CSIR IN MEDIA

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The Innovation Engine of India

NEWS BULLETIN
01 TO 05 DECEMBER 2024

Hyderabad: NASI fellowships to two IICT scientists

CSIR-IICT

05th December , 2024

Dr. S. Venkata Mohan, Department of Energy and Environmental Engineering, and Dr. L. Giribabu, Department of Polymers and Functional Materials, from Hyderabad-based Indian Institute of Chemical Technology (IICT), were conferred the Fellowship of The National Academy of Sciences, India (NASI) during NASI annual convention held recently at IISER Bhopal.

The Fellowships recognizes for their pioneering contributions to environmental bioengineering, circular bioeconomy and excitonic solar cells particularly dye-sensitized and perovskite solar cells respectively.

For over two decades, Dr. Mohan has focused on biotechnologies for bioenergy and resource recovery from waste and wastewater, microbial electrochemical systems, hybrid fermentation, renewable chemicals and fuels, algal-based products, decarbonization technologies and wastewater-based epidemiology.

Dr. Giribabu has focused on the development of low-cost, efficient and durable materials particularly sensitizers, redox couples, hole transporting materials, cathode materials for excitonic solar cells. Further, the sensitizers that developed for solar cells have successfully applied for photodynamic therapy of cancer, non-linear optical properties.

Published in:

Telanganatoday

Educational Science Field Trip to CSIR-Structural Engineering Research Centre (CSIR-SERC) by students of Virudhunagar District

CSIR-SERC

05th December , 2024

A group of 100 students and 14 teachers from Sri Ramana Vidyalaya, Rajapalayam, Virudhunagar District, visited CSIR-Structural Engineering Research Centre (SERC) in Chennai today (5.12.2024) as part of a three-day science field visit. The students, hailing from rural villages, gained hands-on experience and insight into various research projects undertaken by the institution.

This event was organised under the guidance of Dr. (Mrs.) N. Anandavalli, Director of CSIR-SERC, to encourage the students to be creative, innovative, and to achieve success by participating in science-related activities and events. Dr. Parivallal, Principal Scientist and Advisor(Management), addressed the gathering. Dr. S. Maheswaran , Senior Principal Scientist, spoke about the CSIR-Jigyasa program, which aims to promote science and research among school students. He highlighted the benefits of participating in such initiatives and how they can enhance their research and scientific thinking.

The event was coordinated by several scientists and officers from CSIR-SERC, including Shri. R.D. Sathish Kumar , Dr. S. Sundar Kumar, Shri. A.K Farvaze Ahmed and Shri.E. Ashokkumar. The students expressed gratitude for the opportunity stating that it sparked their interest in science and research. The Science Exposure Visit was co ordinated by Galileo Science Club and Vidyarthi Vigyan Manthan, State Co ordinator Mr. Kannabiran.

Published in:

Pib

Therapeutic drug monitoring: 'Drug testing must as different races metabolise medicines differently'

CSIR-IITR

05th December , 2024

Drugs are metabolised differently by people of different age groups, ethnicities among other factors. There is a need for therapeutic drug monitoring (testing that measures the amount of a medicine in your blood), especially for drugs which work on the nervous system.

Those were the words of NIMHANS (National Institute of Mental Health and Neurosciences) director and senior professor, psychiatry, Bengaluru, Pratima Murthy, delivering a lecture 'Expanding the role of assessments in the field of neurobehavioral toxicity - detecting drugs of abuse and therapeutic drug monitoring'.

She also shared the harmful effects of tobacco on a pregnant woman. The lecture was delivered as part of the Diamond Jubilee celebrations of the Council of Scientific and Industrial Research – Indian Institute of Toxicology Research (CSIR-IITR) on Wednesday.

She said that the majority of guidelines are not made as per the requirements of the Indian population but are based on requirements as prescribed by the Western world. She gave the example that to cure schizophrenia, people living in India need only 60% of clozapine dose of what Caucasians are prescribed. This is due to changes in ethnicity.

The lecture by Murthy was the first under the IDEA (IITR Diamond Jubilee Elocution Address) series. On this occasion, a memorandum of understanding was also signed between NIMHANS and CSIR-IITR . As part of the MoU, both institutions will utilise each other's expertise for advancing academics and research in the areas of mutual interest, said director CSIR-IITR Bhaskar Narayan.

Published in:

Hindustantimes

The 10th edition of India International Science Festival (IISF) - 2024

CSIR-SERC

04th December , 2024

The 10th edition of India International Science Festival (IISF) - 2024 was held from 30th November to 3rd December 2024 at IIT Guwahati. This year's IISF theme is "Transforming India into a Science & Technology driven Global Manufacturing Hub."

CSIR-Structural Engineering Research Centre (CSIR-SERC) actively participated in the event, engaging with the general public, school and college students, and industry representatives to explain the institute's work. CSIR-SERC and M/s. Modern Prefab System Private Limited, Delhi, exchanged a Memorandum of Understanding (MoU) for the technology transfer of the Laced Steel Concrete Composite (LSCC) system at the CSIR pavilion during IISF 2024 on 2nd December 2024. Developed by CSIR-SERC scientists, the LSCC system is a patented innovation in India and the USA, offering superior performance and cost-effectiveness compared to traditional methods. The MoU was exchanged in presence of Dr. G. Mahesh, Chief Scientist & Head, Director General's Executive Directorate and Science Communication and Dissemination Directorate (SCDD), CSIR.

Published in:

Pib

S&T institutions commit to transform India into tech-driven manufacturing hub at IISF

CSIR-NIIST

04th December , 2024

Guwahati, India's leading science institutions have committed to transforming the nation into a science and technology-driven global manufacturing hub by 2047 and aligning their activities to achieve this goal. Leaders of India's leading state-run science and technology institutions made this declaration during the four-day India International Science Festival at the IIT-Guwahati campus here which witnessed the participation of thousands of researchers and students from across the country.

The four-day event, which began on Saturday, concluded on Tuesday.

"It is the mission of all Science and Technology Institutions in the country to exemplify the vision of transforming India into a science and technology-driven global manufacturing hub by 2047," the Guwahati Declaration read out by N Kalaiselvi, Director-General Council of Scientific and Industrial Research (CSIR) said.

"The institutions shall align the activities in this direction for transforming and expanding the Indian manufacturing landscape, thereby enhancing India's position in the global supply chain and solidifying its status as a manufacturing powerhouse," the declaration read.

The IISF featured 25 distinct events with more than 150 technical sessions and panel discussions which saw participation of more than 400 resource persons and over 7,000 registered delegates, the organisers said.

The event was organised by the Council of Scientific and Industrial Research (CSIR), and the Ministry of Earth Sciences with CSIR-National Institute for Interdisciplinary Science and Technology (CSIR-NIIST), Thiruvananthapuram, being the nodal agency.

"IISF 2024 stands as a testament to the spirit of collaboration and innovation. This platform not only celebrates the strides made in scientific advancements but also strengthens the bond between science and society," CSIR-NIIST Director C Anandharamakrishnan said.

He said at the Science Institutional Leaders Meet discussions on critical topics such as sustainability, education, manufacturing, healthcare, and agriculture, solidifying India's position in the global S&T arena.

"These discussions brought together policymakers, industry leaders, and academicians to chart a roadmap for leveraging innovation to achieve self-reliance and global competitiveness," Anandharamakrishnan said.

Published in:
Manufacturing

Telangana's Mulugu 'moderate' earthquake second biggest recorded in the region in last 55 years

CSIR-NGRI

04th December , 2024

CSIR-National Geophysical Research Institute (NGRI) scientists said that the 'moderate' earthquake of 5.0 magnitude on the Richter Scale occurred at Medaram in Mulugu district of Telangana - about 250 km from Hyderabad - on Wednesday (December 4, 2024) is the second biggest one recorded in the last 55 years in the region, but there is "nothing for the general public to be alarmed about".

The biggest earthquake in the region

"An earthquake of 5.7 on Richter Scale was recorded in Bhadrachalam on July 5, 1969 which is the biggest so far in this region, and we have had two more earthquakes of magnitude 4.8 in Medchal in 1983 and 4.6 in Pulichintala in 2021," explained NGRI Director Prakash Kumar on Wednesday.

Tremors of today's earthquake which occurred at about 7.27 a.m. (Indian Standard Time) were felt in some parts of the twin cities and nearby districts too more than 200 km away and the Director attributed it to the density and the composition of the rock formations.

These are not "big earthquakes"

Mr. Kumar advised the general public not to be worried as these are not "big earthquakes" and such seismological events keep happening in the Godavari Rift Basin which is a fault zone. There are several fractures and faults along the Godavari and Krishna rivers and surroundings.

"The Godavari Rift Basin is a very important basin in the country. We are the nodal agency for keeping a tab on the seismological events and have been continuously monitoring the earth crust with an array of seismometers. Almost all our seismic stations, including the one located inside the institute premises, has recorded the earthquake today in real time," added Mr.

Kumar. CSIR- NGRI was established in 1961 to carry out research in multidisciplinary areas of the highly complex structure and processes of the Earth system with focused research areas including earthquake hazards, geodynamics revolving around investigating and modelling fundamental aspects of the Earth systems and implementation of techniques to identify primary geo-resources like groundwater, hydrocarbons as well as alternate energy sources and minerals.

Published in:
The Hindu

IISF 2024: A Commitment to a Science-Led Future for India

CSIR-NIIST

04th December , 2024

The 10th India International Science Festival (IISF) held at IIT Guwahati was started from November 30th and culminated on December 4th, 2024. The 4-day mega science festival featured 24 different events in which 7000 delegates and 45000 people including large number of students participated. While Moon Replica hogged the limelight and pulled the crowd. It's a giant 10-metre high 'real surface' replica of #Moon erected at IIT Guwahati, showcasing India's advancement in Space science.

This year some new events were added. Sagarika – The Tale of Earth Sciences event as name suggest aims to engage and educate people on different areas of earth science such as meteorology, oceanography, ecology etc. Through this event, IISF desires to raise public awareness on environmental issues. Science beyond Borders - aimed at fostering international collaboration, partnerships and exchange of dialogues among scientists, researchers and institutions to address global challenges in S&T.

Fusion Forum – The Atomic Assembly event discussed the current perspectives, future benefits, and pressing challenges in implementing nuclear energy in India for various sector pressing generation of power, nuclear medicine, agriculture, additive manufacturing etc. Another captivating event was the Saga of Science Chronicles that told the history and recent developments of Indian science and scientists through LED light show thathappened during 7:30 pm – 9:30 pm during each day of IISF 2024. The events like Science Odyssey of the North East addressed the challenges that hinders the growth of science and technology in

North East and discussed the ways of promotion of science and technology of North East. While The Taste of the Hills - North East Food Street showcased the food heritage of North East and let the people eat and enjoy their traditional food items. The Food Street was remained open throughout IISF 2024.

Two significant events in IISF 2024 discussed effective science communication S&T media strategies: first Vigyanika and second S&T Media Conclave. Vigyanika event played a pivotal role in disseminating science in simple language to the masses. Organized by CSIR-National Institute of Science Communication and Policy Research (NIScPR), these events aimed to bridge the gap between science communicators, scientists, journalists, and media professionals.

IISF 2024 culminated with valedictory function in which Chief Coordinator of the event and Director of CSIR-NIIST, Dr. C. Anandharama Krishnan proposed vote of thanks to all the conveners, coordinating labs, Vijnana Bharati, student volunteers and delegates. In her presidential address, DG CSIR and Chairperson, Steering Committee, IISF 2024, Dr. N. Kalaiselvi remarked, “We have developed an action plan focused on North East activities in this IISF2024,” and announced that the winners of the S&T Hackathon will receive support from CSIR. The chief guest, Shri Keshab Mahanta, Minister for Science, Technology and Climate Change, Government of Assam emphasized the importance of science and technology in driving the nation's growth.

Shri Mahanta said, “We are working to establish a network for science communication, which includes setting up science centers in 219 development districts. Guwahati will soon have a science city. IISF has provided us with the perfect platform to showcase scientific developments in the North-East region.” While concluding the IISF 2024 at IIT Guwahati, Director of the institute Prof. Devendra Jalihal expressed gratitude and said that this IISF has exemplified science and technology's ability to unite and empower. The legacy of IISF will depend on tangible outcomes that provide solutions to the community, fostering a culture of innovation.

Published in:

Pib

Vigyanika: A Celebration of Science Literature and Communication Concludes at IISF 2024

CSIR-NIScPR

04th December , 2024

The Vigyanika: Science Literature Festival one of the most prominent events of the IISF 2024, commenced on 1stDecember with an inspiring inaugural ceremony. This two day event was specifically focused on the theme “From Folklore to Future: An Indian Literary Exploration”.

The session began with introductory remarks by Dr. Paramananda Barman, Scientist, CSIR-National Institute of Science Communication and Policy Research (CSIR-NIScPR) and Coordinator, Vigyanika. Prof. Ranjana Aggarwal, Director, CSIR-NIScPR, delivered the welcome address, underlining the importance of Indian languages in science communication and the role of literature in shaping the Indian Science Narrative. Distinguished guests, including Dr. Dinesh Ch. Goswami, Dr. Jaideep Baruah, Director, Assam Science Technology & Environment Council, Dr. R. Vijay, Director, ARCI Hyderabad shared their valuable insights.Dr. Goswami discussed the journey of science communication in Assam, by drawing support from historical texts, books, and science fiction. Dr. Vijay commented that science communication is must needed in Indian languages and should be interactive.

The first scientific session of the festival, “Shaping Indian Science Narrative with Literature”, was chaired by Prof. Shekhar C. Mande, former DG CSIR. Esteemed speakers included Prof. Ramakrishna V. Hosur, Padma Shri awardee and Distinguished Professor at IIT Bombay, who delved into ancient Indian knowledge systems, and Prof. Avinash Chandra Pandey, Director, IUAC discussed the inclusivity of Indian knowledge. Prof. Ganti Murthy, IIT Indore presented a philosophical view on science dissemination in different forms.

A panel discussion, titled Apni Bhasha Apna Vigyan: Communicating Science in Indian Languages, was chaired by Prof. Madhav Govind, JNU, New Delhi. Panellists included prominent science communicators across India representing diverse languages such as Assamese, Manipuri, Bodo, Dogri, Hindi, Marathi, Telugu, and Gujarati. The panel deliberated on the need to communicate science in Indian languages and promote inclusivity and wider reach. In a parallel session, a workshop on popular science writing was conducted by Dr. Manoj Kumar Patairiya, Former Director, CSIR-NISCAIR and Ms. Arati Halbe.

The second day of Vigyanika: Science Literature Festival commenced with an engaging panel discussion on "Science Writing in the Age of Artificial Intelligence (AI)," chaired by Dr. Neel Sarovar Bhavesh, ICGEB New Delhi. The session explored the intersection of AI and science communication. Dr. Ruchir Gupta from IIT BHU, Varanasi, highlighted the growing importance of AI in science writing, particularly in preserving and promoting traditional knowledge in Indian languages. Dr. Mantu Bhuyan, Principal Scientist at CSIR-NEIST, Jorhat, Assam, discussed the need for AI-powered translation tools for various Indian languages, highlighting its role in verifying the authenticity of scientific information. In a parallel session, Dr. Paramananda Barman and Team SVASTIK from CSIR-NIScPR led a workshop on "Interactive and New Approaches to Communicate Science," covering innovative methods such as videos, podcasts, and social media.

The day continued with Scientific Session II, titled "From Folklore to the Future – An Indian Literary Exploration," chaired by Dr. Ruchir Gupta. Panelist, Dr. Purnima Devi Barman, a globally renowned conservationist from Assam, shared her work on Hargila bird conservation, emphasising the importance of integrating culture with conservation efforts. Dr. Manoj Kumar Patairiya, former Director, CSIR-NISCAIR, and Shri B. K. Tyagi, focused their talks on blending folklore with science. Prof. Neera Raghav, Kurukshetra University, Haryana, stressed the significance of making science accessible to the general public. The session was followed with an entertaining Science Puppet show. The day was capped by much-awaited "Vigyan Kavi Sammelan", chaired by Prof. Ranjana Aggarwal, Director, CSIR-NIScPR. Poets Ms. Radha Gupta, Shri Pankaj Prasun and Shri Manukhbhai Nariya captivated the audience

with their poetic expressions of science, blending art and scientific information beautifully.

Vigyanika concluded the day with its Valedictory Session and an interactive Q&A session with the coordinators of Vigyanika. Dr Neel Sarovar Bhavesh, VIBHA, Dr P. Jayamurthy, CSIR-NIIST, Dr Paramananda Barman and Dr Dinesh Velip from CSIR-NIScPR, Dr Rajneesh Gaur, DBT, Prof Manish K Kashyap, VIBHA and Dr Manabendra Sarma from IIT Guwahati, interacted with the delegates for feedbacks and recommendations.

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Pib

NML Hosts Three- day Corporate Training Programme on Mineral Characterization for SAIL

CSIR-NML

03th December , 2024

The Burmamines – based National Metallurgical Laboratory (NML), a leading CSIR laboratory is hosting a three- day corporate training programme for the officials of Steel Authority of India Ltd. (SAIL). The inaugural function took place today with the lamp-lighting ceremony by the dignitaries Sandip Ghosh Chowdhury, director, CSIR-NML, Devabrata Mishra, Head, Mineral Processing Division, CSIR-NML, S. Sivaprasad, Chief Scientist & Head Human Resource Group and Sital Kr. Pal, Head, RPBD Division.

Sandip Ghosh Chowdhury, Director, CSIR-NML welcomed all the executives of Steel Authority of India Ltd. (SAIL) and introduced them to different aspects of mineral characterization to agglomeration from Laboratories to pilot scale. He insisted on the utilization of low grade and fine ores / minerals towards sustainable development.

Devabrata Mishra, Head, Mineral Processing Division welcomed SAIL executives of MCBA-2024 and introduced them to legacy of Mineral Processing Division. Mishra also requested the participants to take maximum benefits of the lab R&D facilities and expertise.

S. Sivaprasad, Chief Scientist & HRG said, Mineral processing division is one of the pioneer in mineral characterisation to beneficiation of ores / minerals since its inception. Sivaprasad informed that CSIR-NML has been organising different set of training programme towards Skill development for executives of corporate sectors.

Sital Kumar Pal, Head, RPBD Division insisted on how CSIR-NML can be helped in resolving the industrial problem faced by them. Pal also seeked to build long-term relationship towards business development and sharing of knowledge.

In metallurgical and mineral-based industries, beneficiation of low-grade ores and minerals to meet the requirements of quality raw materials is of great importance.

Beneficiation / up-gradation of the low-grade ores and minerals generally involves comminution of the ore to achieve liberation of valuable minerals from the gangues followed by their separation exploiting the difference in physical and physico-chemical properties.

Over the years, CSIR-National Metallurgical Laboratory (NML) has been engaged in beneficiation studies of ferrous, non-ferrous, non-metallic minerals and coal from different sources in the country as well as from overseas.

In addition to beneficiation, agglomeration comprising of briquetting, sintering and pelletization of fine-grained concentrate is also an active area of research at NML.

Published in:
Uditvani

CSIO develops affordable, high-power lens for visually impaired

CSIR-CSIO

03rd December , 2024

The Central Scientific Instruments Organisation (CSIO), Chandigarh, has developed high-powered aspheric lens-based spectacles, known as Low-Vision Aids (LVA), to provide an affordable assistive device for patients suffering from severe or functional low vision (FLV). These lenses have been developed with different power combinations, such as +12D, +16D, +20D, and +26D, and can be customised for other power requirements depending on the patient's needs and extent of vision loss.

Compared to conventional spherical glass-based lenses, these aspheric LVAs are 60 per cent lighter and more powerful, offering better optical performance in terms of reduced aberrations and higher image quality.

According to scientists at CSIO, "These lenses are like using a magnifying glass for people with extremely low vision." However, conventional lenses of such power would be extremely large and bulky, making LVAs a convenient option, especially for children.

The LVAs were launched at a function chaired by the President of India, Droupadi Murmu, during the National Awards for Empowering Divyangjans 2024, in New Delhi.

Scientists associated with the project explained that FLV is defined as impaired visual function that persists despite treatment or refractive correction. It can also be described as a visual acuity of less than 6/18 or a visual field less than 10 degrees from fixation.

According to estimates, the prevalence of FLV in India is estimated to be 1.05 per cent, affecting roughly 1.4 crore people.

These LVAs have been fabricated using the single-point diamond turning process, an ultra-precision machining technique used for fabrication of aspheric lenses. User trials were carried out in collaboration with the Artificial Limbs Manufacturing Corporation of India, Kanpur, and the National Institute for the Empowerment of Persons with Visual Disabilities, Dehradun.

Plans are underway to scale up the manufacturing of these LVAs using moulding techniques, enabling rapid production and faster deployment among the affected population. The pricing for these lenses is also being worked out.

Published in:
Tribuneindia

CSIR Highlights Advanced Technologies at IISF-2024 in Guwahati

CSIR-NEERI

03rd December , 2024

The Council of Scientific and Industrial Research (CSIR) is showcasing its cutting-edge technologies and significant contributions to the North-East region at the India International Science Festival (IISF-2024), which began on November 30, 2024, in Guwahati. The event was inaugurated by Dr. Jitendra Singh, Hon'ble Minister of State (Independent Charge) for Science and Technology.

Among the highlights were CSIR-NEERI's advancements in sustainable technologies, including:

Up-flow Compact Constructed Wetland-based Sewage Treatment Plant (STP): A solution for efficient wastewater management.
Compact Faecal Sludge/Septage Separation and Treatment Plant (CFSST): An innovative approach to waste treatment.
NEERI-KSHAN Air Quality Monitoring System: A versatile device for measuring air quality parameters like PM, SO_2, NO_x, and CO in both rural and urban settings at various heights.
The exhibition also featured milestones achieved by CSIR in diverse sectors, reflecting its commitment to scientific innovation and regional development.

The inaugural ceremony witnessed the presence of several distinguished dignitaries, including:

Prof. Ajay Kumar Sood, Principal Scientific Advisor to the Government of India
Dr. V. K. Saraswat, Member, NITI Aayog
Dr. N. Kalaiselvi, Director General of CSIR and Secretary, DSIR
Prof. Abhay Karandikar, Secretary, DST
Dr. Rajesh Gokhale, Secretary, DBT

The participation at IISF-2024 underscores CSIR's dedication to addressing regional challenges through science and technology, particularly in the North-East, and its vision for sustainable development across India.

Published in:
Chemindigest

NEERI director Atul Vaidya named LITU vice-chancellor

CSIR-NEERI

03rd December , 2024

Atul Narayan Vaidya, director of CSIR-NEERI, has been appointed as the vice-chancellor of Laxminarayan Innovation Technological University (LITU). Governor and chancellor CP Radhakrishnan announced Vaidya's appointment for a term of five years or until he reaches the age of 65, whichever is earlier. Vaidya will be superannuating on December 31 and is likely to take charge only after completing his tenure at the country's premier research institute.

Born on December 4, 1964, Vaidya earned his MSc in chemical engineering from LIT and his PhD from Nagpur University. Since 1990, he progressed from a junior scientist to the director at Neeri. Vaidya has extensive experience in research, teaching, and administration.

The governor formed a selection committee chaired by senior scientist Raghunath Mashelkar. The members included Ashish Lele, director of the National Chemical Laboratory; professor E Suresh Kumar, former VC of The English and Foreign Languages University, Hyderabad; and Vikas Chandra Rastogi, principal secretary of the higher and technical education department. Padma Shri Ganapati Yadav, chairman of the LITU Regulatory Board; chief adviser Mohan Pandey; Madhav Labhe, president of the LIT Alumni Association; vice-president Arun Lanjewar; former president Ajay Deshpande; and secretary Utkarsh Khopkar congratulated Vaidya on his appointment.

Published in:

Times of India

‘Made-in-India paracetamol to hit market next year’

CSIR

03rd December , 2024

Country’s premier industrial research organisation, the Council of Scientific and Industrial Research (CSIR), has been transforming the industrial-innovation landscape by reducing its reliance on like China. CSIR’s first woman Director General Dr N Kalaiselvi tells Jitendra Choubey about the research body’s endeavours to scale up India’s industrial innovation. Execrpts:

What are the key CSIR innovations in recent years? How many have been commercialised?

We have made many innovations in three-four years. We have developed indigenous hydrogen cylinder type-IV of paracetamol. Other innovations include hydrogen fuel cell technology, aerospace technology like Hansa-3 two-seater light trainer aircraft, seaweed farming technology, and management of steel sludge in road construction.

So we were not manufacturing our own paracetamol?

Yes. So far we have been importing ingredients of paracetamol from different countries. India will soon make its own paracetamol by next year as CSIR has innovated a new technology which is effective and cheaper. Karnataka-based company Satya Deeptha Pharmaceuticals Ltd will use CSIR technology to manufacture cheaper and more effective paracetamol and other tablets to make India self-reliant in pharmacy.

What exactly happened in the past three years with CSIR making so many breakthroughs in industrial innovation?

Our approach has changed from knocking on the door of the industry to the industries knocking on the door of CSIR for their need and innovation. Over the past few years, CSIR has identified eight thematic areas and helped industries transform their production systems and solidify their position in the global supply chain. CSIR's teams regularly meet and assist industries in understanding their requirements, product patterns, culture, style and mechanism.

Give examples of a recent CSIR innovation which is commercialised and globally accepted.

CSIR has developed an indigenous process to manufacture hydrazine hydrate (HH), a chemical that India is largely importing from European countries for use as a reducing agent in agrochemicals, pharmaceuticals, automotive, mining, and leisure industries. For the first time, India produced its own HH, cutting imports by 60%. Another innovation is managing steel slugs in making roads.

Disposing of steel slugs is a major concern for industries as they are environmentally hazardous. Five highways, including Surat-Vadodra-Mumbai-Goa highway, were built with CSIR technology. This technology is globally accepted. The US maritime industry has shown interest in constructing roads with our technology apart from five other countries, including China.

What is unique about the Guwahati declaration of CSIR?

In its Guwahati declaration, CSIR said all science and technology institutions in the country will exemplify transforming India into a science and technology-driven global manufacturing hub by 2047. It also said institutions will align their activities to transform and expand the Indian manufacturing landscape, thereby enhancing India's position in the global supply chain.

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Newindianexpress

IISF 2024 Empowers Students, Teachers, and Policymakers to Shape a Knowledge-Driven Future

CSIR-NIIST, CRRI, IHBT

02nd December , 2024

The second and third days of India International Science Festival 2024 (IISF 2024) were marked by vibrant industry-academia collaboration, knowledge sharing technical sessions, and initiatives to inspire students and teachers creative, knowledge-based learning. The event also brought policymakers and scientific leaders together under one roof to discuss sustainable practices across science, agriculture, manufacturing, and healthcare.

Organised by the Council of Scientific and Industrial Research and managed by the National Institute for Interdisciplinary Science and Technology (CSIR-NIIST), Thiruvananthapuram, at IIT Guwahati, the event drew over 20,000 students, fostering innovation and interdisciplinary collaboration.

Dr. S. Somanath, Chairperson, Indian Space Research Organisation (ISRO), attended the "Student Science Interactive Program – Face to Face with New Frontiers in S&T," where he interacted with school students, inspiring them to explore careers in science and technology and pursue innovation in the field of space research.

Speaking during the session, Dr. S. Somanath remarked, "As students, you are the torchbearers of the future in science and technology. It is essential for you to grasp the remarkable innovations and advancements taking place in these fields today. By recognising their potential and the opportunities they present, you can draw inspiration to pursue similar paths and contribute to building a brighter tomorrow. Reflecting on our current scientific and

technological endeavours, your enthusiastic engagement is pivotal in realising the vision of making India a global leader." Another key highlight of IISF 2024 was the lab to life initiative, where CSIR signed three technology transfer Memorandums of Understanding (MoUs) to promote sustainability and technological advancements. Specifically focused on sustainable management these MoUs underscore CSIR's commitment to leveraging science and technology for environmental preservation, enhancing industry competitiveness, and driving socio-economic development through innovative and practical solutions. These included:

CSIR-NIIST's biodegradable cutlery technology was transferred to Devaki Engineering Enterprises, Bengaluru, featuring a Rotary Bio-Degradable Manufacturing Machine (MUSUROTO) that enhances agricultural sustainability. CSIR-CRRI and Rajasthan Technical University partnered to advance road infrastructure R&D. CSIR-IHBT's Lilium Bulb Processing technology was transferred to Shansha Cut-Flower Cluster, Lahaul & Spiti, boosting the floriculture sector.

Speaking about the technology transfer, Dr. C. Anandharamakrishnan, Director, CSIR-NIIST, Thiruvananthapuram, said, "As students, you are the torchbearers of the future in science and technology. Young innovators like you have already begun building rockets and satellites in colleges, efforts that are nearing commercial success. Today, India is actively developing and launching satellites, showcasing the immense potential of this field. By understanding these advancements and the opportunities in the field of space, science, and technology offer, you can be inspired to pursue similar paths and shape a brighter future. Your active engagement is essential to making India a global leader in science and technology."

In addition, the event featured a diverse array of engaging learning, experimental, and cultural sessions, including: Student Science Interactive Program – Face to Face with New Frontiers in S&T: The ongoing event aims to engage 4,500 school students with renowned Indian scientists, including Dr. S. Somanath, ISRO Chairperson, and Prof. Tessy Thomas, Former Director General of Aeronautical Systems. It seeks to inspire young minds through face-to-face Q&A sessions, introducing them to new frontiers in science and technology.

Science Institutional Leaders Meet – Vision Sansad: The Guwahati Declaration reaffirmed India's commitment to becoming a global manufacturing hub by 2047. It emphasised the alignment of S&T institutions' efforts to enhance the country's manufacturing landscape and strengthen its position in the global supply chain.

Science through Games & Adventure – Science Safari: The event empowered science teachers from grades 5 to 12 with innovative, interactive teaching methods to make learning interactive and engaging. Through 10 technical sessions and two hands-on workshops, participants explored teaching science using games, aerodynamics, and Artificial Intelligence based kits. The initiative session aims to transform classrooms and inspire thousands of students.

Students Science & Technology Village – The New Nalanda: This initiative engaged students with interactive exhibits, STEM challenges, and science games, highlighting S&T Hackathon entries and promoting problem-solving, especially for students from the North East and border districts.

Ideas for Viksit Bharat – S&T Hackathon: The event engaged 400 students to develop innovative solutions aligned with Viksit Bharat. After state-level screening, 100 ideas reached the finals, including 20-25 from the Northeast. Ten finalists will receive prizes, and all ideas will be considered for implementation or internships, promoting innovation and practical solutions to scientific challenges.

The Gurukula – Aspiring Educators and Teachers Workshop: This program empowered 150 science teachers with innovative teaching tools, hands-on experiments, and modern pedagogical techniques. With 50% participation from the Northeast, it focused on inspiring the next generation of educators and scientists.

Science Odyssey of the North East India: Focused S&T for the North East India: This program focused on the region's unique challenges with talks, S&T advancements, and an exhibition of regional activities. With 250 participants, it aimed to promote inclusive

development through tailored S&T solution. Science, Technology, Communication, and Media Conclave: The conclave emphasised the media's role in bridging science and society. Dignitaries highlighted the importance of effective communication to promote India as a global leader in science. The event featured the release of Employment News and Science India Magazine, with sessions on enhancing science communication.

Vigyanika – Science Literature Festival: Themed "From Folklore to Future," highlighted the role of Indian languages in science communication. The event featured sessions on traditional and modern science communication, Indian knowledge systems, and interactive approaches. A panel discussed promoting science in Indian languages, and a workshop offered practical insights into popular science writing.

New Frontiers in S&T for Viksit Bharat @2047 – Pragya Bharat: The event showcased India's quantum computing roadmap under the National Quantum Mission (NQM). Key advancements, like the 114-qubit experiment, and applications in healthcare, energy, and infrastructure were discussed, with a focus on collaboration to position India as a quantum leader by 2047,among others.

These varied programs showcased IISF 2024's contribution to advancing science, technology, and innovation for a self-reliant India, while also motivating the next generation of scientists and innovators.

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Neindiabroadcast

ISRO chief Somanath urges youths to pursue careers in science & technology

CSIR-NIIST

02nd December , 2024

Indian Space Research Organisation (ISRO) chairman S Somanath on Monday exhorted youths to engage themselves with scientific and technological advancements being made by the country so that India can emerge as a global leader in the years ahead.

He urged them to pursue careers in science and technology and contribute to the growth in these fields.

Somanath was speaking at a 'Student Science Interactive Program – Face to Face with New Frontiers in S&T', as part of the four-day India International Science Festival (IISF) at IIT-Guwahati, which will conclude on Tuesday.

The ISRO chairman interacted with school students, inspiring them to explore careers in science and technology and pursue innovation in the field of space research, a release said.

"As students, you are the torchbearers of the future in science and technology. It is essential for you to grasp the remarkable innovations and advancements taking place in these fields today," he said.

"By recognising their potential and the opportunities they present, you can draw inspiration to pursue similar paths and contribute to building a brighter tomorrow," Somanath added.

He maintained that engagement of the youth in the country's current scientific and technological endeavours is pivotal in realising the vision of making India a global leader.

The release said industry-academia collaboration, knowledge-sharing technical sessions and initiatives to inspire students and teachers in creative, knowledge-based learning have been

organised as part of the IISF. The event also brought policymakers and scientific leaders together under one roof to discuss sustainable practices across science, agriculture, manufacturing and healthcare, it added.

A key highlight of IISF 2024 was the lab-to-life initiative, where Council of Scientific and Industrial Research (CSIR) signed three technology transfer Memorandums of Understanding (MoUs) to promote sustainability and technological advancements.

Speaking about technology transfer, C Anandharamakrishnan, director, CSIR-NIIST, Thiruvananthapuram said, “Young innovators like you have already begun building rockets and satellites in colleges, efforts that are nearing commercial success. By understanding these advancements and the opportunities in the field of space, science and technology, you can be inspired to pursue similar paths and shape a brighter future.” (PTI)

Published in:
Statetimes

Massive Moon Replica At IIT's Science Festival Wins Praise From ISRO Chief

CSIR

02rd December , 2024

A beautiful replica of the moon is proving to be a crowd-puller at the ongoing India International Science Festival at IIT, Guwahati. The installation, with a diameter of seven meters, been conceived by British artist Mr Luke Jerram and has been made using images from the Lunar Reconnaissance Orbiter (LRO) flown to the moon by NASA.

The moon's images are printed on the inflatable balloon and each centimetre represents about five kilometers of the lunar surface. The rendition, titled "The Museum Of Moon", is so good that the mountains and craters of the moon seem to have come alive on the IIT campus.

ISRO chairman Dr S Somanath praised the Moon exhibit, adding that the space agency would look at collaborating with an artist to create a similar model. He added that India has the best images of the lunar surface and has been supplying them to whoever is asking for them. "The world's space agencies are using them for landing on the Moon," he said.

The Shiv Shakti point, where India's Vikram Lander touched down as part of Chandrayaan 3 mission earlier this year, is not marked on the installation. However, one can visualise on the installation how India created history by becoming the first country to land near the unexplored south pole of the Moon.

Incidentally, global experts acknowledge and use the Moon's images taken by the Chandrayaan 2 orbiter, which gave never-seen-before high resolution imagery of the lunar surface. India is planning the follow-up mission Chandrayaan 4, which will attempt to bring

back samples of the moon from near the Shiv Shakti point. The India International Science Festival has been supported by the Ministry of Science and Technology and pivoted by the Council of Scientific and Industrial Research in collaboration with VIBHA or Vigyan Bharati and about 8,000 delegates are expected to participate in the annual science festival.

Published in:

Ndtv

Indian scientists develop 40%-efficient dye sensitzed solar cell for indoor applications

CSIR-NIIST

02nd December , 2024

A group of scientists led by India's National Institute for Interdisciplinary Science and Technology (CSIR-NIIST) claims to have boosted the stability and efficiency of dye-sensitized solar cells for indoor PV applications. This type of solar cell, which is also known as a Grätzel solar cell, named after its inventor, EPFL Professor Michael Grätzel, is used for powering electronic devices such as wireless sensors or Internet-of-things, with indoor light.

“Our study introduces a significant advancement in dye-sensitized solar cells (DSCs) by utilizing starburst triphenylamine dye cocktails with a rigid, triple-bond conjugated π-backbone. This molecular design enhances light-harvesting capabilities in the visible region, providing an excellent overlap with indoor light spectra,” Suraj Soman, the research’s corresponding author, told pv magazine, noting that the design incorporated an asymmetric dual-species copper(II/I) electrolyte that had been introduced in earlier published research by the group.

The team developed the cell with a novel starburst triphenylamine sensitizer (RJ-C6) that was combined with XY1b dye and its own asymmetric dual-species copper(II/I) electrolyte. “The precise structural design of the dyes fosters synergistic effects, allowing for efficient molecular packing, enhanced dye loading, and improved visible light absorption,” Soman went on to say. “Furthermore, this configuration creates a robust barrier against back electron transfer and recombination.”

The most challenging aspect of the research was identifying the ideal combination of dyes for co-sensitization. “Small variations in molecular structures, such as altering alkyl chain lengths or incorporating triple bonds, can profoundly affect photovoltaic performance under low-intensity indoor light. Achieving optimal dye packing on the semiconductor (TiO_2) is critical,” said Soman. The combinations of dyes, electrolytes, semiconductor porosity, and device

architecture that perform well under indoor lighting differ significantly from those optimized for standard sunlight conditions. “Customizing all these parameters specifically for indoor applications was key to our success,” explained Soman. The best performing devices had panchromatic absorption overlapping the entire fluorescent light spectra. According to the researchers, it achieved 35% under 100 lux, 37% under 1000 lux and a record efficiency of 40% under 4000 lux, which they said takes DSCs one step closer to being used as an “attractive candidate for indoor photovoltaic applications.”

The cell also achieved 10.40% efficiency under standard AM 1.5 G solar radiation, and a power conversion efficiency of 40% under indoor warm white compact fluorescent lamp (CFL) illumination. As for stability, the academics reported that the RJ-C6 : XY1b co-sensitized devices demonstrated “promising stability” under accelerated indoor stability testing with no degradation even after 800 hours. The cell measures 1.5 cm2 and has an active area of 0.32 cm2. The scientists pointed out that two of them combine in series with an active area of 0.68 cm2 could power a clock and a temperature sensor under 1000 lux CFL illumination. “These advancements present a sustainable alternative to conventional primary batteries, potentially reducing the environmental impact of millions of discarded batteries that contribute to landfill waste,” stated Soman.

There are plans to take the technology from the lab and into practical indoor and outdoor PV applications. “We are working on developing battery-free, self-powered devices, and some innovative products are already undergoing field trials. Additionally, we are expanding our research into building-integrated photovoltaics (BIPVs) by developing colored, semi-transparent solar cells, aiming to integrate aesthetics and functionality for energy-efficient buildings,” said Soman. The design and details of the research appear in “Enhanced indoor photovoltaic efficiency of 40% in dye-sensitized solar cells using cocktail starburst triphenylamine dyes and dual species copper electrolyte,” published in Journal of Materials Chemistry A. The team also includes scientists from the Academy of Scientifc and Innovative Research (AcSIR), and the National Institute of Technology Uttarakhand (NITUK).

Published in:

Pv magazine

CSIR-IIIM Jammu celebrates 84th Foundation Day

CSIR-IIIM

27th December , 2024

The CSIR-Indian Institute of Integrative Medicine (IIIM), Jammu, marked its 84th Foundation Day with fervor, commemorating its legacy since its establishment as the Drug Research Laboratory by Ram Nath Chopra in pre-independence India. Dr Manoj Kumar Dhar, Director Academy of Scientific and Innovative Research (AcSIR) Ghaziabad and ex Vice-Chancellor of University of Jammu was the chief guest on the occasion. He delivered the Foundation Day lecture on "Creating an Ecosystem to Produce NextGen Science Leaders", wherein he delved upon various opportunities available to the budding young science leaders, as well as the requirement for grooming and mentorship to rise up to the challenges to become leaders of the Viksit Bharat 2047.

Dr Nirpendra Chauhan, Director, Centre for Aromatic Plants, Dehradun, was the guest of honour. In his address, he dealt with the advancement of MAPs cultivation and opportunities for collaboration between both the institutions.

Director CSIR-IIIM, Dr Zabeer Ahmed, highlighted the Institute's achievements over the past year, including an increase in patent outputs, hosting significant conferences, and organizing a Start-up Expo inaugurated by India's Vice President. Certificates of recognition were presented for notable research accomplishments, including patents in drug discovery and process innovation for combating diseases like Alzheimer's, cancer, and viral infections.

The event also honored contributions to institutional repositories and administrative work in

Hindi. A blood donation camp was organized to mark National Voluntary Blood Donation Day, recognizing over 30 donors by the chief guest and other dignitaries.

Sports competitions like cricket, volleyball, and badminton engaged staff and students, with winners awarded trophies and certificates. Musical chairs and tug-of-war added to the festivities, making the event inclusive and spirited.

The celebrations concluded under the guidance of Dr Zabeer Ahmed, with the proceedings led by Dr Deepika Singh (Principal Scientist and Head, QMI) and a vote of thanks by Abdul Rahim (Chief Scientist and Head, RMBD&IST).

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Media works like a bridge between Science and Society

CSIR-CECRI, NISCAIR

02nd December , 2024

Science & Technology and Communicators Conclave inaugurated by Dr. Shri Shiv Kumar Sharma, National Organising Secretary, Vijnana Bharati in presence of Dr. Manoj Kumar Patairiya, former Director, CSIR-NISCAIR and Dr. K. Ramesha, Director, CSIR-CECRI. Issues of the Employment News periodical and Science India magazine released by these guestsin the S&T Media Conclave, an event of India International Science Festival 2024. This largest science festival of India is being organized at IIT Guwahati during 30th Nov to 3rd Dec 2024.

Introduction of Media conclave was given by Debobrat Ghose and a Brief on the 2 day event was presented by Dr. Rajeev Singh. Dr. K. Ramesha, Director, CSIR-Central Electro-Chemical Research Institute, in his address said “IISF is a science festival is celebrated with people of the country. Media helps to take research into the people. Research done by scientists is mostly understood by research people IISF request media to take the research into the public in the creative ways possible such that public understand the research work. Media is the key to communicate the research to the public. I request every media person to take these things into the public.

Dr. Manoj Kumar Patairiya, former Director, CSIR-NISCAIR said, “Science Works as Method (methods of science) which includes curiosity, analysis, experimentation and verification. Same applies to Media, and in this way, the process of Media and science is same. Dr.Shri ShivKumar Sharma, National Organising Secretary, Vijnana Bharati said, “I have come to realize that there is a significant gap between understanding and explaining science and

technology concepts. To bridge this gap, we need to communicate complex ideas in a way that's easy for everyone to grasp. This requires a thoughtful approach, considering what we want to convey and how to do so effectively. By developing systematic ways to share science and technology with the public, and leveraging the power of media, we can make significant strides in promoting S&T awareness and understanding."

The conclave included a panel discussion on S&T dissemination in North-East media, featuring experts such as Dr. Arup Misra, Chairman, Pollution Control Board, Assam, Dr. Minaketan Singh, Director, Manipur S&T Council, Dr. Jaideep Baruah, Director,Assam Science Technology, Environment Council and Dr. Davy, Sr Scientific Officer at Mizoram Science Council and Ms GitaliSaikia, Science Journalist.

Lecture by Dr. Yelloji Rao Mirajkar on AahaarKranti:
India's focus on food production and consumption needs to shift from just quantity to quality, ensuring a balanced and healthy diet that addresses the country's malnutrition and health issues. Embracing traditional dietary practices, such as Charaka Ayurvedic diet, and understanding the importance of digestion and nutrition can help Indians make informed food choices and lead healthier lives. Different between Anna and Ahara, Anna is what we take through mouth ever as Ahara is that we enjoy through with our senses.

The conclave concluded with a session on S&T coverage in media, featuring interactions among scientists, media professionals, and the public. Experts such as Dr. K.G. Suresh, Former DG, IIMC, Dr. Manoj Patairiya, Shri Decendra Mewari, Dr KN Pandey, DhriPallavBagla, Sh Sameer Ganguli, Shri MarufAlamand Dr Vamsi Krishna, shared their insights on promoting science and technology through media. A session on science based feature film was also organised today during Media Conclave. Several science communicators and students interacted with the experts, leading to a fruitful question-and-answer session that effectively summed up the objectives of the S&T Media Conclave.

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Pib

Session held with thrust on innovation, technology and entrepreneurship at IIT Guwahati

CSIR-NCL, CCMB

02th December , 2024

The four-day-long 10th edition of the India International Science Festival (IISF) 2024 that began on November 30 at IIT Guwahati is celebrating the integration of science and technology in addressing real-world challenges.

This year's event features various thematic discussions, with the CSIR-National Chemical Laboratory (NCL) co-chairing the "Start-up Mission" sub-theme, focused on innovation, technology, and entrepreneurship, alongside CSIR-CCMB.

Dr. Lele, Director of CSIR-NCL, inaugurated the session by emphasizing the transformative potential of lab-based technologies to benefit communities, particularly in agriculture-a cornerstone of India's economy.

The keynote address was delivered by B.K. Sohliya, Executive Adviser and Chairman of the Meghalaya Farmers' Empowerment Commission. He highlighted the collaborative efforts between CSIR-NCL and the Commission in driving the "Sweet Revolution." Through innovations such as honey profiling technologies, this partnership is enhancing the quality, global recognition, and marketability of Indian honey while uplifting beekeepers' livelihoods. This initiative exemplifies the role of science in solving practical challenges and promoting India's honey heritage.

The session also featured a segment titled "Success Stories from Bharat," where ten entrepreneurs from diverse sectors, including health, diagnostics, clean energy, agriculture, mining, and sustainable industries, shared their journeys. These stories underscored the power of resilience and innovation in fostering societal and economic impact, reinforcing the "Make in India" mission. Moderated by Dr. Nitin Tewari, head of the Intellectual Property Group at CSIR-NCL, the session emphasized the critical role of the 3 Ms-money, mentorship, and

market access-for start-ups, alongside the 3 Cs-curiosity, customer focus, and capital-as essential elements for entrepreneurial success. The discussions highlighted the significant contributions of science and technology in fostering innovation, entrepreneurship, and sustainable development across India.

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Sentinelassam

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