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In The News

Dr. Jitendra Singh Inaugurates Technology Facilitation Centre at CSIR-NEIST



IN an initiative that could fast-track scientific research and give an impetus to job creation, the Ministry of Development of North Eastern Region (DoNER) has established a “Technology Facility Centre” (TFC) in the premises of the CSIR-North East Institute of Science & Technology (NEIST) in Jorhat, Assam. Dr. Jitendra Singh, Union Minister of State (Independent Charge) Development of North Eastern Region (DoNER), MoS PMO, Personnel, Public Grievances & Pensions, Atomic Energy and Space laid the foundation stone of the new Science Centre on 30 October 2018.

DoNER will support the Department of Science and Technology (S&T) and Council of Scientific and Industrial Research (CSIR) to institutionalize technical applications for promoting research as well as job creation, said Dr. Jitendra Singh. Ministry of DoNER will bear the cost of setting up of the new Science Centre in Assam and has allocated a sum of Rs. 40 crore for its construction initially.

Present on the occasion were, among others, Member of Lok Sabha from Jorhat, Shri Kamkhya Prasad Tasa; Director CSIR-NEIST Dr. Samit Chattopadhyaya;



Chairman Research Council Dr. G.N. Qazi; Secretary NEC (North-Eastern Council) Shri Ram Muivah, and Vice-Chancellor of National University, Dr. Pardeshi Lal.

Speaking on the occasion, DoNER Minister Dr. Jitendra Singh said that the Northeast has vast scientific reserves

waiting to be explored. He hoped that the new TFC would prove to be a boon for young aspiring youth and would emerge as a Center of Excellence for all the eight States of the Northeast as well as the rest of India.

Dr. Singh referred to “North-Eastern Region Community Resource Management Project” (NERCORMP) and “North East Rural Livelihood Project” (NERLP), the two programmes run by the Ministry of DoNER and NEC, which were devoted to the cause of improving livelihood opportunities for unemployed youth, farmers, women and artisans. He expressed the hope that the new Centre would serve as a technical and interventional catalyst for fast-track growth, which could eventually enable the North Eastern States to equal the success rate of some of the western States of India.

The system has been developed by blending sugarcane bagasse with gelatinized maize starch and urea formaldehyde to form nanocomposite granules.

CSIR-NCL Scientists Develop Environment-friendly Controlled Release Formulation System for Applying Agrochemicals

Scientists at Pune-based National Chemical Laboratory (NCL) of Council of Scientific and Industrial Research (CSIR) have developed an environment-friendly controlled release formulation system for applying agrochemicals in agricultural fields.

The system has been developed by blending sugarcane bagasse with gelatinized maize starch and urea formaldehyde to form nanocomposite granules. As a model system, the researchers have encapsulated Dimethyl phthalate (DMP), an insect repellent and ecto-parasiticide, within the granules.

Over the years, overuse of pesticides is posing a major hazard to human health and environment. In recent times, a solution has been found in the form of controlled release formulation systems. Such systems help prolong the release of the pesticide over a desired time period and help to reach the target sites in a focused manner. This enhances crop yield and reduces environmental pollution.

Various natural polymers like starch, gelatin, natural rubber, and synthetic polymers such as polyurea, polyurethane, poly vinyl alcohol, and epoxy resins are



Team of researchers involved in the study



employed to prepare these systems.

The growing problem of microplastic pollution has made it necessary to focus more on producing controlled release systems based on biodegradable microcapsules from sustainable feed stocks. The new system developed by the scientists of Polymer Science and Engineering Division at NCL is a move in that direction.

Explaining the mechanism of the system, research team leader, Kadhiravan Shanmuganathan, said that when the granules were applied in the field, the starch in them absorbs water, swells and releases the pesticide at a controlled rate. Addition of cellulose nanofibres from bagasse enhanced the efficiency of the system.

When starch alone is used, the initial rate of DMP release was high. It subsequently slows down and reaches a plateau after about half the DMP is released. “The system with cellulose nanofibres, on the other hand, releases DMP slowly in the beginning and releases 90% of DMP, as more water is absorbed due to its hydrophilic nature. Cellulose nanofibres also control the pore size of starch granules and hence DMP release,” Shanmuganathan, told India Science Wire.

As the release rate of the active

agent depends on the level of water absorption, different type of controlled release formulation systems can be developed depending on the type of soil, irrigation pattern and moisture content of the soil.

Besides Shanmuganathan, the research team included Mayur Patil, Vishal Patil, Aditya Sapre, Tushar S. Ambone, Arun Torris AT and Parshuram Shukla. The study has been published in journal ACS Sustainable Chemistry and Engineering.

Parashuram Shukla, a pioneer in the field of micro-encapsulation, and a former senior principal scientist involved in this research, noted, “NCL has developed a broad range of CRFs over a period of three decades. They have been evaluated at different institutes like Tamil Nadu Agricultural University (TNAU), Coimbatore, Nimbkar Agricultural Research Institute, Phaltan, Agricultural Rice Station, Karjat and Agricultural Research Station, Jaipur”.

Asked about the future plan, Shanmuganathan said the division wanted to extend the research to make use of controlled release formulations for control of weeds in sugarcane crops and has submitted a proposal in this regard to the Department of Science and Technology’s Nano Mission.

India Science Wire

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CSIR-NCL Tops SCImago Rankings in Government Labs

CSIR-National Chemical Laboratory (CSIR-NCL), Pune, a constituent laboratory of the Council of Scientific and Industrial Research (CSIR) has jumped 110 places to rank 275th globally in the SCImago Institutions Rankings (SIR) and tops Indian rankings among government funded labs. This was achieved by building and maintaining a balanced portfolio of scientific activities and R&D programmes.

The latest 2018 version of the SIR report was released recently. These results have also been highlighted in an issue of *Current Science* published dated 25 September 2018.

Overall, CSIR collectively with its 37 constituent labs has been positioned at the 132nd place globally and has topped the national ranking. Four central government organisations appeared in the list of the rankings;

apart from the CSIR, the Indian Council of Agricultural Research (ICAR), the Defence Research and Development Organisation (DRDO), and the Indian Space Research Organisation (ISRO) are also in the list.

In the SIR 2018 report, 5632 institutions are ranked globally of which 271 are from India (4.8%). This year, not a single research-focused institution from the private sector of India made it into the list. In 2018 report, 30 of the constituent laboratories of the CSIR find a place in these rankings against 29 in 2017; this has gone up from 18 in 2009.

Among the government funded individual labs, Pune based CSIR-NCL ranks number one followed by CSIR-IIIM, Jammu (417), CSIR-CSMCRI, Bhavnagar (453), and CSIR-IICT, Hyderabad (477).

CSIR-NCL and IIT, Roorkee Researchers Develop Dyes to Increase Efficiency of Solar Cells

Researchers from CSIR-National Chemical Laboratory (CSIR-NCL), Pune along with IIT Roorkee have developed organic dyes that can increase efficiency of Dye-Sensitized Solar Cells (DSSC). The research results have been published in the journal *ACS Applied Energy Materials*.

Dye-sensitized solar cells or DSSC use a combination of cheap organic dyes and nanoparticles of titanium dioxide, to convert light into electricity. Although the cost of DSSC is much lower than the earlier generations of photovoltaics, their conversion efficiencies are also very low, necessitating further research into dyes used in such cells.

Porphyrin is a complex organic

molecule and is the building block of chlorophyll, the key chemical that allows plants to harvest light energy for photosynthesis. The researchers have developed a process to produce functionalized porphyrins, without the use of platinum and palladium catalysts. They have developed five porphyrin Zn(II) complexes with a power conversion efficiency ranging from 5.3% to 7.1%.

This collaborative work by IIT Roorkee and CSIR-NCL on the improvement of sensitizers for DSSC could lead to dyes with higher conversion efficiencies, which in turn could lead to better and low-cost DSSCs than possible today.

MoUs/Agreements

Non-Exclusive Licensing of CSIR-NAL's Lead Zirconate Titanate (PZT) Powder Technology to M/s IPA Pvt. Ltd., Bengaluru



CSIR-NAL signed License Agreement with M/s IPA Pvt. Ltd., Bengaluru, on 16 October 2018 for “Production of PZT powders and the products manufactured thereof”. PZT powders of high piezo properties (with piezoelectric charge constant (d_{33}) > 500 pC/N and maximum d_{33} of 700 pC/N) were developed by CSIR-NAL using the wet chemical route.

The agreement was signed for the production and commercialisation of Lead Zirconate Titanate (PZT) powder for sensor and actuation applications. PZT powder is used for fabrication of various types of components used for many engineering applications such as aerospace vibration control, precision fluid flow control, underwater sonar transducers, accelerometers, force transducers, vibration sensors, vibration energy harvesting, etc. Commercial terms for non-exclusive licensing of PZT technology include a licence fee of

₹12 Lakhs and recurring royalty @8% on the ex-factory sale price of PZT powder and component manufactured thereof.

Dr. Prasanta Kumar Panda, Chief Scientist, Materials Science Division, Late Mr V.A. Jaleel, (Retd.) Principal Scientist, Materials Science Division Dr. Benudhar Sahoo, Scientist, Materials Science Division were the team members who contributed for development of PZT powder from CSIR-NAL.



PZT powder and fabricated PZT rings prepared by the CSIR-NAL team, for accelerometer applications

CSIR-CIMAP Signs Agreement with RIFM to Standardize Fragrant Oils

The Central Institute of Medicinal and Aromatic Plants (CIMAP) signed an agreement with US-based Research Institute for Fragrant Materials (RIFM) for improving the quality of fragrant oils. The agreement was signed by Dr. A.K. Tripathi, Director CSIR-CIMAP and Mr Jim Romane, President, RIFM at the annual conference of the

International Fragrance Association in Paris.

Since the RIFM internationally standardizes the quality of fragrant materials, it will give a big boost to the fragrance quality in India standardizing the fragrant material produced in India. The CSIR, under the “aroma mission”, has been aiming to enhance production of fragrant materials.

Events

NISCAIR Celebrates 200th Anniversary of the Publication of Mary Shelley’s “Frankenstein: The Modern Prometheus”



Dr. Manoj Kumar Patariya, Director, CSIR-NISCAIR addresses the gathering. On the right: Prof. Shambhu Nath Singh, Director, School of Journalism and New Media Studies, IGNOU and Mr Devendra Mewari, science fiction writer

of CSIR-NISCAIR and National Science Library (NSL) organised a Readathon of the novel on 9 November 2018 at the NISCAIR Campus at S V Marg, New Delhi.

Written in 1816 by a teenaged Mary Shelley and published in 1818, *Frankenstein: The Modern Prometheus* is the first true science fiction novel. Years ahead of its time, the story has since become the inspiration for countless films and stage adaptations and has been translated to nearly 60 different languages. *Frankenstein's* creature is a living, breathing, gruesome outcome of scientific discovery.

To celebrate the 200th anniversary of the publication of Mary Shelley’s *Frankenstein: The Modern Prometheus*, scientists, staff and AcSIR students

The inaugural session was graced by the noted science fiction writer Mr Devendra Mewari, Prof. Shambhu Nath Singh, Director, School of Journalism and New Media Studies, IGNOU and



Dr. Manoj Kumar Patairiya, Director, CSIR-NISCAIR.

Mr Devendra Mewari in his address gave an outline of the plot in the novel by Mary Shelley. He also highlighted the contribution of Indian writers in science fiction writing.

Prof. Shambhu Nath Singh in his address mentioned that science and civilization have travelled together and it's difficult to separate them. With every civilisation there evolved some mythologies. In all these mythologies there is a certain amount of science involved. If we decode science from mythologies we can understand the scientific knowledge of that period, he said.

Prof. Manoj Kumar Patairiya, Director, CSIR-NISCAIR, in his address mentioned that even though science fiction may seem resolutely modern, but the genre could actually be considered hundreds of years old. It acts as the window for the future and enlightens the people. It enhances the imaginative power of children and society which is needed for the development of the nation. It paves way for scientists to work in frontier areas of science. Today's fiction may become tomorrow's reality, he said. Prof. Patairiya also highlighted



the role of regional print media as well as All India Radio in disseminating science fiction in society. He mentioned that NISCAIR is planning to bring out an anthology of science fictions published in *Science Reporter* and *Vigyan Pragati* shortly.

Prof. Manoj K. Patairiya initiated the Readathon by reading the first letter from the novel which was followed by reading by other dignitaries, scientists, staff and students of CSIR-NISCAIR. The event was held on the eve of the UNESCO's World Science Day for Peace and Development.

*Contributed by Biju Dharmapalan
PhD Scholar, CSIR-NISCAIR*

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CSIR-CBRI, Roorkee Organises Student Awareness Programme on Preservation of Ozone Layer



CSIR-Central Building Research Institute, Roorkee, organised a student awareness programme on the preservation of the ozone layer on 5 October 2018 to spread awareness amongst young generation on the importance of Ozone Layer for life on Earth.

Dr. N. Gopalakrishnan, Director, CSIR-CBRI, Roorkee, encouraged the students to participate in the programme with a calm mind and have interactive sessions with the institute scientists. Dr. Suvir Singh, Chief Scientist, told the students about the importance of the ozone layer and informed about the research being carried out by the institute to develop cleaner products to prevent CFC emissions.



Shri R.S. Chimote, Chief Scientist, delivered a lecture on “Preservation of the Ozone Layer — Problems, Causes and Protective Measures”, and informed



the students how ozone layer makes possible the existence of life on earth by protecting our earth from the harmful ultraviolet rays of the sun. But with the increase in the emission of harmful catalysts, such as CFCs, HCFCs, etc., there has been an increase in the rate of ozone layer depletion which has caused a hole in it. Many countries, including India, have signed several agreements and treaties such as the Montreal Protocol, Paris Convention, etc. to address this issue. He also performed a live demonstration of a clean fire extinguishing liquid developed by the institute.

Dr. Atul Kumar Agarwal, Senior Principal Scientist and Programme Coordinator, said that by bringing small changes to our daily activities – by minimal use of CFC products such as body spray, air conditioner, refrigerators, etc., we can contribute to the preservation of the ozone layer throughout the year. Also, fire extinguishing materials should be examined before purchase



to avoid aerosol products containing chlorofluorocarbons, etc.

Dr. L.P. Singh, Principal Scientist, presented the formal introduction of Shri R.S. Chimote. Dr. Purnima Parida, Senior Principal Scientist, proposed the vote of thanks.

The programme was attended by more than 200 B.Tech and B.Sc. students from Phonics Group of Institutes and SSDPC Girls (PG) College, Roorkee.

CSIR-NCL Conducts Fire Safety Training Programme



Mr Haroon Shaikh, M/s. Oustfire Services a professional trainer in an interactive session

with each batch size of thirty participants.

Mr Haroon Shaikh from M/s Oustfire Services Ltd. emphasised on the “Basics in Safety and Emergency Preparedness”. He told participants that we have to practice safety, practice becomes the habit and transforms into a culture. He highlighted the unpredictable nature of emergencies by showing videos related to fire incidences and their consequences. He also talked about the evacuation procedure and its impact. Mr Haroon Shaikh explained the importance of learning safety

A Fire Safety Training programme was organised at CSIR-National Chemical Laboratory (CSIR-NCL), Pune, for students and staff during 10-12 October 2018. The training programme included awareness lectures, demonstrations and hands-on training on operating the fire extinguishers. The training programme was conducted in ten batches

systems and following protocols while doing experiments in labs. He advised research students to wear safety gadgets such as aprons, safety goggles and use quality safety products.

The demonstrations including a hands-on training on the use of fire extinguishers under the supervision of the safety coordinators.

The training programme included awareness lectures, demonstrations and hands-on training on operating the fire extinguishers.



A hands-on training demonstration being carried out

CSIR-CBRI Organises Two-day Training Programme on Conservation of Heritage Structures



CSIR-Central Building Research Institute, Roorkee, organised a two-day training programme on conservation of heritage structures “BHAGVAN – A Search” during 3-4 October 2018.

Inaugurating the programme, Dr. N. Gopalakrishnan, Director, CSIR-CBRI, Roorkee, emphasised that in the modern world where the value of the rich cultural heritage is continuously decreasing, the importance of training the young minds to protect and preserve our heritage is quite evident. He also mentioned that we should conserve our heritage.

Dr. Achal Mittal, Senior Principal Scientist & Programme Coordinator conducted the programme and informed that the aim of the programme is to train students to search, study, explore, appreciate, research and conserve heritage structure. The programme

is named “BHAGVAN — Bharat Heritage and Grandeur reVitalizing National Assets”. The programme provided information on the study of scientific facts through training and research, exploration of knowledge and implementation of the project, understanding the characteristics of heritage structures, preservation of valuable assets for future generations, etc.

On this occasion, the Course Material/Proceedings of the training programme titled “*BHAGVAN – A Search*” was also released. Shri I.A. Siddiqui, Senior Technical Officer, proposed the vote of thanks. Lab visit and exhibition of CBRI’s initiatives were also organised during the programme.

Commencing the technical session, Dr. N. Gopalakrishnan, Director, CSIR-

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CBRI delivered a lecture on “Heritage Structure: Mechanics, Materials, Monitoring and Other Challenges”.

Lectures were delivered on various topics and themes such as Indian heritage, online monitoring of heritage structures, repair & restoration, problem of fungi on heritage structures and its treatment, effects of natural disasters on heritage structures, importance of heritage data, etc.

The Valedictory Session was presided over by Dr. N. Gopalakrishnan, Director, CSIR-CBRI, Roorkee. In his Presidential Address, he said that India has been an architectural genius since the Vedic times. This excellence is reflected in its heritage structures



that have stood the test of time. This training programme is a tribute to the nation's architectural brilliance, a testimony to the great engineering skills of our ancestors who had incorporated such strength, beauty and details into the structures even before the advent of modern technology and have even greatly documented them. He said that the participants of the programmes will become the ambassadors who will collect information of the various heritage structures near them and provide them to the Institute for detailed research.

The training programme was attended by about 100 participants including students from Greater Noida, Lucknow, Hamirpur, Sikkim, Himachal, Delhi, Dehradun, Noida and Project



Assistants of CSIR-CBRI Roorkee. Certificates were also distributed to the participants.

CSIR-NEIST Organises a Seminar on Natural Resources Management



CSIR-North East Institute of Science and Technology (NEIST), Jorhat, organised a one day seminar on “Natural

Resources Management for Sustainable Development of North-East India” on 26 November 2018 in the Dr. J N



The seminar focused mainly on the various issues related to sustainable management/ utilisation of the diverse natural resources of the region so as to plan, execute different R&D programmes for the benefit of the society.

Baruah Auditorium of CSIR-NEIST under the aegis of the CSIR-Aroma Mission, Indian Institute of Mineral Engineers, Chemical Research Society of India and Materials Research Society of India.

In the seminar, after the welcome address by Dr. Samit Chattopadhyay,

management/utilisation of the diverse natural resources of the region so as to plan, execute different R&D programmes for the benefit of the society.

The programme was concluded with the vote of thanks from Dr. S P Saikia, Organising Secretary, CSIR-NEIST.

Honours & Awards

CSIR-NPL Scientist Honoured with the Raja Ramanna Fellow

Dr. R.K. Kotnala, former scientist from the CSIR-National Physical Laboratory (CSIR-NPL) has been bestowed with the prestigious Raja Ramanna Fellow of the Department of Atomic Energy (DAE) for 2018.

Dr. Kotnala obtained PhD on Silicon Solar Cell from the Indian Institute of Technology, IIT Delhi. He was Chief Scientist and Divisional Head of Environmental Sciences and Biomedical Metrology and Material Physics & Engineering in NPL and has acquired 35 years of experience as

a Scientist in CSIR-National Physical Laboratory.

Dr. Kotnala has received several recognitions including fellow of NASI in 2015 (National Academy of Science, Allahabad India); IGU (Indian Geophysical Union) and Outstanding Academician, APAM (Asia Pacific Academy of Materials). He has also received the International Healthcare Service Excellence Award 2017 for first Exceptional Invention of Hydroelectric Cell and MRSI (Material Research Society of India) Medal Award in 2009.

He has published over 407 research papers in SCI peer-reviewed journals, delivered more than 442 invited talks and 117 papers in Conferences, besides 12 US/Indian patents, 11 industrial consultancies, 4 books and 6 chapters in international books.



standards on magnetic measurements and Spintronics & Magnetic Materials lab at CSIR-NPL.

Based on his enriched experience of research and Industry interaction Dr. Kotnala is to advise the Department of Atomic Energy (DAE) on precise magnetic measurements &

Dr. Kotnala established the Magnetic Standards Laboratory for primary magnetic material for the India-based Neutrino Observatory, INO.



Based on his enriched experience of research and Industry interaction Dr. Kotnala is to advise the Department of Atomic Energy (DAE) on precise magnetic measurements & magnetic material for the India-based Neutrino Observatory, INO.

CSIR-NPL Scientists Receive Renewable Energy India Award

Dr. R.K. Kotnala and Dr. Jyoti Shah from the CSIR-National Physical Laboratory have invented a “Hydroelectric Cell (HEC)” that has judged the winner of special recognition-RE Technology/Product Innovation category (REI) award 2018.

Renewable Energy India Awards (REI) is one of the most powerful awards in the industry sector. In REI various global companies like Tata Motors, ABB, Schneider Electric India Pvt Ltd., Bosch Energy and Building Solutions, IIT Bombay, Vikram Solar, EI Dupont India Pvt Ltd, Sterling and Wilson Solar Pvt Ltd, etc. awarded/participated.



Dr. Kotnala & Dr. Jyoti receiving the REI Award

JEC Asia-2018 Innovation Award for CSIR-NAL

The primary requirement was to design a lightweight structure with a continuous service temperature of 180°C. This requirement precludes the usage of carbon-epoxy composites, as their service temperature is limited to 120-130°C.

The JEC Asia-2018 Innovation award in the category of Aerospace – Structures for “Innovative Skin-Ribs Cocured Engine Bay Door” has been awarded jointly to the Advanced Composites Division (ACD) of CSIR-National Aerospace Laboratories (NAL), Bengaluru and Aeronautical Development Agency (ADA).

The winners include Shri Karuppannan D, Shri Athimoolaganesh S., Shri Dharmappa B.L., Shri Margan A., Shri Venkatesh S., Shri Srinivasa V. from the Advanced Composites Division (ACD) of CSIR-National Aerospace Laboratories. The winners from Aeronautical Development Agency (ADA) include Shri Subba Reddy T.C., Shri Girish B., Shri Ravindra Singh, and Shri Sabarish.

The primary requirement was to design a lightweight structure with a continuous service temperature of 180°C. This requirement precludes the usage of carbon-epoxy composites, as their service temperature is limited to 120-130°C. This requirement was met by employing BMI (Bismaleimide) composites whose service temperature is about 200°C. The processing of BMI based composites is a challenging task as the viscosity at processing temperature becomes too low and retaining the required amount of resin in the composite becomes tricky.

The design and development of Engine Bay Door were done through concurrent engineering approach. The structural design of door was carried out by ADA and aspects like process optimisation, raw material certification, development of prototype door, static structural testing and airworthiness

certification were carried out by CSIR-NAL.

The development of cocured/integrated structure using carbon-BMI material has not been reported in open literature so far. The structural qualification testing was carried out at 1800C by applying pressure loads using a specially designed vacuum fixture. The qualified engine bay doors are assembled on LCA-Tejas aircraft and flight trials are in progress. 250 hours of flights have been completed without any issue and the engine bay door is set to enter series production soon.

The key benefits of the technology developed include;

- 28% weight reduction over the carbon-epoxy door
- Reduced manufacturing & assembly time
- Innovative venting process employed
- Flexible and self-aligning caul plate technology used to achieve defect-free co-cured part
- Maintenance-free structure (need for insulation to manage temperature is eliminated).

The technology for realising high-temperature composites for primary structures is demonstrated with the development of Engine Bay Door for LCA-Tejas programme from concept to certification. The project involved structural design, process optimisation, extensive test programme at various levels of test pyramid, tool design & development, part manufacturing & assembly and structural qualification at 180°C.

National Award under Rajbhasha Gaurav Maulik Pustak Lekhan Puraskar Yojna-2018



The Hindi book “*Rajbhasha Hindi: Vikas ke Vividh Aayam*” (ISBN-81-7983-0969) by Dr. Rakesh Sharma, Hindi Officer, of the CSIR-National Institute of Oceanography, has been awarded the national award under the “Rajbhasha Gaurav Maulik Pustak Lekhan Puraskar Yojna-2018”.

He received this award at the hands of honourable Vice President of India Shri Venkaiah Naidu, in the presence of Home Minister Shri Rajnath Singh, Union Minister of State for Home Affairs, Shir Kiren Rijju, Shri Hansraj Ahir, MoS Home Affairs and Shri Shailesh, the secretary of Rajbhasha Vibhag, on the occasion of the Hindi Divas, celebrated on 14 September, 2018, at Vigyan Bhavan,



Shri Venkaiah Naidu, Vice President of India, presenting the award to Dr. Rakesh Sharma

New Delhi.

The Award carries a cash prize of sixty thousand, a certificate and a citation. In 2014 also, Dr. Sharma received a national award at the hands of Dr. Pranab Mukharjee, Honourable former president of India for his Hindi article.

CSIR-IICT Scientist bags Vasvik Award

CSIR-Indian Institute of Chemical Technology Principal Scientist and Department of Biotechnology Tata Innovation Fellow S. Venkata Mohan has been selected for the prestigious

Vasvik Award for 2018 in the category of Environmental Science and Technology. Vasvik Research Awards are presented by Vividhlaxi Audyogik Samshodhan Vikas Kendra, Mumbai,

to scientists and researchers who have excelled in their designated field.

Dr. Venkata Mohan has made concerted efforts to develop novel and sustainable technologies by utilization of waste as a potential resource for both value addition and its treatment through his multi-disciplinary approach. His work has convincingly

documented that waste/wastewater is a viable and renewable feed-stock/substrate for harnessing various forms of clean bio-energy. The scientist had also successfully demonstrated the production of bio-hydrogen on a pilot scale with simultaneous treatment of waste water in a bio-refinery approach.

CSIR-NCL Scientist Elected for NASI Fellowship

Dr. Ashok Giri, Chairperson, Biochemical Sciences Division, CSIR-National Chemical Laboratory (CSIR-NCL), Pune, has been elected as a fellow of the National Academy of Sciences, India (NASI), Allahabad.

Dr. Giri completed his masters and PhD in Biochemistry in the year 1991 and 1995, respectively from Dr. Babasaheb Ambedkar Marathwada University, Aurangabad. He joined CSIR-NCL as a Research Associate in 1995 and later as Scientist in 2002.

Dr. Giri's research interests relate to applications of Omics approaches and validating functions of specific molecules and genes involved in their synthesis. The group also focuses on plant defence mechanisms, detoxification mechanisms in *Lepidopteran* insect pests and plant secondary metabolic pathways analysis and engineering.

Dr. Giri has published more than 110 research papers in peer-reviewed international journals and filed 10 patents. He has so far supervised 17 PhD theses and currently 8 students are



pursuing PhD under his guidance.

Dr. Giri is a recipient of the Max Planck Society (Germany) Postdoctoral Fellowship for 2004-05, and the Alexander von Humboldt Research Fellowship (Germany) for years 2005, 2009 and 2014. He was a Borlaug Fellow (2009) of the United States Department of Agriculture, USA. He has also received the Raman Research Fellowship in 2011. He has been a Fellow of the Maharashtra Academy of Sciences from 2013.

Research Student from CSIR-NCL Receives Sun Pharma Research Scholar Award

Mr Pronay Das, a research student of Dr. D. Srinivasa Reddy, Organic Chemistry Division, CSIR-National Chemical Laboratory (CSIR-NCL), Pune, has been selected to receive the Sun Pharma Research Scholar Award in the field of Pharmaceutical Sciences.

Mr Pronay Das graduated from the Presidency College (Calcutta University) in the year 2013. He completed his M.Sc. in Chemistry from the Indian Institute of Technology, Madras in 2015, qualified the CSIR-National Eligibility Test (NET) and joined CSIR-NCL as a Junior Research Fellow under the guidance of Dr. D. Srinivasa Reddy. His doctoral work is mainly focused on

the total synthesis and related SAR studies of potent anti-malarial natural products.

The Sun Pharma Science Foundation previously known as Ranbaxy Science Foundation recognises and rewards excellence in original research work in the Bio-Medical and Pharmaceutical Sciences. These awards are presented annually to Indian research scholars working in India. The award carries a citation and a cash prize of INR 50,000 along with an additional travel grant of INR 50,000 for attending conferences.



INSA Fellowship for CSIR-NIO Scientist

Professor Sunil Kumar Singh, Director, CSIR-National Institute of Oceanography (NIO), Goa, has been elected as a Fellow of the Indian National Science Academy (INSA), New Delhi. INSA is one of the three scientific bodies in the country. It elects an individual scientist as its Fellow for his/her outstanding performance and contributions.

Professor Singh's present research interests are Biogeochemistry of Trace Elements and Isotopes (TEIs) in the Indian and Southern Oceans and in the Indian Estuaries; Low temperature elemental and isotope geochemistry; Erosion and weathering studies in the Indian River System; Long-term carbon cycle; Geochronology of carbonaceous shales; Paleo-erosion of the Himalaya; Impact of climate and tectonics;

Evolution of atmospheric oxygen and Paleoredox condition of the Proterozoic Oceans using Re-Os and Mo.

Professor Singh has played a significant role in studies on low temperature elemental and isotope geochemistry and his researches are reported to have assisted in widening the understanding on the evolution of the Himalayas. His studies have been documented in several peer-reviewed articles; he has over 100 scientific papers to his credit.

He has been honoured with several National Awards and Academy Fellowships including the National Geoscience Award (2012), Fellow of the Indian Academy of Sciences, Eminent Mass Spectrometry Award (2014), and CSIR's Shanti Swarup Bhatnagar Prize for Science and Technology.

HUMAN RESOURCE DEVELOPMENT GROUP

CSIR Complex, Library Avenue
Pusa, New Delhi 110 012

CSIR Young Scientist Awards 2019

The Council of Scientific & Industrial Research (CSIR) invites nominations for CSIR Young Scientist (YS) Awards for the year 2019. The awards are to be given for research contributions made primarily in India. The nominee should be a regular Scientist (as per CSRAP Rules) of CSIR system and should have joined the CSIR laboratory on or prior to 26 September 2018. The age of the nominee should not be **more than 35 years as on 26 September 2018**.

The YS Awards are given annually in the following disciplines: (1) Biological Sciences, (2) Chemical Sciences, (3) Earth, Atmosphere, Ocean and Planetary Sciences, (4) Engineering Sciences, and (5) Physical Sciences (including instrumentation). The YS Award comprises a citation, a cash award of Rs 50,000 (Rupees fifty thousand only), and a plaque.

Nominations addressed to **Scientist Incharge, SSB YSA Unit, Human Resource Development (HRD) Group, CSIR Complex, Library Avenue, Pusa, New Delhi 110 012** should be sent as per the prescribed proforma (original + one copy) latest by **31 January 2019**. A CD/DVD/USB flash drive is also required containing duly filled proforma, significant publications (in PDF format) and photograph (in JPEG format) of the nominee.

The details of the YS Award and the prescribed proforma for nomination may be obtained from the above address or may also be downloaded from the **website: www.csirhrdg.res.in**

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