

The National Academy of Sciences, India

5, Lajpatrai Road, Prayagraj-211002, India



Summary of the Activities, held in the month of March 2023

1. Several science communication lectures/programmes were held in continuation at the Chapters of the NASI at Lucknow/Satna/Delhi/Mumbai/Varanasi, etc. as a part of the celebration of the National Science Day in March 2023 also, to enthuse and inspire the budding scientists for ‘**Global Science for Global Wellbeing**’ (for details please see the reports/clippings as **Annex. 1 ‘a’ & ‘b’**).
2. International Woman’s Day was celebrated by the Chapters of the Academy; a brief report/clipping enclosed herewith as **Annex. 2**. On this occasion the Chairperson of the three Science Academy’s Women’s Programme- Prof Manju Sharma expressed that “the event is being organized to commemorate the ‘International Women Day’ with ‘Azadi ka Amrut Mahotsava’ - a Govt. of India initiative to celebrate 50 years of our independence. Further she emphasized that NASI initiated a nationwide programme on ‘Technological Empowerment of Women’ as part of its Science and Society mission around 12 years back. And successfully organized several sensitization programmes/ workshops all across the country to educate women students/researchers on various issues of S&T, for their skill development and capacity building and to impart training on developing various S&T based products/ generating S&T based technologies to make them self-reliant and also to ensure the participation of 50% human resource towards the national development.
3. A workshop was held on Entrepreneurship development at Chitrakoot, Satna, well attended by a large group of students, rural folks and the tribal community. A brief report is enclosed as **Annex. 3**.
4. A one week workshop on Research Methodology is now being held at Satna, and it is to deal on many intricacies of expression and presentation of research papers/writing, and other related aspects. A brochure is enclosed for information, as **Annex. 4**.
5. The first Meeting of the NASI-Council of the year 2023 was held in this month; and Several Chapters of the Academy also organised Science-Society Programmes of the NASI. The publication of the NASI-Journals also achieved their time-lines.



The National Academy of Sciences, India (NASI)

National Science Day (NSD)-2023

Symposium on 'Science & Technology for Social Development' held on Feb 28 & Mar 01, 2023

A Report

The National Academy of Sciences, India (NASI) commemorated the **National Science Day (NSD)** as part of its *Science & Society* mission by organizing a Symposium on 'Science & Technology for social development' on **Feb 28 & Mar 01, 2023** at **NIPGR, New Delhi**.

A large number of students/ researchers, faculty members from the NIPGR as well as other research institutions/ colleges of Delhi; the President of NASI, the Past Presidents as well as some senior scientists, Fellows and Members of NASI participated in this event. Several Award Lectures focusing on the subjects, relevant to diverse areas of S & T were addressed by the eminent scientists from all across the country.

The event commenced on **Feb 28, 2023** with the *Welcome Address* delivered by **Prof. Madhoolika Agrawal**, Dean, Faculty of Science, BHU, Varanasi; General Secretary (HQ), NASI. While extending a warm welcome to all the distinguished guests and participants, she stressed on the need for S&T and said, "S&T must be utilized not only for the welfare of the society, but also for the sustainable growth of nation".

Prof. Ajay K Sood, Principal Scientific Adviser (PSA) to the Government of India; and the Chief Guest on the occasion, delivered the *Inaugural Address*. He appreciated NASI's efforts in organizing such events and talked about his long term association with NASI. In his lecture (*Prof. M.G.K. Menon Memorial Award Lecture*), entitled 'Chirality in Action', Prof. Sood conceptualized the notion of 'Chirality', and cited some of the examples of the chiral substance. He mentioned about the chiral property of a substance, occurrence of the 'Static Chirality' in dielectric solids; and cited some illustrations showcasing the chiral property as well as the chiral motion of bacteria (via moving pictures). He also described various phenomena depicting the collective behaviour of chiral active matter (enhanced flocking), shape-dependent motion of particles, changing the shape of particles/objects, differentiation between chiral and achiral matter as well as identification of the particles on the basis of their activities. He elucidated various concepts showing the chiral motion; and explained about chiral active ellipsoids concluding that chiral activity induces shape in the particle. He also explained about the influence of chirality on dynamics.

Prof. Balram Bhargava, the President of NASI, while delivering his *Presidential Remarks*, appreciated NASI for its endeavor in organizing such events and disseminating the knowledge of Science for the people of society; especially, in view of several challenges/ problems being faced by our country today.

The *National Science Day Lecture* (*Prof. S.K. Joshi Memorial Award Lecture-2022*) was delivered by **Prof. K N Vyas**, Chairman, Atomic Energy Commission; and Secretary, DAE, Govt. of India. In his lecture entitled 'Supplementing role of nuclear power to meet 'net zero' by 2070', Prof. Vyas portrayed the statistics on Global Temperature, meteorological data sets from NASA research for support of renewable energy and agriculture needs as well as World Bank data on electricity generation. He also mentioned about variation of solar power radiation with time, various operational nuclear reactors and their performance in India as well as major challenges and policy endorsed by NITI Ayog on Small Modular Reactors (SMRs).

A *Message* sent by **Dr. Manju Sharma**, Chairperson, NASI-New Initiatives; Former Secretary, Department of Biotechnology, Govt. of India and Former President, NASI, was read by Prof. Madhoolika Agrawal, GS (HQ), NASI. In her message, Dr. Sharma while emphasising the role of S&T expressed that Science and Technology are the very basis enabling us to innovate and create new opportunities towards the social/national development. She urged the youngsters to spread the message and take a lead in S&T.

A *felicitation ceremony* was also organized during the occasion of the Inaugural Session to acknowledge the contributions of the distinguished guests/ awardees. The awardees were felicitated by Prof. Balram Bhargava, President of NASI, **Prof. Ajoy Ghatak**, immediate Past President, NASI, Prof. Jayesh R Bellare, GS (OS), NASI; and Prof. Madhoolika Agrawal, GS (HQ), NASI. The felicitation part was coordinated by

Dr. Niraj Kumar, the Executive Secretary of NASI; while felicitating the guests/ eminent scientists, he expressed his gratitude to them for their outstanding contributions to the diverse areas of S&T and also read the citations for the awardees.

At the end of the inaugural session, **Prof. Jayesh R Bellare**, GS (OS), NASI proposed a *Vote of thanks* by expressing his sincere gratitude to the President, the Past Presidents, the Vice Presidents, all the distinguished guests and participants, Fellows, Members, the GS (HQ), NASI executives and staff members for their support and joining the event.

The Session on *Vistas in Physical Sciences* was **Chaired** by **Prof. Anil Kakodkar**, Former Secretary, Department of Atomic Energy, Govt. of India; Former President, NASI and **Co-Chaired** by **Prof. Anurag Sharma**, J. C. Bose Fellow & Prof. Emeritus, IIT Delhi; Former Vice President, NASI. In his opening remarks, Prof. Kakodkar appreciated NASI's efforts for taking Science to the people of society. He said that the Award Lectures allow us to recognise the eminent scientist and the past leaders as well as the state of art of S&T in which the scientists worked.

Dr. Ashok Jhunjunwala, Institute Professor, IIT, Madras; President, IITM Research Park, IITM Incubation Cell & IITM Rural Technology & Business Incubator (RTBI) delivered *Prof. Krishnaji Memorial Award Lecture* (2022) entitled 'Strategy towards Low-carbon transition Driving India towards Net-Zero'. He portrayed the statistics on the percentage of CO₂ emissions by world population as well as GHG emissions; and expressed that the people with the lowest incomes are most affected. India ranks 103 in per capita GHG emissions. Further, the GHG emission increases as India's GDP grows. Presenting the data (from the World Air Quality Report-2020), revealing top 100 polluted cities in the world with India having 46 cities, followed by China (42 cities), he said, "The region must move away equally rapidly from fossil-fuel based transport and we must be concerned more about the 'energy usage'. South Asia and Africa are the large growing markets. India and Asian population-growth flattening; but Africa population continues to grow rapidly and the per-capita consumption still very low for most of these countries. Yet, total consumption and emissions expected to explode in the coming years. Similar to China's explosive growth over last few decades, the energy usage across these countries is heavily fossil-fuel dominated". Speaking about the energy consumption, he told that tremendous amount of the energy is used in lighting, heating, cooling, electric motors/ engines and electronics. The motor systems account for around 47% of global electricity consumption, out of which 70% is used in China, USA, EU, India and Japan; and 30% is used in Industry. Hence, all it requires is to adopt a systemic and strategic approach towards net-zero which involves R&D technology/ innovation, economic viability and commercialisation. Industry and Academia need to work together to take each technology all the way to scaled commercialization to ensure RoI. There is a need to increase investment for net-zero transition. Finally, the Government must lead careful change-management by helping the existing industries to transition to GREEN, without impacting GDP and employment as well as the state powers and revenues. He also mentioned about the efforts made by IITMRP towards attaining net-zero such as enhancing heating and cooling efficiency; and other developments like Combined heating and cooling systems to increase COP (Coefficient of Performance), Phase Change Material (PCM) wax storage, Chilled Water Storage with Hydrates to augment capacity.

Dr. A K Singh, Former Adjunct Professor, Institute of Chemical Technology & V.C., University of Allahabad; Former Professor, IIT Bombay delivered *Prof. N.R. Dhar Memorial Award Lecture* (2022) entitled 'Newer Perspectives for sustainable development and production of Chemical and Chemical products'. He portrayed the contributions of Prof. N. R. Dhar, towards sustainability in Soil & Agriculture Science. While projecting the total import-export share of different major chemical groups including alkali and inorganic substances, he told that India is primarily an importing country. There is stagnation in fossil derived carbon; and the new market requires driving interest in next generation activities. Elucidating the results and applications of Dhar's theory on photochemical fixation of ambient N₂, he portrayed some of the outgoing research activities towards design and development of radioprotectants (Vitamin A & E based), retinal building biological photoreceptors (Rodhopsins) and diverse nanotechnology applications of bioprivileged molecules revealing the fact that his work had been revisited after so many years by the biologists.

Prof. Meghnad Saha Memorial Award Lecture (2022) was delivered by **Dr. Amit Roy**, Former Director, Inter-University Accelerator Centre, New Delhi, Member, Board of Advisors, Manipal Centre for Natural Sciences, MAHE, Manipal. He spoke on 'Particle Accelerators for Science & Society'. Conceptualizing

about the accelerators, he told that accelerators are powerful microscopes and time machines; and it was Prof. Meghnad Saha, a renowned Indian astrophysicist and visionary, who gave birth to the development of accelerators in India, when he developed a 37-inch (94 cm) cyclotron in 1940 which stands a stepping stone in the history of science. Before Saha's interest in research with particle accelerators peaked in the 1930s, he studied the thermal ionization that occurs in the extremely hot atmosphere of stars. He described the early history of Accelerators and presented an overview of the important milestones in the spectacular development of Accelerators in India, its working using electromagnetic fields for increasing the energy of particles, the early Accelerators as well as the Nobel Prize received by Ernest Lawrence in 1939. He focused on the Accelerator development (Cyclotron Centre) in Kolkata, Low flux heavy ion irradiation facility for testing of electronic components and development of Low cost 30 KV table top Accelerator, stating that the students should learn to develop simple/ indigenous and low-cost technologies without radiation hazards. He also mentioned about the development of 15UD Pelletron by IUAC, Accelerator Mass Spectrometry (AMS) facility, superconducting Linac Molecule for satellite, Radioisotopes and Radiation Therapy at IUAC, Indian contribution to LHC (Large Hadron Collider), the world's largest and most powerful particle accelerator as well as New Accelerator Programme including the Proton Accelerator Programme in India and applications of Accelerators; and Food preservation, superconducting magnet for MRI developed by IUAC. Many novel technologies were developed in this quest for high energies having many applications in other areas of study and societal applications.

Prof. Archana Sharma Memorial Award Lecture (2022) was delivered by **Prof. Rama Govindarajan**, Senior Professor-I, International Centre for Theoretical Sciences, Tata Institute of Fundamental Research (TIFR), Bengaluru. Speaking on 'Particulate Flow', Prof. Govindarajan highlighted the importance of studying the droplet and particulate flow. While elucidating the concept of *CloudPhysics*, the physical processes that lead to the formation, growth and precipitation of atmospheric clouds, she talked about Navier-stokes Equations, Flow solutions, minuscule part of cloud, the world's largest turbulence simulation as well as the effect of droplets on each other; and also presented the complete analytical solution/model for gravitational settling of liquid droplets.

Prof. Jayesh R Bellare, Department of Chemical Engineering, IIT, Mumbai; General Secretary (OS), NASI proposed **Vote of thanks** at the end of the session.

The Session on *Vistas in Biological Sciences* was **Chaired** by **Prof. Akhilesh K Tyagi**, Prof. Meghnad Saha Fellow, NASI; Department of Plant Molecular Biology, University of Delhi, South Campus; Former President, NASI while **Prof. Paramjit Khurana**, JC Bose National Fellow; Department of Plant Molecular Biology, University of Delhi, South Campus, was the **Co-Chair**.

Prof. V. P. Sharma Memorial Award Lecture (2022) was delivered by **Dr. Giriraj Ratan Chandak**, Chief Scientist & Group Leader, CSIR-Centre for Cellular and Molecular Biology, Hyderabad. He spoke on 'Non-communicable disease risk: genetics, environment and DOHaD'. Describing about the *Developmental Origin of Health and Diseases (DOHaD)*, he stated that the theory of DOHaD is based on the concept that the origins of lifestyle-related disease is formed at the time of fertilization, embryonic, fetal and neonatal stages by the interrelation between genes and the environments including nutrition, stress, or environmental chemicals. All diseases are genetic. Sickle cell anaemia is also a genetic disorder due to single gene. Mentioning about his research findings, he said, "We found mutation in Pancreatic Secretory Trypsin Inhibitor (PSTI); most of the diseases are genetic. There are many modifier genes. NCD depends on environmental, genetics and life style. Indians are more insulin resistant than Europeans". He also presented some of the earlier evidences of genetic heterogeneity between Indians and Europeans; and Muscle-thin but adipose ('thin-fat') body composition of south Asian adults contributing to their higher risk of type-2 diabetes. He expressed that the prevalence of type-2 diabetes is rising throughout the world, most rapidly in populations like India which are undergoing the epidemiologic transition. India is witnessing an increase in the burden of childhood obesity, especially among the upper socioeconomic strata and in urban areas. Emerging literature suggests a link between childhood obesity and the diabetes epidemic in India. Asian-Indian children and adolescents are increasingly susceptible to a high percentage of body fat and abdominal adiposity. He also elaborated on homocystein metabolism pathways, neural tube, facts about B12 deficiencies in Indians, imbalance of B12 and folate and told that B12 reduces homocystein level and pre and peri-conceptual B12 supplementation influences birth weight. If there is B12 over supplementation or B12 deficiency, then, there is dysregulation of Type-2 diabetes, genes factors, responsible for high insulin

resistance in children, strategy to investigate molecular basis of DOHoD and epigenetic basis of programming of diabetes.

Prof. R.N. Tandon Memorial Award Lecture (2022) was delivered by **Prof. Ashwani Pareek**, Executive Director, National Agri-Food Biotechnology Institute (NABI), Mohali. He spoke on 'Exploring the available genetic Diversity'. Describing the contributions of Prof. R. N. Tandon towards plant breeding and genome editing, he elaborated on the concept of salinity and drought, the two foremost abiotic stresses to agriculture and stated that saline fields are increasing in India. He talked about the *Contrasting genotypes*, reverse genetics, integrated transcriptomics, proteomics and genome architecture for SALINOME in rice stating that the stress response in plants is highly complex; further, some genotypes are tolerant while others are sensitive. While elaborating on plant stress perception and diversity genotypes, he depicted a model showing signaling under osmotic stress and also presented a yield analysis (the ultimate test) concluding that the mutants perform extremely well under natural field conditions.

Prof. A.K. Sharma Memorial Award Lecture (2022) was delivered by **Prof. Umesh Chandra Lavania**, INSA Senior Scientist, Department of Botany, University of Lucknow. Recalling and presenting the contributions of Prof. A.K. Sharma, Prof. Lavania spoke on 'Polyploidy and its relation with the Body size; Opportunities for genetic enhancement and fixation of heterozygosity'. Conceptualizing the term 'Polyploidy' (coined by Winkler (1916), which refers to the presence of more than two chromosome sets), Prof. Lavania mentioned that that Polyploidy can be induced with chemicals such as Colchicine. This was first demonstrated by OJ Eigsti (1935) and one key realization of this in the 'genomics era' is that polyploidy is ubiquitous in plants. He also mentioned about its significant effects on the co-expression of duplicated genes in potentially eliminating, reducing or increasing gene expression, explaining how these changes can occur with the onset of polyploidy or after several generations; and can also be influenced by epigenetic factors. While describing his research findings on how the Polyploidy enhances cell size and brings about change/ differentially affects the body size as well as the morphogenetic response to Ploidy, he gave clarification on such questions as 'How does the ploidy change impact body size, and in turn agricultural productivity?'; 'Whether the chromosome size and number matters in genetic stabilization of polyploids?' and 'Can the polyploidy facilitate fixation of heterozygosity?' for the purpose of information/research; and presented a detailed statistics on *Cymbopogon* species and their grouping based on essential oil Constituents. He also mentioned about his ongoing work on 'Autopolyploidy' which causes increased cytosine methylation; whether the chromosome size and number matters in genetic stabilization of polyploids?; and the Prospective Opportunities for lodging tolerant tetraploids in *Cymbopogon khasianus*; and explained about A Polyploid Model – for fixation of heterozygosity. He gave a few glimpses of his last meeting with Prof. AK Sharma (2017) in the International Guest House of Ramkrishna Mission Institute of Culture (RKMIC), Gol Park, Kolkata.

Prof M.G.K. Menon Award Lecture (2022) was delivered by **Dr. Pankaj Seth**, Professor and Scientist VII, Cellular and Molecular Neuroscience Division, NBRC, Gurgaon. He spoke on 'Odyssey from neuroAIDS to neuroCOVID'. Describing the manifold contributions of Prof. M.G.K. Menon, a visionary legend, including the establishment of NBRC, Prof. Seth explained about the current research problems viz. HIV-1, Zika and SARS-Cov-2 viruses. He mentioned in detail about HIV associated neurocognitive disorder, microcephaly (a birth defect in babies) caused by Zika virus infection during pregnancy; and brain fog that arise due to SARS-Cov-2 virus. He talked about human fatal brain cells and also showed a video on human fatal brain derived neural stem cells. He also mentioned about neuronal reaction in co-culture after exposure to Tat and how HIV (causing AIDS) affects the brain. Describing the HIV Neuropathogenesis (low incidence of HIV-1 associated dementia because of less neurotoxicity in India), he mentioned in detail about the brain fog symptoms, long term effects of COVID-19, possible entry routes of SARS-Cov-2 to the brain concluding that the neuronal death is observed in COVID-19 brain sections through necroptosis.

Prof. Saligram Sinha Memorial Award Lecture (2022) was delivered by **Prof. H N Verma**, Pro-Vice-Chancellor & Rector, Jaipur National University, Jaipur. He spoke on 'Potential application of exogenous phytoproteins in plant protection and crop improvement'. Highlighting Prof. Saligram Sinha's contributions, Prof. Verma suggested common and effective approaches to virus disease control, lack of durable resistance, breaking down of resistance at high temperature, narrow spectrum of resistance. These could be overcome by using certain aqueous plant extracts from wild varieties. He also explained in details about the management of viral diseases in plants, the management programme which is an effective bio-based and mentioned about the potential applications of exogenous plants being widely used.

Prof. Sri Ranjan Memorial Award Lecture was delivered by **Prof. Girdhar K Pandey**, Department of Plant Molecular Biology, University of Delhi, South campus. He spoke on 'Calcium-mediated stress signaling in plants: Role of Calcinuerin related proteins'. Describing the contributions of Prof. Shri Ranjan and his research achievements in Plant Respiration, Prof. Pandey stated that Prof. Shri Ranjan did a great deal of work on plant respiration and proved that light profoundly affects the rate of respiration of a green plant and; carried out physiological investigations for improving agricultural crops and produced new mutant types of Pusa wheat by exposure to X-rays. While summarizing some of his research findings, Prof. Pandey explained how the plants (like other organisms) respond to adverse stimuli/ conditions and adapt to a changing environment. He briefed on the role of calcium in coping with the abiotic and biotic stresses which are the major limiting factors of crop yields causing great losses around the world and explained the regulation of ABA, cold, drought, osmotic and salt stress response, role of CBL-CIPK module in regulating K⁺ uptake, signaling in Arabidopsis, regulation of osmotic and salt stress response. He also mentioned some of the ongoing research on the interaction of CIPK9 with CAX1 and CAX3 and K⁺ homeostasis in Arabidopsi, how CIPK21 negatively regulates plant immune response towards *Pseudomonas syringae* and CIPK9-VDAC3 positively regulates *P. syringae* induced ABA-SA signaling crosstalk in Arabidopsis; and finally, the development/ establishment of a Hypothetical model, i.e. CRISPR/Cas9 based genome engineering (for CBL-CIPK mediated signaling under stress conditions) to improve *stress tolerance* in rice.

Prof. Madhoolika Agrawal, Dean, Faculty of Science, BHU, Varanasi; General Secretary (HQ), NASI proposed a vote of thanks at the end of the session. After the session, **the NASI Young Scientist Platinum Jubilee Awards** were conferred upon the NASI Young Scientists/ Awardees for their contributions in diverse areas of Science. Prof. Madhoolika Agrawal welcomed all the young scientists and the distinguished guests present on the occasion. The Award ceremony was conducted by Dr. Niraj Kumar. He briefed about the *NASI Young Scientists Platinum Jubilee Award*, mentioning that the Awards are conferred to the young scientists selected on the basis of their presentations in different areas of S&T viz. Physics, Chemistry, Agriculture, Plant Science (including Plant Pathology, Plant Molecular Biology), Biological Science as well as Medical and Biomedical Sciences as well as to S&T areas related to societal development (Health, Energy, Communication etc.).

On the second day (**Mar 01, 2023**), the Session on '**Ensuring Good Health & Environment**' was **Chaired** by **Prof. V M Katoch**, Former DG,ICMR & Secretary, DHR; RUHS, Jaipur and **Co-Chaired** by **Prof. Ashok Misra**, NASI Distinguished Professor, Indian Institute of Science, Bangalore; Former President, NASI. *The Award Lecture in the field of Toxicology* (2022) was delivered online by **Prof. Ashok Kumar Giri**, INSA Senior Scientist, INSA; CSIR-Indian Institute of Chemical Biology, Kolkata. He briefed about some of his research findings of his work on Arsenic contamination in drinking water and its impact on human health'.

Dr. Mridula Kamboj Memorial Award Lecture (2022) was delivered by **Dr. Manjiri Tripathi**, Professor & Head Unit II, Neurology, NIH Fellow (UCLA), Department of Neurology, AIIMS, New Delhi. Referring to the research and studies performed by the AIIMS, Delhi on epilepsy and original article entitled 'Surgery for the drug resistant epilepsy in children' (published in New England Journal of Medicine), she told that a technique called 'Made in India' has been devised based on this Centre of Excellence. This technique gives a complete approach through an endoscope to gain access to the whole brain; and the procedure known as endoscopic hemispherotomy - disconnecting the entire hemisphere through a key hole with 3-cm incision to scalp. The procedure is technically feasible and can be safely applied in patients with favorable anatomy and pathology; it may lead to less surgical morbidity and faster recovery. The advantages include very accurate trajectories, single stitch surgery without much incurrance of cost (inexpensive surgery). She also told how the delicious recipes for offering ketogenic diet to the mothers having epilepsy which helps reducing the seizures in many patients.

Prof. P. Sheel Memorial Award Lecture (2022) was delivered by **Dr. Sanjeev Sinha**, Professor and Head, Department of Medicine, AIIMS, New Delhi. In his lecture entitled 'Impact of COVID-19 on respiratory diseases', Prof. Sinha explicated the impacts of the COVID-19 pandemic and clinical presentation, diagnosis and management of the respiratory diseases in diverse ways. He discussed the impact of the COVID-19 pandemic on various diseases viz. Tuberculosis, Bronchial asthma, COPD, Interstitial Lung Disease (ILD), Bronchiectasis – both Cystic fibrosis (CF)-associated and non-CF-associated and Lung malignancy. Talking about the COVID-19 impact, he stated that improvement in air quality, limited availability of tobacco products, improvement in sanitization habits and use of protective masks at large (due to lockdown), which

resulted in a reduction of acute episodes of common chronic respiratory illnesses. Portraying the statistics and graphic representation of the COVID's impact on TB mortality, he told that the annual estimated number of deaths from TB fell between 2005 and 2019, but the trend has been reversed. Most of the estimated increase globally is accounted for by four countries: India, Indonesia, Myanmar and the Philippines. Further, the TB mortality was much more severely impacted by the COVID-19 pandemic than HIV/AIDS which continued to decline between 2019 and 2021. Prevalence of bronchial asthma in adult patients hospitalized with COVID-19 ranged between 0.9% to 6.4%, comparable to prevalence in the general population. Asthma patients continued with their ongoing treatment without routine follow-up assessments due to lockdowns and the lack of availability of doctors during the COVID-19 pandemic. Many patients who had acute exacerbations of bronchial asthma did not visit hospital during lockdowns and had taken available treatment at home which resulted in increased severity of the disease and delayed presentation and admission of these patients to the hospitals. He also mentioned about the GINA (Global Initiatives for Asthma) Guidelines (GINA 2022) and described about the impact of COVID on ILD (Interstitial Lung Disease), bronchiectasis, Cystic Fibrosis (CF), OSA (Obstructive Sleep Apnea) management and lung malignancy. He concluded that the COVID-19 pandemic has impacted the diagnosis, management and outcomes of various respiratory diseases. Further, the fear of contracting COVID-19 infection, and reduced access to healthcare due to restrictions during the COVID-19 pandemic resulted in delayed presentations to health care with more advanced disease and loss of follow up resulting in patients being on suboptimal therapy with poorer disease control. Diagnostics were also affected as imaging and diagnostic facilities were diverted towards COVID-19 care while routine procedures with increased risk of aerosol transmission and spread of COVID-19 were generally avoided or deferred. Treatment was also affected by the impact on manufacturing, reduced supplies, reduced access to treatment and health care services, poor compliance and reduction in treatment completion.

Prof. B.K. Bachhawat Memorial Young Scientist Award Lecture (2022) was delivered by **Dr. Pranjal Chandra**, Assistant Professor & Ramanujan Fellow, School of Biochemical Engineering, Indian Institute of Technology (BHU), Varanasi. He talked on 'Intelligent Nanobioengineering for Biomolecular Sensing in Miniatured Settings'. Describing the Translational research programme and giving a brief introduction/concept about the biosensor, a new wave in diagnostics, he presented his work performed at IIT, BHU; and proposed analytical lab work to be carried out in near future. He cited a few illustrations about nanobioengineered setting systems with standard molecules, developed in his lab as case studies. He talked about the sensing prototypes developed in his lab; and also mentioned about the alkaline biophosphates: a genetic biomarker, Smart personalized sensing device: OPTILIZER as well as the advantages of integrated device. He presented in detail, the clinical biomarker analysis and mentioned about flexible electronic based sensor system, a wide variety of which has been proposed in last few years, based on different materials viz. organic semiconductors, grapheme, oxides etc. and the technologies aimed at different applications; and mentioned about the development (analytical model development) of potential application-LEAD YOU KNOW, to detect the contaminated water and stated that the diseases / biomarkers could be tracked and new nanomaterials can be engineered for diverse sensing applications. The integrated devices could be potentially important to deliver information.

Prof Ajoy K Ghatak, the former President of NASI expressed his gratitude to Dr. Manju Sharma for all her efforts and meticulous planning for executing/ organizing the entire event and very much appreciated NASI's efforts for taking the mandate 'Science & Society' to the youth of the society as well. He also thanked Prof. V M Katoch and Prof. Ashok Misra for sparing their time to Chair and Co-Chair the session. "All the talks were close to the societal applications of S&T. It was indeed a learning experience", said Prof. Ghatak.

All the Awardees of the session were conferred with the awards; the Citations were read by Dr. Santosh Shukla, the Assistant Executive Secretary of NASI.

Prof. U C Srivastava, Formerly Professor, University of Allahabad; Treasurer, NASI proposed a vote of thanks at the end of the session. He expressed his gratitude to Dr. Manju Sharma for all her efforts, vision and will to organize this event. He also placed on record his sincere thanks to the President of NASI, the Past Presidents, all the Fellows, Members, NASI Executives and staff for their contribution and all the awardees for their very inspiring and illustrative talks; and also thanked the Chairs and the Co-Chairs for sparing their time and sharing their expertise.

A few glimpses of the event



A view of the dais; L-R: Prof. J R Bellare, Prof. Ajoy Ghatak, Prof. AK Sood, Prof. Balram Bhargava, Dr. KN Vyas, Prof. Madhoolika Agrawal



Felicitation of the Chief Guest by the President, NASI



Prof. Ajay Sood addressing the audience



Prof. K N Vyas addressing the audience



Prof. Balram Bhargava, President, NASI addressing the audience



Prof. Ajoy Ghatak, the Past President, NASI addressing the audience



Felicitation of Prof.V M Katoch, by Prof. Ajoy Ghatak, Prof. J R Bellare & Prof. Madhoolika Agrawal



View of delegates, Past Presidents, General Secretaries, NASI Young Scientists



Prof. U C Srivastava, Treasurer, NASI proposing a Vote of Thanks



nasi2022 @nasi20222 · 1d

राष्ट्रीय विज्ञान अकादमी, भारत (NASI) ने सामाजिक विकास के लिए विज्ञान और प्रौद्योगिकी पर NIPGR, नई दिल्ली में राष्ट्रीय विज्ञान दिवस 2023 कार्यक्रम मनाया। एनएसडी की थीम: वैश्विक भलाई के लिए वैश्विक विज्ञान (दिनांक: 28 फरवरी और 01 मार्च, 2023)। कार्यक्रम की कुछ झलकियां।



The National Science Day was celebrated by several NASI-Chapters also; a glimpse of the same is as given below-

In the UoA, Prayagraj on 15th March



In Mumbai on 4th March in hybrid mode -



The National Academy of Sciences, India

(Mumbai Chapter)

in association with

Dang Seva Mandal's

Dadasaheb Bidkar Arts, Science & Commerce

College, Peth, Tal.-Peth, Dist-Nashik

Organises



National Science Day (NSD) - 2023 Programme on 'Science and Technology for Societal Development'

March 4, 2023 (Saturday) 11:00 AM

Programme Schedule

11:00 -11:25 Inauguration	Welcome Address: Dr. R B Toche, Principal, DBASC College, Peth Opening Remarks: Prof. A. K. Singh, Chairman, NASI (MC) Remarks of Prof. Jayesh R. Bellare, General Secretary (Outstation), NASI Chief Guest: Prof. Narendra Shah, Member Secretary, Rajiv Gandhi Science and Technology Commission, Government of Maharashtra.
Lecture 1 11:25 - 11:50	Prof. Raghunath Sahoo Associate Dean, International Relations Indian Institute of Technology Indore Title: From Science to Mega-science: In Service to Humanity
Lecture 2 11:50 - 12:15	Prof. Satish K Awasthi Dean, Science Faculty and HoD Chemistry, Delhi University, Delhi Title: Antimalarial drug discovery
Lecture 3 12:15 - 12:40	Dr. K. P. Mishra Former Head RB &HSD, Bhabha Atomic Research Centre, Mumbai Title: Nutrition and Cancer
Lecture 4 12:40 - 13:05	Dr. Sayaji Mehetre Nuclear Agriculture and Biotechnology Division, BARC Title: Soil health improvement for sustainable agriculture.
Lecture 5 13:05-13:30	Prof. P. A. Hassan Head, NBS, Chemistry Division, BARC Title: Affordable healthcare through Science and Technology
13:30 - 13:40	Concluding remarks and Vote of thanks

All are cordially invited

Please join at **10:50 hrs** using the **Google Meet** link below:

<https://meet.google.com/ifo-uyrb-sbj>

Meeting code: ifo-uyrb-sbj

Also a report about the NSD Celebration at Chitrakoot, Satna by the NASI-Bhopal Chapter is enclosed herewith.



**MAHATMA GANDHI CHITRAKOOT GRAMODAYA VISHWAVIDYALAYA
CHITRAKOOT, SATNA, M.P.**



NATIONAL SCIENCE DAY REPORT – 2023

Theme: “Global Science for Global Wellbeing”

Date of the Program: 27-02-2023 & 28-02-2023

Objective:

National Science Day (NSD) is celebrated annually to commemorate the discovery of the Raman Effect by the Genius Scientist Sir C.V. Raman. Some of the objectives of the National Science Day are given below:

1. To motivate the student for working in the field of Science.
2. To aware student and Science lovers about the latest development going on in Science and Technology.
3. Encourage youngest through different scientific programs and activities are organized on National Science day to popularized Science and Technology.
4. To promote innovative idea related to Science model and implement in making Model.
5. To generate the awareness for the students and Science lovers and the importance of Science and its uses in daily life.

Activities: On 27 -02-2023:

1. Bio-Rangoli Competition
2. Model Competition
3. Debate Competitions
4. Essay Competition
5. On-line Science Quiz Competition

Activities	Topic	Judge/Co-ordinator	Groups	No. of Participants
Bio-Rangoli	Panch Mahabhoot	Dr. Vandana Pathak	04	12
Model	Science/Agri/Eng.	Sangeeta Karwariya	14	24
Debate	Panch Mahabhoot Sanrachhan aavashyak athava nahi	Prof. G.S. Gupta	02	15
Essay	Sanatan Sahitya me Vigyan	Dr. Sadhana Chaurasiya	-	14
Online Quiz	Science Knowledge	Prof. S.K. Chaturvedi	-	330

Popular Talk by Resource Person: On 28-02-2023:

1. **Prof. K.B. Pandey** : Ex Vice Chancellor, Kanpur University, Kanpur.
Ex Vice Chancellor, MGCGV, Chitrakoot, Satna.
Ex Chairman UPPSC.

Depicts various scientific experiments and discoveries made by Sir C.V. Raman through poetry in Awadhi language.

2. **Dr. Nipun Silawat** : Principle Scientist, M.P. Council of Science and Technology ,Bhopal.

Elaborate on the work being done by MPCST in the field of Science and Technology.

3. **Dr. Mukesh Kumar Roy**: Prof. IIITDM, Jabalpur.

From morning to evening linking the activities of daily life with physics, presented and demonstrated them through small attractive models and elaborated on the theme “Global Science for Global Wellbeing”.

Outcomes:

1. Creative Rangoli prepared by student using Bio-Colours.
2. Various creative models prepared by students.
3. The expert of talk could provide the inside a various topics like Various Scientific Experiment, Raman Poetry etc.
4. The program brought together Scientist, Researcher and students from different field and thus providing them with an opportunity to interacts, exchange idea and collaborate on Research Project.
5. Various Scientific Experiments and Discoveries made by Sir C.V. Raman through poetry and small attractive models supported student for preparing the models.

No. of beneficiaries:

SC: - 08 ST: - 03 OBC: -49 GEN: -117 TOTAL:- 177

Photos: Glimpse of National Science Day 2023 celebrated in MGCGV Chitrakoot, Satna MP.



Lighting of the lamp by Chief Guest
Prof. K.B.Pandeya



Overview of the program
by Dr S S Gautam



Welcome Dignitaries
by Shal and Memento



Audience During NSD-2023



Dr. M.K.Roy Addressing the audience



Dr Nipun Silawat Addressing the audience



Model presented by Students



Winners of different activities



Prize distribution

Media Coverage:



Dr.Sita Sharan Gautam
Co-ordinator ,NSD-2023
MGCGV,Chitrakoot ,Satna,M.P.
ssgcv@rediffmail.com

International Women's Day Celebrated at VARANASI

To mark International Women's Day 2023, NASI Varanasi chapter and GATI BHU, organized an open forum interactive discussion on Women in STEM: challenges and the way forward with Prof. Chandrima Shaha, Distinguished Professor, Indian Institute of Chemical Biology, Kolkata. The event, held on March 3rd at ISLS, BHU, brought together an esteemed group of scientists, clinicians, educators, students and policymakers from diverse fields including Institute of Science, IMS, IIT-BHU, Mahila Maha Vidyalaya and Institute of Agricultural Sciences attended the event.

During her keynote address, Prof. Shaha shared her career journey. She shared how a small microscope gifted from her father has instilled her quest in science. The interactive discussion provided an opportunity for the participants to share their views and experiences and engage in a fruitful dialogue on the topic. The participants also highlighted the importance of increasing the representation of women in STEM leadership roles, providing access to education and training, and addressing the issues of work-life balance and gender-based discrimination. The event was a part of GATI and NASI's ongoing efforts to promote gender equity and inclusivity in STEM fields and create a more diverse and equitable scientific community.

International Women's Day Celebrated at Nagpur



The National Academy of Sciences, India (NASI),
Nagpur Chapter
in association with
Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur
Celebrates



International Women's Day

on

**Gender Equality in S & T for
a Sustainable Future**



Venue: Gurnanak Bhavan Auditorium,
Infront of Rashtrasant Tukadoji Maharaj Nagpur University Administrative Building

14th-15th March 2023



About SYMPOSIUM

The organizing committee feels privileged to announce the two days symposium on 'Gender equality in S&T for a sustainable Future' on 14th and 15th March 2023 in association with Rashtrasant Tukadoji Maharaj Nagpur University Nagpur and National Academy of Sciences India. This event is organized to celebrate International Women's Day. The event coincides with 'Azadi ka Amrut Mahotsav' and the centenary year of RTMNU, Nagpur.

The scope of this symposium is to emphasize gender equality in the field of science, research and development and its role in the sustainable development of the world ensuring a healthy and prosperous future. This multi inter-disciplinary conference brings participants from all academic field to engage in wide-ranging conversation and deliberations about the effective use of science, technology, innovations, education, agriculture, economics etc. to bridge the gap and build gender equality. The event covers the talk from eminent scientists and researchers from all fields to discuss and share best practices and initiatives to bring gender equality in their working area. Participations of Graduate (UG & PG) and Ph.D. students in the form of poster presentations on innovative practices to bring gender equality in S & T are highly welcome. Sub-theme of discussion in the symposium: Building Gender equality through (1) Digitization, Innovation, and Technology; (2) Research and Development.

Reporting about the National Workshop on Entrepreneurship Development

समाचार सार

उद्यमिता विकास विषय पर दो दिवसीय कार्यशाला का शुभारम्भ

चित्रकूट, 17 मार्च। दीनदयाल शोध संस्थान कृषि विज्ञान केन्द्र मझगवाँ में राष्ट्रीय विज्ञान अकेडमी भोपाल चौप्टर के सहयोग से वर्मी कम्पोस्टिंग, मशरूम उत्पादन तथा कड़कनाथ मुर्गी पालन द्वारा उद्यमिता विकास विषय पर दो दिवसीय कार्यशाला का शुभारम्भ शुक्रवार को किया गया। जिसमें प्रमुख रूप से डॉ०.परीक्षित झाड़े मुख्य पालन अधिकारी सतना, डॉ० राजेश त्रिपाठी उप संचालक कृषि सतना, डॉ० संतोष शुक्ला सहायक कार्यकारी सचिव राष्ट्रीय विज्ञान अकेडमी प्रयागराज, डॉ० शिवेष प्रताप सिंह सचिव राष्ट्रीय विज्ञान अकेडमी भोपाल चौप्टर, अभय महाजन राष्ट्रीय संगठन सचिव दीनदयाल शोध संस्थान, डॉ० उमाशंकर मिश्रा प्रोफेसर महात्मा गाँधी ग्रामोदय विश्वविद्यालय चित्रकूट, डॉ० संतोष कुमार सहायक प्राध्यापक ए०के०एस० विश्वविद्यालय सतना की उपस्थिति रही। कार्यशाला में 110 प्रशिक्षणार्थियों ने सहभागिता की, जिसमें चित्रकूट ग्रामीण क्षेत्रों की युवा युवतियाँ, ग्रामोदय विश्वविद्यालय, ए.के.एस. विश्वविद्यालय, शास० महाविद्यालय सतना के अलावा किसानों ने प्रशिक्षण प्राप्त किया। प्रशिक्षण के दौरान राष्ट्रीय संगठन सचिव दीनदयाल शोध संस्थान अभय महाजन ने बताया कि किसानों के परिश्रम एवं प्रयासों को लाभ से जोड़कर आर्थिक वृद्धि हेतु प्रशिक्षण, कार्यशाला कारगर साबित होती है, उन्होंने विद्यार्थियों को कहा कि आपको नौकरी देने वाला बनना है न कि नौकरी लेने वाला। प्रशिक्षण में डा० शिवेष प्रताप सिंह ने कार्यशाला की भूमिका रखते हुए बताया कि नई शिक्षा नीति के तहत उद्यमिता विकास के द्वारा हमें रोजगार सृजित करना है। वर्मी कम्पोस्टिंग विषय पर डा० उमाशंकर मिश्रा जी तथा डा० संतोष कुमार ने अपना व्याख्यान दिया। कड़कनाथ मुर्गी पालन विषय पर डा० रामप्रकाश शर्मा तथा मशरूम उत्पादन विषय पर डा० अखिलेश जागरे ने व्याख्यान प्रस्तुत किए। द्वितीय सत्र में हैन्ड्स आन ट्रेनिंग विषय पर प्रशिक्षण दिया गया।





One Week National Workshop

on Research Methodology & Current Research Trends

27th to 31st March 2023

The present workshop will focus on the following broad themes:

- Identification of Research Gaps and Selection of Problem
- Quantitative and Qualitative Research Methods in Sciences
- Writing Research Proposals
- Writing Research Papers/Reports
- Funding Agencies and their Funding Mechanisms
- Contemporary Critical Theories
- Citations and Footnotes and Reference Manual
- Research and why we do it
- Theoretical and Conceptual Framework
- How to publish the Research
- Contemporary Research Trends
- Philosophical Approaches to Literature
- Argument: Its Nature and Function
- Plagiarism
- Research Ethics
- Live Demo on LCA (Life Cycle Assessment)
- Academic Writing Techniques

REGISTRATION AND INSTRUCTION TO THE APPLICANT

Eligibility - Researchers/Faculty members/Post graduate students in all disciplines at any Indian university/institute are eligible to apply for the workshop.

Number of Seats : 300 | Regular Registration : 200 |
Regular registration + Hands on Training : 100

- **Category One : Regular Registration**
- Rs. 1000.00 (For Student/Scholar)
- Rs. 1500.00 (For Academics)
- **Category Two : Regular Registration with Hands-on-Training Sessions**
- Rs. 1200.00 (For Student/Scholar)
- Rs. 1700.00 (For Academics)

To register, candidates must register themselves through online mode only latest by 25th March 2023.

For accommodation facility: Contact us directly to book hotels on reasonable rates. (Not Included in Registration)

Food: Breakfast, Tea Breaks, Lunch (27th to 31st March, 2023)

Vivek Agnihotri
Mob +91 9302812369

Er. Arpit Srivastava
Mob +91 909882630

Virendra Kumar Pandey
Mob +91 8462890636

CONTACT US

QR CODE
FOR REGISTRATION





Bhopal Chapter

Speakers & Resource Persons



Dr. GS Randhaw
IIT Roorkee



Dr. Bhashkar Singh
CUJ Ranchi



Dr. Pankaj Kumar Gupta
CRDT, IIT Delhi



Dr. Vivek Kumar Dalvi
CRDT, IIT Delhi



Dr. Tanushree Saxena
Academic Specialist
Biotechnika Info Pvt Ltd



Dr. Joyabrata Mal
MNNIT Allahabad



Dr. Dipesh Shikchand Patle
Department of Chemical Engineering
MNNIT Prayagraj, India



Dr. Pradeep Kumar Mishra
JNKVV Jabalpur



Dr. Shweta Singh
Founder & CEO Ennoble IP
& SheReal Chairperson WIEF And CIIR



Dr. Kaissan TT Amesho
UMR Agropolymer Engineering and
Emerging Technologies (IATE), France



Prof S N Upadhyay
Indian Institute of Technology
BHU, Varanasi



Dr. Sachin Kumar
Dy Director (Scientist) SSS- NIBE Kapoorthala



Prof Ashok Srivastava
Emeritus Professor IIT Delhi



Dr. Abhishek Suresh Dhoble
School of Biochemical Engineering IIT (BHU) Varanasi



Dr. Sashi Kant Bhatia
Konkuk University Seoul Korea



Dr. Vishal Mishra
IIT (BHU) Varanasi

For More Details please visit on RMCRT 2023 Official Website
<https://rmworkshop.aksuniversity.ac.in/>

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AKS University (MP)

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AKS University (MP)

Dr. Harshwardhan Pro-Vice Chancellor (Development)
AKS University (MP)

Prof. S.S. Tomar Director Research,
AKS University (MP)

Workshop Chairs

Prof. Ashok Pandey
Distinguished Scientist,
CSIR - IITR, Lucknow

Prof. B.N. Johri
Professor Emeritus
Dept. of Biotechnology,
Barkatullah University, Bhopal

Workshop Co-Chairs

Dr. Binod Parameswaran
Principal Scientist
CSIR-IIIST, Thiruvananthapuram

Prof. G.P. Richariya
Dean, Faculty of Life Science,
AKS University (MP)

Program Advisors

Prof. R.N. Tripathi Dean Faculty of Basic Science,
AKS University (MP)

Prof. R.S. Nigam Department of Chemistry,
AKS University (MP)

Dr. Shekhar Mishra Controller of Examination,
AKS University (MP)

Prof. S.P. Gupta Head, Dept. of
Pharmaceutical Science
AKS University (MP)

Workshop Conveners

Prof. Shivesh Singh
Head, Department of Zoology,
Govt. PG College, Satna (MP)

Dr. Neeraj Verma
Deputy Director, Research,
AKS University (MP)

Workshop Co-Conveners

Prof. Kamlesh Choure
Head, Dept. of Biotechnology,
AKS University (MP)

Prof. Mahendra Kumar Tiwari
Dept. of Environmental Science,
AKS University (MP)

Organizing Secretaries

Dr. Ashwini A. Wao
Associate Professor,
Dept. of Biotechnology,
AKS University (MP)

Dr. Ashutosh Pandey
Assistant Professor,
Dept. of Biotechnology,
AKS University (MP)

Co-Organizing Secretaries

Dr. Deepak Mishra
Associate Professor,
Dept. of Biotechnology,
AKS University (MP)

Dr. Reni Nigam
Assistant Professor,
Dept. of Biotechnology,
AKS University (MP)

Organizing Team Members

Dr. Dinesh Mishra **Mrs. Keerti Samdariya** **Er. Arpit Srivastava** **Ms. Monika Soni**
Dr. Samit Kumar **Dr. Ramjee Singh** **Mr. Piyush Kant Rai** **Mr. Vivek Agnihotri**
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Mrs. Priya Dwivedi



Organized by

**Research Directorate
&
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AKS University, Satna (MP)**