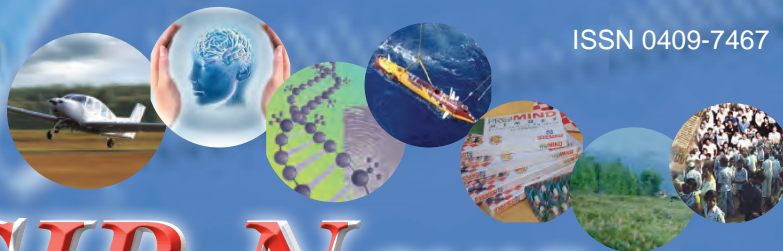




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In The News

CSIR Steps in with Relief for Fani Victims

CSIR laboratories pitched in with their expertise, technologies and products to lend a helping hand to the victims of the devastating Fani cyclone that struck Odisha recently



CSIR-CFTRI sent 2.5 tonnes of packed food items to Fani cyclone hit Odisha

CYCLONE Fani smacked the coastal areas of Odisha on 3 May 2019, with wind speeds of around 180 km/hr wreaking unprecedented havoc and devastation. Fani was categorised as an extremely severe cyclone. It is India's strongest tropical cyclone to make landfall in 20 years, the last being the 1999 Odisha supercyclone.

Always quick to step in with much-needed relief and help during such disasters, the laboratories of the Council of Scientific and Industrial Research (CSIR) pitched in with their products, technologies and relief materials. While cyclone shelters designed and built by the CSIR-Structural Engineering Research

Always quick to step in with much-needed relief and help during such disasters, the laboratories of the Council of Scientific and Industrial Research (CSIR) pitched in with their products, technologies and relief materials.

Centre (CSIR-SERC), Chennai, kept thousands of people safe, the CSIR-Central Food Technological Research Institute (CSIR-CFTRI), Mysuru, and the CSIR-Institute of Himalayan Bioresources Technology (CSIR-IHBT), Palampur, rushed in shelf-stable and nutritious food materials for distribution among the sufferers. A special bus developed at the CSIR-Central Salt & Marine Chemicals Research Institute (CSIR-CSMCRI), Bhavnagar was pressed into operation to provide safe drinking water solutions for those affected by the tragedy. Meanwhile, the CSIR-Institute of Minerals and Materials Technology (CSIR-IMMT), Bhubaneswar coordinated the distribution of relief supplies.

A large number of special aerodynamically-shaped cyclone shelters developed by CSIR-SERC have been constructed along coastal regions in Tamil Nadu, Andhra Pradesh and Odisha. While 23 cyclone shelters had saved around 45,000 people during the Orissa supercyclone in October 1999, 75 such cyclone shelters provided protection to about one lakh people during cyclone Phailin in the year 2013. This time too, 200 cyclone shelters saved thousands of people.

CSIR-CFTRI chipped in with 2.5 tonnes of packed food items for more than one lakh people in the Fani cyclone-ridden areas of Odisha. A combination of seven reconstitutable food products was chosen including instant mixes of poha, upma, ready-to-eat upma, high-protein rusks, high-protein biscuits, long-shelf-life chapati and tomato chutney. While the chapatis are ready-to-eat, there are two types of upma that can be eaten after either pouring hot water or cold water into the pouch. The rusks and biscuits are nutritive with additional protein content. Earlier too, CSIR-CFTRI had sent food and relief material to Kerala during the floods in 2018 and to flood victims of Uttarakhand in 2013.

Since the provision of clean drinking water becomes a major challenge during such natural disasters, a special bus with a water filtration unit was pressed into operation to provide potable drinking water. Indigenously developed by scientists at the Central Salt and Marine Chemicals Research Institute (CSMCRI), Bhavnagar, the bus can treat 3000 litres of water per hour. It does not need any external power source as the bus engine powers the purifier. It also has a built-in generator

to meet power demands and the energy required to desalinate the water. The bus can purify any contaminated water through the onboard RO and ultra-filtration plant that it carries. The 40-foot long bus has been successfully operationalised in various places like North 24 Parganas during the Aila cyclone in West Bengal, and also in Karnataka, Odisha and Uttarakhand.



Mobile water purification bus developed by CSIR-CSMCRI provided clean drinking water

In the thick of the storm...CSIR-IMMT Lends a Helping Hand

CSIR-Institute of Minerals and Materials Technology (IMMT) campus at Bhubaneswar was itself devastated by cyclone Fani. But the Institute staff brushed aside their misery to go out and provide support and coordinate relief operations to the cyclone-hit victims in Odisha. Here's a first-hand account by Prof. Suddhasatwa Basu, Director, CSIR-IMMT.



On May 3, CSIR-Institute of Minerals and Materials Technology (IMMT) campus at Bhubaneswar was devastated by cyclone Fani. CSIR-IMMT is well known for its lush green campus and vegetation all round. In the aftermath of Fani nothing remained and the surroundings were unrecognisable. Trees uprooted every 50m on the road and every 3m on the green belt area of the campus.

It took us some time to fathom the carnage of cyclone Fani. Along with it started long power cuts as expected and water shortage due to the breaking of pipelines and power outage.

Although it took five days to get back the power, water supply was

restored within 24 hours. This was possible due to timely maintenance of diesel generator set as it was operational round the clock for five days and repairing of broken water pipelines by the Engineering Services Department.

We were one of the luckiest ones in Bhubaneswar to get electricity connection in five days as our lines are all underground and not damaged by the fallen trees. The day after cyclone Fani struck, all the staff members were on the street in the peak summer to help clear all the fallen trees to give access to the Laboratory from the colony homes and the Main Gate. It took us two days to provide access to the Laboratory to Vani Vihar and NH Gates.

The day after cyclone Fani struck, all the staff members were on the street in the peak summer to help clear all the fallen trees to give access to the Laboratory from the colony homes and the Main Gate.

“The support I received from the staff members cannot be described in words and I shall be indebted to them for their hard work, perseverance, patience, discipline and planning in difficult times as outside the campus people were equally or in a more difficult situation than us.”

Dr Suddhastawa Basu.

We did not have any experience in using a chain saw to cut trees and dispose them. At this point it looked like a herculean task next to impossible to accomplish, but it was made possible with the constant efforts of the Engineering Services Staff, Laboratory Technical and Workshop Staff backed up by immaculate planning of the Scientists.

All this would not have been possible without the constant guidance and encouragement and support of Dr Shekhar C. Mande, DG, CSIR. On his behest, the National Disaster Relief Force (NDRF) team started operating in our campus from the fifth day when our morale was at the lowest after being on the job continuously for five days – we were professionally untrained to handle such a humongous disaster.

The help from the NDRF team could have not come at a better time. They worked for the next 20 days to clean all the debris from the roads, footpath and some precariously leaning trees in many colony houses and Lab area. They could not touch the green areas like Bamboo Garden, Volleyball court, Children Park, Green Belt opposite PGRP hostel, and Lab area, etc. It will take a minimum of six months to clear all the fallen trees and subsequent rehabilitation and replantation of trees.

The support I received from the staff members cannot be described in words and I shall be indebted to them for their hard work, perseverance, patience, discipline and planning in difficult times as outside the campus people were equally or in a more difficult situation than us.

With the NDRF team lending a helping hand to clear out the debris and the electricity connection restored, we started working on relief work outside the CSIR-IMMT campus in Konark, Katakpur, Neemapada, Satyabadi, Brahmagiri and Puri, the most affected areas by cyclone Fani.

My first visit to fishermen villages in Konark and Puri, situated close to the sea shore where the landfall of Fani actually happened, was a horrible experience. By this time the people of the villages had returned from the nearby cyclone-proof shelters. People actively showed me around the village to demonstrate the amount of damage that had been done including their houses and surroundings, the boat and religious places.

Surprisingly, they wanted to



Relief materials for Fani victims



Relief distribution in RRL Project School

fix their religious worship places, community centre, their homes and the fishing boats in the order as mentioned. The Government of Odisha had already made arrangements for food on a regular basis through Corporator and Assistant Block Development Officer and later through assistance provided by CSIR and many other organisations.

In the meantime, our sister labs like Central Food Technological Research Institute (CFTRI), Mysuru and Central Salt & Marine Chemicals Research Institute (CSMCRI), Bhavnagar contacted us to plan for mega relief operation of CSIR through IMMT by sending ready-to-eat (poha/upma) from Mysuru and a Water Bus from Bhavnagar for providing clean drinking water from any type of water source – saline, turbid, used, washed.

The first batch of nine ton ready-to-eat food material from CFTRI arrived on May 7 and was immediately distributed to the Satyabadi area of Block Development Office as per the requirement given by the Puri Collector. We found the Puri Collector's office working round-the-clock and very efficiently. The next batch of eight ton ready-to-eat food material was sent on May 9 and we distributed it to Katakpur with help from the Red Cross as the situation became tense.

The self-sufficient water bus, which generates the electricity required by its membrane purification unit, arrived on May 8 along with six engineers and two drivers after driving through several states of India. We immediately placed it in Katakpur having a small stream of water

source with help from state Public Health Engineering Organization (PHEO). Water produced at 6000 litres per hour was collected in small tankers and distributed in different blocks and villages where roads were narrow and big water tankers or the water bus could not reach. The water bus shifted to the Satyabadi area for a week as per the requirement of BDO and PHEO instructions after three days. Thereafter it was taken to different places of Puri district for more than 15 days to supply clean water.

Relief material arrived from the Institute of Himalayan Bioresource Technology (IHBT), Palampur lab in the form of one lakh meals containing canned 'kichdri' and energy bars weighing sixty seven tons. This was sent in batches of seven to eight tons and also distributed by IMMT with help from the Puri Collector's Office in Government Schools of Puri district by inviting school children and their parents. I participated in the distribution of canned food and energy bar to school children and parents in Bhishwambhar Vidyapith, Puri.

We always felt that we should distribute food material on our own rather than sending it to designated places for distribution. I had a wonderful experience of giving during this period starting early in the morning and finally coming to the Institute to do regular work and ending the day with loads of satisfaction.

CSIR also sent two batches of Scientists from the Structural Engineering Research Centre (SERC), Chennai and the Central Building Research Institute (CBRI),



The Government of Odisha had already made arrangements for food on a regular basis through Corporator and Assistant Block Development Officer and later through assistance provided by CSIR and many other organizations.

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Roorkee to study and advise the state Government to secure the tall structures, such as high tension power lines, and quickly rehabilitate hut structures.

The Council of Scientific and Industrial Research, now in its 77th year of existence, has always has been working for the common man to improve their daily life, be it through

industrial research and development, societal work and human resources development. And it has always pitched in during periods of crises as well.

Jai Hind!

*Suddhasatwa Basu
Director, CSIR-Institute of Minerals
and Materials Technology
Bhubaneswar*

World Adopts Revised SI Units of Measurement

CSIR-National Physical Laboratory has a role to play



The SI Units play a vital role by maintaining worldwide coherence of measurements. Last year on 16 November 2018, in a historic decision, representatives from 60 countries voted to redefine the SI Units, changing the world’s definition of the kilogram, the ampere, the Kelvin and the mole, forever. The decision was taken at the General Conference on Weights and Measures in Versailles, France, organised by the International Bureau of Weights and Measures (BIPM), which meant that all the SI units would be defined in terms of constants that describe the natural world.

Now, four fundamental units — Kilogram, Kelvin, Mole & Ampere — have undergone a change, a change that came into force worldwide on 20 May 2019, the World Metrology Day.

CSIR-NPL (National Physical

Laboratory), New Delhi, organised a seminar on 20 May 2019, where Dr R. Chidambaram, Former Principal Scientific Adviser to the Prime Minister of India, introduced the revised SI Units.

Dr Shekhar C. Mande, DG, CSIR, on the occasion, congratulated and appreciated the NPL for its efforts in bringing out the new units. Further, he said that there are certain international challenges like quantum computing, Artificial Intelligence, space enabled communications which need to be addressed with the support of quantum metrology based quality infrastructure.

In view of the significance of the revised SI units, the CSIR-NPL is gearing up to update changes in school textbooks, engineering books, and course curriculum to impart contemporary education.

On the occasion, CSIR-NPL also published a book, “Redefined SI Units and Glimpses of NPL Metrological Activities”.

CSIR-NAL Collaborates with Airbus to Develop Integrated Fuselage Shell

The use of composites in aircraft like A350 XWB has resulted in weight saving, reduced life-cycle costs, higher cabin pressure and humidity as compared to the metallic fuselages leading to increased passenger comfort.

The assembly of such a composite fuselage shell is realised by floating frame concept where frames are located above longerons and are attached to the fuselage skin using clips at each frame-stringer intersection. All the clips have to be assembled, drilled, sealed and riveted which can render the process to be quite laborious, expensive and time-consuming. In case of A350 XWB composite fuselage, there are about 8000 thermoplastic clips and more than 60,000 fasteners to connect them to the skin.

CSIR-National Aerospace Laboratories (NAL) and AIRBUS teams collaborated on an “Innovative Design and Development of a Cocured Composite Fuselage Shell with Corrugated Frames” using carbon-epoxy composites. In this project, a novel “Corrugated Frame Concept” was proposed by CSIR-NAL and Airbus in which frames are “Self-Stabilising” because of corrugations on the web. This new design concept coupled with cocuring process eliminated all clips.

The primary objective of this work was to conceive, design, analyse and manufacture a demonstrator representing a frame bending test



panel of approximately 1.5m in the circumferential direction and 1.9 m in the longitudinal direction. The CSIR-NAL team carried out the conceptual design, detail design and development of the demonstrator, while the Airbus team was responsible for sizing and stress analysis. SHM studies were also performed at the stiffened panel level to detect low-velocity impact damages. The fuselage demonstrator was realised at CSIR-NAL. Subsequently, the demonstrator was subjected to quality checks like dimensional checks and ultrasonic testing to verify the consolidation levels and detect porosity.

The INFUSE demonstrator was handed over to Mr Matthew Orchard, Head of Competence Center-Airframe, Airbus, by Mr Jitendra J. Jadhav, Director, CSIR-NAL on 14 March 2019. Mr Andrew Dunn, Mr Sandeep Thakur and Mr Avinash Kumar Yadav of Airbus and Team-ACD (Advanced Composites Division of CSIR-NAL) were present during the handover.

CSIR-National
Aerospace
Laboratories (NAL)
and AIRBUS teams
collaborated on an
“Innovative Design
and Development of
a Cocured Composite
Fuselage Shell with
Corrugated Frames”
using carbon-epoxy
composites.

Fruit Snacks, Healthy Snacks

The fruit snacks are light and can be taken with tea increasing the average fruit intake.

Scientists at the CSIR-Central Food Technological Research Institute (CFTRI), Mysuru, have developed a fruit processing technique that enhances the shelf-life of fruits and can convert them into nutritious snacks. The new technique would be the first of its kind in the Indian market benefitting the public and fruit growing farmers as well.

The processed fruit snack will have the same shape, taste, flavour,

colour but only the form will be changed. The extended shelf-life of the processed fruits would be up to four months. After processing, the fruits will become weightless and crispy like our daily delicious snacks.

The fruit snacks are light and can be taken with tea increasing the average fruit intake. The fruit snacks have no side-effects and are also suitable for patients.

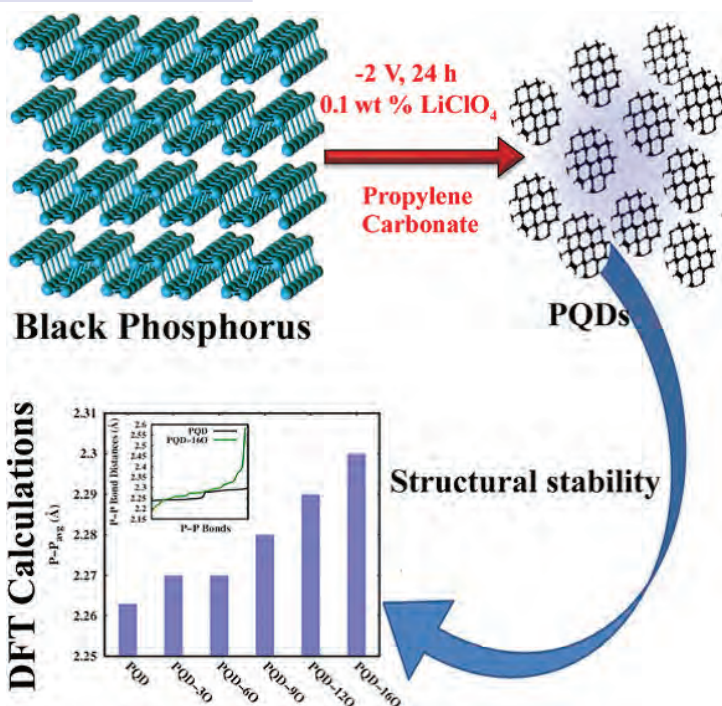
R&D

Structural Stability Determination of PQDs

Researchers from CSIR-Central Electrochemical Research Institute (CECRI), Karaikudi, have investigated the role of structural

distortion in determining the stability of electrochemically synthesised blue luminescent Phosphorene Quantum Dots (PQDs) from bulk black phosphorus. A thorough understanding of the stability of PQDs, electronic changes and structural distortion during the transformation of BP into QDs is critical in order to realise the true potential of PQDs towards various applications.

The team led by Dr Subbiah Alwarappan found that there occurs a structural distortion during the electro-synthesis of PQDs [Average size = 8 ± 1.5 nm (N = 60)] from black phosphorus leaving unsaturated edge sites which will be easily passivated by oxygen functionalities to maintain the structure. These functional groups exert a +I effect (electron donating effect) and increase the electron



Schematic representation of the synthesis of PQDs from black phosphorus

density on the PQD skeleton causing in-plane P–P bonds to elongate.

This increase in the in-plane P–P bond length and increment in electron density has been experimentally corroborated with X-ray diffraction pattern, X-ray photoelectron spectroscopy, and excitation-independent photoluminescence emission mechanism of PQDs. The observations imply that the phosphorene skeleton balances the structural distortion upon functionalisation with optimum oxygen content.

The researchers further investigated the role of oxygen content in maintaining the structural integrity of oxygenated and non-oxygenated PQDs by Density Functional Theory calculations which emphasised the experimental evidence that an increasing oxygen content results in structural distortion of PQDs while an optimum oxygen content balances the stability of PQDs. CSIR-CECRI collaborated with researchers from CSIR-NCL and IACS for theoretical calculations.



Malls/Agreements

CSIR-NCL Signs Technology Licensing Agreement with Pheromones Biotech LLP

CSIR-National Chemical Laboratory (CSIR-NCL), Pune, signed a Technology Licensing Agreement with the Pheromones Biotech LLP, Hyderabad, on 3 May 2019 at CSIR-NCL for the development of eco-friendly technology for pest management without toxic pesticides.

Pest attack results in a loss of food produce worth US\$ 470 billion globally. Pests are conventionally managed by spraying pesticides that could pollute soil and groundwater. Today, farmers typically use what



Dr S.P. Chavan, Acting Director, CSIR-NCL and Dr Markandeya Gorantla, MD, Pheromones Biotech LLP exchanging agreement documents

Pest control using sex pheromones is a revolutionary technology to selectively treat pests, without the use of pesticides and without harming helpful insects.

“This technology represents a radically new way of delivering agrochemicals to plants and is ideal for pheromone delivery. Going beyond this application, changing surface characteristics, which is what our technology does have much wider use. We envisage that this technology will also find use in applications such as advanced printing methods.”

*Dr Guruswamy
Kumaraswamy*

are called “broad spectrum” pesticides that cannot distinguish between pests and helpful insects, killing both. Further, the use of excessive pesticides results in contamination of soil and groundwater, causing severe environmental problems.

Pest control using sex pheromones is a revolutionary technology to selectively treat pests, without the use of pesticides and without harming helpful insects. Pheromones are chemicals secreted by pests to attract mates. When pheromones are coated on plants, pests can no longer locate their mates and cannot breed, thus drastically controlling the pest population and in turn protecting plants. This environmentally friendly technology eliminates the need for harmful pesticides. Hyderabad-based Pheromones Biotech LLP has partnered with Pune-based CSIR-National Chemical Laboratory (CSIR-NCL) to develop a first-of-its-kind sex pheromone technology.

Pheromones Biotech LLP has developed pheromones for over 300 pests, and CSIR-NCL has developed technology for effective delivery of pheromones in the fields. One of the major problems with the delivery of agrochemicals in fields is that they get washed off by rain or dew. CSIR-NCL’s technology uses food-grade, plant-based materials that help stick the pheromone onto surfaces such that they are not easily removed. This increases the efficacy and minimises wastage of expensive pheromones.

This technology is envisaged to be deployed as a “No pump No spray” technology that is well suited for Indian conditions. The Pheromones Biotech LLP/CSIR-

NCL collaboration will commercialise solutions for Fall Army Worm, Pink Boll Worm and Helicoverpa that infest corn, cotton and several other crops. This approach represents a paradigm shift in the way agricultural pest management is practised today.

This CSIR-NCL technology was developed by a group led by Dr Guruswamy Kumaraswamy, Scientist, Polymer Science and Engineering Division, CSIR-NCL. Dr Guruswamy commented that the CSIR-NCL technology worked by changing how the plant surface was wetted. He said, “This technology represents a radically new way of delivering agrochemicals to plants and is ideal for pheromone delivery. Going beyond this application, changing surface characteristics, which is what our technology does have much wider use. We envisage that this technology will also find use in applications such as advanced printing methods.”

Dr Ulhas Kharul, Chair of Polymer Science and Engineering at CSIR-NCL said, “The collaboration with Pheromones Biotech LLP follows CSIR-NCL’s tradition of developing practical technological solutions based on cutting-edge science. This is in line with the laboratory’s vision – to advance chemical science and practise it for the good of the people.”

Dr Markandeya Gorantla, MD of Pheromones Biotech LLP, said, “We are excited by the partnership with CSIR-NCL. With this collaboration, Pheromones Biotech LLP can offer a unique Made in India technology that will be a boon to farmers in India and all over the world”.

CSIR-NBRI Organises International Conference on Herbal Drugs

CSIR-National Building Research Institute (CSIR-NBRI), Roorkee in association with the Society of Pharmacognosy, India and Indian Pharmacopoeia Commission (IPC), Ghaziabad, organised the 23rd National Convention of Society of Pharmacognosy and International Conference on “New Age Opportunities and Challenges for Quality, Safety and GMPs in Herbal Drug Development” during 22-23 February 2019.

More than 550 delegates, including 350 undergraduate and postgraduate students and research scholars from different pharmacy colleges and institutions participated in the conference. Research scholars presented their work through more than 150 posters. Best poster awards in different categories were also distributed.

At the inaugural session, the Chief Guest, Padma Shree Dr Nityanand, discussed the Herbal Drug Development scenario in the

world and India. Dr Eike Reich, President, International Association for the Advancement of HPTLC Association, Switzerland and Guest of Honour of the function, highlighted the importance of HPTLC technology in quality control of herbal drugs. Dr G.N. Singh, Secretary cum Director, Indian Pharmacopoeia Commission, Ghaziabad and Dr Debapriya Datta, Head, Science for Equity Empowerment and Development (SEED) division, Department of Science and Technology (DST) were also present on the occasion.

In various scientific sessions, scientists and guest speakers from all over the country addressed the students and researchers. Dr Rashmi Sharma, Department of Science and Technology, Government of India, Dr Vivek Kumar, National Convenor, Unnat Bharat Mission, Delhi and Dr Lal Singh, Director, Himalayan Research Group, Shimla were the key speakers.



At the inaugural session, the Chief Guest, Padma Shree Dr Nityanand, discussed the Herbal Drug Development scenario in the world and India.

Events

CSIR-NISCAIR Celebrates National Technology Day 2019

CSIR-NISCAIR organised lectures on National Technology Day 2019 on 13 May 2019 at Vigyan Sanchar Bhavan. Dr Ariz Ahammed,

Managing Director, National Horticulture Board and Dr Unnat Pandit, Director (AIM Program), NITI Aayog, delivered the lectures.

Dr Patairiya said that technologies developed by scientists in research labs can benefit the public if they are made aware of the availability and importance of these technologies.



From L to R: Dr Unnat Pandit, Director (AIM Program), NITI Aayog; Dr Ariz Ahammed, Managing Director, National Horticulture Board and Prof. (Dr) Manoj Kumar Patairiya, Director, CSIR-NISCAIR

Prof. (Dr) Manoj Kumar Patairiya, Director, CSIR-NISCAIR chaired the event.

In his welcome address, Prof. (Dr) Manoj Kumar Patairiya recalled the importance of National Technology Day. Every year the National Technology Day is celebrated on May 11 to commemorate the success of India's nuclear tests carried out

at Pokhran in 1998. Also, the first indigenous aircraft Hansa-3 was test flown at Bengaluru on this day and India performed successful test firing of the Trishul missile on the same day.

Highlighting the importance of science communication, Dr Patairiya said that technologies developed by scientists in research labs can benefit the public if they are made aware of the availability and importance of these technologies. Although India is the third largest country in science and technology, manpower, we import technologies in large numbers, he said. It is necessary for science communicators to act as interlocutors between scientists and society, he added.

In his lecture, Dr Ariz Ahammed, Managing Director, National Horticulture Board, stressed on the need for better technology interventions in handling horticulture produce. Dr Ahammed





Prof. (Dr) Manoj Kumar Patariya, Director,
CSIR-NISCAIR



Dr Ariz Ahammed, Managing Director,
National Horticulture Board

stated that compared to agricultural produce, horticultural produce have high returns. But one major concern has been the storage of excess produce and monitoring of prices. Innovations and better post-harvest technologies are required to address a host of issues in the horticulture sector.

Dr Unnat Pandit, Director (AIM Program), NITI Aayog, in his lecture highlighted the various activities promoted by Atal Innovation Mission (AIM) to promote a culture of innovation and entrepreneurship in the country. Its objective is to serve as a platform for promotion of world-class Innovation Hubs, Grand Challenges, Start-up businesses and other self-employment activities, particularly in technology driven areas. Dr Pandit said that through the Atal Tinkering Labs project, the government is inculcating a new culture among the young minds to foster curiosity, creativity and imagination. It is hoped that this generation with an innate innovation mindset would create next-generation



Dr Unnat Pandit, Director (AIM Program),
NITI Aayog

innovation hubs. He added that innovation can play a major role in rejuvenating the rural economy.

The lectures were followed by an intense round of interactions with the experts. The scientists, staff and students of NISCAIR actively participated.

Dr G. Mahesh, Head, Information and Human Resources Division proposed the vote of thanks.

*Biju Dharmapalan
PhD Scholar, AcSIR*



Dr Pandit said that through the Atal Tinkering Labs project, the government is inculcating a new culture among the young minds to foster curiosity, creativity and imagination.

CSIR-CBRI Observes National Technology Day



Dignitaries on the dais

CSIR-Central Building Research Institute (CBRI), Roorkee, celebrated the National Technology Day on 14 May 2019 with great zeal and enthusiasm. Shri V. Suresh, Chairman, Indian Green Building Council (IGBC) & Former Chief Managing Director, HUDCO graced the occasion as the Chief Guest and Dr

Gopal Rai, CEO, Dhirendra Group of Companies, Mumbai, graced the occasion as the Guest of Honour. Dr N. Gopalakrishnan, Director, CSIR-CBRI, Roorkee, presided over



Dr N. Gopalakrishnan, Director, CSIR-CBRI, during his inaugural Address



Chief Guest, Shri V. Suresh presenting his lecture



Dr Gopal Rai

the function.

In a lecture on “Building the Nation – with Sustainable Appropriate Technologies”, Shri V. Suresh said that India is celebrating the year 2019-2020 as the Year of Construction Technology. We have to provide accommodation to every citizen of India by the year 2022 to fulfil the goal of the Prime Minister’s Scheme “Housing for All” while battling the challenges of population growth and inflation. To face these challenges, the nation is upgrading its construction ecosystem by incorporating innovative and advanced proven construction technologies from across the globe through lighthouse projects under the Global Housing Technology Challenge India. As a leading institute of construction science in the country, CSIR-CBRI plays an important role in this. Mr V. Suresh also appreciated the efforts of CSIR-CBRI in the area of disaster management with pre- & post-disaster mitigation technologies such as transit shelters after the disaster, early warning systems and disaster-resistant buildings with respect to topology and disaster zone, and emphasised on more focused research in this direction.

Dr Gopal Rai shared his experiences on retrofitting in the construction sector. He said that increasing the life span of a 40 year or older structure by 10 to 20 years and reenergizing them with the help of the latest technology is a very challenging and satisfying task.

In his Presidential Address, Dr N. Gopalakrishnan conveyed the



Dignitaries visiting the CBRI Construction Technology Park



Two CSIR-CBRI technologies transferred to industry



Release of Institute publication "Nirmanika"



Dignitaries interacting with KV Students

glorious history of the National Technology Day. He assured everyone that CSIR-CBRI, Roorkee will work with renewed enthusiasm in its mission to develop advanced technologies in the interest of the nation.

On the occasion, two CSIR-CBRI technologies – “Nano-

Silica”, developed to improve the quality of cement/concrete using nanotechnology and “Nano-Lime”, developed for the purpose of conservation and repair of Heritage Structures were transferred to M/s Poysha Nanotech LLP for commercialisation at the industrial level. The technologies were developed by a team of scientists led by Dr L.P. Singh, Principal Scientist, CSIR-CBRI, Roorkee.

Under the aegis of Jigyasa Student-Scientist Connect Programme, students from Kendriya Vidyalaya No. 1, Roorkee, also participated in the programme along with their faculty and interacted with the dignitaries. The latest edition of the Institute’s Annual Hindi Publication “Nirmanika” was also released on the occasion.

The dignitaries also visited the CBRI Construction Technology Park and reviewed the technologies developed by the Institute.

Sports Tournaments Organised

Dr A.P. Mitra Memorial Badminton Tournament and Dr G.S. Sidhu Memorial Table Tennis Tournament 2019 were organised by CSIR-Central Leather Research Institute (CLRI), Chennai, as a part of the CSIR-Shanti Swarup Bhatnagar Memorial Tournament (SSBMT) 2019, during 24-26 April 2019 in Chennai.

Both the tournaments were inaugurated by Dr Shekhar C. Mande, Director General, CSIR. Prof. Alok Dhawan, President, CSIR-SPB and Director, CSIR-IITR; Dr R.K. Sinha, Secretary, CSIR-SPB and Dr B. Chandrasekaran, Director, CSIR-CLRI were the Guests of Honour.

In his Inaugural address, Dr Shekhar C. Mande stressed upon the importance of sports activities in the overall personality development that enables us to function energetically. In view of the emphasis on work-life balance, the CSIR-Sports Promotion Board (CSIR-SPB) has been consistently giving its best to involve members of the CSIR Family in diverse sports activities by organising several tournaments.

There were a total of 7 participating teams in the Dr A.P. Mitra Memorial Badminton Tournament – CSIR-National, IIT, ISRO, CSIR-CLRI, CSIR-SERC, Anna University and



(On the dais from L to R): Dr B. Chandrasekaran, Director, CSIR-CLRI; Dr Shekhar C. Mande, DG-CSIR; Prof. Alok Dhawan, President, CSIR-SPB and Dr R.K. Sinha, Secretary, CSIR-SPB



Crescent Engineering College. CSIR-National was the winner and ISRO was the runner-up team.

There were a total of 5 participating teams in the Dr G.S. Sidhu Memorial Table Tennis Tournament – CSIR-National, IIT-Madras, ISRO, CSIR-CLRI and CSIR-SERC. CSIR-National was again the winner and IIT-Madras was the runner-up team.

*Dr Shobhna Choudhary
CSIR-NISCAIR, New Delhi*

50th Shanti Swaroop Bhatnagar Memorial Tournament 2019 Organised at CSIR-CIMFR

Indian Shooter Shri Bhagirath Samai said that to become a good sportsman, dedication, hard work and sports spirit are essentially required.

50th Shanti Swaroop Bhatnagar Memorial Tournament-2019 (Final Indoor and Outdoor) was organised during 31 January-03 February 2019 at CSIR-CIMFR, Dhanbad.

Dr Pradeep K Singh, Director, CSIR-CIMFR welcomed the dignitaries and participants during the opening ceremony of the Golden Jubilee Tournament on 31 January 2019. He apprised the gathering about the diversified contributions of Dr Shanti Swaroop Bhatnagar.

Prof. Alok Dhavan, Chairman, Sports Promotion Board (SPB), CSIR, New Delhi and Director, CSIR-IITR, Lucknow declared the tournament open in the presence of the dignitaries, guests, players and media persons. The programme started with a March Past by 35 teams with 427 participants of different CSIR laboratories. The sports events were Cricket, Bridge, Volleyball, Carom, badminton, Table Tennis and Chess.

The Guest of Honour Shri Nagendra Prasad, Superintendent of Police, CBI, Dhanbad, appreciated the March Past and said that Late Dr Shanti Swaroop Bhatnagar was a legendary personality in science with a keen interest in a variety of games. He was also a good poet.

Well known Indian Shooter Shri Bhagirath Samai was the Chief Guest of the programme. In his address, Shri Samai said that to become a good sportsman, dedication, hard work and sports spirit are essentially required.

Dr Raj Shekhar Singh, Secretary, CSIR-CIMFR Club, presented details about the tournament. Dr R.K. Sinha, Secretary, SPB, informed about the inclusion of Women's cricket in the Golden Jubilee Tournament of CSIR-SPB.

Dr P.K. Singh inaugurated the Website for the event www.ssbmt2019. He also presented books as a token of love to the dignitaries present on the occasion. The dignitaries present on the dais released the CSIR-SPB Rule Book and Tournament Souvenir on the occasion.

In this Tournament, women's cricket match was also organised for the first time in CSIR, where 26 players from different CSIR labs had participated. These players were divided into two teams, namely,



CSIR Women's team with dignitaries

Kalpana Chawala team and Asima Chowdhury team.

In the evening, a colourful cultural programme was organised by Kolkata based Bodhi Electro Band.

During the valedictory programme, Dr Pradeep K. Singh, Director, CSIR-CIMFR, welcomed the dignitaries and expressed happiness over the successful organisation of the three-day programme. He said that every player took part in this programme with full zeal and cooperation. Dr Singh congratulated both the winner and runner-up teams.

Dr Sharmila Mande, the first lady of CSIR and Chief Scientist and Head of BioSciences (R&D), TCS Innovation Lab, Pune was the Chief Guest on this occasion. In her address, she praised the inclusion of women's cricket team in CSIR. She also appreciated CSIR-CIMFR for systematic hospitality and sports arrangements for all the teams with wonderful facilities for both indoor and outdoor tournaments. She also inaugurated the women's cricket tournament.

Dr Usha Singh, President, CIMFR Ladies club was also present to bless the occasion. Dr R.K. Sinha, Secretary, CSIR Sports Promotion Board, New Delhi, praised all the players who



Dr Sharmila Shekhar Mande, Mrs Usha Singh, Sri Jayant Sahastrabudhe, Dr Pradeep K. Singh along with CSIR-CIMFR Ladies Club members

participated in this tournament. He also thanked and congratulated CSIR-CIMFR, Dhanbad, for organising such a mega event with full perfection. He expressed his gratitude to Dr Pradeep K. Singh, Director, CIMFR, who played a key role in successfully organising such a grand programme. On the occasion, Shri Jayant Sahastrabudhe, Guest of Honour and National Secretary of Vigyan Bharati also welcomed all the participants and congratulated them for their participation in this programme.

Dr Raj Shekhar Singh, Secretary, CSIR-CIMFR Staff Club, briefed about the outcome of the tournament and thanked the participating team, dignitaries and the guests on the occasion. The valedictory function ended with a musical programme.

Every player took part in this programme with full zeal and cooperation, said Dr Pradeep Singh.

CSIR-NBRI Organises Annual Rose and Gladiolus Show 2019

CSIR-NBRI, Lucknow organised a two-day Rose and Gladiolus Show during 19-20 January 2019. A total of 915 entries under different categories from 68 exhibitors were displayed in the show. The participants

represented various Government and Semi-Government Departments, Autonomous Bodies, nurserymen, individual growers, gardeners, etc. from Lucknow and outstations.

Twenty-six running cups shields/

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trophies along with 326 prizes (First-103, Second-106 and Commendation-117) were distributed to the winners. Hindustan Aeronautics Limited (HAL), Accessory Division, Faizabad Road, Lucknow stood First by winning nine Cups/Shields/Trophies, followed by HAL, Korwa Division, Amethi with four Cups/Trophies, and Tata Motors, Deva Road, Lucknow with two Cups/Shields/Trophies.

On the occasion CSIR-NBRI also transferred the know-how technology of herbal soft drink (NBIRA) to 3D Nutrients

Company, Pvt. Ltd., Ratlam. NBIRA contains extracts from herbs used in traditional medicine and has antioxidative, immunity enhancing, hepatoprotective, cardiogenic, diuretic, digestive, chlorotic and nerve relaxant properties. It also does not contain any preservative and colorants.

Two Hindi publications of the Institute were also released on the occasion. These included a book *Aadivasi Aushdheeyava Aarthik Baudbhik Sampda and the Hindi Rajbhasha Magazine Vigyan Vani*.

CSIR-NBRI Celebrates National Science Day 2019

CSIR-NBRI celebrated the National Science Day on 28 February 2019. The theme for the science day was “Science for People and People for Science”. The day was observed as ‘Open Day’ for the public and students. Various laboratories and facilities of the institute, viz., Exposition, Herbarium, Library, Botanic Garden and various R&D Laboratories remained open to the public.

On the occasion, Prof. S.N. Sankhwar, Head, Urology Department, King George’s Medical University, Lucknow, was the Chief Guest and delivered the National Science Day Lecture on ‘Male Infertility and Herbal Medicine’. Prof. Sankhwar informed that approximately 10-15 per cent of young couples are deprived of having a child and

in almost 50% of these cases male infertility is the main reason.

He further elucidated that the other major causes of male infertility are hormonal irregularity, stressful life, physical deformities, decreased sperm count or sperm sterility. He mentioned that many medicinal plants such as Ashwagandha, Shatavari, Pippali, etc., are helpful in the treatment of male infertility. He further said that regular exercise, no smoking, and quality sleep help in proper treatment for infertility.

Earlier in the day, a Student-Scientist interaction programme was organised under Jigyasa, a CSIR-Kendriya Vidyalaya Sangathan (KVS) joint mission. Students from Kendriya Vidyalaya CRPF and AMC campuses visited NBRI and its facilities.

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