

In the News

Union Minister releases a flagship document on the National Circular Economy Roadmap to reduce Plastic Waste

“CSIR is developing various technologies towards reducing India’s Carbon footprint and recycling,” – Dr Jitendra Singh.



The Hon’ble Union Minister of State Science & Technology, Dr Jitendra Singh, released a flagship document on the “National Circular Economy Roadmap” for reducing Plastic waste in India, organised on 6 December 2023 at CSIR Science Centre, New Delhi. During the ceremony, Dr Jitendra Singh was the Chief Guest and Dr N Kalaiselvi, Secretary, DSIR, and DG,

CSIR, was the Guest of Honour. The document is a collaborative exercise between leading research institutions from India and Australia that aims to foster research and industry partnerships between the two countries and co-develop a roadmap for India’s transition to a circular economy in the Plastics sector.

India and Australia are active participants in the negotiations to formulate a Global

Dr Jitendra Singh said that India has taken the lead in its quest for a circular economy towards achieving the Net Zero target by 2070, as committed by Hon'ble PM Shri Narendra Modi.

Plastics Treaty to be finalised next year. Both countries aim to leverage their strengths in waste management, recycling policies, and environmental initiatives to foster a circular economy prioritising resource efficiency and environmental protection. The present research commenced in July 2020 as part of the India-Australia Comprehensive Strategic Partnership announced by the Indian and Australian Prime Ministers in June 2020.

During the document's launch, Dr Jitendra Singh said that India has taken the lead in its quest for a circular economy towards achieving the Net Zero target by 2070, as committed by Hon'ble PM Shri Narendra Modi.

Further, Dr Singh said that India's Council of Scientific & Industrial Research (CSIR) is developing various technologies to reduce India's carbon footprint and recycling. He also mentioned that the "Recycling on Wheels" bus, recently launched by the Department of Science and Technology, Technology Development Board and CSIR, can generate Waste to Wealth at different spots due to its mobility. Further, he added that the "Dehradun-based CSIR-Indian

Institute of Petroleum (CSIR-IIP) has jointly developed a Repurposed Used Cooking Oil (RUCO) van that collects the used cooking oil and converts it into biofuel". The Minister added that CSIR-Central Road Research Institute (CSIR-CRRI), New Delhi, has pioneered the development of a revolutionary steel slag road technology that facilitates the large-scale utilisation of waste steel slag from steel plants in road construction.

On the occasion, the Australian High Commissioner to India, Mr Philip Green, said the collaboration with India on Circular Economy is "important for Australia". "Reducing Plastic Waste to Zero and achieving a circular economy is a difficult proposition, but possible," he said.

Addressing the gathering, Dr N Kalaiselvi said that the world has moved from saying "No to Plastics" to "Biodegradable Plastics". "We have to find the best to live with plastics," she said.

The Government of India has been actively formulating policies and promoting projects to drive the country towards a circular economy.

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Adapted from PIB

Hon'ble Union Minister Dr Jitendra Singh Inaugurates Children Science Festival at CSIR-IIIM

Hon'ble Union Minister of State (Independent Charge) Science & Technology; MoS PMO, Personnel, Public Grievances, Pensions,

Department of Atomic Energy & Department of Space and Vice President, CSIR, Dr Jitendra Singh emphasised the harnessing of young



aptitudes. The Minister spoke after inaugurating the “Children Science Festival” organised by CSIR-Indian Institute of Integrative Medicine (CSIR-IIIM), Jammu, on 06 November 2023. Dr Jitendra Singh also took a round of the stalls in the exhibition and witnessed different kinds of science models prepared by the students. The students drawn from the schools of the Jammu region have also scripted slogans under different themes, including Health & Wellness, Water Conservation, Waste Management and Save Mother Earth.

While addressing the school students, Dr Jitendra Singh narrated how the Jigyasa programme is inspired by Prime Minister Narendra Modi’s vision of a new India and Scientific Social Responsibility (SSR) of Scientific Communities and Institutions. Jigyasa is a Student-Scientist connect programme implemented by the CSIR in collaboration with Kendriya Vidyalaya Sangathan (KVS).

Dr Jitendra Singh also applauded the efforts of CSIR-IIIM for organising such outreach activities for the

students from schools and colleges. He said such activities help increase scientific aptitude and inculcate the spirit of innovation and entrepreneurship in young minds. He also distributed prizes to the winners of various competitions.

Dr Jitendra Singh said that India’s first Virtual Science Lab for Children under the CSIR Jigyasa Programme was launched, which built a strong connection between students and scientists nationwide. He also said that the main objective of establishing the virtual lab was to provide quality research exposure and innovative pedagogy for school students based on an online interactive medium. He added that the new facility will immensely benefit students from Kendriya Vidyalayas, Navodaya Vidyalayas, and government schools of various state boards and help catch them.

In the Children Science Festival, more than 350 students from about 55 schools under the government of J&K, Kendriya Vidyalayas, Navodaya Vidyalayas, Army Public Schools, Bhartiya Vidya Mandir Schools, etc.,

Dr Jitendra Singh narrated how the Jigyasa programme is inspired by PM Narendra Modi’s vision of a new India and Scientific Social Responsibility (SSR) of Scientific Communities and Institutions.

from various districts of Jammu region showcased their talent in various competitions such as science models, science/current affairs quiz competition, poster competition on 'Swachh Bharat Mission' and slogan writing competition on 'Space Mission of India'.

Students of Seva Bharti, an NGO that provides free education and vocational training to children from economically weaker sections of society, displayed various products developed under the 'Waste to Wealth' theme.

Earlier, Dr Zabeer Ahmed, Director, CSIR-IIIM, gave the details of this event in his welcome address and said that the main objective of the Children Science Festival is to ignite the scientific spirit in young minds.

Further, he informed the audience that CSIR-IIIM has been

regularly organising various youth conclaves and startup expos as outreach activities and to support and nurture the startup ecosystem of the UT of J&K. Later, Dr Zabeer apprised that CSIR-IIIM has three incubation centres viz. Technology Business Incubator (TBI), BioNEST Incubator and Atal Incubation Centre (AIC) for hand-holding and promoting the startups.

Prominent among the dignitaries present in the function were Dr Ashutosh Gupta, Principal Govt Medical College, Jammu; Prof. Sanjeev Jain, Vice Chancellor of the Central University of Jammu; Ashok Kumar Sharma, JKAS, Director School Education, Jammu; Nagendra Goyal, Deputy Commissioner, KV Sangathan, Jammu.

The vote of thanks was proposed by Er Abdul Rahim, Chief Scientist and Head of the Srinagar branch.

The main objective of the Children's Science Festival is to ignite the scientific spirit in young minds, said Dr Zabeer Ahmed, Director, CSIR-IIIM.

Director General, WIPO, Visits CSIR-TKDL

Mr Daren Tang, Director General, the World Intellectual Property Organisation (WIPO) and other distinguished delegates from the

WIPO visited the CSIR-Traditional Knowledge Digital Library (TKDL) facility on 12 October 2023. The WIPO team also participated in discussions





on the CSIR Innovation System, TKDL, CSIR Technologies, and CSIR's Current IP Strength & Strategy.

The CSIR team was led by Dr (Mrs) N Kalaiselvi, Secretary, DSIR and Director General, CSIR. The distinguished guests included Prof. Unnat P Pandit, Controller General of Patents, Designs & Trade Marks (CGPDTM), and representatives from the Department for Promotion of Industry and Internal Trade (DPIIT), the office of the CGPDTM, and Ministry of AYUSH.

Speaking on the occasion, Dr Kalaiselvi elaborated on the proud IP legacy of CSIR, including the IPR policy and strategy. Welcoming Mr Tang, she said his visit and the discussions would provide further impetus to the innovation ecosystem of the CSIR family. She spoke about the potential for new collaborative efforts between CSIR and WIPO. She also opined that this visit by Mr Tang and the WIPO delegation would highlight CSIR's S&T capability at the global level.

Mr Daren Tang elucidated WIPO's vision to bring more inclusiveness and position it as a powerful catalyst to transform the IP system. He said

that India's S&T capacity was not new and dated back several thousand years. He was happy to note the great strides being made by CSIR as a key Indian innovator. He appreciated the organisation's activities related to the TKDL, IP targeted at the Sustainable Development Goals (SDGs), Patinformatics and IP Audit. He expressed WIPO's support to CSIR for a meaningful and impactful journey together.

The visit to CSIR-TKDL Unit showcased the various activities related to digitisation of ancient Indian texts of traditional medicine, namely Ayurveda, Unani, Siddha, and Sowa Ripga, Yoga and the third party submissions to prevent misappropriation of traditional knowledge through wrong grant of intellectual property.

The WIPO delegates also interacted with the CSIR-TKDL team to understand the interdisciplinary nature of the work and its impact as one of its kind prior art database of traditional knowledge. Mr. Daren Tang and the WIPO team appreciated the work on TKDL and opined that this strategy is required for South-South cooperation.

*Mr Daren Tang,
DG, WIPO, expressed
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At the exhibition, CSIR showcased its globally benchmarked technologies and potentially game-changing technological pursuits in the pipeline to the delegates. The DG, WIPO, CGPDTM and team appreciated the activities of the CSIR, stating that the technologies

were all objective-oriented and supported by a well-thought-through IP strategy. The DG, WIPO and CGPDTM requested that the details of the showcased CSIR technologies be included in the national IP Compendium being put together by the O/o CGPDTM.

CSIR Cooperative Society Election held at CSIR HQ using “*New Invisible Luminescent Ink*” developed by CSIR-NPL

CSIR-National Physical Laboratory (CSIR-NPL), New Delhi, developed biocompatible invisible luminescent election ink, which is invisible in daylight and emits a red luminescent colour under 365 nm ultraviolet LED-based device. This ink is a strategically designed colloidal suspension composed of luminescent pigment in a protein linker medium for Finger Marker to Deterrent Double Voting, as shown in Figure 1. This outcome is a

result of the continuous and rigorous effort of the last three years.

This ink was used for the first time in the CSIR Cooperative Society Election held at CSIR Headquarters, Anusandhan Bhawan, New Delhi, on 12 December 2023 for approximately 320 voters.

Voters of CSIR society members highly appreciated the feedback on this ink, and all were highly excited about this ink.

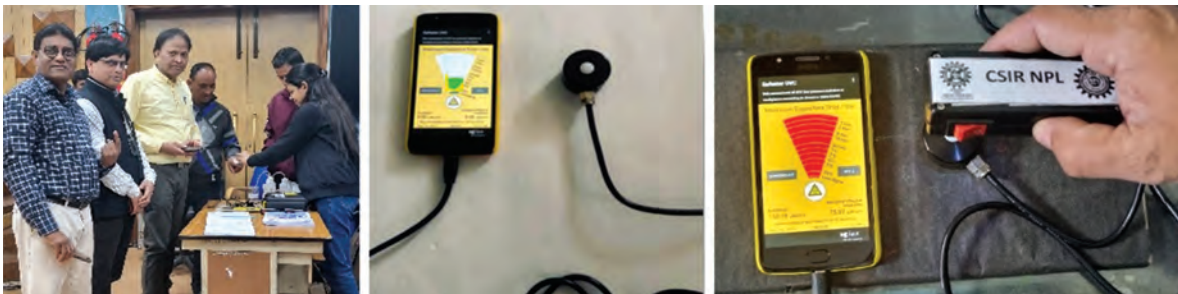
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Invisible luminescent election ink under normal light and UV light for Finger Marker to deter double voting (Figure 1)



Some glimpses of voters while voting in CSIR Cooperative Society Election



Chemical stability test on fingers by various bleaching agents and safety test with Dosimeter, which shows green (middle image) when UV dose is safe and red (right image) when UV dose is not safe

Furthermore, this ink was rigorously tested for chemical stability on fingers by various bleaching agents (Water, Oil, soap solution detergent, bleach, ethanol, isopropanol, acetone and chloroform, etc.) before its first use in the CSIR Cooperative Society Election and was also demonstrated to voters for its stability test during the election. The UV radiation safety test using a dosimeter was also performed to ensure the safety

exposure of the device to humans. The UV-A LED source device with controlled power was used to excite and show the luminescent ink's red colour. When the power of the UV-A LED source is in a safe range, the dosimeter shows a green colour, and when the power exceeds, it shows red colour. The live demonstration of the UV-A LED source power limit was also done with the voters while voting.

The agreement aims to manufacture BMI Engine Bay Door for the series production of LCA-Tejas.

MoUs/Agreements

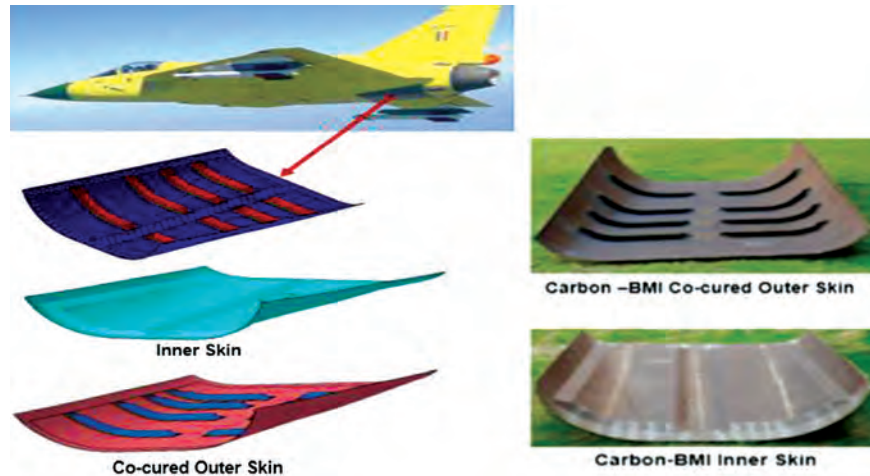
HAL signs ToT with CSIR-NAL for BMI Engine Bay Door for Series Production of LCA-Tejas

Navratna Defence PSU Hindustan Aeronautics Ltd (HAL) signed a Transfer of Technology (ToT) agreement with CSIR-National Aerospace Laboratories (CSIR-NAL), Pune, on 8 November 2023. The agreement aims to manufacture BMI Engine Bay Door for the series production of Light Combat Aircraft (LCA) – Tejas Mk1A, an indigenous 4.5 generation, all weather and multi-role fighter aircraft for the Indian Air Force.

Over the last three decades, CSIR-NAL has developed many



Exchange of ToT agreement between Mr Anbuvelan S, CEO (HC), HAL and Dr Abhay A Pashilkar, Director, CSIR-NAL



Engine Bay Door Assembly for LCA-Tejas

critical technologies for the LCA-Tejas and continues to support this major national programme.

Advanced Composites Division (ACD) of CSIR-NAL has pioneered the design & development of composite structures using innovative and cost-effective manufacturing technologies, including co-curing/co-bonding constructions.

The laboratory has played a pivotal role in developing the composite parts for LCA-Tejas, which include Fin & Rudder, Wing Spars, Wing Fuselage Fairings, Fairings blocks, Centre Fuselage parts, & Undercarriage Doors. The innovative technologies by CSIR-NAL reduce the cost and improve structural efficiency by minimising the number of mechanical joints. The innovations have resulted in more than 20% cost savings and 25% weight reduction in the parts of the LCA-Tejas.

In continuation to the above indigenous development, for the first time in the country, CSIR-NAL has developed manufacturing process technology of high

temperature resistant co-cured composite structures using Carbon-BMI Prepreg for the engine bay door where it can withstand the service temperature of about 200°C. The processing of Carbon-BMI is very tricky because the resin becomes very thin as viscosity reaches 8-10 centipoises at higher temperatures. Hence, retaining the resin within the laminate is a major challenge. During the process, it emits volatiles and moisture while curing. Therefore, proper venting is necessary during the curing of these resins; otherwise, it may cause process-related defects such as voids and delaminations.

Furthermore, HAL has requested for transfer of technology for the BMI Engine Bay Door, and the ToT Agreement has been entered between HAL & CSIR-NAL in the presence of Mr Anbuvelan S, CEO (HC), HAL and Dr Abhay A Pashilkar, Director, CSIR-NAL. With signing the agreement, HAL can directly produce these high-temperature resistant composite parts for the series production of LCA Mk1A aircraft, meeting the initial requirement of IAF squadrons.

The innovative technologies by CSIR-NAL reduce the cost and improve structural efficiency by minimising the number of mechanical joints.

Direct Benefit:

- The Value of Transfer of Technology (ToT) of BMI Engine Bay Door for series production of LCA-Tejas Mk1A with License Fee of Rs 4.42 Crores and Royalty payment of Rs 62.44 lakhs (Total LCA-Mk1A aircraft order from IAF to HAL is 83 nos). The Royalty is payable till the last part is manufactured by the HAL.
- The total ToT & Royalty value of about Rs 5.05 crores to be

realised by CSIR-NAL from the development of BMI Engine Bay Door composite parts for LCA-Tejas from HAL.

- This is the second-highest ToT value in the history of NAL. Earlier, the high-value ToT of Fin & Rudder to HAL was during Aero India in February 2023 with a license fee of Rs 12.98 Crores and a royalty payment of Rs 6.37 crore for 83 aircraft.

R&D

CSIR-CDRI and Dr Reddy's Laboratories Partner to Develop High-value Generics in the API Value Chain

CSIR-Central Drug Research Institute (CSIR-CDRI), Lucknow, and Dr Reddy's Laboratories Ltd, Hyderabad, have entered into an agreement on 22 November 2023 for the development of high-value generics in Active Pharmaceutical Ingredients (APIs) value chain (starting materials & Intermediates). The collaboration aims to develop cost-effective and industrially viable processes for selected generic drugs. A group of expert synthetic chemists from CSIR-CDRI and Dr Reddy's will work jointly to deliver the project goals. Upon successful execution, the collaboration would be expanded to other drug discovery and development areas, focusing on affordable healthcare.

Dr Radha Rangarajan, Director, CSIR-CDRI, said, "We are excited

to work with Dr Reddy's for the development of APIs. Our shared goal of delivering high-quality drug products while ensuring affordability and access makes this collaboration particularly meaningful."

Deepak Sapra, Chief Executive Officer, API and Services, Dr Reddy's, said, "We are delighted to collaborate with CSIR-CDRI and hope to foster deep industry-academia linkages. Such engagements allow for the best of public-private infrastructure, talent, and knowledge to be harnessed for global health. The collaboration also aligns with our patient goals of serving 1.5 billion patients by 2030 globally and launching innovative products with increased accessibility and affordability."

"We are excited to work with Dr Reddy's for the development of APIs. Our shared goal of delivering high-quality drug products while ensuring affordability and access makes this collaboration particularly meaningful."
said, Dr Radha Rangarajan, Director, CSIR-CDRI.

CSIR-IMTECH Organises National Seminar on Crystallography



Dr Shekhar C Mande, former DG, CSIR, & Distinguished Professor, SPPU, Pune, delivering his talk

During his keynote lecture, Dr Shekhar C Mande, Former DG-CSIR, highlighted that India has a rich tradition of crystallographers since the pre-Independence era.

CSIR-Institute of Microbial Technology (CSIR-IMTECH), Chandigarh, organised the 50th National Seminar on Crystallography in joint association with the Indian Crystallographic Association (ICA) from 22 to 24 November 2023. The seminar shall help and serve as a platform for crystallographers from across the country to present and learn about the latest cutting-edge research findings, methodologies, and best practices in crystallography. About 300 participants from different academic research institutes as well as from the industry across the length and breadth of the country, participated in the conference. The field of crystallography takes into its fold the disciplines like Physics, Chemistry, Biology, Crystal Growth, Crystal Engineering,

Pharmaceuticals, & Biotechnology, which aids in drug discovery and engineering novel materials.

The Chief Guest, Dr Shekhar C Mande, former DG, CSIR, & Distinguished Professor, Savitribai Phule Pune University, inaugurated the three-day-long 50th National Seminar on Crystallography. He delivered a keynote lecture on “Crystal Structure of NrdI: NrdF complex of the Ribonucleotide reductase Class Ib enzymes” and highlighted that India has a rich tradition of crystallographers since the pre-Independence era.

Dr Sanjeev Khosla, Director, IMTECH while welcoming the participants, gave a brief background of CSIR-IMTECH and said, “The major objective of the seminar is to highlight that crystallography is an

indispensable tool in the fields as diverse as materials science and biology.” The students and young researchers would get a chance to interact with the experienced team, which would help them shape their interests in crystallography.

Dr S Karthikeyan, Chief Scientist & convener of the seminar, informed that IMTECH and ICA are celebrating the golden jubilee of the National

Seminar on Crystallography. This annual conference provides young and senior researchers an opportunity to share knowledge vital for advancing research in areas like materials science, drug discovery, and structural biology. There are more than 100 invited talks by scientists, professors & young researchers of reputed institutes and a similar number for poster presentations.

Events

CSIR-IMTECH Organises “Fit India Swachhata Freedom Run 4.0”

CSIR-Institute of Microbial Technology (CSIR-IMTECH), Chandigarh, organised “Fit India Swachhata Freedom Run 4.0” with the theme “Swachh Bharat, Swasth Bharat” for its employees and family members on 29 October 2023.

“Fit India Freedom Run” is one of the biggest nationwide fitness movements that the government of India initiated during the peak of the COVID-19 pandemic in 2020. The campaign aims to encourage fitness and help citizens get freedom from obesity, laziness, stress, anxiety, diseases, etc. This run aims to inculcate the habit of walking and running in people in the quest for better health and fitness.

Dr Sanjeev Khosla, Director, CSIR-IMTECH, flagged off the 5 km “Fit India Swachhata Freedom Run 4.0” and participated in the run. Speaking on the occasion, Dr Khosla said, “The Fit India Freedom Run is yet another endeavour to strengthen the Fit Indian Movement and involve citizens to embrace fitness as a way of life.”

The event was conducted at the premises of CSIR-IMTECH, covering a distance of about 5 km, and 200 participants, including staff & their family members, students, project staff and temporary staff of the institute, took part.



“The Fit India Freedom Run is yet another endeavour to strengthen the Fit Indian Movement and involve citizens to embrace fitness as a way of life”, said Dr Sanjeev Khosla, Director, CSIR-IMTech.

CSIR-CDRI stepped in Kasturba Gandhi Balika Vidyalaya (KGBV) to spread the Awareness during 3rd Janjatiya Gaurav Divas Celebration



Dr Sanjeev Yadav, Pr. Scientist, CSIR-CDRI, provided valuable information to the children about maintaining good health while sharing insights about the medicines developed at CDRI.

In commemoration of 3rd Janjatiya Gaurav Divas, the birth anniversary of Bhagwan Birsa Munda, the CSIR-Central Drugs Research Institute (CSIR-CDRI), Lucknow, organised an Awareness Programme at Kasturba Gandhi Awasiya Balika Vidyalaya, Kumhrawan, Bakshika Talab, Lucknow on 23 November 2023.

A team from CDRI went to the school and successfully conducted the programme. The team led by JIGYASA coordinator Dr Sanjeev Yadav and Principal Scientists Dr Sripathi R Kulkarni, along with four other staff members from the institute, aimed to inspire and motivate girls from underprivileged rural areas to progress in their lives.

Dr Sanjeev Yadav, Principal Scientist, CSIR-CDRI, encouraged and motivated the girls; he emphasised the significance

of overcoming challenges and pursuing excellence, drawing inspiration from the exemplary life of the Hon'ble President of India and other successful women leaders.

Dr Sanjeev provided valuable information to the children about maintaining good health while sharing insights about the medicines developed at CDRI. The emphasis on health awareness aimed to empower underprivileged rural girls with knowledge that can contribute to their overall well-being.

Furthermore, Dr Sripathi Kulkarni underscored the importance of education and career advancement among children. He engaged them intellectually and distributed prizes to encourage and motivate young minds to strive for success in their educational and professional journeys.

Mr Nitin and Mr Amar conducted the quiz competition among the participants; winners of the competition bagged the prize, and other participants got consolation gifts. The principal

of KGBV, Mrs Mamta Singh, appreciated the efforts made by the team CDRI to motivate the girls and other teachers and staff also participated enthusiastically in the programme.

CSIR-NIScPR Celebrates Ayurveda Day



CSIR-National Institute of Science Communication and Policy Research (CSIR-NIScPR), New Delhi, celebrated the 8th Ayurveda Day on 9 November 2023 as part of its SVASTIK initiative. On this occasion, CSIR-NIScPR hosted a special lecture on the “Role of Ayurveda in Lifestyle Disorders” in collaboration with the Central Council for Research in Ayurvedic Sciences (CCRAS).

Mr RS Jayasomu, Chief Scientist, CSIR-NIScPR, welcomed the participants and delivered introductory remarks wherein he highlighted the importance of integrating Ayurveda into our daily lives, particularly in light of the current unfavourable environmental circumstances.

Dr Paramananda Barman, Scientist, CSIR-NIScPR, introduced the Speaker, Dr Sakshi Sharma, Research Officer (Ay.), Central Ayurveda Research Institute, New Delhi. In her keynote

speech, Dr Sharma emphasised prioritising good health over recuperating from illnesses. In addition, she expressed the importance of traditional knowledge and also her apprehension regarding the prevailing practice of resorting to medication without first evaluating one's lifestyle.

The captivating lecture encompassed various facets of Ayurveda, such as Prakriti, the Ayurveda clock, dietary practices, and strategies for mitigating stress-related health issues. The lecture was followed by a question and answer session. Dr Charu Lata, Principal Scientist and PI/Coordinator-SVASTIK, CSIR-NIScPR, proposed the vote of thanks and expressed gratitude to the speaker and audience. The event concluded with a free Health Checkup Camp coordinated by Dr Suman Ray, Principal Scientist, CSIR-NIScPR.

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CSIR-NIScPR SVASTIK Lecture on “Feeding the 10 Billion by 2050: A Genomics Perspective”



Dr Manoj Prasad, Professor, NIPGR, highlighted the potential of millets to address the global food demand.

As part of its NIScPR-SVASTIK Lecture series under the SVASTIK (Scientifically Validated Societal Traditional Knowledge) initiative, the CSIR-NIScPR, New Delhi, hosted an online lecture on “Feeding the 10 Billion by 2050: A Genomics Perspective” on 18 October 2023, in commemoration of World Food Day 2023.

Dr Suman Ray, Principal Scientist, CSIR-NIScPR, introduced the Keynote Speaker, Dr Manoj Prasad, Professor and JC Bose National fellow at the National Institute of Plant Genome Research, New Delhi. Shri RS Jayasomu, Chief Scientist at CSIR-NIScPR, welcomed the participants and delivered his introductory remarks for the event.

In his keynote address, Dr Manoj Prasad highlighted the potential of millets to address the global food demand.

Dr Prasad's lecture was intellectually stimulating, focusing on the traditional and cultural importance of millets, their exceptional health benefits and agronomic characteristics, the nutraceutical advantages they offer compared to other cereals, and the latest biotechnological approaches being used to improve these wonder crops.

Dr Paramananda Barman, a scientist at CSIR-NIScPR, conducted the question-and-answer session following the keynote speech. A brief video showcasing the SVASTIK initiatives on millets in collaboration with My Gov was also presented during the event.

Dr Charu Lata, Principal Scientist and PI-SVASTIK, CSIR-NIScPR, proposed the vote of thanks and expressed gratitude to the speaker and audience.

CSIR-NIScPR Organises “Student-Scientist Connect Programme”



A glimpse of the Programme

CSIR-NIScPR hosted a Student-Scientist Connect Programme at its SV Marg Campus on 30 October 2023. The programme aimed to nurture and instil a scientific temperament among the students while actively promoting science education. A total of 45 students, accompanied by 2 teachers from “The Indian School” in Sadiq Nagar, New Delhi, attended the event.

Shri CB Singh, Head Jigyasa Training and HR Division at CSIR-NIScPR, welcomed the gathering and presented a comprehensive overview of the CSIR and its extensive network of laboratories, including the significance of CSIR-NIScPR. Mr Singh offered insightful explanations to the students about the diverse realms of industrial research undertaken within CSIR labs.

He emphasised the critical importance of forging connections between science and society,

which can bridge the gap between the two. Mr Singh also elaborated on the role of Jigyasa in facilitating science learning for school children, encouraging the students to cultivate a genuine interest in science that could potentially propel them to become future scientists and inventors. He encouraged them to remain open-minded and inquisitive, fostering a passion for scientific exploration.

During his inaugural address, Dr Sujit Bhattacharya, Chief Scientist, CSIR-NIScPR, encouraged students to explore the ever-evolving world of science and cultivate a proactive thinking drive within themselves. He emphasised the significance of CSIR-NIScPR's publications, including the *Science Reporter* and *Vigyan Pragati*, in bridging the gap between students and science. Further, he highlighted the vital role of the NIScPR RHMD (Raw Materials Herbarium & Museum, Delhi) in preserving and

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studying the essential botanical resources, and the the institution's multifaceted contributions to the scientific exploration and education.

Shri Sanjay Burde, Sr Principal Scientist and Head of the National Science Library (NSL) and ISSN Centre, CSIR-NIScPR, provided valuable information about the library, highlighting its extensive collection of over 2,51,000 printed S&T documents, encompassing monographs, bound journal volumes, reports, theses/dissertations, standards, and patents, among other resources. He underscored the NSL's collection policy, which prioritises acquiring high-end R&D reference materials, Indian S&T publications, foreign language dictionaries, libraries and many more sources that cater to the diverse needs of the scientific and technological community in India. The students then visited the library.

Dr Suman Ray, Principal Scientist & Jigyasa Nodal-PI, CSIR-NIScPR, delivered an insightful talk on the remarkable "Achievements

of CSIR: Science Technology & Innovation" spanning the past eight decades. In her presentation, Dr Ray shed light on the various innovations and ingenious solutions produced by various CSIR institutes, which have significantly advanced science and technology while benefiting Indian society.

There was also a quiz competition for the students.

The event also emphasised the awareness of Energy Literacy Training, led by Dr Suman Ray, an initiative headed by the Energy Swaraj Foundation. Its primary objective is to impart knowledge and awareness about the crucial concept of energy literacy. Energy literacy is regarded as the initial stride towards addressing climate issues and safeguarding the environment.

During the event, an additional educational activity was integrated, involving students in the calculation of their personal carbon footprints. This activity was facilitated through the distribution of worksheets specifically designed for the assessment of one's carbon



footprint. This exercise played a pivotal role in raising students' awareness regarding their carbon footprints and how their daily actions can result in the release of carbon dioxide. This activity helped them understand lifestyle's impact on the environment, encouraging a more conscious and eco-friendly way of living.

In the end, latest issues of NIScPR's monthly popular science Hindi magazine "*Vigyan Pragati*" and English magazine "*Science Reporter*" were distributed among the students. The students were also felicitated with participation certificates for their active involvement in the event.

Prof. Stefan Mecking Delivers Dr RA Mashelkar Endowment Lecture

Prof. Stefan Mecking, Chair of Chemical Materials Science, University of Konstanz, delivered Dr RA Mashelkar Endowment Lecture on "Recyclable and Degradable Polyethylene-like Material Enabled by Catalytic Methods" on 14 December 2023 at CSIR-National Chemical Laboratory (CSIR-NCL), Pune.

Organised by the NCL Research Foundation and CSIR-NCL, the Dr RA Mashelkar Endowment Lecture series marked its 78th edition with Prof. Mecking's fantastic oration. The series, named after the distinguished scientist Dr RA Mashelkar, aims to foster knowledge exchange and promote groundbreaking research in the field of chemical science.

In his address, Prof. Mecking shed light on the global significance of plastics, with over 400 million metric tons produced annually. He emphasised the growing role



Prof. Stefan Mecking, while delivering the lecture



Dr Suresh Bhat felicitating Prof. Mecking

Prof. Stefan Mecking, Chair of Chemical Materials Science, University of Konstanz presented innovative approaches to address these challenges.

of polymers in diverse sectors, including energy, mobility, communication, and healthcare. He delved into the current challenges facing polyethylene recycling, discussing the persistent nature of the material and the technological hurdles involved.

Prof. Mecking presented innovative approaches to address these challenges. His discourse covered additive manufacturing with polyethylene-like polymers, closed-loop recycling of polyethylene-like polymers, production of polyesters from

plastic waste, utilisation of waste polyethylene as feedstock, advancements in polyketones, etc. The lecture concluded with an exciting Q & A session.

Earlier, Dr Suresh Bhat, Chair, Polymer Science and Engineering, set the stage with welcome remarks. Dr Samir Chikkali, Senior Principal Scientist, introduced Prof. Mecking, highlighting the significance of his research in the pursuit of sustainable materials.

Dr Suresh Bhat felicitated Prof. Mecking with a memento and a book.

Awards

CSIR-CEERI Scientists Bag various Awards

IEI Young Engineers Award 2023-2024

Dr Rahul Prajesh received the prestigious IEI Young Engineers Award 2023-2024 for significant achievement in the area of Electronics and Telecommunication, particularly for the development of micro-heater-based gas sensor platform, temperature sensor, and bio-sensors.

The award was presented to Dr Prajesh by the ISRO Chief,

Dr S Somnath at the 38th National Convention of Electronics and Telecommunication Engineers held on 27-28 October 2023, in Kochi, Kerala. The award consisted of a Plaque and a Citation. Following the award, Dr Prajesh also delivered an invited talk in the technical session of the convention.

The IEI Young Engineers Award, presented by the Institution of Engineers (India), is a prestigious honour bestowed

Oceanographic Laboratory (NPOL), DRDO



Dr Rahul Prajesh receiving the IEI Young Engineers Award for the year 2023-2024

upon young engineers who have displayed exceptional talent and have made outstanding contributions to their respective fields. Dr Rahul Prajesh is working as a principal scientist at CSIR-CEERI, Pilani.

Best Technology Translation Award in Research Conferred by DRDO-DIBER

On the occasion of the Diamond Jubilee of Defense Bio-Energy Research (DRDO-DIBER) Haldwani, Uttarakhand, the Kisan Jawan Vigyan Mela

was inaugurated by the Union Minister of State for Defense and Tourism Ajay Bhatt. During the Science Fair various awards were conferred.

Dr Anand Abhishek, Senior Scientist, CSIR-CEERI, Pilani, received the “Best Technology Translation Award in Research” for the CSIR-CEERI’s developed technology “Renewable Energy-based DC Microgrid System” during the Kisan Jawan Vigyan Mela. The award was conferred by Dr UK Singh, Director General



Dr Anand Abhishek is receiving the best technology translation award in research from Dr UK Singh, DG (Life Sciences), DRDO



Dr Udit Narayan Pal receiving the IETE-Bapuseetharam Award (Biennial)-2023

(Life Sciences) DRDO, on 15 October 2023.

The developed technology provides off-grid energy solutions and 24 x 7 availability of electricity. DC power in the system ensures higher efficiency and simple control than its AC counterpart. The developed system powers market available lighting and cooling loads such as BLDC fans, LED tubelights, LED bulbs, etc. The developed system is currently powering the dispensary of CSIR-CEERI.

ETE-Bapuseetharam Award (Biennial)-2023

Dr Udit Narayan Pal, Senior Principal Scientist, CSIR-CEERI, Pilani, received the IETE-Bapuseetharam Award (Biennial)-2023 on 16 September 2023, in the 66th IETE annual convention at Pune, Maharashtra, in recognition of his seminal contribution to the research and development of cutting-edge plasma devices and systems with societal, strategic and industrial applications that contributed to the attainment of national self-reliance.

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E-mail: sonalinagar@niscpr.res.in

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Sales & Distribution Officer, NIScPR; **E-mail:** sales@niscpr.res.in

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