



ISSN 0409-7467



CSIR News

NEWSLETTER OF THE COUNCIL OF SCIENTIFIC & INDUSTRIAL RESEARCH

Volume 72 No. 2

website: <http://www.csir.res.in>

February 2022

In The News

CSIR-NIScPR Celebrates First Foundation Day

Scientific awareness and communication activities are very important to help take laboratory work to the society — Hon'ble Minister of S&T Dr Jitendra Singh



CSIR-National Institute of Science Communication and Policy Research (CSIR-NIScPR), New Delhi, celebrated its first foundation day during 13-14 January 2022 in hybrid mode. Union Minister of State (Independent Charge) for Science & Technology Dr Jitendra Singh inaugurated the programme on 13 January 2022 at CSIR-NIScPR.

Addressing the gathering at the newly created institute's first foundation day, the Hon'ble Minister said that moving beyond the startup movement,

we need to promote sustainable start-ups with livelihood opportunities. Further, he added that in line with the vision of collaboration between S&T departments, CSIR-NIScPR needs to go in for extended integration with educational institutions & communicate about alternate job opportunities for the youth.

Recounting the role of CSIR-NIScPR, Dr Shekar C. Mande, Director-General, CSIR, said that the institute plays an important role in

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the realm of science communication and policy research. He also mentioned that Hon'ble Dr Jitendra Singh has suggested that the institute needs to coordinate with other organisations in policy studies.

Later, the Hon'ble Minister also launched the institute's new website & released the *CSIR-TRL Compendium*, *CSIR Rural Technologies Compendium*, *Technology Readiness Level 6 Compendium* and *Policy Bulletin*.

Earlier in her welcome address, Prof. Ranjana Aggarwal, Director, CSIR-NIScPR, welcoming the gathering said that CSIR-NIScPR hopes to create a benchmark in science communication and policy research.

The two-day programme also had an online Foundation Day lecture on the topic "Indian Traditional Knowledge: An Endless Continuum" on 14 January 2022 by Prof. B N Jagatap, Senior Professor, IIT Bombay. The lecture holds significance from the viewpoint that CSIR-NIScPR, a premier CSIR institute dedicated towards the promotion of Science, Technology & Innovation policy studies and science communication as well as the inculcation of scientific temper among diverse stakeholders, has been assigned as the nodal organization to implement the national initiative to communicate India's scientifically validated traditional knowledge to the society under the brand name SVASTIK (Scientifically Validated Societal Traditional Knowledge). The initiative aims to conserve traditional knowledge, inculcate scientific temper, and instil confidence in citizens regarding the scientific value of our traditional knowledge/practices.

Prof. Ranjana Aggarwal, Director, CSIR-NIScPR, in her introductory remarks, emphasised the contribution of CSIR-NIScPR (erstwhile NISCAIR and NISTADS) in conserving and

propagating India's rich traditional heritage through its voluminous work *Wealth of India* which is a compilation of India's rich flora, fauna and mineral diversity. CSIR-NIScPR's *Indian Journal of Traditional Knowledge (IJTK)* through its contemporary and quality research publications in various S&T domains of traditional knowledge has shown immense potential for global positioning in documentation and dissemination of scientifically validated knowledge/practices.

Further, she underlined the importance of communicating India's rich traditional knowledge with a scientific basis to the society as often such knowledge and practices are susceptible to misappropriation, misuse and piracy leading to loss of faith in traditional knowledge.

On this occasion, Dr Shekhar C. Mande, the Director-General of CSIR & Secretary DSIR put forward his thoughts about India's rich heritage. He emphasised that CSIR-NISCAIR and CSIR-NISTADS, which merged and became CSIR-NIScPR, have been contributing a lot to the growth of Indian science over the years and in understanding the rich heritage of our country. Dr Mande asked CSIR-NIScPR to come forward in taking initiatives towards protecting the heritage sites in Aravali Hills and highlighted the fact that many such Indian traditional heritages and technologies haven't been documented yet, and hoped the same can be achieved by delving into our history and our optimism for the future.

Prof. B.N. Jagatap in his talk emphasised the broad spectrum of the Indian Knowledge system ranging from philosophy, logic, education, mathematics, astronomy, medicine, metallurgy, architecture, commerce, etc. He focused on the weaving industry of India and mentioned how India at one

time was famous for the garments and textiles and its trade in different parts of the world. He pointed out that the Egyptian mummies dating from 2000 BCE were found to be wrapped with one of India's finest textiles, Muslin. He weighed on the innovative approaches of making high quality and varieties of fabrics, dyes, and designs on the textiles by Indians that made their exports a huge success.

Prof. Jagatap mentioned that among many of the traditional technologies excelled by Indians, water management, innovative agricultural crop varieties, and Indian architecture were based on scientific rationales and technological methods. He gave examples of the science behind the floating brick technology of Ramappa Temple at Telangana, the diffraction technique used by Chaya Someshwara Temple at Telangana, and the pinhole camera at Virupaksha Temple of Hampi.

He underlined the flourishing overseas trade of ancient India and mentioned that the Indians traded right up to Rome. Indians exported not only agricultural goods but also textiles, silk, steels, metals, metal works, cosmetics, perfumes, etc. He talked about the industrial class and technical skills of Indians. Indians had excelled in several fields of technical arts and

crafts including weaving, metallurgy and shipbuilding. Though there has been not much documentation of such knowledge it is an undeniable fact that these were an integral part of the Indian community over the last several thousand years.

Prof. Jagatap further highlighted that international trade gave rise to strong shipbuilding industry in India. Prof. Jagatap concluded his talk with insights into the Indian way of education and philosophy. He also reminisced about the glorious centres of education and universities in India. Prof Jagatap expressed concern that many Indians are unaware of India's traditional science and arts. He desired that these traditional technologies and knowledge of India should be communicated under the SVASTIK initiative.

Dr Charu Lata, Head Traditional Knowledge Studies Division, CSIR-NIScPR, assured that team SVASTIK will take the assigned task forward and give its best to communicate scientifically validated traditional knowledge of India and sensitise different sections of the society regarding our glorious traditional knowledge and heritage.

Dr Paramananda Barman, Scientist, CSIR-NIScPR, delivered the vote of thanks.



Dr Shekhar C. Mande emphasised that CSIR-NISCAIR and CSIR-NISTADS, which merged and became CSIR-NIScPR, have been contributing a lot to the growth of Indian science over the years and in understanding the rich heritage of our country.

Platinum Jubilee Celebration of CSIR-NPL

CSIR-National Physical Laboratory (CSIR-NPL), New Delhi, celebrated its platinum jubilee on completing 75 years of dedicated service to the nation, which also coincides with the 75 years of Independence and 'Azadi ka Amrit Mahotsav', on 4-6 January 2022. During the three-day event, various activities were conducted at CSIR-NPL.

The celebration was kicked off on 4 January 2022, with the inauguration of the Metrology Conclave with the theme 'Recent Trends in Metrology'. The conclave was inaugurated by Dr Jitendra Singh, Union Minister of State (Independent Charge) for Science & Technology.

Dr Shekhar C. Mande, DG CSIR and Secretary DSIR presided over the

Hon'ble Minister said that CSIR-NPL is a monumental illustration of India's incredible scientific journey in the last 75 years and asked to plan for the next 25 years with the conscious realisation that science and technology are going to be the main currency for the inclusive growth of India.



event and Prof. Venugopal Achanta, Director CSIR-NPL welcomed all. On this occasion, a Special Postage Stamp and Special Cover commemorating the 75th Platinum Jubilee year of CSIR-NPL was released by the Hon'ble Minister in the presence of Shri Ashok Kumar, Postmaster General, India Post (Delhi Circle). To mark the platinum jubilee celebrations, a compendium (*1947-2022: A Compendium of Scientific Triumphs*) of scientific and societal contributions of CSIR-NPL was also released.

The Minister also released Bharatiya Niradeshak Dravya (BNDs) to support the testing and calibration laboratories for quality assurance at par with the international certified standards for high purity gold, silver and other elements. He also launched Certification Process for India-made Ambient Ozone Analyzers and low-volume PM2.5 Sampler to fight air pollution. The minister also launched the Calibration Facility for Infusion Pump Analyzer used for testing of Infusion Pump and unveiled a new responsive website of CSIR-NPL showcasing the metrology-related activities in an appealing design format.

During his address to the galaxy of eminent guests, scientists and students, the Minister said that CSIR-NPL is a monumental illustration of India's incredible scientific journey in the last 75 years and asked to plan for the next 25 years with the conscious realisation that science and technology are going to

be the main currency for the inclusive growth of India. Dr Jitendra Singh said that three important tasks need to be focused on: integration of different science streams among themselves and with the general line Ministry streams in due course; speedy conversion of lab technologies for use by common man at affordable costs; and giving proper recognition to scientists.

On the same day, the Minister also dedicated to the nation, 'LED Photometry Laboratory' at CSIR-NPL to fulfil Prime Minister Narendra Modi's vision to develop energy-efficient illumination technology. He also inaugurated a Science Exhibition by school students and interacted with them on the demonstrated themes and subjects. On this occasion, CSIR Technology Demonstration Pavilion was also inaugurated by the Hon'ble Minister. He visited the pavilion and the technologies demonstrated by CSIR-NPL and other sister CSIR laboratories like CSIR-CEERI, CSIR-AMPRI, CSIR-CFTRI, CSIR-IIP, CSIR-NAL, CSIR-CDRI among others. He took keen interest in all the technologies and interacted with scientists and students demonstrating the technologies.

During the technical sessions of the Metrology Conclave, conducted in hybrid mode, speakers from across the world delivered talks on current advances and future directions of Metrology. Some of the noted speakers were Dr Richard Davis and Dr Gerard Petit from BIPM France, Dr Koji Ogushi

from AIST, Japan, Prof. Graham Machin from the University of Birmingham UK and Prof. J.T. Janssen from NPL UK. The technical sessions were chaired by Prof. A. K. Grover, Chairman Research Council of NPL and Dr V.M. Tiwari, Director, CSIR-NGRI.

On the second day, an MSME meet was organised in hybrid mode at CSIR-NPL. MSMEs are the growth engines of the Indian economy, contributing to 30% of the nominal GDP. The meet was dedicated to discussing the needs and ways to technically support the MSME sector for realising the '*Atmanirbhar Bharat*' mission under the aegis of "Make in India" and "Vocal for Local". The theme of the meet was 'MSME 2022: The Key to Inclusive and Sustainable Growth of Indian Economy'.

The meet was the first of its kind organised in India and was very successful in bringing the various stakeholders like Quality Council of India (QCI), NABL, Ministry of MSME, CII, MSMEs and CSIR-NPL (NMI of India) together on a common discussion platform to deliberate on ways to support the MSMEs to strengthen the Indian economy. The chief guest of the inaugural function was Shri Adil Zainulbhai, Chairman QCI. DG CSIR, Dr Shekhar C. Mande presided over the function and also addressed the gathering. Prof. Venugopal Achanta, Director CSIR-NPL welcomed the guests and participants with his address. Other eminent guests and speakers at the inaugural function included Dr Ishita Ganguli Tripathy, ADC (MSME), Shri Shreekanth Somany, Chairman CII National SME Council, Shri S.V. Sharma, Joint Director MSME Training Centre, Dr R.K. Bharti, Head MSME Development Institute, and Ms Shikha Mehta, AGM Canara Bank.

In the technical session, expert talks

were delivered by the representatives of CII, NABL, Ministry of MSME, Canara Bank, CSIR-NPL and industry. There were seven expert talks. The representatives of the sister labs of CSIR also showcased their technologies to participants. An interactive panel discussion and open forum discussion were conducted which comprised seven panellists from all the stakeholder institutions. The meet was concluded by Director CSIR-NPL with a resolve to support the MSMEs in every possible way. The meet was attended by more than 100 MSMEs in the online mode and about 50-60 participants attended the one-day meet in person.

A Stakeholders meeting on the "Certification of Air Pollution Monitoring Equipment" was organised on the final day of the Platinum Jubilee Celebrations. Prof. Venu Gopal while welcoming highlighted the role of the environmental sciences division of CSIR-NPL in building environment monitoring facilities in Antarctica and various places across India. Guest of Honour Dr Prashant Gargava, Member Secretary CPCB addressed the participants. Dr C. Sharma explained the status of the certification scheme and its future plan. Dr Shankar G. Aggarwal talked about Low-volume PM_{2.5} particle sampler development. Dr Radhakrishnan talked about Ozone Analyzers. There were remarks by CPCB representatives and MOEFF&CC. The meeting also included a panel discussion.

The three-day event culminated with a valedictory function. Prof. A.K. Grover, Chairman of RC, CSIR-NPL, distributed awards to students for science model and writing competitions organised as part of the Platinum Jubilee Celebrations. Excellence awards were also given to CSIR-NPL Technical and Administrative staff for their dedicated service.



MSME meet was dedicated to discussing the needs and ways to technically support the MSME sector for realising the '*Atmanirbhar Bharat*' mission under the aegis of "Make in India" and "Vocal for Local".

Inauguration of Electrochemical-3D Printing Laboratory

Shri Omprakash Sakhlecha appreciated innovative technologies and products being developed by CSIR-AMPRI and emphasised the connectivities with the various stakeholders.



Shri Omprakash Sakhlecha, Hon'ble Minister, Science and Technology & MSME, Government of MP, visited CSIR-Advanced Materials and Processes Research Institute (CSIR-AMPRI), Bhopal, on 28 December 2021. Dr Avanish Kumar Srivastava, Director, CSIR-AMPRI, welcomed the guest Shri O.P. Sakhlecha and explained the process of Electrochemical-3D printing technology.

Shri Omprakash Sakhlecha inaugurated the "Electrochemical-3D Printing Laboratory" at CSIR AMPRI and interacted with scientists, scholars and students. Director AMPRI explained the various working processes like O₂ generation, H₂ evolution & storage, Energy devices during the Electrochemical-3D Printing Laboratory inauguration.

The Minister emphasised value addition by green hydrogen and medical oxygen through a single device. The developed concept of Electrochemical 3D Printing has many potential applications in microelectronics, a substrate for detection of pharmaceutical drugs, electrode designing for electrochemical sensors and energy storage devices, etc. Shri Omprakash Sakhlecha along with

Director CSIR-AMPRI also visited "BAITHAK" an eco-friendly, hexagonal sitting place made up of Bamboo composite material using abundantly available bamboo as raw material.

Hon'ble Minister also released the compendium "*Efforts to Combat COVID-19*" which is based on contributions of CSIR-AMPRI in the fight against COVID-19. Later, he spoke about updates and up-gradation of industrialisation and stressed *Atmanirbhar Bharat* and *Self-Reliant India*. Shri Sakhlecha also spoke about relationships and scientific collaboration with Industrial partners. He highlighted that priority should be given to problems faced by society and to provide solutions for those problems. He also emphasised that the economics involved should also be considered during the manufacture of products. Hon'ble Minister appreciated innovative technologies and products being developed by CSIR-AMPRI and emphasised the connectivities with the various stakeholders.

Dr J.P. Shukla, Senior Principal Scientist, proposed the Vote of Thanks. Dr Sarika Verma, Principal Scientist moderated the programme.

Novel Genetic Risk Factors for Heart Failure among Indians



The mortality rate due to cardiovascular diseases is very high in India, compared to western countries. In severe cardiomyopathy, one of the cardiovascular diseases, heart failures are common. Cardiomyopathy changes the integral structure of the heart muscle, and as a result, the heart is unable to pump blood efficiently. This increases the risk of heart failure leading to sudden cardiac death.

A team of scientists led by Dr K. Thangaraj at the CSIR-Centre for Cellular and Molecular Biology (CCMB), Hyderabad, has found novel genetic mutations in the beta myosin heavy chain gene (β -MYH7) that are responsible for causing dilated cardiomyopathy among Indians. This finding has been published in the *Canadian Journal of Cardiology* on 14 January 2022.

The β -MYH7 is one of the major genes implicated in cardiac diseases globally. “However, not many genetic studies were carried out in Indian cardiomyopathy patients. Hence, we sequenced β -MYH7 gene of 137 dilated cardiomyopathy patients along with 167 ethnically matched healthy controls to identify the mutation(s), if any, that are associated with dilated cardiomyopathy in Indian patients,” said Dr K Thangaraj, senior author

of this study, and presently Director, Centre for DNA Fingerprinting and Diagnostics (CDFD).

“Our study revealed 27 variations, of which 7 mutations (8.0%) were novel, and were detected exclusively in Indian dilated cardiomyopathy patients. These included 4 missense mutations; each altered evolutionarily conserved amino acids in the β -MYH7 protein and were predicted to be pathogenic by bioinformatics tools. Subsequent study using homology models of β MYH7, we for the first time demonstrated how these mutations uniquely disrupt a critical network of non-bonding interactions at the molecular level and may contribute to the development of disease phenotype,” said Dr Deepa Selvi Rani, the lead author of this study.

Each protein molecule is made up of specific amino acids. Various interactions between the amino acid residues drive the 3D structure of the protein, which determine its function. One amino acid change at a critical site can change a protein structure dramatically and lead to disease pathogenicity.

“This study can help in developing gene-editing methods that may rescue cardiac contractility of failing hearts among Indians with the novel mutations,” said Dr Vinay Kumar Nandicoori, Director, CCMB.

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Exploring RNAi and Nanotechnology for Cancer Therapeutics



Dr Lekha Dinesh Kumar with a specimen in hand with her lab members

Cancer is one of the leading causes of death worldwide and has an attached economic burden and social stigma. The quest to find plausible therapeutic interventions to replace non-specific chemo drugs has recently led to the development of novel strategies to combat cancer. RNA interference (RNAi), a gene silencing approach, is a promising tool for targeted and focused therapy for chronic diseases like cancer. The lack of safe and effective delivery methods for RNAi molecules is one of the key challenges against using RNAi-based therapy in biological systems.

Dr Lekha Dinesh Kumar and her group at CSIR-CCMB, in collaboration with the Polymer Science and Engineering Division at CSIR-National Chemical Laboratory (CSIR-

NCL), have developed nano-curcumin structures (derived from turmeric) to encapsulate the RNAi (Ephb4 shRNA) and other molecules that aid in targeting specific tissues. The proposed bio-drug is non-toxic, bio-compatible with a higher uptake efficiency, and shows effective site-specific delivery with regression of tumours in two different mouse models of colon and breast cancer. "The use of curcumin, a well-known nutraceutical with high anti-cancer and anti-inflammatory properties with RNAi showed tumour retardation with six months survival in aggressive models of colon and breast cancer," says Dr Kumar. This work has been published in the journal *Nanoscale*.

In another study with the School of Nanosciences, Central University Gujarat and Centre for Advanced Materials and Industrial Chemistry, RMIT Australia, they designed an eco-friendly and pH-responsive dietary fibre inulin-based nanodevice to target colon cancer. This device suggests the possibility of substituting synthetic substances with natural compounds in bio-drug formulations for better bio-degradability, tissue accumulation, and lesser toxicity. The results from this work have been published in the journal *Nanomedicine*.

Dr Kumar says, "In our studies, we have demonstrated that RNAi combined with appropriate targeting agents and encapsulations made of natural biomaterials have the high translational capacity in mice models of cancer. This group of bio-drugs can revolutionise the field of cancer therapeutics in the future. It should be assessed in other cancer model systems to bring out the utility of these therapeutics in the clinical trials."

CSIR-NIO Signs MoU with Keshava Deva Malaviya Institute of Petroleum Exploration

CSIR-National Institute of Oceanography (CSIR-NIO), Goa, and Keshava Deva Malaviya Institute of Petroleum Exploration (KDMIPE-ONGC) signed a Memorandum of Understanding (MoU) on 5 January 2022 to develop a long term joint working partnership in areas relating to the structure and evolution of the continental margins of India and the adjacent deep ocean basins, leading to the development of a revised plate tectonic reconstruction model. Additionally, these organisations will also carry out joint studies in the field of *unconventional*

hydrocarbon resources viz. gas hydrate exploration and exploitation along with field validation.

The MoU was signed virtually by Prof. Sunil Kumar Singh, Director, CSIR-NIO and Shri S.N. Chitnis, Head of Institute, KDMIPE, in the presence of Dr Sanil Kumar V.V., Dr V.J. Loveson, Shri Venkat Krishnamurthy and Dr Yatheesh Vadakkeyakath of CSIR-NIO, and Shri S.K. Biswal, Shri P.V.S. J. Sharma, Dr S.S. Rathore, Shri J.P. Dobriyal, Dr Anil Kaul and Shri Sushil Kumar of KDMIPE-ONGC.

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CSIR-IICT Signs MoU with BPCL



To convert waste to wealth, Bharat Petroleum Corporation Limited (BPCL), R&D Center, Noida, has collaborated with CSIR-Indian Institute of Chemical Technology (CSIR-IICT), Hyderabad, and signed a Memorandum of Understanding (MoU) to install a commercial-scale Compressed Biogas (CBG) plant for treating agricultural biomass. CSIR-IICT has already developed and patented Anaerobic Gas Lift Reactor (AGR) which is a

high rate biomethanation technology for generating biogas and bio manure from organic solid waste. This biomethanation technology is being operated at Bowenpally, Secunderabad, in the vegetable market yard. Now both the organisations have ventured into an agreement to leverage the Anaerobic Gas Lift Reactor (AGR).

The project aims to develop a pilot-scale plant in the first phase and a novel digester in the second phase.

CSIR-NCL Signs Licensing Agreement with SKYi Innovations LLP



Teams of CSIR-NCL and SKYi Innovations LLP on the occasion of signing the agreement

CSIR-National Chemical Laboratory (CSIR-NCL), Pune, and SKYi Innovations LLP, Pune, signed a know-how licensing agreement for the “Process for the synthesis of hyperbranched polymers”.

Hyperbranched polymers have different applications such as compatibilizers for polymer blends, rheological modifiers for polymer-based systems, and chain extenders. The synthesis process uses commercially available raw materials and generates the hyperbranched polymer in a single reaction step. It is an eco-friendly process since it is solvent-free and involves a metal-free catalyst. The side products can be recycled. The technology was the outcome of the research work done by Dr Ashootosh Ambade, Principal

Scientist from the Polymer Science & Engineering Division.

The CSIR-NCL know-how will be used to Synthesise Hyperbranched (HB) polymer for application as additives for improvement in the properties of engineering plastics such as polyamides, polyesters, and other polymers like bioplastics. These polymers can be used in structural applications. The process will help SKYi Innovations to start indigenous production of HB polymer as a part of its ‘*Make in India*’ efforts since this product is currently imported.

SKYi Innovations has been a part of the SKYi group having a broader vision of developing environment-friendly sustainable solutions. SKYi Innovations is one of the leading

manufacturers of Long Fibre Thermoplastics (LFT) globally, with the largest production facility in India. They represent FkuR GmbH in Southeast Asia for biocompostable polymer materials. They have developed different products such as thermoplastics UD tapes for High Tech engineering applications as a technology leader.



CSIR-NBRI Signs MoU with FFDC



CSIR-National Botanical Research Institute (CSIR-NBRI), Lucknow, and Fragrance & Flavour Development Centre (FFDC), Kannauj, signed a Memorandum of Understanding (MoU) to carry out different activities related to the development of value-added products and establishment of distillation unit under CSIR Floriculture Mission. The MoU was

signed by Prof. S.K. Barik, Director, CSIR-NBRI and Mr Shakti Vinay Shukla, Director, FFDC on 18 January 2022 at Lucknow and witnessed by Dr Alok Lehri, Dr Sharad Srivastava, Dr Vivek Srivastava from CSIR-NBRI; Dr A.K. Pant, & Dr K.C. Kulbe of IITR; Shri Shailendra Jain GC member FFDC & Gedam Vilas FFDC.

CSIR-NBRI & FFDC signed an MoU to carry out different activities related to the development of value-added products and establishment of distillation unit under CSIR Floriculture Mission.

Workshops/Seminars

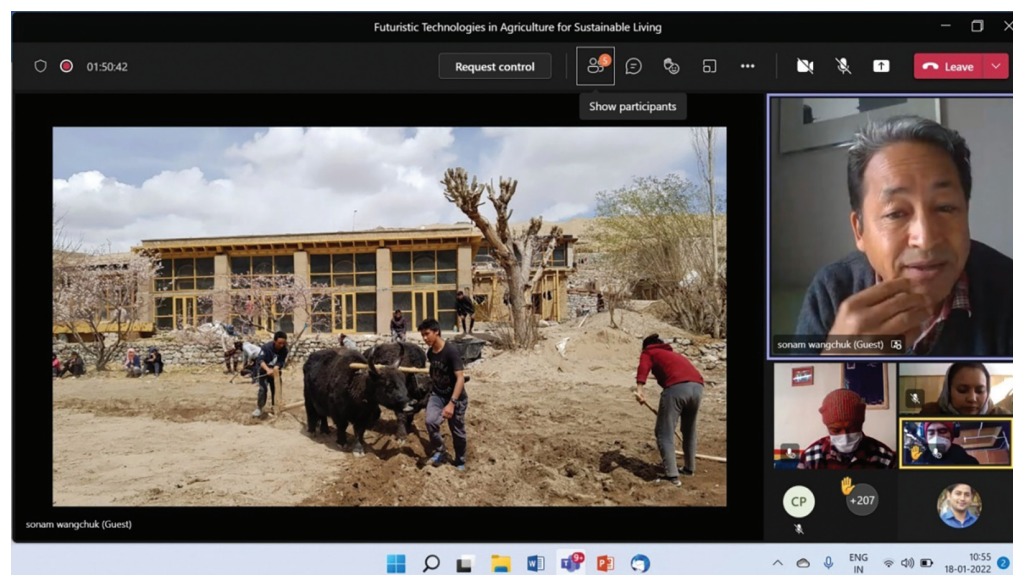
CSIT-IMTECH Organises Workshop on Futuristic Technologies in Agriculture

CSIR-Institute of Microbial Technology (IMTECH), Chandigarh, organised a two-day workshop on “Futuristic Technologies in Agriculture for Sustainable Living” for farmers, students, entrepreneurs and self-help groups working across India. The workshop was funded by the Department of Science

and Technology (DST-SEED) for the setting up of the Science, Technology and Innovation Hub (STI), Ladakh.

Ramon Magsaysay Awardee Mr Sonam Wangchuk, Director, Himalayan Institute of Alternatives Ladakh (HIAL), was the keynote speaker for the inaugural session. He

Mr Sonam Wangchuk stressed the need to revive our rich ancient past, which could pave the way for a future circular economy and help in reducing food wastage, artificial fertilizers and energy generated through fossil fuels.



Mr Sonam Wangchuk delivering keynote address online on Futuristic Technologies in Agriculture for Sustainable Living

applauded the efforts of CSIR-IMTECH in establishing the STI Hub, Ladakh. During his address, Mr Wangchuk highlighted the importance of clean and smart technologies for sustainable livelihood in high-altitude regions like Ladakh. He stressed the need to revive our rich ancient past, which could pave the way for a future circular economy and help in reducing food wastage, artificial fertilizers and energy generated through fossil fuels. He gave examples of his initiatives in Ladakh through his Institutes SECMOL and HIAL that are working towards cleaner technologies like solar-heated low-cost buildings made of mud that can maintain a comfortable temperature throughout the year.

Dr Sanjeev Khosla, Director CSIR-IMTECH, welcomed the dignitaries and highlighted the efforts of the Council of Scientific & Industrial Research (CSIR) in supporting farmers in raising their quality of life through S&T interventions. Speaking on the sidelines of the workshop, Dr Khosla talked about various CSIR initiatives including the aroma mission and said that CSIR-IMTECH through STI Hub Ladakh is committed to serving the tribal population of Ladakh UT. Speaking on the occasion, he also said that the STI hub

is a collaboration that strives to promote innovation, skill development, digital healthcare with tele-diagnostics, and awareness in agriculture, horticulture, and animal husbandry for the tribal population of Ladakh.

Mr Tashi Tsetan, Chief Agricultural Officer, LAHDC, Leh delivered a special lecture during the inaugural event. Mr Chander Shekhar, Project Leader STI Hub and scientist from CSIR-IMTECH, updated about the infrastructure and facilities available at STI Hub which shall significantly boost entrepreneurship in the Internet of Things (IoT)-based devices, edutech and agritech. More than 750 candidates comprising farmers, students, academicians, scientists, and entrepreneurs attended the two-day workshop.

The eminent speakers for the workshop were drawn from the panel of experts in the field of agriculture, horticulture livestock, different R&D institutions like SKUAST Jammu; Krishi Vigyan Kendra, Leh; DIHAR, Leh, IIT Ropar, and G.B. Pant National Institute of Himalayan Environment & Sustainable Development, Leh and CSIR-IMTECH.

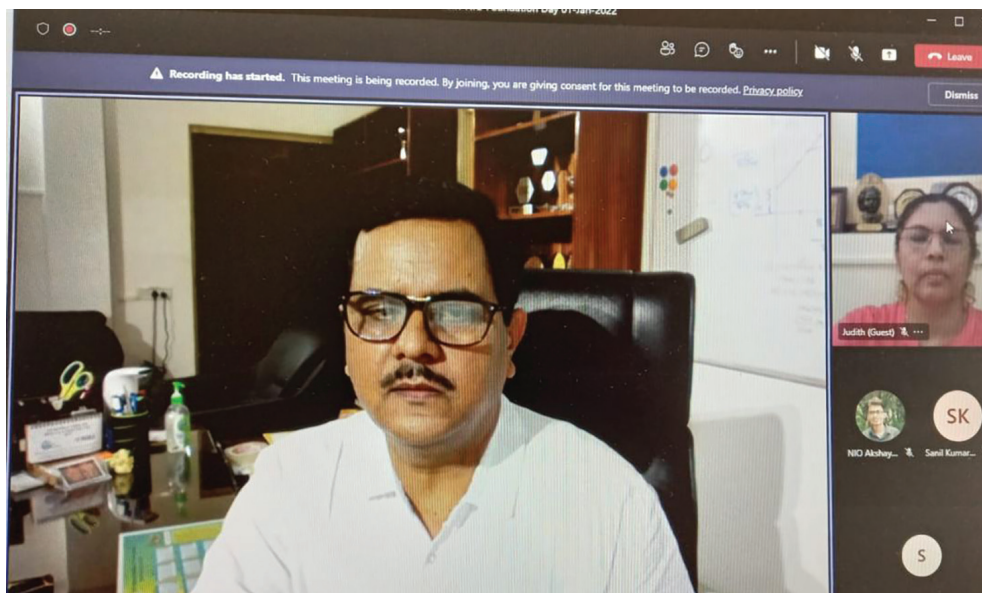
CSIR-NIO Celebrates its 57th Foundation Day

“The importance of Oceans is gaining prominence every year for economic and strategic value,” were the words of Shri P.S. Sreedharan Pillai, Governor of Goa, in his message to the staff members and public during the CSIR-NIO (CSIR-National Institute of Oceanography), Goa, Foundation Day celebrated on 1 January 2022 in online mode.

The Governor further mentioned that “Oceans are a treasure house of resources and with the increasing constraints on land the focus of research is growing on the Ocean Front.” The Hon’ble Governor congratulated the institute for having state-of-the-art laboratories and research programmes. He emphasised that, “The role of CSIR-NIO will grow tremendously in the years to come and that the CSIR-NIO will achieve new milestones and country will attain new heights of glory in ocean development.”

Earlier during the day, a tree plantation programme was also conducted for the new entrants to the institute during the year 2021 in the institute’s campus. During the in-house programme, Prof. Sunil Kumar Singh, Director, CSIR-NIO addressed the staff with new year greetings. He announced various categories of awards to the staff and students of the institute such as CSIR-NIO Foundation Day Awards (Individual and Team) including Dr Sathyavathi Panakala Rao award; Geeta Mukhopadhyay Best Thesis Award; ICBAB best paper award; AcSIR Topper award; Sagar Sukti Award.

Dr Sanil Kumar, Chief Scientist and Chairman of the Foundation Day committee proposed the vote of thanks.



CSIR-NCL Celebrates its 72nd Foundation Day



Shri Subroto Bagchi, Chairman, Odisha Skill Development Authority, giving the lecture

CSIR-National Chemical Laboratory (CSIR-NCL), Pune, celebrated its 72nd Foundation Day on 3 January 2022. On the occasion, Shri Subroto Bagchi, Chairman, Odisha, Skill Development Authority, and co-founder MindTree, delivered the CSIR-NCL Foundation Day Lecture on “NCL at 100: Building Memories for the Future”.

Shri Subroto Bagchi's talk was focused on the concept of “memories for the future”. He initiated his talk by saying, “Human brain essentially is a memory device. And most of the memories are about the past. Memory implies the collective remembrance of the past.” But it is also possible to build memories for the future. The synaptic activity of the brain is related to the past. When we look at the unfolding events or unscripted events that have never happened, there is

no memory of the past and hence the brain confronted with alternate choices tends to pick up the one that would smoke earlier. The speculation is that while thinking about the future that doesn't exist, we train our brains to sight with something that looks submitted. So in many ways, it is humanly possible to build memories for the future and build those memories for us to create the future in which we and others tend to live. He shared his life lessons picked up from his personal experiences of working with the scientific institutions, scientists and geeks, and what he called the “alternate life forms, and microbes”.

Shri Bagchi said that all greatness is fundamentally weird. He shared the idea of existential thinking. The minds of the innovators actually innovate by emulating the knowledge. The body



Dr Ashish Lele, Director, CSIR-NCL, felicitating Shri Bagchi



of knowledge remains the same and exists for everybody. But how people relate to the same body of knowledge first is essential. At the bottom of this knowledge body is the technical layer, and then comes the experiential layer and at the highest is the existential layer. The highest level is the level of innovation. At the existential layer, you have to step into the customer's shoes and creep into their minds. Existential thinking is the domain of wonder. He underlined that if you look beyond your own body, you go into the order of the universe. Then you begin to realise the actual width of the universe, and finally, you are the one with the identity of the universe, and that is the moment where the innovation begins.

Dr Ashish Lele, Director, CSIR-NCL, in his welcome remarks, highlighted the glimpses of the past and significant contributions made by the laboratory during the last seven decades of service to the nation. He asserted that the current decade would be very crucial for us. He shared his ideas to go forward talking on "NCL Beyond 72: Planning for the Next Decade."

He pointed out the four guiding principles for CSIR-NCL to function, namely, focusing on the global context, national context, strengths of the laboratory, and the expectations from the stakeholders. It is essential to understand these four pillars to perform better and play an important role in the coming decade.

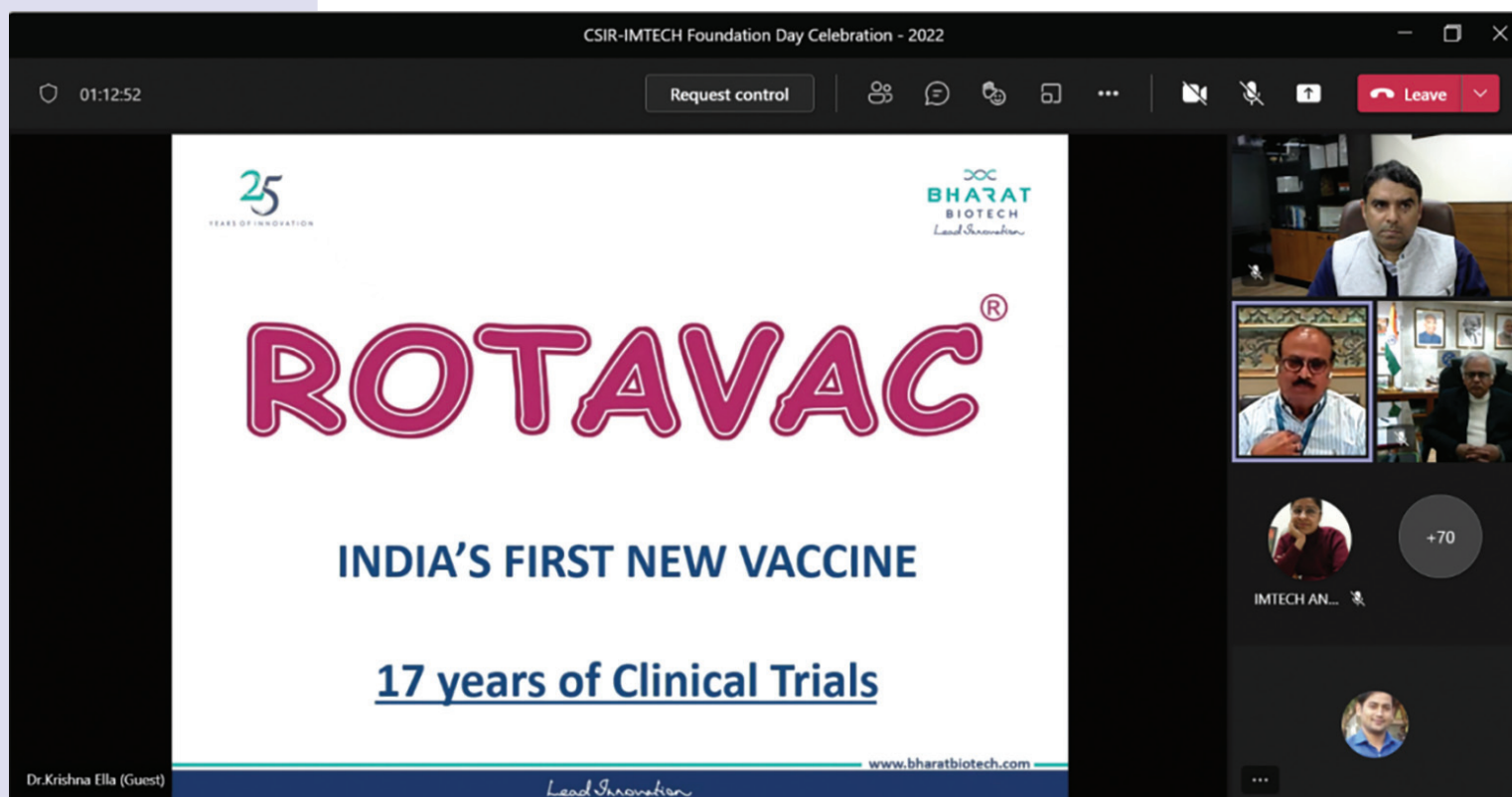
Dr Shekhar C. Mande, Director General, CSIR, in his remarks highlighted the power of working together and how it has made a difference for society while sharing a few examples.

Earlier, Dr Sarika Bhattacharyya, Sr Principal Scientist, introduced the chief guest Shri Subroto Bagchi to the programme's audiences virtually and in person.

The former directors of CSIR-NCL, including Dr R.A. Mashelkar, Dr Paul Ratnasamy, Dr S. Sivaram, Dr Sourav Pal, Dr Vijaymohan K., Dr Ashwini K. Nangia, attended the programme. They put up valuable suggestions and pieces of advice to move forward on the path of development.

Dr Shekhar C. Mande highlighted the power of working together and how it has made a difference for society while sharing a few examples.

CSIR-IMTECH Celebrates its 38th Foundation Day



Dr Krishna Ella, Chairman & Managing Director, Bharat Biotech International Limited delivering his Foundation Day Lecture on Innovation and Leadership in Pandemic

CSIR-Institute of Microbial Technology (IMTECH), Chandigarh, celebrated its 38th Foundation Day on 24 January 2022 by organising several events including the much-anticipated Foundation Day Lecture. Dr Krishna Ella, Chairman & Managing Director of Bharat Biotech International Limited delivered this year's Foundation Day Lecture virtually on 'Innovation and Leadership in Pandemic'.

Dr Ella in his Foundation Day lecture highlighted how today's neglected infectious diseases could be tomorrow's global pandemic and stressed the need to have a coherent strategy to fight infectious diseases. Bharat Biotech's COVAXIN is credited to be India's first indigenous COVID-19 vaccine to be

approved and administered in a sizeable population across the globe. Under Dr Ella's leadership, Bharat Biotech has grown to become a global leader in innovative vaccines.

During his lecture, Dr Ella highlighted how innovative technology in vaccine development is essential to solve public healthcare problems caused by infectious diseases. He said that Indian pharmaceutical companies need to innovate beyond generic vaccines to be a global player in the vaccine market. He stressed the need for scientists to examine the unknowns that could be the future cause of pandemics through zoonotic and unknown viruses. A serial entrepreneur with a passion for innovative ideas, Bharat Biotech has

also ventured into veterinary vaccines, food processing, and developing biotechnology infrastructure in the country. Dr Ella is also involved in shaping India's science education and policy through his association with several committees.

Dr Shekhar C. Mande, Secretary DSIR & Director General CSIR, who was the Guest of Honour for this event extended his best wishes to IMTECH on its 38th Foundation Day and asked scientists to focus on microbiome therapies which could be a future game-changer for treating diseases. He gave also announced awards for Dr VC Vora Best PhD Thesis and PhD Research Presentation Awards for the years 2020 and 2021.

Dr Sanjeev Khosla, Director, CSIR-IMTECH, while welcoming the guests and faculty to IMTECH's

foundation day gave a brief background of CSIR-IMTECH and apprised the audience with the institute's achievements during the last year. He also lauded the efforts of scientists and researchers for the work carried out to fight the pandemic during the challenging times of COVID 19. Speaking on the occasion, Dr Khosla said, "IMTECH has been at the forefront of mitigating challenges posed due to the COVID-19 pandemic. Right from genome sequencing of clinical samples to developing COVID-19 Subunit Protein-based Vaccine POC; from testing products for anti-viral efficacy to developing UV-C Disinfection Systems for Indoor spaces, we have held on to the philosophy that interdisciplinary and collaborative efforts are key to address situations like the current pandemic."



Dr Sanjeev Khosla lauded the efforts of scientists and researchers for the work carried out to fight the pandemic during the challenging times of COVID 19.

Appointment

Dr D. Srinivasa Reddy takes over Additional Charge as Director of CSIR-CDRI

Dr D. Srinivasa Reddy took over the additional charge as Director of CSIR-Central Drug Research Institute (CDRI), Lucknow, on 31 January 2022. He is currently heading the CSIR-Indian Institute of Integrative Medicine (CSIR-IIIM), Jammu. Professor Tapas Kumar Kundu, former Director, CSIR-CDRI, superannuated on 30 January 2022. He will continue his work as Professor at JNCASR, Bengaluru.

Dr Reddy is a young and dynamic person and has a good amalgamation of research experience from the Pharmaceutical Industry and Govt Research Organisations. He served in

the pharmaceutical industry for seven years (Dr Reddy's & TATA Advinus), a molecule discovered by his team at the industry is currently in human phase-II clinical trials (Licogliflozin). He obtained his PhD degree from the University of Hyderabad, in the year 2000 under the mentorship of Professor Goverdhan Mehta. He has also worked with Prof. Sergey A. Kozmin (University of Chicago, USA) and Prof. Jeffrey Aubé (University of Kansas, USA) for his Post-Doctoral research work.

After Post-Doctoral training in the USA, he returned to India. Dr Reddy has more than 20 Years of research

experience in the synthesis of natural products/medicinal chemistry/drug discovery.

He has won several honours and awards including the prestigious J.C. Bose National Fellowship by SERB, DST, Govt of India, Shanti Swarup Bhatnagar Award (SSB) in Chemical Sciences, NASI-Reliance Industries Platinum Jubilee Award for application-oriented innovations in physical sciences, CRSI Bronze Medal in recognition of his contribution in chemical science, CDRI Award-Chemical Sciences for the contribution in Drug discovery & Sun Pharma Research Award (Ranbaxy Research Award) in the field of pharmaceutical sciences.

He is a fellow of the Indian Academy of Sciences, India (FASc) and a fellow of the National Academy of Sciences, India (FNASc). He is elected a fellow of the Maharashtra Academy



of Sciences, Telangana Academy of Sciences and National Academy of Sciences, India (NASI). He has more than 120 research publications to his credit and is an inventor of more than 35 patents.

Dr Geetha Vani Rayasam Appointed Head of CSIR-HRDG



Dr Geetha Vani Rayasam, Scientist H, CSIR, has assumed the charge as Head of CSIR-HRDG (CSIR-Human Resource Development Group), New

Delhi. Dr Geetha Vani Rayasam has vast experience in academia, industry, the Government of India and abroad. She is a PhD in Biochemistry from IISc Bengaluru and has post-doctoral experience in IGBMC, France and at the NIH, USA.

She has worked in industries such as Ranbaxy (Daiichi-Sankyo) and SMART ANALYST in areas of new drug discovery and development. She has been at CSIR for more than a decade in a variety of roles ranging from the Open Source Drug Discovery Programme to Heading Business Development and Industry Alliance at CSIR-IGIB. More recently she was heading the Science Communication and Dissemination Directorate (SCDD) at CSIR HQ.

CSIR Innovation Award for School Children 2022



Government of India
Ministry of Science & Technology
Council of Scientific & Industrial Research



Honouring the Spirit of
Innovation of Young Minds

“India’s innovation is a great blend of economics and efficacy. We have worked to create a robust ecosystem for innovation, incubation, research and development in our country.”

-Narendra Modi

CSIR Innovation Award for School Children 2022



Eligibility

Any Indian school going student of class I to XII

Below 18 years of age on 1st January 2022

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₹ 1,00,000/-

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(2 Nos.)

THIRD PRIZE

₹ 30,000/-
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FOURTH PRIZE

₹ 20,000/-
(4 Nos.)

FIFTH PRIZE

₹ 10,000/-
(5 Nos.)

Submit entries in hard copy/soft copy along with authentication letter from school

Entry Submission

Till 30th April, 2022

For more information visit www.csir.res.in

Two Days Workshop on Scientific Communications



CSIR-NPL AND INYAS JOINTLY ORGANIZE A TWO DAYS (25-26 MARCH, 2022) WORKSHOP ON SCIENTIFIC COMMUNICATIONS

THE PRIMARY FOCUS OF THE WORKSHOP AS FOLLOWS;

- **AWARENESS AND KNOWLEDGE IN SCIENTIFIC WRITING AMONG RESEARCH STUDENTS**
- **BASIC OF RESEARCH AND CREATIVITY**
- **AWARENESS ABOUT ETHICS AND PLAGIARISM IN PUBLICATIONS**

Target Audience :
Students (UG, PG, Project trainee, Research Scholars, Post Doctoral etc.) Scientist, Faculty

Registration: Free

Schedule:

- 25.03.2022 (Wednesday) Basics of Research, Creativity, Scientific & Technical writing (Journal, Thesis, report etc.)
- 26.03.2022 (Thursday), Bottle Necks in Research and Grant, Popular writing, Grant writing, Ethics & plagiarism, Effective communications

Program coordinator
Dr. Mukesh Jewariya,
Senior Scientist, CSIR-NPL, Delhi
Dr. Rajendra. S. Dhaka,
Associate Professor, IIT Delhi

Registration Link: <https://forms.gle/TZfuyxZEPckZFYbn7>

Email: jewariya.mukesh@nplindia.org, rsdhaka@physics.iitd.ac.in, singhnidhi@nplindia.org

Those who attend full program on both the days will be given participation certificate. At the end of the course a Google form link will be provided for participation certificates.

Printed and Published by

Hasan Jawaid Khan on behalf of CSIR-National Institute of Science Communication and Policy Research
Dr K.S. Krishnan Marg, New Delhi -110 012 and printed at NIScPR Press
Dr K.S. Krishnan Marg, New Delhi -110 012
Editor: Hasan Jawaid Khan; Assistant Editor: Sonali Nagar
Design: Neeru Vijan, Abhinav Raj; Production: Ashwani Kumar Brahmi
Phone: 25848702; Fax: 25847062; E-mail: hjk@niscpr.res.in
Website: <http://www.niscpr.res.in>
Please direct all Subscription-related queries to:
Sales & Distribution Officer, NIScPR; E-mail: sales@niscpr.res.in; Phone: 25843359
Annual Subscription: ₹500; Single Copy: ₹50.00
RN 4512/57