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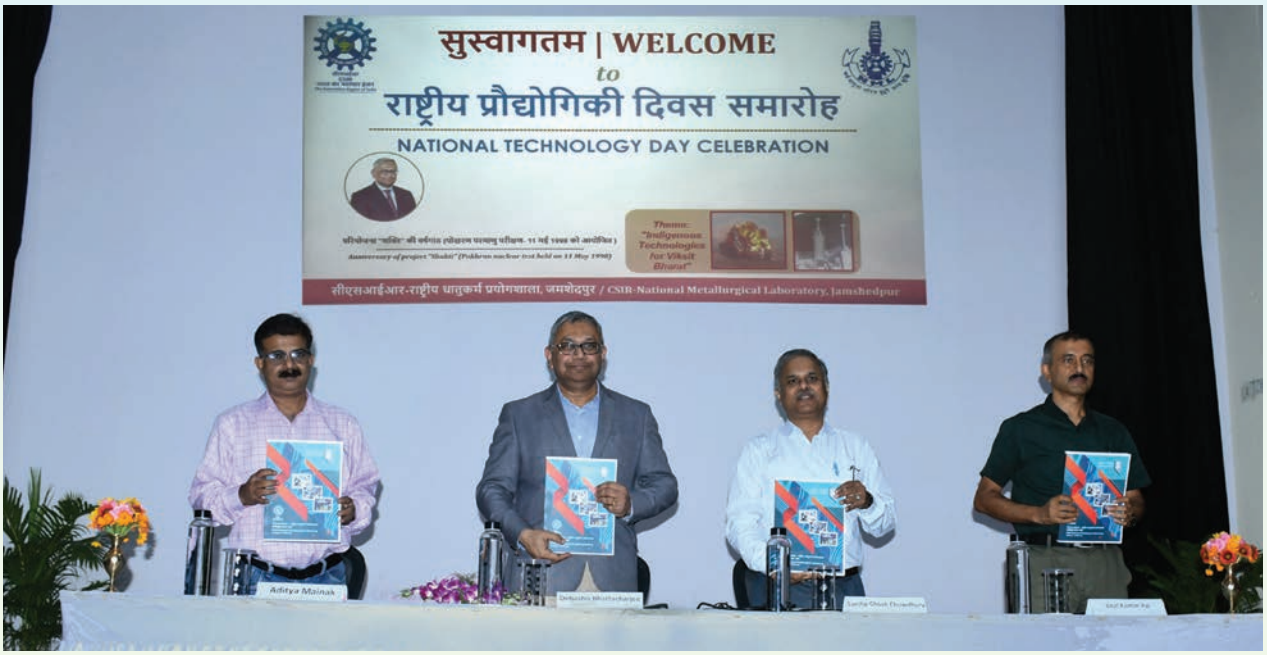
NATIONAL TECHNOLOGY DAY 2024

A Lecture at CSIR-NML on "From Schools to Startups: Igniting Young Minds to Innovate"



The celebration of National Technology Day on 10 May 2024 at CSIR-National Metallurgical Laboratory (CSIR-NML), Jamshedpur, was marked with an invited lecture by Dr Debashish Bhattacharjee, VP of Technology & R&D, Tata Steel Ltd.

In his welcome address, Dr Sandip Ghosh Chowdhury, Director, CSIR-NML, highlighted the importance of science & technology for developing a country and reiterated the significance of celebrating National Technology Day. In his presentation, Dr SK Pal, Chief Scientist & Head-RPBD Division, CSIR-NML, discussed the ongoing technology development programme and technologies developed and commercialised during the last financial years. He also highlighted technological interventions made by the Laboratory regarding societal benefits.

The Chief Guest, Dr Debashish Bhattacharjee, delivered a talk titled "From Schools to Startups: Igniting Young Minds to Innovate," also this year's National Technology Day 2024 theme. He spoke on the role of innovation-powered strategy in sustainable

development. Further, he talked about some great past business models, sustainable ventures, next-generation innovations from various industry sectors and the entrepreneurial approach of Idea-Innovation-Enterprise. In his speech, he highlighted the creation of knowledge, the fostering of ideas for enterprise, and their paramount role in the overall development of any country.

On this day, the Chief Guest also released the Annual Report for the financial year 2023-24 of CSIR-NML. Other dignitaries, Shri Abhijit Nanoti, MD, ISWP, Jamshedpur, formally graced the occasion and further amplified the celebrations. More than 120 students and faculty members from various colleges/ universities visited the lab.

The audience received the overall programme very well. Mr Aditya Mainak, Administrative Officer, CSIR-NML, proposed the vote of thanks.

A Lecture on Nuclear Energy for a Clean Environment and a Sustainable Future at CSIR-IIP

Dr DK Aswal, Director, Health, Safety and Environment Group, BARC, Mumbai, emphasised that nuclear energy is far safer and more economical than coal-based energy.

CSIR-Indian Institute of Petroleum (CSIR-IIP), Dehradun, celebrated National Technology Day on 10 May 2024. Dr DK Aswal, Director, Health, Safety and Environment Group, BARC, Mumbai, graced the occasion as Chief Guest. Dr HS Bisht, Director CSIR-IIP, informed the august gathering about the importance of this day and introduced the Chief Guest to the distinguished audience.

Dr Aswal delivered a lecture on "Nuclear Energy for a Clean Environment and a Sustainable Future", during which he clarified various myths associated with the safety hazards and use of nuclear radiation. Dr Aswal emphasised that nuclear energy is far safer and more economical than coal-based energy. Besides the lecture, Dr Aswal also visited the institute's laboratories and facilities.

On the occasion, Dr Aarti, Senior Principal Scientist and Coordinator of Jigyasa activities at CSIR-IIP, presented a brief overview of the Jigyasa Activities undertaken by CSIR-IIP and how they benefit school-going children. On this occasion, lab visits were also organised for St Kabeer Academy Dehradun students under the Jigyasa programme.

Shri Anjum Sharma, Senior Controller of Administration, proposed the vote of thanks.

CSIR-IMTECH Organises a Talk on Healthcare Solutions at the Interface of Chemistry & Biology

Prof. Neetu Singh, Head of the Centre for Biomedical Engineering, IIT Delhi, elaborated on myriad health issues of the global populace, especially the problems associated with better means of diagnosis, repair and regeneration of organs, bones, cartilage, etc.

To commemorate National Technology Day 2024, CSIR-Institute of Microbial Technology (CSIR-IMTECH), Chandigarh, organised an interactive invited talk on "Healthcare Solutions at the Interface of Chemistry & Biology" on 13 May 2024. Prof. Neetu Singh, Head of the Centre for Biomedical Engineering, Indian Institute of Technology, New Delhi, delivered the talk. She elaborated on myriad health issues of the global populace, especially the problems associated with better means of diagnosis, repair and regeneration of organs, bones, cartilage, etc. She also dwelled on the prospect of using nanoscience and nanotechnology to answer questions arising from these healthcare issues.

She emphasised that nanostructures, due to their similar size scale as bio-macromolecules and cellular components, provide an unprecedented opportunity to target and potentially modulate important biological processes. Also discussed key nanotechnology-based scientific and technological contributions that would impact future healthcare strategies, including disease diagnostics, better

therapeutics delivery and tissue engineering. In her talk, she discussed examples illustrating how knowledge of chemical science & nanotechnology had enabled the development of platform technologies for easy quantification of cell growth, migration and disease progression, along with nano-based solutions from her lab for improving drug delivery, wound healing and tissue engineering.

Dr Dibyendu Sarkar, the Acting Director, discussed the relevance of National Technology Day in the present scenario and appreciated the interactive talk from Prof. Neetu Singh.

The institute's staff and research students attended the programme. The programme coincided with the activities of Swachhata Pakhwada-2024 celebrations in the institute.

CSIR-CSIO Celebrates National Technology Day with Emphasis on Semiconductor Innovation

The event underscored the critical role of technology in India's S&T ecosystem and featured distinguished guests from the field of science and technology.

CSIR-Central Scientific Instruments Organisation (CSIR-CSIO), Chandigarh, celebrated National Technology Day on 11 May 2024, showcasing its latest research initiatives and technological advancements. The event underscored the critical role of technology in India's S&T ecosystem and featured distinguished guests from the field of science and technology.

Opening the ceremony, Prof. Shantanu Bhattacharya, Director, CSIR-CSIO, highlighted the importance of National Technology Day and provided a glimpse into new research endeavours at CSIR-CSIO, illustrating the organisation's commitment to leading-edge innovation.

The Chief Guest, Dr CR Parthasarathy, Director, Technology Development Group at Micron

Technology, India, delivered a keynote address titled "Memory Solutions: Powering the Next Technological Revolution". His lecture perfectly aligned with the Government of India's semiconductor mission, emphasising the pivotal role of advanced memory solutions in driving technological growth.

The event was also graced by Air Marshal Rajkaran Shera; Prof. AK Grower, Former VC at Panjab University; Dr HK Sardana; Director of IIIT Raichur; Prof. Gaurav Verma, Panjab University and Dr Piyush Garg, Head of CEED at Chitkara University. Their presence highlighted the collaborative spirit within the scientific and technological community, enriching the discussions with diverse perspectives.

Adding to the day's significance, CSIR-CSIO marked the occasion as an open day, inviting over 200 students from various schools to

interact with leading scientists and explore the laboratories. This initiative aimed to inspire the next generation of scientists by giving them a firsthand look at the potential of cutting-edge research.

The National Technology Day celebration at CSIR-CSIO commemorated India's achievements in science and technology and set the stage for future innovations that will continue to drive the nation's development.

The National Technology Day celebration at CSIR-CSIO commemorated India's achievements in science and technology.

Science Models Exhibition at CSIR-IIIM

Celebrating National Technology Day, CSIR-Indian Institute of Integrative Medicine (CSIR-IIIM), Jammu, organised a daylong event on 11 May 2024, observing the open day at the institute, which marked a significant convergence of academic institutions, signalling a collaborative effort towards advancing scientific understanding and innovation. More than 500 students from various schools, colleges, and universities toured the institute's research divisions

and facilities. They had a unique opportunity to interact with the scientists, technologists and young researchers & to explore the cutting-edge R&D.

A science models exhibition was also organised during which the students from various schools/ colleges/universities actively participated and put on display of science models made out of their creative and innovative brains.

During the event, RRL High School showcased projects elucidating the structure of Thermal Energy Generators within animal cells and elucidated the intricacies of thermal energy generation and different types of motion; Army Public School, Jammu Cantonment, demonstrated a diverse range of projects, including "Jarvis" an AI voice assistant for Atal Tinkering Labs & Fluid Flow Profiling; Army Public School, Akhnoor, exhibited the models on IR Sensor Glasses for Obstacle Detection; Army Public School, Damana, exhibited a model on connection & communication systems; Army Public School, Miran Sahib, exhibited models on innovative solutions like Automatic Fire Extinguishers and Ultrasonic Radars, PM Shri Kendriya Vidyalaya, Hiranagar, made an impressive model such as Digital Attendance Registers, Automatic Cloth Collectors.

PM Shri Kendriya Vidyalaya, GC CRPF Bantalab, displayed models on Rice Crop Disease Detection Systems and Automatic Cloth Protection from Rain; Air Force Schools contributed to the exhibition with innovative startups like "Bhujal Nirdharak", "ReKindle HOPE", and a License Scanner, demonstrating their commitment to technological innovation and Bhartiya Vidya Mandir High School, Hiranagar, displayed projects focusing on Smart Bridge for Flood Protection and Automatic Zebra Crossing Protection, showcasing solutions to real-world challenges.

Appreciating the illustrious and innovative models exhibited by the students, Dr Zabeer Ahmed, Director, CSIR-IIIM, Jammu, felicitated the students with mementoes and certificates of appreciation and wished them the best to make their ambition in Science. Dr Zabeer applauded the efforts of these institutions to nurture young minds and foster a culture of innovation. The National Technology Day celebration served as a platform to recognise and persuade the next generation of scientists and technologists who will drive India's progress in the future.

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CSIR-NBRI Transfers Technology and Exchanges an MoU

CSIR-National Botanical Research Institute (CSIR-NBRI), Lucknow, celebrated the National Technology Day on 11 May 2024. On the occasion, Prof. Rabinarayan Achraya, DG, Central Council for Research in Ayurvedic Sciences, Ministry of AYUSH, Government of India, New Delhi, was the Chief Guest.

Dr Ajit Kumar Shasany, Director of CSIR-NBRI, welcomed the gathering and mentioned that the institute has also contributed to society by transferring various technologies to industry partners. The main purpose of celebrating this day is to popularise and showcase our technologies among the public at large.

Prof. Acharya remembered the contribution of Indian scientists in developing indigenous technologies in various fields, including education, medical, pharma, health sector, etc. In his address, Prof. Acharya highlighted the recent developments and challenges of the Ayurvedic system in developing affordable medicines for incurable diseases. Now, Ayurvedic Sciences are continuously evolving with modern medicine systems to tackle challenges in establishing a proper Ayurvedic medicine system, said Prof. Acharya.

As per Prof. Acharya, Ayurveda is based on balance in bodily systems and uses diet, herbal treatment, and yogic breathing. Globalised and modernised practices derived from Ayurveda traditions are now established as complementary or alternative medicine system. Today, Ayurveda therapies and practices have been widely integrated with modern medicine systems, he added.

Prof. Acharya called on scientists of the institute to conduct research on the

Prof. Rabinarayan Achraya, Director-General, Central Council for Research in Ayurvedic Sciences, Ministry of AYUSH, remembered the contribution of Indian scientists in developing indigenous technologies in various fields, including education, medical, pharma, health sector, etc.

untapped potentials of hidden plants, such as poisonous plants and weeds, to explore pharma molecules that can be used to cure various life-threatening diseases. Prof. Acharya appreciated CSIR-NBRI's efforts to develop plant-based herbal products for human welfare.

On the occasion, CSIR-NBRI transferred the technology of Herbal Gulal from Kachnaar Flowers to Shri Ganesha Global Gulal Pvt. Ltd, Raipur, Chattishgarh. Mr Umang Goel, Managing Director, Shri Ganesha Global Gulal Pvt. Ltd, Raipur, Chattishgarh, said herbal Gulal made by CSIR-NBRI is very famous and demanding. We will launch this new herbal Gulal from Kachnaar flowers soon in the market.

CSIR-NBRI also exchanged an MoU with Oil India Limited under the corporate social responsibility project entitled Integrated Aromatic Florivillage for livelihood enhancement in Tripura to create income generation opportunities for better livelihood of farmers of Tripura by implementing the CSIR mission projects.

The institute and its laboratories remained open to the general public. More than 600 students from 15 schools/colleges of Lucknow and nearby areas visited the institute and its various facilities, including herbarium, exposition, botanic garden, etc.

Dr SK Tewari, Chief Scientist, proposed the vote of thanks.

Students visiting CSIR-NBRI Herbarium

CSIR-NBRI also exchanged an MoU with Oil India Limited under the corporate social responsibility project entitled Integrated Aromatic Florivillage for livelihood enhancement in Tripura.

A Talk on the Future of Engineering Sciences at CSIR-NEIST

Padma Shri Dr PS Goel at CSIR-NEIST

CSIR-North East Institute of Science And Technology (CSIR-NEIST), Jorhat, celebrated National Technology Day 2024 on 13 May with a special programme at Dr JN Baruah Auditorium. Padma Shri Dr PS Goel, FNA, FNAE, Former Secretary, Ministry of Earth Sciences, Govt of India, graced the occasion as Chief Guest and delivered the Technology Day Lecture, while Shri Bhaskar Jyoti Phukan, Managing Director, Numaligarh Refinery Ltd, Assam, was present as Guest of Honour.

In his address, Dr Virendra M Tiwari, Director, CSIR-NEIST, welcomed the gathering and mentioned that the day symbolises indigenous science & technology's immense contributions to the country's progress. He encouraged all to take this day as an inspiration to contribute to the country's development by inculcating the spirit of innovation and developing need-based technologies.

In his lecture on the topic "Future of Engineering Sciences" Dr Goel presented a whole gamut of opportunities for future engineers, scientists and innovators in various disciplines of science & technology. He explained that while science is understanding the nature of a concept, engineering is applying scientific knowledge to benefit society. He delved deeper into discussing the evolution of modern science, starting from the discovery of the decimal system, zero and trigonometry by mathematicians & astronomers such as Aryabhatta, Bhaskara-I and Bhaskara-II to the discovery of gravity, laws of motion, molecular structure and quantum mechanics by scientists like Isaac Newton, Bohr and Richard Feynman.

Talking about the Future of Engineering Sciences, he encouraged scientists, engineers & innovators to adopt the power of visualisation. He said that most scientific & technological

Dr Virendra M Tiwari, Director, CSIR-NEIST, in his address, mentioned that the day symbolises indigenous science & technology's immense contributions to the country's progress.

evolutions are based on visualisation and those who have the audacity to dream big. He spoke in detail about futuristic technologies for human habitat on Mars, Air taxis based on battery/ fuel cells, Green Hydrogen, Quantum Computers & Quantum Communication, Gene Therapy, Large adaptation of Artificial Intelligence & Machine Learning, etc. Concluding his lecture, he said that everybody cannot be a scientist or an engineer, but everybody can be an innovator.

Addressing the event, Shri Phukan discussed the various challenges of the oil & gas sector to ignite young minds to come up with solutions. He informed that sustainable Aviation Fuel is one global challenge many countries are currently working on. He also informed that oil demand in the country will continue to grow till 2040 and further highlighted that NRL's major challenges are sustainability and achieving Net Zero emission by 2038. The other key challenges he highlighted were Green Hydrogen production & its logistics, Biofuel and Compressed Biogas production.

To encourage upcoming entrepreneurs and startups, the institute invited some successful entrepreneurs to participate in the event and share their entrepreneurial journey.

Invited guests largely attended the programme, entrepreneurs, school students & teachers, press & media personnel besides CSIR-NEIST fraternity.

In his lecture, Padma Shri Dr PS Goel, Former Secretary, Ministry of Earth Sciences, presented a whole gamut of opportunities for future engineers, scientists and innovators in various disciplines of science & technology.

CSIR-CLRI Interacts with Stakeholders via its Regional Centres

CSIR-Central Leather Research Institute (CSIR-CLRI), Chennai, celebrated National Technology Day through its regional centres. The opportunity to interact with the stakeholders in Kolkata, Kanpur, Ahmedabad and Jalandhar was utilised through the celebration. A synergistic partnership with organisations such as the Footwear Design and Development Institute, KV schools, and colleges in the region was also a highlight of the celebrations.

CSIR-CLRI, Regional Centre in Kolkata celebrated National Technology Day on 13 May 2024 at FDDI Campus, Kolkata. The

staff members briefed the FDDI students about various CSIR-CLRI technologies. An on-spot design competition was also conducted, where leathers made from institute's technologies (Circulatory theme — Chicken Feet and Fish Leather, Sustainability Theme — Chromium-free Tanning, and Water-less Tanning) were provided to the students for designing various products. Shri Sunil Kumar, Executive Director of FDDI Campus, Kolkata, graced the occasion and distributed prizes and certificates to all the winners.

Similarly, CSIR-CLRI, Regional Centre Jalandhar, celebrated the day on 9 May 2024. During this event, 38 students from Kendriya Vidyalaya-III, Jalandhar Cantonment participated. Dr Hitesh Sharma, Dean (R&D), Punjab Technical University (PTU) and Shri Mr Amandeep Singh Sandhu, President of Punjab Leather Federation, chaired the session. Dr S Bajpai, Professor, Dept of Chemical Engineering, National Institute of Technology, Jalandhar delivered the guest lecture. Shri Harjinder Bhatia, Principal, KV, was invited as a special guest for the event.

On this occasion, students were made aware of National Technology Day and were provided information about the leather industry through technical presentations made by scientists at the centre. Additionally, they were taken on a tour of various institute's facilities followed by a tannery visit at M/s Jalandhar Leather (India) Pvt. Ltd.

Regional centre resource personnel also interacted with industry leaders and students in Ahmedabad and Kanpur.

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National Technology Day Celebrations at CSIR-IHBT

CSIR-Institute of Himalayan Bioresource Technology (CSIR-IHBT), Palampur, celebrated National Technology Day on 13 May 2024. On the occasion, Dr Sudesh Kumar Yadav, the Director, CSIR-IHBT, welcomed the guests and congratulated them on Technology Day. In his address, he explained how technology is changing our

lives and accelerating the spread of knowledge. He said that the institute is contributing to the social and economic development of the community through various projects and missions. He explained the institute's contributions under the Aroma, Floriculture, and Phytopharmaceuticals Mission. He presented details of the institute's technologies and highlighted their utility. He also encouraged the employees of the institute.

The keynote speaker of the programme was Dr Shirshendu Mukherjee, Mission Director, Programme Management Unit, DBT-BIRAC, New Delhi, who delivered the Technology Day lecture "Innovation Ecosystem for Self-reliant India". He emphasised science, technology and innovation and mentioned the innovative schemes run by the government, such as BioNEST, SITARE, BIPP, PACE, etc. Dr Mukherjee explained how these schemes bring fundamental changes and promote innovation as a symbol of this.

Dr Shirshendu Mukherjee, Mission Director, Programme Management Unit, DBT-BIRAC, New Delhi, emphasised science, technology and innovation and mentioned the innovative schemes run by the government.

On this occasion, the Chief Guest Prof. (Dr) Arun Kumar Sinha, Former Chief Scientist, CSIR-CDRI and Former Vice Chancellor, Ranchi University, Jharkhand, shared his scientific journey through a Lecture on "Learning from Failure in Research & Technology: An Opportunity for Simplification towards a New Innovation Paradigm". He said in his address that technology has played an important role in the progress of the country. He emphasised that one should not be afraid of failure but take inspiration from it to advance. In his address, he inspired the students to build scientific quests.

Four technology were transferred on this occasion — Gondla Cut Flower Cluster, Lahaul & Spiti (for Lilium Tube); Kangra Innovation and Wellness, Nagrota Bagwan (for aeroponics); Prorima Healthcare, Jaipur (for seabuckthorn tea); Satvik Agritech Lab, Kanpur (for hydroponic via NRDC New Delhi) and an MoU, M/s Baijnath Pharmaceuticals, Paprola (for value edition). Under the CSIR Floriculture Mission, a booklet was also released on CSIR-IHBT: *Success stories* by the institute.

The ceremony was attended by the staff of the institute, dignitaries of the region, CSIR-IHBT scientists, research students, personnel and media representatives.

CSIR-NIIST Signs an Agreement to Collaborate in Research and Education

CSIR-National Institute for Interdisciplinary Science and Technology (CSIR-NIIST), Thiruvananthapuram, celebrated National Technology Day 2024 on 13 May 2024. Prof. Prasad Krishna, Director, National Institute of Technology, Calicut (NIT-C), was the Chief Guest. Prof. Prasad Krishna signed an agreement in the presence of Dr C Anandharamakrishnan, Director, CSIR NIIST, for collaboration in research and

education through the exchange of students and faculties in interdisciplinary areas of science and technology.

Prof. Krishna remarked that the present agreement facilitates joint efforts to provide unique opportunities for students in frontier areas of materials research and the fast-emerging fields of artificial intelligence and machine learning. The agreement also envisages joint curriculum development for MTech programmes, skill development workshops and instrumentation training. Addressing National Technology, Prof. Krishna urged the students to pursue their options passionately.

Dr C Anandharamakrishnan, in his presidential address, listed the technological advancements made by CSIR-NIIST in biomedical waste management and vegan leather products. Around 150 students from nearby institutions visited the open-day exhibitions arranged at the various technical divisions of the institute.

Prof. Prasad Krishna, Director, NIT, Calicut, urged the students to pursue their options passionately.

New Technologies of CSIR-CFTRI and Exchange of Agreements

CSIR-Central Food Technological Research Institute (CSIR-CFTRI), Mysore, celebrated National Technology Day 2024 on 13 May 2024. Mr Arjun Ranga, CEO & Managing Director of N Ranga Rao & Sons Pvt. Ltd, Mysuru, was the Chief Guest of the event. Dr Sridevi Annapurna Singh, Director, CSIR-CFTRI, all heads of the departments, scientific and technological staff, press media, and students enthusiastically participated in the event. The complete celebration was streamed live on YouTube to provide a virtual experience of the occasion.

Dr Inamdar, Head TTBD, briefly discussed National Technology Day and its importance as soon as the event was officially inaugurated. Mr Arjun Ranga delivered an inspiring talk about the journey of their organisation from Agarbathi to Aerospace. He emphasised the need for industry-relevant technological advancement and innovation.

Following the keynote address, agreements were exchanged between the Director and CFTRI Licensees. The agreements were exchanged with three industries: DDR Ventures LLP, Bengaluru, for a sponsored project, M/s MCPI Private Limited, Kolkata, and Sun Enviro Technology Pvt. Ltd, Bengaluru, for transfer of technologies. The exchange of agreements paved the way for the industrial implementation of developed technologies. As a means of encouragement, seven technology transfer Licensees of the financial year 2023-24 were recognised and felicitated with a certificate and memento.

The CFTRI Technology beneficiaries Mrs Latha MR, Mrs Saroja, Mrs S Renuka Devi, Mr Syed Zainul Abedeen, M/s Mama Mills, Mr Thanmay Gowda MC and M/s Hamsavahini Eco Products were felicitated in recognition and as motivation to pursue their interest in the food processing industry.

Twelve new technologies developed during the FY 2023-24 were introduced to the audience by the Convenor, PDRU committee. The Principal Investigators of the new twelve technologies: Ragi based malt hydrolysate, Malted ragi based ready to eat weaning food, Finger millet semolina, Instant finger millet (Ragi) rava idli mix, Instant finger millet (Ragi) halwa mix, Instant finger millet (Ragi) khichdi mix, Instant finger millet (Ragi) upma mix, Millet and multi millet puttu podu mix, cleaner process for biotechnological production of spirulina, ready to use multigrain idli and dosa batter in retail packs, a process for the production of multigrain waffle and a process for the production of multigrain pizza base were briefed for the benefit of the industries, society and country.

"Certificate of Appreciation" was also presented to scientific and technological staff as an opportunity to recognise and appreciate their role in developing key technological innovations contributing towards the External Cash Flow generated in FY 2023-24.

The Director presented her presidential remarks, emphasising the need for proof of concept, USP, and marketing for research institutes and industries. The Technology Day celebration was a resounding success, bringing together technology enthusiasts, industry experts, and students under one roof. It served as a platform to celebrate technological innovation and foster collaboration for a better future.

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CSIR-CGCRI Organises a Lecture on Technology for Earth Observation

Clockwise from left: Director, CSIR-CGCRI, during her National Technology Day inaugural address; Dr Ravichandran delivering the National Technology Day Lecture; Felicitation of the speaker; Dr Ravichandran visiting the Fibre optics laboratory of CSIR-CGCRI

CSIR-Central Glass and Ceramic Research Institute (CSIR-CGCRI), Kolkata, observed National Technology Day 2024 (NTD 2024) on 14 May 2024. Dr M Ravichandran, Secretary to the Government of India, Ministry of Earth Sciences, graced the event as the Chief Guest. He also delivered the National Technology Day Distinguished Lecture entitled "Technology for Earth Observation".

At the beginning of the event, Dr (Mrs) Suman Kumari Mishra, Director CSIR-CGCRI, presented an overview of the institute's R&D and technology attainments. She highlighted the institute's recent engagement with various project proposals from the Ministry of Earth Science.

During his lecture, Dr Ravichandran elaborated on the key niche held by the world's oceans, particularly in their role in providing food, regulating climate, and acting as the biggest carbon sink on Earth. He especially highlighted the uniqueness of the Indian Ocean, as it represented the only major ocean completely bounded by land in the north, dramatically influencing the wind and ocean current patterns. He touched upon the socio-economic benefits of the oceans (including tourism, transport, etc.), and the vast diversity of ocean resources — both living

Dr M Ravichandran, Secretary to the GoI, Ministry of Earth Sciences, elaborated on the key niche held by the world's oceans, particularly in their role in providing food, regulating climate, and acting as the biggest carbon sink on Earth.

and non-living constituents; and stressed upon the needs of ocean conservation and coast protection/restoration for future generations. He very elegantly summed up the storyline by stating that an ocean of opportunities and challenges needed to be leveraged and addressed.

The presentation delved into the state of various in-situ ocean observation technologies — including platforms, sensors, and vehicles — geared towards studying the oceans, with a special emphasis on the Indian Ocean. It also highlighted how ocean observation technologies have evolved and the current methodologies being followed. He felt these could effectively align with research institutes' scientific priorities and capabilities to formulate and work on various projects. At the end, he also provided a brief overview of the Deep Ocean Mission, with its objectives and anticipated outcomes.

Dr Ravichandran interacted with various students and scientists at the institute and visited several labs and research facilities. He also paid a visit to the institute Archive & Museum to have a glimpse of institutional history.

CSIR-CDRI Organises Translational Research Series Lecture

Dr Shinjini Bhatnagar, Distinguished Professor and a physician-scientist from THSTI, emphasised the critical importance of translating research findings into actionable clinical practices and policies.

Release of CSIR-CDRI annual report 2023-24 on the National Technology Day

The CSIR-Central Drug Research Institute (CSIR-CDRI), Lucknow, celebrated National Technology Day 2024 on 14 May 2024 day by holding the translational research series lecture, releasing its annual report and distributing certificates to innovators for patent filing, award and technology transfer for the year. Dr Shinjini Bhatnagar, Distinguished Professor and a physician-scientist from Translational Health Science and Technology Institute (THSTI), Faridabad, graced the occasion as Chief Guest.

Dr Shinjini Bhatnagar delivered a captivating lecture on "Research from Evidence to Clinical Practice and Policy; Identifying Priorities Early" and emphasised the critical importance of translating research findings into actionable clinical practices and policies.

She said biomedical sciences and technology are the key to interpreting the complexity of our lives. She also talked about the improvement made in WHO Oral Rehydration Solution (ORS) in India with the optimum glucose concentration. Her talk also focused on maternal and child health, a key determinant of a healthy society. She also informed about GARBH-Ini (interdisciplinary Group for Advance Research on Birth Outcome) initiative of DBT India. This secondary care hospital based pregnancy cohort collects pregnant women's medical data to help in early disease detection.

Dr Bhatnagar's insightful discourse shed light on the crucial role of early identification of research priorities in shaping the healthcare landscape. Her expertise and invaluable insights left the audience inspired and enlightened.

The event also witnessed the release of the institute's annual report for 2023-2024, showcasing the remarkable strides made in drug research and development.

Furthermore, Dr Radha Rangarajan congratulated and felicitated the inventors who have pioneered new technologies and developed groundbreaking patents, underscoring CSIR-CDRI's commitment to innovation and advancement in the pharmaceutical domain. CSIR-CDRI felicitated the technology transfer teams who contributed to recent successful technology transfers to Industries. The institute also recognised the efforts of the inventors for their contributions in filing and granting patents.

In closing, Dr Manoj Barthwal, Chairperson of the event, extended the vote of thanks to all participants, speakers, and attendees for their valuable contributions and active participation in making the National Technology Day celebration a resounding success.

CSIR-CDRI felicitated the technology transfer teams who contributed to recent successful technology transfers to Industries.

A Talk on Science and Entrepreneurship at CSIR-NCL

CSIR-National Chemical Laboratory (CSIR-NCL), Pune, celebrated the National Technology Day on 21 May 2024. The celebration's highlight was the keynote address by Mr Subramani Ramachandrappa, Founder and Managing Director of Fermbox Bio Pvt. Ltd, Bengaluru. Mr Ramachandrappa delivered an inspiring talk on "Science and Entrepreneurship," where he shared his journey and the challenges and triumphs of being involved in entrepreneurship.

Dr Ashish Lele, while felicitating Mr Ramachandrappa

Dr Ashish Lele, Director, CSIR-NCL, emphasised the critical role of translating technology and its commercialisation, describing it as a long journey with many milestones but no endpoints.

Dr Ashish Lele, Director, CSIR-NCL, opened the event with a warm welcome and a brief overview of the importance of National Technology Day. He emphasised the critical role of translating technology and its commercialisation, describing it as a long journey with many milestones but no endpoints. This journey, he noted, requires a great deal of patience, yet it is enjoyable. He encouraged all his colleagues and students to engage in this process. Dr Lele also highlighted this year's theme for National Technology Day: "From Schools to Startups: Igniting Young Minds to Innovate".

Mr Subramani Ramachandrappa delivered an insightful lecture addressing various crucial aspects of science and entrepreneurship. He began by discussing the inherent challenges in developing scientific ideas and how innovation is pivotal in overcoming these obstacles. He emphasised that there are many innovative ideas from which some will evolve from initial concepts into fully realised visions. He highlighted the importance of maintaining confidentiality and protecting Intellectual Property (IP) to ensure innovative ideas remain secure and commercially viable.

Mr Ramachandrappa stressed the significance of mentorship and family support as the major pillars essential for success. He highlighted that a successful entrepreneur should never give up, suggesting they should leverage every resource available, maintain a calm and positive temperament, and continually smile through challenges. Building a proper team is another key focus, emphasising proactiveness and finding partners and collaborators who share common goals. He used the metaphor "keep the music playing" to signify the importance of maintaining momentum and enthusiasm in one's endeavours. He highlighted that acknowledging and learning

from failures is crucial and gave importance to chaos management and staying grounded despite successes and setbacks.

Mr Ramachandrappa emphasised the need for perseverance and a continuous willingness to learn. Creating a significant impact through one's work was described as the ultimate goal, tying all the elements of his talk together. A question and answer session followed the lecture. In conclusion, Dr Ashish Lele felicitated Mr Ramachandrappa with a memento and a souvenir.

CSIR-CECRI Organises a Lecture on Energy Transition Materials and Rare Earths

Dr K Ramesha, Director, CSIR-CECRI, detailed the seminal technological contributions that CSIR and CSIR-CECRI have made towards Nation-building.

The National Technology Day was celebrated at CSIR-Central Electrochemical Research Institute, Karaikudi, on 27 May 2024 with great zeal. Dr Deependra Singh, Chairman and Managing Director of IREL (India) Ltd, Mumbai, graced the occasion as Chief Guest.

Dr K Ramesha, Director, CSIR-CECRI, welcomed the gathering and provided a brief overview of National Technology Day. He detailed the seminal technological contributions that CSIR and CSIR-CECRI have made towards Nation-building, including Amulspray — infant milk food, Swaraj Tractor, Biofuels, e-Tractors and various societal applications. Besides, he highlighted technological advancements made by CSIR-CECRI in environmental technologies, such as CO_2 capture, electrolyzers, water purification, electroplating, NPK sensors, fuel cells, corrosion mitigation, and corrosion inhibitor technologies used in the Pamban Bridge. He proudly mentioned CSIR-CECRI's role in human resources development activities through its BTech programme, AcSIR PhD programme, Skill Development, and Jigyasa.

In his National Technology Day lecture on "Energy Transition Materials and Rare Earths", Dr Deependra Singh covered the critical materials in short supply

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and crucial in the value chain. He projected the demand for Li, Cu, Al, Co, Ni, and other battery-related materials in 2030 and 2040. He stated that there is a need to identify materials that would become critical in the next 10-15 years and find solutions from now. He further said that the grand challenges of rare earths lie in separation, smelting, and understanding the f-electron. He added that the role of critical materials in energy security and the challenges of a clean energy transition are the key areas.

Dr Singh stated that there is an increase in demand for minerals like lithium, cobalt, nickel, copper, and rare earth materials. He highlighted the availability of rare earths globally and in India. He provided an overview of applications of rare earth elements in emerging clean energy technologies, including wind turbines and EV motors. He detailed the activities of IREL and the availability of feedstock resources in India and explained various methods and stages of the extraction process.

Dr A Palaniappan, Sr Principal Scientist, CSIR-CECRI, proposed the vote of thanks.

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