CSIR IN MEDIA

सीएसआईआर
CSIR
भारत का नवाचार इंजन
The Innovation Engine of India

NEWS BULLETIN
21 TO 25 AUGUST 2024

Compiled by Science Communication and Dissemination Directorate (SCDD), CSIR, Anusandhan Bhawan, New Delhi

Union Minister Dr. Jitendra Singh chaired bilateral meeting on US-India Civil Nuclear Commerce

CSIR

25th August , 2024

Union Minister Dr. Jitendra Singh chaired a pivotal bilateral meeting on US-India Civil Nuclear Commerce, highlighting the deepening cooperation between the two nations in critical areas of science, technology, and clean energy at Prithvi Bhavan. Dr. Jitendra Singh announced that an Indian astronaut from the Gaganyaan Mission is set to join the International Space Station, marking a significant milestone in Indo-US Space collaboration. He emphasized the importance of this partnership in securing global supply chains, especially in sectors like semiconductors, pharmaceuticals, and clean energy technologies, which are increasingly vital in today's interconnected world.

Union Minister of State (Independent Charge) for Science and Technology, Minister of State (Independent Charge) for Earth Sciences, MoS PMO, Department of Atomic Energy, Department of Space, Personnel, Public Grievances and Pensions, Dr. Jitendra Singh underscored the Green Hydrogen Mission as a cornerstone of India's strategy to decarbonize heavy industry, transportation, and power generation. He highlighted that this mission is crucial for driving innovation in clean technologies and achieving global climate goals. Through robust policy frameworks and international collaborations, India is poised to lead the transition to a sustainable and resilient energy future. Dr. Jitendra Singh also revealed that the Indian government is exploring international partnerships, investing in research and development, and considering regulatory frameworks to support the deployment of Small Modular Reactors (SMRs). He stated that SMRs would play a significant role in India's clean energy transition, contributing to energy self-reliance and meeting climate commitments.

Drawing parallels between India's "Anusandhan" National Research Foundation (NRF) and the United States' National Science Foundation (NSF), Dr. Jitendra Singh highlighted the critical roles both organisations play in advancing scientific research and innovation. He recalled Prime Minister Narendra Modi's "Panchamrit" climate action plan, reaffirming India's commitment to increasing non-fossil energy capacity to 500 GW, reducing carbon emissions by 1 billion tons and finally achieving net-zero emissions by 2070.

Dr. A. K. Sood, Principal Scientific Advisor to the Government of India, echoed the significance of the Indo-US partnership, stating that it is not just about exchanging knowledge but about co-creating solutions that will shape the future. He emphasized the collaboration's potential to pave new paths for sustainable development and economic prosperity. Dr. Ravi Chandran, Secretary of Earth Sciences, highlighted the partnership's progress in ocean energy and Carbon Capture, Utilisation, and Storage (CCUS) technologies, while Dr. Rajesh Gokhale, Secretary of the Department of Biotechnology, underscored India's focus on biomass to energy conversion and the successful implementation of first and second-generation biofuels.

Prof. Abhay Karandikar shared insights into India's progress in emerging technologies, including data analytics, Artificial Intelligence (AI), and machine learning, emphasising the strategic importance of innovation in these fields. Dr. N Kalaiselvi, Director General of CSIR, discussed India's advancements in Lithium-Ion Battery development and indigenous battery manufacturing, stressing the importance of creating sustainable and circular energy storage solutions.

The high-level US delegation led by John Podesta, Senior Advisor to the President of USA for International Climate Policy and David Turk, Deputy Secretary, U.S. Department of Energy. The meeting concluded with both nations reaffirming their commitment to strengthening their cooperation in emerging technologies, with mutual interests in enhancing economic growth, national security, and global leadership in technological advancements.

Published in:

Pib

SKIMS hosts top experts for academic brainstorming

CSIR-IIIM, NCL

25th August , 2024

The Sher-i-Kashmir Institute of Medical Sciences (SKIMS), Soura, today held an interactive session featuring some of the country's leading clinicians and scientists. The event, part of the two-day "Inter-University Academic Brainstorming" jointly organized by SKIMS and SKUAST-K, took place at the SKIMS Auditorium. The session provided a valuable platform for SKIMS faculty to engage with distinguished experts from various fields.

Notable attendees included Dr. N. K. Mehra, Vice President (International Affairs), INSA, and Former Dean, AIIMS New Delhi; Dr. Abdul Masood Khan, Director Incharge of ICMR-JALMA; A. K. Pradhan, Advisor, CDSCO; Dr. Ashok Kumar, Director, IIT Kanpur; Dr. Anu Raghunathan, Senior Principal Scientist, CSIR-NCL Pune; Dr. Bushra Ateeq, Professor & Joy-Gill Chair, Senior Fellow, DBT-Welcome Trust India Alliance; and Dr. M. Jamal, Principal Scientist, CSIR-IIIM Jammu.

Director Prof. M. Ashraf Ganie highlighted SKIMS's pivotal role in patient care and cutting-edge research, emphasizing the institution's status as a premier national institution ready to foster strong national and international collaborations. During the session, the experts actively participated in discussions, sharing insights and exploring collaborative opportunities.

The dialogue focused on critical areas such as establishing a Clinical Trial Unit (CTRU), advancing biomedical research, innovating organ transplantation techniques, and enhancing patient-centric initiatives. Dr. Shariq R. Masoodi, Dean of the Medical Faculty at SKIMS, facilitated the session, introducing the distinguished guests and expressing deep appreciation for their significant contributions.

Published in:
Dailyexcelsior

CSIR study underway to map noise hotspots across State

CSIR-CRRI

24th August , 2024

Delhi-based CSIR- Central Road Research Institute (CSIR) is mid-way in completing the crucial project related to noise mapping and identifying the sound/noise hot spots across the State, with more focus on the coastal belt. The agency is expected to submit its report by January, 2025 proposing mitigation plan to control the noise pollution -- which has gripped the coastal State at present.

The study, initiated by the Goa State Pollution Control Board (GSPCB) will help the government in drafting a fresh State Noise Action Plan- as directed by the National Green Tribunal. As per law, the ambient noise quality standard for commercial areas is restricted at 66 dB at day time and 55 dB at night, whereas for residential areas, the noise standards are 55 dB during the day and 45 dB at night. For silent zones, the prescribed limit is 50 dB during day and 40dB during night hours.

Sources explained that the agency will help develop noise maps of cities in Goa in terms of the day and night equivalent noise levels indicating hotspots areas. Sources said that the agency, will not only look into sound or noise pollution related due to late night parties or loud music, but other sources of pollution including vehicles and industries.

“The agency will identify the hotspot areas and recommend measures to control the noise pollution there,” sources said. “The Project, which we expect to be completed by January 2025, will give a clear picture of noise pollution in the state and scientific mitigation methods to reduce the problem,” sources added

Meanwhile, the Board has already made functional real-time monitoring of ambient air quality noise level along 12 locations in North and South coastal belt. In the North, the equipment are installed at Morjim, Ashvem, Mandrem, Arambol, Candolim, Calangute, Baga

and Anjuna beaches and on Colva, Cavelossim, Benaulim, and Agonda beaches in the South. Sources informed that an online environmental data monitoring centre has been established at the GSPCB head office for real-time monitoring of data from these locations.

It is basically a centralized networking system linked to the offices of the GSPCB, Police Department and District Collectors. The system will monitor noise-levels continuously for 24 hours, 365 days a year.

The noise monitoring equipment installed on the 12 beaches has been made to meet the norms of the European Union and the United States Environmental Protection Agency.

As per law, the GSPCB can assist police wherever required to measure noise, however, they cannot enforce action as the authority lies with the sub-divisional magistrate and deputy superintendent of police.

Published in:
Thegoan

2-day disaster mgmt training workshop concludes

CSIR-CBRI

24th August , 2024

A two-day training workshop organised by the District Disaster Management Authority (DDMA) concluded today at the Deputy Commissioner's office in Nahan. The workshop, held under the guidelines of the National Disaster Management Authority (NDMA), New Delhi, and conducted by the Central Building Research Institute (CBRI), Roorkee, focused on the risk assessment of buildings in earthquake and landslide-prone areas within the district.

Additional District Magistrate (ADM) LR Verma emphasised the importance of such training programmes for effective disaster risk management. The workshop saw participation from approximately 40 technical staff members from various departments, including the Rural Development Agency, Panchayati Raj, Himachal Pradesh Public Works (PWD) and HIMUDA.

ADM Verma highlighted that on the second day of the workshop, participants conducted practical risk assessments of several private and government buildings in Nahan. The findings and a comprehensive report were then submitted to the Central Building Research Institute (CBRI), Roorkee, for further analysis.

In his address, the ADM urged residents of the district to review the National Building Code-2016 before constructing any buildings, ensuring that structures are designed to withstand potential natural disasters. He also congratulated the technical staff for their active participation in the workshop and encouraged them to share their knowledge with junior

engineers and other technical personnel. CBRI's senior scientist MM Dalbehera expressed gratitude to the officials and extended best wishes to all participants. He assured that the CBRI will continue to support the district in implementing risk assessment measures at identified sites promptly.

The event concluded with ADM Verma presenting certificates to all participants. The workshop was also attended by CBRI scientist Ashish Kapoor, Finance Planning Officer Pratap Parashar, Rajan Kumar Sharma from DDMA and others.

Published in:
Tribuneindia

How to make plants grow? Try hair, say scientists

CSIR-CLRI

23rd August , 2024

Scientists at the Central Leather Research Institute (CLRI) in Chennai have devised a method to turn animal hair, often discarded as waste in tanneries during the leather making process, into fertilizer. “Hair is packed with nutrients such as the protein keratin, a key ingredient for healthy plant growth,” says scientist Shakila Shobana. The technology also helps tackle pollution caused by the leather industry.

Hair extracted from raw hide or skin is first washed and then put through a hydrolysis process using a novel bacterial strain, which breaks it down, explains Shakila. After six hours, a liquid keratin hydrolysate is produced, which is then used to create organic compost, which serves as a natural fertilizer. Because keratin contains nitrogen in its amino acids, its gradual release into the soil promotes plant growth. Researchers have also developed an organic supplement for agricultural use. This involves converting hair into keratin hydrolysate through biochemical processes. The hydrolysate is then spray-dried into a fine powder.

“We have developed two technologies – organic compost and organic supplement from animal hair and standardised at a pilot scale level of 500 litres,” says Shakila.

‘Unhairing’ or removing the hair from raw hide or animal skin is an important step in the leather manufacturing process, say scientists. Hair is typically removed from raw hides or skins using chemicals such as sodium sulphide. Because hair is non-biodegradable, its disposal in landfills contributes to pollution. Processing one tonne of raw hide or skin produces about 700kg of solid waste, including the hair. The Indian leather industry generates nearly 40,000 tonnes of hair waste annually. This new technology has the potential to reduce the environmental impact of solid waste disposal in leather industry.

The power hydrolysate, the organic fertilizer and the supplement were tested in paddy fields

by Chennai-based NGO National Agro Foundation (NAF). “We found an increase in the yield of crops in terms of the number of tillers in paddy in the fur compost-treated field than the control plot,” says B Kanchana, NAF project coordinator.

Published in:
Times of India

Women in rural areas show exceptional resilience: Rathnaprabha

CSIR-CFTRI

23rd August , 2024

Extraordinary resilience among rural women, who manage multiple responsibilities despite numerous challenges, was praised by former Chief Secretary K Ratnaprabha at the Global Conference on Women in Agribusiness, part of Agritech India 2024, held at the Bangalore International Exhibition Centre (BIEC) on Thursday.

Ratnaprabha, who leads the UBUNTU consortium, emphasized the crucial role women play in agriculture, often taking on traditionally male-dominated tasks such as driving tractors and engaging in labour-intensive roles. She was delivering a keynote address at the global conference on Women in Agribusiness.

Jafar S Naqvi, Chief Editor and Coordinator of Women in Agribusiness (WIAB), lauded the significant achievements of women leaders in agribusiness. He highlighted the event's importance in recognising these accomplishments while also exploring new opportunities to empower women in the sector. Naqvi noted that women are increasingly occupying key roles in technology-driven agriculture, including hydroponics, aeroponics, and vertical gardening, contributing to the growth of autonomous vertical farms and decision-making positions within the industry.

Ratnaprabha shared insights from her work with the UBUNTU consortium in rural Karnataka, where she observed the hardships faced by women who endure strenuous labor, often while men misuse their earnings, leading to domestic issues. She commended the resilience of these women, many of whom actively participated in the conference, showcasing

their entrepreneurial efforts. The UBUNTU consortium's initiatives to support women entrepreneurs across India, from urban centres to remote villages, were highlighted, with Ratnaprabha expressing pride in those who exhibited their achievements at the event.

DrSridevi Annapurna Singh, Director of the Central Food Technological Research Institute (CFTRI), spoke on the increasing influence of women in the food industry. She discussed the potential of modern food technology to bridge the gap between traditional preservation methods and contemporary demands, enhancing both shelf life and product quality. Singh pointed out that India's expanding food processing industry offers significant opportunities for women, stressing the importance of understanding trends like convenience, nutrition, health, and circular economies to thrive in this field. Ewout de Wit, Consul General of the Kingdom of The Netherlands for South India in Bengaluru, provided a global perspective on gender dynamics in entrepreneurship. He noted that in the Netherlands, women make up 36% of the country's 2.3 million entrepreneurs, with 38% of new businesses being founded by women. However, he observed that Dutch women tend to start businesses in the health and welfare sectors rather than agriculture. De Wit underscored the value of conferences like this one for fostering knowledge-sharing and promoting the integration of women into the agricultural industry. Additionally, Sanjay Dave, former Chairman of CODEX and advisor to FSSAI, identified a significant gap between food technology and business on a global scale, emphasising the need for improved food safety services to boost food exports.

Published in:
Thehansindia

IIIM-TBI organizes Global Bio-India Road Show

CSIR-IIIM

23rd August , 2024

IIIM-BioNEST Bio-Incubation Centre under the aegis of CSIR-Indian Institute of Integrative Medicine, Jammu along with its key ecosystem partner, Biotechnology Industry Research Assistance Council (BIRAC), DBT, Government of India, today organized a one-day Global Bio-India Road Show.

The event was conducted under the patronage of Dr Zabeer Ahmed, Director of CSIR-IIIM Jammu and Chairman BioNEST Bioincubation Centre who also presided over the program. Dr Madhavi Rao, Chief Manager, National Biopharma Mission, BIRAC was the guest of honour.

Dr Zabeer Ahmed, in his presidential address, highlighted the need of innovation nurturing and entrepreneurship development in J&K and shared with the audience how CSIR-IIIM is constantly working for the promotion of the startup ecosystem in the region.

Dr Madhavi Rao discussed about the major initiatives taken by the BIRAC, Department of Biotechnology by organizing Global Bio-India Road Show in all the 75 BioNEST Incubators across the country as the precursor events of the mega show which is going to be held at Pragati Maidan, New Delhi between 12th – 14th September.

Earlier Dr Saurabh Saran, Principal Investigator, IIIM-TBI provided an overview of the road show organized and informed the gathering about the initiatives taken by the IIIM incubator to support the startup ecosystem in J&K.

The program also included a technical session where promising startups from IIIM-BioNEST Incubator Dr Sameer Varma, Founder M/s Adoptive Biotech Pvt Ltd, Aditya Sumbria, Founder M/s Pahadi Amrut and Dr Vinod Wanchoo, Founder M/s Jagriti Products shared their success stories whereas Ankush Varma, Coordinator, IIIM-TBI gave a detailed presentation on the 'Role of BioNEST Incubator in supporting Biotech Startup Ecosystem in J&K'.

Over 100 people, including 60 students from Government Gandhi Memorial Science College, Jammu, participated enthusiastically in the Road Show.

The event was conducted under the overall supervision of Abdul Rahim, Vice Chairman BioNEST Bioincubation Centre. Prominent among others who attended the inaugural session were Dr Asha Chaubey, Dr Sumit G Gandhi, Dr Dhiraj Vyas and Dr Naveen Qazi, all Sr Pr Scientist from CSIR-IIIM.

Dr Deepika Singh, Pr Scientist and HoD QMI division presented vote of thanks.

Published in:
Dailyexcelsior

CSIR-NML

23rd August , 2024

NML's Dr. Abhilash honoured with 'Vigyan Yuva'

Mail News Service

Jamshedpur, August 22: Dr. Abhilash, Senior Principal Scientist at CSIR-National Metallurgical Laboratory (CSIR-NML), has been awarded the prestigious Vigyan Yuva - Shanti Swarup Bhatnagar Award in recognition of his outstanding contributions to Engineering Sciences. This esteemed award highlights his remarkable achievements in the field of scientific and technological advancements, particularly in the development of innovative and sustainable processes. The President, Droupadi Murmu handed over the award to the young scientist.

Dr. Abhilash has made significant strides in the development of interdisciplinary indigenous processes for the extraction of critical and strategic metals from secondary resources such as mine and process wastes. His work has not only advanced scientific knowledge but has also had a profound impact on the mining, metallurgical, and waste recycling industries.

Among his notable accomplishments is the development and successful commercialization of cutting-edge technologies for bioprocessing uranium from low-grade tailings, remediation of contaminated sites, and the extraction of rare-earth elements directly from red mud, blast furnace slags, spent catalysts, and EV batteries. These innovations have positioned Dr. Abhilash as a leader in leveraging technology to address critical challenges in resource recovery and environmental sustainability.

The award is a testament to Dr. Abhilash's dedication to research and his significant contributions to engineering sciences, which have the potential to drive sustainable development and technological advancement in India and beyond.

Published in:

The Avenue Mail

Meet man, an Indian genius, who declined millions for his innovations, he is 'Father of…

CSIR

22nd August , 2024

Many geniuses in India have contributed to society with their innovations in different sectors. Some invented things with limited resources even before India's independence. One such person was Shanti Swarup Bhatnagar, a renowned chemist, academic and scientific administrator who played a significant role in building the Science and Technology infrastructure in the country.

Bhatnagar is known as the Father of Research Laboratories in India. He was the first director-general of the Council of Scientific and Industrial Research (CSIR). The Indian genius was also the first chairman of the University Grants Commission (UGC). He provided innovative solutions to several industrial problems and did not take any personal monetary benefit.

To honour his name and legacy, CSIR in 1958, instituted the Shanti Swarup Bhatnagar Prize for Science and Technology for scientists who have made significant contributions in various branches of science. His major innovation was an improvement of the procedure for drilling crude oil. He played a remarkable part in the development and organization of scientific research in the country.

Born in Bhera, Punjab region of British India, Bhatnagar completed his elementary education at the Dayanand Anglo-Vedic High School, Sikandrabad (Bulandshahr). He passed the Intermediate Examinations from the Punjab University in 1913. He completed his graduation with B.Sc. After completing his Master's degree, he went to England to complete his DSc (Doctorate in Science) from London University. In 1921, Bhatnagar returned to India and joined BHU as a professor of chemistry. He worked here for three years and later at Panjab University. Dr Bhatnagar died of a heart attack on 1 January 1955.

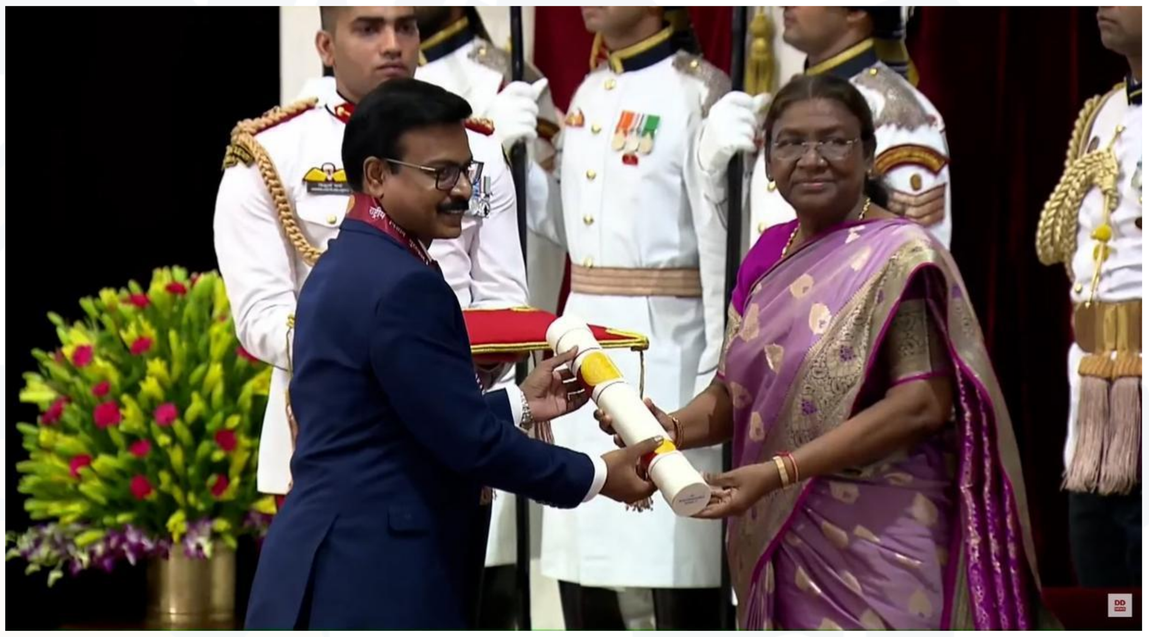
Published in:

Dnaindia

CSIR-NIIST Director receives Rashtriya Vigyan Shri Award from President

CSIR-NIIST

22nd August , 2024



C. Anandharamakrishnan, Director, CSIR-National Institute for Interdsciplinary Science and Technology (NIIST), Thiruvananthapuram, was bestowed the inaugural Rashtriya Vigyan Puraskar 2024, India's highest award in the fields of science, technology, and technology-led innovations, by President Droupadi Murmu for his contributions to the agricultural science sector.

Dr. Anandharamakrishnan was among the 33 awardees comprising eminent and young scientists, who received the award from the President at a function held at the Rashtrapati Bhavan in New Delhi on Thursday.

'Relevance for society'

Dr. Anandharamakrishnan said the award would inspire him and his team in NIIST to make more meaningful contributions for the further advancement of science in India, and also for the benefit of society at large. "We will strive to ensure that our research efforts have industrial relevance and are relevant for farmers and entrepreneurs as well," he said.

A scientist and academician with expertise in the fields of food and agro-processing, his areas of research include 3D food printing, spray drying and spray-freeze-drying of food products, and computational modelling of food-processing operations.

Key breakthrough

One of his key research breakthroughs is the development of India's first 'Engineered human stomach and small intestinal model system', which mimics the complex biomechanical and chemical functions of the human digestive system.

Dr. Anandharamakrishnan has also served as chairperson and convener of the capacity building and research for the Prime Minister's Formalisation of Micro Food Processing Enterprises Scheme by the Ministry of Food Processing Industries (MoFPI).

Published in:
The Hindu

Dr. Bantu Patro Wins National Award for Geoscience Research

CSIR-NGRI

21st August , 2024

Dr. Bantu Prasanta Kumar Patro, chief scientist at the CSIR-National Geophysical Research Institute (NGRI) in Hyderabad, has been honoured with the prestigious National Geoscience Award 2023 in the Geophysics/Applied Geophysics category. The award was presented by President Droupadi Murmu in recognition of Dr Patro's contributions to the field of Geoscience.

Dr Patro has received praise for his pioneering research in creating a three-dimensional map of the electrical properties beneath important geological areas of the Indian shield. The "Indian shield" refers to a large, stable region of the earth's crust in India that forms the foundation for much of the country's geology. By mapping the 3D electrical subsurface structure, Dr. Patro has helped to reveal detailed information about what lies beneath the surface, such as different rock layers and potential mineral resources, etc. His work has significantly enhanced the understanding of India's geological complexities, offering valuable insights into the country's natural resources and tectonic framework. One of Dr Patro's most notable achievements is resolving the longstanding mystery of the nature of the rocks beneath the Deccan Traps, which has been a significant challenge for geologists due to the thick volcanic layers above. Utilising advanced geophysical techniques, he successfully mapped the underlying geological structures — a challenge that had previously defied conventional methods.

Dr Patro's research has not only deepened our understanding of the earth's subsurface but also has important implications for fields such as mineral exploration, natural hazard assessment, and groundwater management.

Published in:

Deccanchronicle

Council of Scientific & Industrial Research (CSIR) and Laghu Udyog Bharati sign MoU for transfer of CSIR technologies to Micro and Small Entrepreneurs

CSIR-CSIO, IMMT, NAL, NBRI, CSMCRI, CFTRI

21st August , 2024

Council of Scientific & Industrial Research (CSIR) and Laghu Udyog Bharati (LUB) entered into an MoU on 21st Aug 2024 at CSIR Headquarters for transfer of selected CSIR technologies to Micro and Small Entrepreneurs in the presence of Director General, CSIR, All India Secretary of LUB and President LUB. Laghu Udyog Bharati is a registered all India organization of Micro and Small Industries in India since 1994 and a Section 8 Company with presence in more than 575 districts in 27 States of India with more than 51000 members.

The specific objectives of the MoU include transfer of 100 Knowhow /Technology / Products of CSIR within 100 days to the identified MSMEs under LUB. It also includes providing suggestions / ideas / problems to CSIR for developing new technology(ies) in any suggested area(s) of interest by MSMEs within the scope of CSIR for technology advancement, meeting regulatory norms, increasing market reach and export promotion / import substitution.

The program was presided by Dr. N Kalaiselvi, Secretary DSIR & Director General, CSIR; Dr. R.P. Singh, Head, IMD, Dr. Vibha Malhotra Sawhney, Head, TMD, Dr. Debashis Bandyopadhyay, Dr. Mahesh Kumar and Ms Deepti Sharma Dullu and other dignitaries from CSIR. From LUB, Sh. Ghanshyam Ojha, Sh. Om Prakash Gupta, Sh. Diwan Chand, and Ms Arti Sehgal attended the meeting along with other members of the organisation.

During this MoU signing, a total of 15 technologies were transferred to the companies from 6

CSIR labs CSIR-CSIO, CSIR-IMMT, CSIR-NAL, CSIR-NBRI, CSIR-CSMCRI and CSIR-CFTRI.

The transferred technologies covered various sectors and included technologies like Pesticide Detection Kit, Multi-copter Drones, Air Quality Monitoring System, Potash enriched Biochar from Waste Biomass, Gluten free biscuits etc.

For CSIR, the MoU shall greatly extend the market reach for CSIR technologies including export promotion and import substitution while meeting all necessary regulatory norms. For LUB, the deployment of low cost CSIR technologies shall bring efficiency in the operations of LUB Units/MSMEs at economical costs, besides bringing the awareness about the societal contribution of CSIR.

Published in:
Pib

सीएसआईआर
CSIR
भारत का नवाचार इंजन
The Innovation Engine of India

Harnessing sunlight for Hydrogen green energy

CSIR-IICT

21st August , 2024

Hydrogen is a clean energy source and its energy density as a fuel is said to be approximately 15 times higher than batteries and three times higher than gasoline. The concept of hydrogen replacing conventional fossil fuels with a low-carbon substitute for energy needs has been a quest for scientists. If Hydrogen generation is considered to be the holy grail of artificial photosynthesis, the concept of utilizing sunlight to produce clean fuel is considered to be one of the holy grails of chemistry. For achieving this non spontaneous reaction, a highly efficient photocatalytic systems is necessary.

For designing a photo-electro-chemical cell to produce hydrogen from water and sunlight, the existing technology requires huge fabrication costs where electricity from solar cells can be used to drive the water-splitting reaction. Catalysts are required to make the water-splitting reaction economically viable.

Scientists at the CSIR-Indian Institute of Chemical Technology (IICT) here claimed to have achieved success in designing a new catalyst for producing 'Green Hydrogen' through a catalyst — 'cobalt(III) based bis-terpyridine' — found to be having wide light-harvesting capabilities.

The scientists team, including Malapaka Chandrasekharam, Ujwal Pal, Binitendra Naath Mongal Saddam Sk, Amritanjali Tiwari, Saad Mehmood and Yarasi Soujanya, assert that the new design catalyst could effectively harness sunlight to generate hydrogen unlike

conventional hydrogen production systems relying on fossil fuels. This new system harnesses solar energy alone using a photo-electro-chemical setup. It typically involves combining a visible-light-absorbing chromophore, serving as the photosensitizer, with a catalyst. The combination allows for the efficient conversion of solar energy into chemical energy, enabling processes like hydrogen generation from water splitting. This cobalt-based compound plays a crucial role in capturing sunlight and initiating a chemical reaction that splits water molecules to release hydrogen gas, said scientists.

"We envision hydrogen as the fuel of the future, and there's a pressing need to produce it both affordably and at scale. The technology offers a promising step towards large- scale hydrogen production, paving the way for a greener, more sustainable energy future," says the study's lead scientist Chandrasekharam, who has just retired from the institute.

"Our work may help in creating new avenues for designing such transition metal complexes that can function as effective photosensitizers as well as electrocatalysts," he said, in an exclusive interaction. The study - A bifunctional cobalt bis(terpyridine) complex for efficient water splitting to green hydrogen generation', has been published in recent edition of 'Sciencedirect Next Energy' journal.

Published in:
The Hindu

CSIR-NML Hosts Xavier English School Students in Jamshedpur

CSIR-NML 21st August , 2024

Xavier English School Kitadih students visited CSIR-NML in Jamshedpur, where they were introduced to scientific innovations and research methodologies.

The Chief Scientist at CSIR-NML provided detailed information about the institution's inventions. Students were given demonstrations of various machines, along with explanations of their uses. A team of 100 students participated in the educational tour. The group was accompanied by Vice Principal Suman Sharma, Kamal Kant Sharma, Pritika Roy, and Alka Kumari.

As part of the program, children were encouraged to pursue careers in research. The visit aimed to spark interest in scientific exploration among the young learners. Students had the opportunity to witness cutting-edge technology firsthand.

The educational excursion provided practical exposure to complement theoretical knowledge. CSIR-NML's initiative aligns with efforts to nurture future scientists and innovators. The interactive session allowed students to engage directly with scientific professionals.

Published in:
Townpost

Load deflection test conducted on vertical lift of new Pamban rail bridge

CSIR-SERC

21st August , 2024

Load deflection test on the newly-built centre span of new Pamban rail bridge was held with a goods train here on Wednesday.

After having tested the track on the approach to the vertical lift span in the past, the officials of Rail Vikas Nigam Limited, which is executing the mega project, conducted the load test in association with Structural Engineering Research Centre, Chennai.

RNVL Chief Project Manager, II, T.K. Padmanaban, oversaw the testing process.

“We used 11 wagons, each weighing 80 tonnes, with twin locomotives on the bridge. The load test was done with multiple runs at different speed levels of 10 kmph to 60 kmph,” said a consultant to RVNL, S. Anbazhagan.

The test run has proved the load bearing capacity of the 72.5-metre-long centre span, he added.

The testing which started around 11 a.m. went on upto 5 p.m.

“This is one of those tests that needs to be conducted and its report would be submitted to Commissioner of Railway Safety before his mandatory inspection of the bridge for his clearance to operate train services,” Mr. Anbazhagan said.

Published in:

The Hindu

Industry expresses interest in CSIR-IICT's Compressed Bio Gas technology

CSIR-IICT

21st August , 2024

Industry partners, already using the Anaerobic Gas Lift Reactor (AGR) biogas technology of CSIR-Indian Institute of Chemical Technology (CSIR-IICT) under licence, have expressed interest in adopting the institute's Compressed Bio Gas (CBG) technology as well.

At a round-table conference, titled 'Biogas technology: Resilience towards waste management and energy security', held a few days ago on the campus, the importance of biogas in advancing sustainable waste management and securing energy resources was discussed by various stakeholders.

CSIR-IICT director D. Srinivas Reddy pointed out that biogas technology offers a promising solution to global concerns of climate change, resource scarcity and the growing need for clean energy. He highlighted the successful commercialisation of AGR technology with 30 installations across the country and reaffirmed the institute's commitment to advancing the commercialisation of CBG technologies, developed in collaboration with BPCL and GAIL-India.

Chief scientist of the department of energy and environmental engineering A. Gangagni Rao presided over the event and explained the technology in the demo pilot plants at the institute, according to a press release.

Published in:
The Hindu

RGU holds seminar on computational models

CSIR-NEIST 21st August , 2024

The computer science and engineering department (CSED) of Rajiv Gandhi University (RGU) recently conducted a three-day seminar, named AICTE-VAANI, on "Computational models to assist in enhancing agricultural activities and productivity in Assamese".

The seminar aimed at motivating young scientists, researchers, academicians and youth to innovate in agricultural sector, spread awareness of technologies used in the sector for sustainability and explore future research direction to sell production models and on ground technologies, according to CSED associate Prof Dr. Marpe Sora.

Guest Assam Agriculture deputy director Dr Uddhav Bharali, KVK joint director Mark Boge, RGU vice chancellor Prof. Saket Kushwaha, dean (engineering and technology) Prof. Utpal Bhattacharee and registrar Dr. N.T Rikam, in their inaugural addresses, lauded AICTE efforts to promote technical discussions in vernacular languages for all participants and students to understood.

In technical session, Dr Bharalli, an inventor, to receive Padma Shri award, spoke on "Adulteration of food products, colour and microplastics". Other resource persons spoke on different topics: RGU assistant Prof Dr. Samikhya Bhuyan on 'Agriculture and its different models'; Dr. Samujjal Baruah on "Drone sensor & UAV mapping'; Jorhat-based CSIR-NEIST scientist Dr. Hridoy Jyoti Mahanta on 'Paradigm of scientific discovery- AI & ML for trans-disciplinary fields'; CSIR-NEIST Scientist Dr. Pankaj Bharalli on 'internet of plants (connection between plants), hydroponic farm & DNA barcoding' while coordinator RGU assistant Prof Dr. Rupam Kumar Sharma earlier spoke on 'Data-driven insights, image recognition, precision agriculture and autonomous systems: highlighted importance of computational models on agriculture'.

In his presentation on concluding day, Dr Sora spoke on use of data mining in agriculture covering yield and disease outbreak predictions, optimized resource allocation, soil analysis, demand forecasting, price optimization, genomic & phenotype analysis. Analyzing data on plant characteristics can help identify superior varieties for specific growing conditions and by leveraging data mining techniques, the agricultural sector can enhance efficiency, sustainability and profitability, he concluded.

Published in:
Arunachalobserver

सीएसआईआर
CSIR
भारत का नवाचार इंजन
The Innovation Engine of India

Please Follow/Subscribe CSIR Social Media Handles

CSIR INDIA

CSIR_IND

CSIR India

CSIR India

csirindia

CSIR India