rice husk that can provide silicates for marine diatoms, and has shown increased production of organic carbon.

41. **Dr Bijay Prakash Tripathi** (06.12.1982), PhD, Department of Materials Science & Engineering, Indian Institute of Technology Delhi, New Delhi.

For his commendable original contributions in molecular grafting and functionalization to impart tunable wetting and anti(-bio) fouling properties in separation membranes by tailoring relevant surface and bulk properties in terms of surface energy, charge, porosity, roughness, wettability, physical and chemical reactivity, and compatibility with organic compounds and foulants useful for novel filtration membranes for separation and purification.

42. **Dr Mayur Vaidya** (22.09.1986), PhD, Indian Institute of Technology Hyderabad, Sangareddy.

For his very significant contribution of deciphering the mechanism of diffusion in high entropy alloys (HEA). The understanding developed through his work will help in the development of better HEAs for novel technological applications.

Annexure-III

Recipients of Professor Har Swarup Memorial Award 2022

1. **Dr Namisha Sharma, National Institute of Plant Genome Research, New Delhi for her paper entitled: *The Sw5a gene confers resistance to ToLCNDV and triggers an HR response after direct AC4 effector recognition* published in *Proceedings of the National Academy of Sciences*, United States of America, 118(33): e2101833 118.4.**
2. **Dr Kartik Sunagar, Centre for Ecological Science, Indian Institute of Science, Bangalore for his paper entitled: *Biogeographical venom variation in the Indian spectacled cobra (Naja naja) underscores the pressing need for pan-India efficacious snakebite therapy* published in *PLOS Neglected Tropical Diseases*, <https://doi.org/10.1371/journal.pntd.0009150>.**

Recipients of INSA Teachers Award 2022

1. **Professor Indranath Sengupta (b. 01-04-1970), Discipline of Mathematics, Indian Institute of Technology, Gandhinagar.**
 Professor Indranath Sengupta is one of the most popular teachers at IIT Gandhinagar. He has an approachable personality and is an excellent listener. His lucid teaching methods ensure that difficult mathematical theories become exciting. Since his earlier days at Jadavpur University, Professor Sengupta has established himself as a stalwart in mathematical teaching. His impact is clear from the sheer number of his students, many of whom are now faculty members at various premier Indian educational institutes.
2. **Professor Madhuchanda Bhattacharjee (b. 21-07-1970), School of Mathematics and Statistics, University of Hyderabad, Hyderabad.**
 Professor Madhuchanda Bhattacharjee has been routinely preparing electronic notes and supplementary materials for all her teaching assignments for past two decades. She has introduced several new courses at the University of Helsinki, the Lancaster University, the University of St Andrews and the University of Hyderabad. Based on her research experience she formulated and introduced courses that became excellent tools for students pursuing research in statistics and related areas. A course on gene expression data analyses, designed and introduced by her, was years ahead of the curriculums of other institutions.
3. **Professor Ananda Dasgupta (b. 02-05-1970), Department of Physical Sciences, IISER Kolkata, Mohanpur.**
 Professor Ananda Dasgupta has distinguished himself as a physics educator par excellence, over a wide variety of subjects in physics, both theoretical and computational. His teaching has consistently inspired several students over the past two decades, spanning undergraduate, postgraduate and research levels.
4. **Professor Saugata Bhattacharyya (b. 06-03-1971), Department of Physics, Vidyasagar College, Kolkata.**
 Professor Saugata Bhattacharyya has demonstrated an unusual flair for teaching and is a much loved and respected figure in the student community. In particular he was one of the main architects of the Indian Association for the Cultivation of Science summer school for school leaving students, which played a vital role in the professional growth of many impressionable minds, at a crucial juncture in their lives.
5. **Professor Subhendu Sekhar Bag (b. 01-12-1975), Department of Chemistry, Indian Institute of Technology, Guwahati.**
 Professor Subhendu Sekhar Bag is recommended for the INSA Teacher Award for his excellence in teaching of chemistry courses at both undergraduate and postgraduate levels, guidance of a large number of M.Sc. and Ph.D. students for their master's doctoral thesis, and also for designing new courses and active participation in outreach activities including development of NPTEL courses.
6. **Professor Satyen Saha (b. 11-02-1972), Department of Chemistry, Banaras Hindu University, Varanasi.**
 Professor Satyen Saha is recommended for the INSA Teacher Award for his excellence in teaching of chemistry courses for both undergraduate and postgraduate students including guidance of a large number of M.Sc. and Ph.D. students, and also for active participation in designing laboratory experiments and development of instructional materials for the same and outreach activities to inspire young graduate and undergraduate students.
7. **Professor Dheerendra Kumar Dwivedi (b. 02-12-1969), Department of Mechanical and Industrial Engineering, Indian Institute of Technology, Roorkee.**
 Professor Dheerendra Kumar Dwivedi is recommended for the INSA Teacher Award in Engineering and Technology in recognition of his excellence in teaching and research at both undergraduate and postgraduate levels. He has maintained a fine balance between education and research which is an inspiration for other teachers.
8. **Professor Sanjay Gupta (b. 01-09-1967), Department of Mechanical Engineering, Indian Institute of Technology, Kharagpur.**
 Professor Sanjay Gupta has demonstrated exemplary commitment and ability in teaching and mentoring students. Professor Gupta is an outstanding exponent in propagating the domain of Biomechanics and has been championing spread of this field in the country.
9. **Professor Dipak Chandra Pal (b. 16-09-1972), Department of Geological Sciences, Jadavpur University, Kolkata.**
 Professor Dipak Chandra Pal is one of the remarkable geoscience teachers in India, and his innovative teaching and research guidance are reflected in the bright performance of graduate as well as doctoral students. He has played a crucial role in developing modern approaches to motivational teaching, especially in geochemistry and economic geology at the undergraduate and post-graduate levels.

10. Professor Kunzang Chosdol (b. 01-05-1970), Department of Biochemistry, All India Institute of Medical Sciences, New Delhi.

Professor Kunzang Chosdol is a dedicated, resourceful, and goal-driven professional educator with a firm commitment to the academic as well as social development of students; be at the level of undergraduate (MBBS) , postgraduate (MD and MSc) or PhD level. She is an accommodating and versatile teacher who pays attention to the individual need of the student and guide them to achieve their goal.

11. Professor Sanjeev Kumar Singh (b. 23-08-1975), Department of Bioinformatics, Alagappa University, Karaikudi.

Professor Sanjeev Kumar Singh is one of the renowned researchers and teachers in the field of molecular modeling and computer-aided drug design. He has vast experience in developing educational materials for Biotechnology and bioinformatics courses for universities. He continues to work in the root-level system of rural society to provide the impact of science to society.

12. Professor Rajat Sandhir (b. 08-02-1968), Department of Biochemistry, Punjab University, Chandigarh.

Professor Rajat Sandhir has been teaching many courses related to the biochemistry curriculum at both undergraduate and postgraduate levels. He includes real-life examples while teaching and is a popular teacher among the students. He has also delivered many talks during INSPIRE campus to promote neuroscience in the country. He has also been active in curriculum development at Punjab University and other institutions in the country.

13. Professor Sanjit Dey (b. 14-08-1969), Department of Physiology, University of Calcutta, Kolkata.

Professor Sanjit Dey's inspirational and innovative mode of teaching has attracted several students to research. Moreover, he popularized science teaching and his collaborative research through popular print media, soft media, and e-learning platforms apart from his scientific publications to society. The best part of his teaching lies in his continuous effort to work for first-generation tribe learners, underprivileged groups, and special children.

14. Prof. Ashis Kumar Nandi (b. 19-02-1967), School of Life Sciences, Jawaharlal Nehru University, New Delhi.

Professor AK Nandi is an inspirational teacher and an active researcher. He has ventured into diverse efforts that attempt to strike a balance between the intellectual and utilitarian aspects in his teaching courses. He has made pioneering contributions to understanding plant immunity development.

15. Professor Ravindra Nath Kharwar (b. 16-01-1967), CAS in Botany, Banaras Hindu University, Varanasi.

Professor RN Kharwar has been chosen for the INSA Teacher Award in recognition of his excellence in teaching of plant science courses at both undergraduate and postgraduate levels including guidance of a large number of Ph.D. students for their doctoral thesis. In addition, he is an excellent researcher and has proved himself in the field of fungal and actinobacterial endophytic research.

HR Activity

Sh. Prem Kant Mishra, Section Officer joined Indian National Science Academy on 14.8.1997. He retired after attaining the age of superannuation on 31st January, 2023



Sh. Prem Singh Manral, Section Officer joined Indian National Science Academy on 14.4.1982. He retired after attaining the age of superannuation on 31st March, 2023





Professor Chandrima Shaha delivering the Anniversary Address at Anniversary General Meeting at CSIR-NIO Visakhapatnam



Professor Ashoke Sen delivering the Public Lecture at Anniversary General Meeting, CSIR-NIO Visakhapatnam



Professor SK Apte receiving the citation from Professor Chandrima Shaha for delivering the Award Lecture at Anniversary General Meeting, CSIR-NIO Visakhapatnam



Professor HR Krishnamurthy delivering the Award Lecture at Anniversary General Meeting, CSIR-NIO Visakhapatnam



President, INSA awarding the Young Scientists with Medal and Citation





President, INSA honouring distinguished teachers with INSA Teachers Award



President, INSA inducting the newly elected Fellows to the Fellowship of the Academy



Professor DV Khakhar, Vice-President, presenting the shawl and an album to the outgoing President, Professor Chandrima Shaha