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In The News

Indigenous Lithium-Ion Battery Production to Drastically Cut Foreign Imports



The Memorandum of Agreement signed by Dr. Vijayamohan K. Pillai, Director, CSIR-CECRI (left) and C. Narasimhan, Chairman-cum-Managing Director of RAASI Group in the presence of Union Minister for Science & Technology Dr. Harsh Vardhan.

INDIA is one of the largest importers of Li-Ion batteries – in 2017 it imported nearly 150 Million US Dollar worth of Li-Ion batteries. But now this is going to change with a CSIR lab ready to give technology for India's first indigenous Lithium-Ion Battery project.

The CSIR-Central Electro Chemical Research Institute (CSIR-CECRI), Karaikudi, Tamil Nadu, and RAASI Solar Power Pvt Ltd have signed a Memorandum of Agreement for transfer of technology for India's first Lithium-Ion (Li-ion) Battery project. The Agreement

“Today’s development is a validation of the capabilities of CSIR and its laboratories to meet technology in critical areas to support our industry, besides other sectors,” said Dr. Harsh Vardhan.

was signed in Bengaluru on 9 June 2018 by Dr. Vijayamohan K. Pillai, Director, CSIR-CECRI and C. Narasimhan, Chairman-cum-Managing Director of RAASI Group in the presence of Union Minister for Science & Technology Dr. Harsh Vardhan.

Currently, Indian manufacturers source Lithium-Ion Battery from China, Japan and South Korea among some other countries. But now, scientists at CSIR-CECRI have developed an indigenous technology of Lithium-ion cells in partnership with CSIR-National Physical Laboratory (CSIR-NPL) New Delhi, CSIR-Central Glass and Ceramic Research Institute (CSIR-CGCRI) Kolkata, and CSIR-Indian Institute of Chemical Technology (CSIR-IICT) Hyderabad. CSIR-CECRI has set up a demo facility in Chennai to manufacture prototype Lithium-Ion cells. It has secured global IPRs with the potential to enable cost reduction, coupled with appropriate supply chain and manufacturing technology for mass production.

Li-Ion batteries have applications in Energy Storage System – from hearing aid to container sized batteries to power a cluster of villages, Electric Vehicles (2-wheeler, 3-wheeler, 4-wheeler and Bus), portable electronic sector, Grid Storage, Telecom and Telecommunication Towers, Medical Devices, Household and Office Power Back (UPS), Powering Robots in

Processing Industry. Lithium-ion batteries can power any electrical application without the need of physical wires-means wireless.

“Today’s development is a validation of the capabilities of CSIR and its laboratories to meet technology in critical areas to support our industry, besides other sectors,” said Dr. Harsh Vardhan after the signing ceremony. “It will give tremendous boost to two flagship programmes of Prime Minister Shri Narendra Modi – increasing the share of Clean Energy in the energy basket by generating 175 GigaWatts by 2022, of which 100 GigaWatts will be Solar and the second, National Electric Mobility Mission, to switch completely to electric vehicles by 2030.”

Dr. Harsh Vardhan further said, the project is in tune with the Prime Minister’s vision of “Make in India”, to turn India into a manufacturing hub and to cut down outflow of foreign exchange.

The Raasi Group will set up the manufacturing facility in Krishnagiri district of Tamil Nadu close to Bengaluru. “We want to bring down the cost of cell manufacturing below Rs. 15,000/- per KW to replace Lead Acid Battery,” said C. Narasimhan. “We also have plans to make Lithium-Ion battery for solar roof top with lifespan of 25 years to make it affordable enough to drive the Photo Voltaic segment.”

Eco-friendly Cooking System Saves 55% LPG in CSIR-NCL’s Canteen

Scientists of CSIR-National Chemical Laboratory (NCL), Pune, have designed a solar power kitchen system for NCL’s canteen which hosts about 700 employees

every day for breakfast, lunch and morning and evening tea.

This in-house cooking system was recently inaugurated by Prof. Ashwini



Eco-Friendly Solar Cooking System installed at CSIR-NCL canteen



Prof. Ashwini Kumar Nangia, Director, CSIR-NCL inaugurating the Solar Thermal System at CSIR-NCL, Pune

The system costs about 6 Lac INR and saves about 55% LPG consumption for cooking and 60-70% electricity consumption for hot water.

Kumar Nangia, Director, CSIR-NCL. A team of researchers from the Solar Thermal Lab, NCL, designed this solar thermal cooking system which can be used at different temperatures for cooking food and washing utensils.

The eco-friendly cooking system uses two Evacuated Tube Collectors (ETC) which provide hot water for washing utensils and three Compound Parabolic Concentrators (CPC) which provide hot water for cooking; along with ETC

and CPC solar energy based system, it has storage tanks for hot water, steam cooking vessels, pipings and electric boiler.

The system costs about 6 Lac INR and saves about 55% LPG consumption for cooking and 60-70% electricity consumption for hot water. Scientists at NCL believe that such cooking systems could be installed at other canteens, mid-day meal school kitchens and old-age homes.

Increase in CSIR-NISCAIR Journals' Impact Factors (IFs)

The JCR-2018 that gives Impact Factors of journals for the year 2017 was recently released. There are 98 Science Citation Index (SCI)-covered Indian journals in the JCR this year, of which 12 journals (about 12%) belong to CSIR-National Institute of Science Communication and Information Resources (CSIR-NISCAIR).

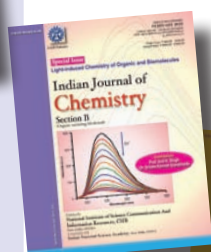
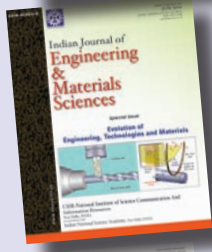
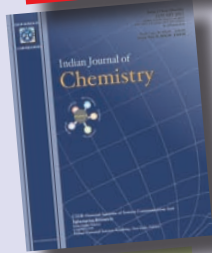
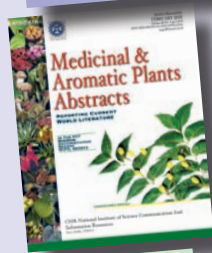
As compared to the Impact Factors of 2016, the CSIR-NISCAIR journals registered an overall growth of 18% in 2017.

There are 27 SCI-Indian journals that have Impact Factors above 1. Of these 27 journals, two of the CSIR-

NISCAIR journals, the Indian Journal of Experimental Biology (IJEB) and the Indian Journal of Traditional Knowledge (IJTK) have received Impact Factors of 1.475 and 1.061 respectively.

In fact, the *Indian Journal of Experimental Biology* with IF of 1.475 is the highest ever so far for any CSIR-NISCAIR journal. This also makes the journal 11th ranked among the 98 SCI-covered Indian journals that have Impact Factors. The following table gives the Impact Factors of the 12 CSIR-NISCAIR journals covered in the *Journal Citation Reports – 2018*.

Sl. No.	Journal	Journal Impact Factor
1.	<i>Indian Journal of Experimental Biology</i>	1.475
2.	<i>Indian Journal of Traditional Knowledge</i>	1.061
3.	<i>Indian Journal of Pure & Applied Physics</i>	0.582
4.	<i>Indian Journal of Chemistry, Section A-Inorganic</i>	0.566
5.	<i>Indian Journal of Engineering & Material Sciences</i>	0.543
6.	<i>Journal of Scientific & Industrial Research</i>	0.534
7.	<i>Indian Journal of Chemistry, Section B-Organic</i>	0.525
8.	<i>Indian Journal of Biochemistry & Biophysics</i>	0.385
9.	<i>Indian Journal of Biotechnology</i>	0.368
10.	<i>Indian Journal of Fibre & Textile Research</i>	0.366
11.	<i>Indian Journal of Chemical Technology</i>	0.348
12.	<i>Indian Journal of Geo-Marine Sciences</i>	0.289



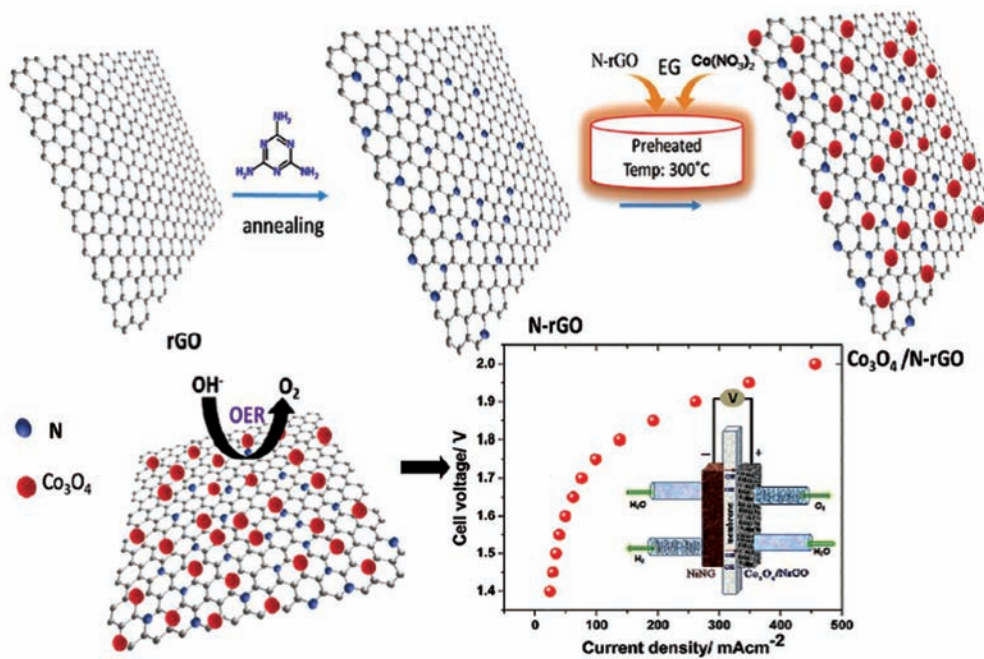
Cost-effective Spongy Electrocatalysts for Water Electrolysis

Synthetic strategies for the water electrolysis half-cell reaction catalysts without the use of precious metals/metal oxides and the synergistic compilation of catalysts for the fuel cell design attract tremendous scientific attention.

A recent collaborative effort between researchers from CSIR-Central Electrochemical Research Institute (CECRI), Karaikudi, and TCIS-Tata Institute of Fundamental Research (TIFR), Hyderabad, resulted in the development of lightweight spongy catalysts for both anode and cathode reactions in fuel cell under alkaline conditions.

Researchers developed lightweight Co_3O_4 -nitrogen doped reduced graphene oxide ($\text{Co}_3\text{O}_4/\text{NrGO}$) and nickel-nitrogen doped reduced graphene oxide (NiNrGO)¹. $\text{Co}_3\text{O}_4/\text{NrGO}$ is employed as a catalyst at the anode for oxygen evolution reaction and the NiNrGO is employed as a catalyst for Hydrogen Evolution Reaction (HER) at the cathode.

The performance of $\text{Co}_3\text{O}_4/\text{NrGO}$ was compared with the commercial OER catalyst (IrO_2) under alkaline conditions with Pt (a common benchmark cathode catalyst). Finally, an augmented complete cell performance was demonstrated using this combination. A current density of 320 mAcm^{-2} at an operating voltage of 1.9 V for $\text{Co}_3\text{O}_4/\text{NrGO}$ and 199 mA/cm^{-2} for IrO_2 was noticed.



Schematic steps involved during the synthesis of OER electrocatalyst $\text{Co}_3\text{O}_4/\text{NrGO}$ and its application in the water electrolysis cell

Further, a complete water electrolysis cell was demonstrated without the use of commercial HER catalyst Pt (at the cathode); instead a porous spongy catalyst NiNrGO was employed. The cell thus designed exhibited an excellent performance and high stability (270 mAcm^{-2} at an operating voltage of 1.9 V with a stability tested for more than 9 hours).

This work opens up the possibilities of designing weightless and inexpensive water electrolyzers that do not necessitate expensive precious metal catalysts.

Reference:

Vineesh TV, Sivamathini R, Archana S, Pal S, Ahwarappan S, Narayanan TN, *ChemCatChem* (2017), 9(22), 4295-4300.

CSIR-NEERI Diamond Jubilee Celebration

CSIR-National Environmental Engineering Research Institute (CSIR-NEERI), Nagpur, celebrated its Diamond Jubilee on 8 April 2018 to commemorate the journey of its past 60 years.



Dr. Girish Sahni at the Diamond Jubilee celebration of CSIR-NEERI – 8th April 2018

He said that:

“CSIR is committed to deliver technology for Common man, solving their day to day problems and thus improving their quality of life”



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The Technology Park inaugurated by Dr. Girish Sahni, DG-CSIR

Dr. Girish Sahni, Director General, CSIR & Secretary, DSIR, was the Chief Guest on this occasion. Dr. R.N. Singh, Visiting Professor, IIT Gandhinagar & Former Director, CSIR-NEERI, was the Guest of Honour and Shri M.C. Mehta, Supreme Court Lawyer & Environmentalist was the Distinguished Guest.

While addressing the audience, Dr. Sahni said that though CSIR-NEERI has already become a brand, it needs to address current and future challenges of the environment. He informed that CSIR has planned to solve at least hundred problems of the society, including the poorest of the poor, through its technologies. He advised that CSIR-NEERI should offer more support to the judiciary for environment protection through its scientific and technological interventions. The scientists should introspect, think critically, and be more compassionate at work, he added.

Dr. R.N. Singh said that the scientists should develop robust knowledge which is relevant and acceptable by others. CSIR-NEERI should deal with the future uncertainties of the environment, as day by day environment issues are becoming more and more complex.

Shri M.C. Mehta narrated the story of how CSIR-NEERI started working for the judiciary 20 years back. He said that climate change is a big concern and CSIR-NEERI should work on it. He emphasised on the fundamental rights of a citizen to ensure the environment protection.

In his welcome address, Dr. Rakesh Kumar stated that CSIR-NEERI has always taken inputs from the industry to

propel the Institute and it will continue to do so. He informed that CSIR-NEERI has done well in translating its patents to applications on the field. Rejuvenation of rivers and water bodies and waste management are still a major challenge for the country, he added.

CSIR-NEERI Diamond Jubilee Awards were given away by Dr. Girish Sahni, DG-CSIR on this occasion. Shri M.C. Mehta was honoured with the 'Environment Protection Leadership Award'.

Dr. P.R. Pujari and Dr. Ritesh Vijay were awarded 'Best Sr. Scientist' and Dr. Lal Singh as 'Best Jr. Scientist'. Shri Prakash Kelapure earned the award for 'Best Office Personnel' and Shri D. Nayak for 'Best Support Personnel'. Ms Shaswati Saha and Ms Satinder Kaur were awarded as 'Best Young Researcher' and 'Best Project Personnel' respectively.

Water Technology and Management Division (WTMD) and Hyderabad Zonal Centre were given the 'Best Division Award'. Director's Research Cell and Environmental Impact and Sustainability Division (EISD) were



Dr. Girish Sahni, DG-CSIR visiting the Nalla restoration site



DG-CSIR reviewing the R&D activities of CSIR-NEERI

The Technology Park has facilities to convert lab scale processes into demonstrable units and potential to attract stakeholders and entrepreneurs.



Dr. Girish Sahni, DG-CSIR addressing the audience



DG-CSIR with the students of Kendriya Vidyalayas

given the award for exceeding the performance target. Shri A.H. Dhawale and Shri Pramod Deshmukh were rewarded for their contribution in promoting the Diamond Jubilee material.

Students of Kendriya Vidyalayas were also awarded for their innovative ideas given under the Jigyasa programme recently organised at CSIR-NEERI.

Earlier, Dr. Girish Sahni, DG-CSIR inaugurated the 'Technology Park' and 'Nalla Treatment Demonstration Unit'. The Technology Park has facilities to convert lab scale processes into demonstrable units and potential to attract stakeholders and entrepreneurs. Dr. J.S. Pandey, Chief Scientist proposed the vote of thanks.

International Yoga Day 2018 Celebration at CSIR-NISCAIR



Dr. K.P. Kochhar, Professor, All India Institute of Medical Sciences (AIIMS), New Delhi, Dr. K.P. Singh, Sr. Principal Scientist, CSIR-NISCAIR, Shri Kamlesh Kumar Mishra, Yoga therapist, Central Council for Research in Yoga and Naturopathy (CCRYN), and Dr. Manoj Kumar Patariya, Director, CSIR-NISCAIR

On the occasion of the fourth International Yoga Day 2018 with the global theme of “Yoga for Harmony and Peace”, CSIR-National Institute of Science Communication and Information Resources (CSIR-NISCAIR), New Delhi, organised a talk by Dr. K.P. Kochhar, Professor, All India Institute of Medical Sciences (AIIMS), New Delhi, and yoga demonstration by Shri Kamlesh Kumar Mishra, Yoga therapist, Central Council for Research in Yoga and Naturopathy (CCRYN), New Delhi.

Welcoming the participants and invitees during the programme, Dr. Manoj Kumar Patariya, Director, CSIR-NISCAIR, said that Yoga does not signify exercises, it's our self-happiness. When someone comes out of his or her comfort zone that is yoga. He talked about the 80-20 principle which simply

means an inner well-being and happiness. He also discussed the Navras of Yoga where Navras is the essence, the emotions that administer human life contributing to excellence.

Dr. K.P. Kochhar, Professor, All India Institute of Medical Sciences (AIIMS), New Delhi, highlighted the importance of Yoga (meditation) with Science. According to her Yoga means a “coupling” of the mind with the body. She talked about the scientific benefits of Yoga and emphasised on how Yoga can cure depression, stress, anxiety, inflammation, problems related to health



Dr. Manoj Kumar Patariya, Director, CSIR-NISCAIR addressing the gathering



Dr. Kochhar delivering the lecture

and how it reduces chronic pain also. She also discussed how one can balance the body equilibrium system with the help of Yoga.

Dr. Kochhar stressed on various techniques such as Slow Breathing techniques including Anulom-Vilom, right nostril breathing and fast breathing techniques including Kapalbhathi and Bhramari. She also talked about neuroimaging (the process of producing

brain images) as a tool for assessment of meditation comprising PET Scan (Positron Emission Tomography), MRI (Magnetic Resonance Imaging), EEG (Electroencephalogram). She said that Functional Near Infrared Spectroscopy (fNIRS) offers a safe, non-invasive and low-cost method of direct or indirect monitoring of brain activity.

She also highlighted eye tracking as a tool of meditation and discussed the basic differences between exercise and Yoga. She said that exercise just builds your muscles and physical strength but Yoga gives you complete peace as well as inner and outer well-being.

Shri Kamlesh Kumar Mishra, Yoga Therapist, Department of Central Council for Research in Yoga and Naturopathy (CCRYN), New Delhi, correlated Yoga with oxygen flow and emphasised on the role of yoga in proper circulation of blood which improves flexibility and muscle joint mobility. He said that many problems related to health like cervical pain, backache, headache and eyes pain can be managed with daily one-hour Yoga therapy.

Different types of asanas were demonstrated by him including slow stretching Yoga asanas for neck. Shri Mishra explained how it eases the neck

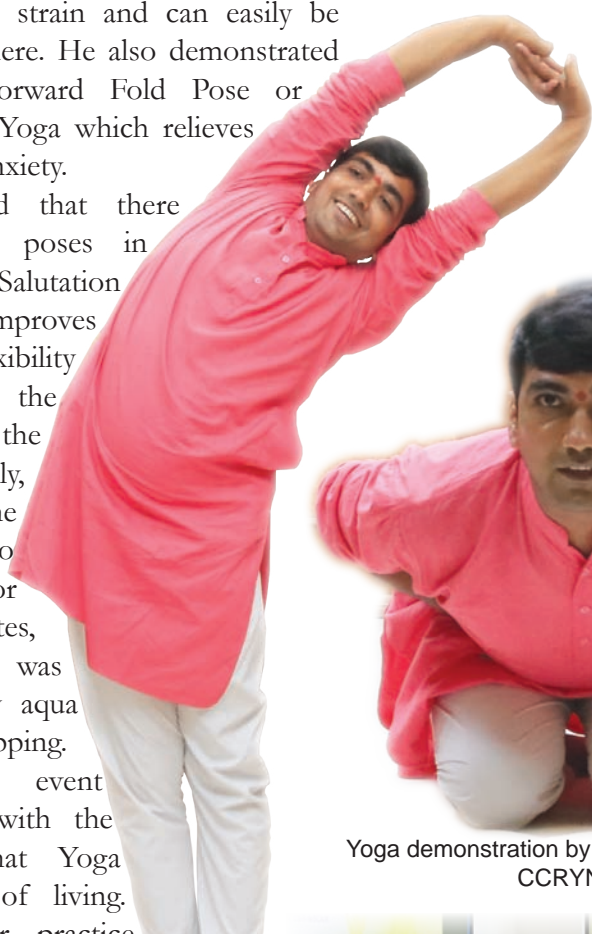


tension and strain and can easily be done anywhere. He also demonstrated Standing Forward Fold Pose or Uttanasana Yoga which relieves stress and anxiety.

He said that there are twelve poses in the Surya Salutation which improves balance, flexibility as well as the strength of the body. Finally, he asked the audience to meditate for 15-20 minutes, which was followed by aqua pressure clapping.

The event concluded with the message that Yoga is the art of living. The regular practice of Yoga not only enhances one's mental health but also increases metabolism activities. It also changes the normal human lifestyle and increases the level of well-being bringing happiness and peace.

*Compiled by Ms Shivani,
Research Intern with Science Reporter,
CSIR-NISCAIR, New Delhi*



Yoga demonstration by Sh. Kamlesh Kumar Mishra,
CCRYN, New Delhi



National Technology Day Celebrations at CSIR-CBRI, Roorkee



CSIR-Central Building Research Institute (CBRI), Roorkee, celebrated the National Technology Day on 15 May 2018. Mr Mahesh Tandon, Managing Director, Tandon Consultants Pvt. Ltd., New Delhi, graced the occasion as the Chief Guest and Dr. P.K. Das, Architect, STUDIO 1860, Noida, was the Guest of Honour. Dr. N. Gopalakrishnan, Director, CSIR-CBRI, Roorkee, presided over the function.

While presenting a lecture on “Sustainability in Urban Transport Structures”, Shri Mahesh Tandon spoke about the importance of metro in the urban public transport system and said that with technological development new energy conservative and environment-friendly techniques have been developed for the metro systems. He informed that the underground metro system has the least carbon emission amongst all public transport systems due to which for the first time in the world carbon

credits for use of underground metro systems were given to the Delhi Metro Rail Corporation by the United Nations Climate Change Framework Convention for minimum carbon emissions. He also explained the underground construction process of the metro transport system in detail.

Dr. P.K. Das presented a lecture on “Rural Housing” and informed about various rural housing building techniques in India and the Prime Minister’s Gramin Awas Yojna (PMAY-G) housing scheme for the construction of thirty lakh houses in the rural areas of the country in the next five years. He said that for the development of sustainable, environment-friendly and budget-friendly rural housing technologies, we have to develop new technologies through modern analysis of the local traditional building construction knowledge. He informed that the rural housing scheme has brought together researchers, administrative officials, traditional knowledge skilled workers, industry and young architects to work in synergy and provided an opportunity of employment and development for all.



In his Presidential Address, Dr. N. Gopalakrishnan, highlighted various scientific achievements of CSIR-CBRI, Roorkee, and explained the theme of the National Technology Day, “Science Technology for Sustainable Future”. He informed that with the successful mastery of the nuclear war technology through a series of controlled tests at Pokharan, the test firing of indigenously developed “Trishul” missile and the test flight of indigenous aircraft “Hansa-III”, on 11 May 1998,



Dr. N. Gopalakrishnan during his Presidential Address

India proved its technological strength to the world. To celebrate India’s technical prowess and inspire the young minds to excel at innovations, the then Prime Minister Shri Atal Bihari Vajpayee declared May 11 as the National Technology Day of the country.

The latest edition of the Institute’s quarterly bilingual publication, CBRI Newsletter-Bhavnika was also released during the programme.

Dr. A.K. Minocha, Chief Scientist, conducted the programme and presented the formal introduction of the Chief Guest. Shri Soumitra Maiti, Senior Scientist presented the formal introduction of the Guest of Honor and proposed a vote of thanks.



To celebrate India’s technical prowess and inspire the young minds to excel at innovations, the then Prime Minister Shri Atal Bihari Vajpayee declared May 11 as the National Technology Day of the country.



National Technology Day Celebrated at CSIR-CSIO Chandigarh



Dr. Ramasami emphasised on the development of a new paradigm of technologies for the sustainable future of the world incorporating the three foundations of sustainability, viz., Society, Economics and Environment.

CSIR-CSIO (Central Scientific Instruments Organisation), Chandigarh, celebrated the “National Technology Day” on 11 May 2018. All the labs of CSIO were kept open for the general public in the forenoon. Many visitors including students from various schools, colleges, universities and general public went around the laboratories of the institute. They interacted with the scientists and were given exposure to the technologies available and being pursued at CSIO.

The event witnessed a huge gathering of scientists, industrialists, teachers, research scholars, and students. Padma Bhushan Dr. T. Ramasami, Former Secretary, Ministry of Science and Technology, Govt. of India, was the chief guest on the occasion.

Welcoming the gathering, Prof. R.K. Sinha, Director, CSIR-CSIO, introduced the chief guest and said that the National Technology Day is celebrated in India on 11 May every year to mark India’s technological advancement and expertise.

Chief guest Dr. T. Ramasami delivered the National Technology Day Lecture on “Enculturing Technology

in Low Resource Setting: A Paradigm for Sustainable Future”. He said that technological advancement is acting as a driver of national economic development and increasing the investments into Research and Development by Nation states.

He highlighted that the prevailing culture of research and development in search of technology is built on the principle of competitive excellence. He said that the biggest challenge faced by any technology is the affordability by masses and that we need to create a more economically meaningful definition of affordable technology that is sensitive to all the segments of the society. Dr. Ramasami emphasised on the development of a new paradigm of technologies for the sustainable future of the world incorporating the three foundations of sustainability, viz., Society, Economics and Environment.

Further, Dr. T. Ramasami inaugurated a new facility of “Precision Optics Laboratory” which will be used to develop space-saving integrated optics instruments for the armed forces and the strategic sector.

Director ARAI Delivers National Technology Day Lecture at CSIR-NCL

CSIR-National Chemical Laboratory (CSIR-NCL), Pune, celebrated the National Technology Day on 11 May 2018. On the occasion, Mrs Rashmi Urdhwareshe, Director, Automotive Research Association of India (ARAI), Pune, rendered the National Technology Day Lecture on the topic “Future Trends in Automotive Technology”.

Mrs Urdhwareshe presented an overview of the ARAI. She briefly informed about the work being done at the institute and the technologies being developed focusing on the R&D Roadmap of ARAI. She threw light upon the Indian Auto Industry. India is the largest truck manufacturing country, second largest bus manufacturer, third largest heavy truck manufacturer, fifth largest passenger vehicle and commercial vehicle manufacturer, and largest gear market for the entire world.

Although the number of vehicles in the country is large, she said, if we look at the ratio, passenger vehicles are still 20 vehicles per thousand people. These numbers are less as compared with developed countries. The country needs technologies, policies, solutions that will empower the transportation sector, she said.

Mrs Urdhwareshe expressed that addressing the environmental challenges is also crucial. A complete integrated approach has been adopted that includes clean air, thermal policies and rural public infrastructure to promote environment cleaning, fuel and energy management, regulations and standards. She said mitigation strategies are required for the problems faced in the transportation sector.

Mrs Urdhwareshe talked about

different vehicle technologies focusing on fuel efficiency improvement through powertrain engineering. She informed about the possible alternative fuels that can be used in vehicles for transportation.

She said that India had committed at the Global Conference on Traffic Safety in Brazil to reduce the number of road accidents and fatalities by 50% by 2020 through improved safety, efficiency and sustainability in the transport sector. “We should come together to encourage the use of current safety equipments for passive and active safety,” she said.

Earlier, Prof. Ashwini Kumar Nangia, Director, CSIR-NCL, gave the welcome remarks and introduced the speaker to the audience.

Followed by the lecture, a meeting was held to discuss the mutual research interests of ARAI and CSIR-NCL. The agenda of the meeting was to identify key areas where the unique expertise of ARAI and CSIR-NCL could be integrated to develop collaborative research programmes.



Mrs Rashmi Urdhwareshe delivering the National Technology Day Lecture



Prof. Ashwini Kumar Nangia, Director, CSIR-NCL felicitating Mrs Urdhwareshe

Awareness Programme at CSIR-CBRI, Roorkee: Students Learn about the Wonders of Science

CSIR-Central Building Research Institute, Roorkee, organised a Students Awareness Programme under the Jigyasa Student-Scientist Connect Programme on 3 May 2018, for class XII students of Kendriya Vidyalaya No. 1 and Kendriya Vidyalaya No. 2, with the aim to develop scientific consciousness in young minds by introducing them to the latest innovative research and techniques in the field of building construction and educating them on the importance of press and publications in the dissemination of this scientific knowledge.

Dr. N. Gopalakrishnan, Director, CSIR-CBRI, Roorkee, presided over the programme and Dr. Atul Kumar Agarwal, Senior Principal Scientist and Jigyasa Programme Coordinator conducted the programme.



In his Presidential Address, Dr. N. Gopalakrishnan encouraged the students to concentrate towards achieving their goals with a calm mind and to awaken within themselves a curiosity to know the what, why and how of every aspect in life. He motivated the students to become the Einstein and Tendulkar in their area of interest.

Dr. S.R. Karade, Senior Principal Scientist, while presenting a lecture on "Corrosion and its Control", explained that corrosion is a natural process that





With the help of short video films, Dr. Atul Kumar Agarwal motivated the students to face the challenges of life with a positive attitude and transform them into opportunities and achievements through hard work and dedication. He said that the students today face undue pressure where they are pushed towards rote learning instead of understanding the facts to achieve higher scores, as more weightage is given to quantification instead of the quality of knowledge. This, in turn, pushes the students away from the pursuit of knowledge and science.



gradually degrades metals. Usually, corrosion occurs due to the chemical reaction of metals with the environment. He informed that a variety of metals are being used in construction, thus there is always a risk of corrosion in buildings. He gave details on the various techniques developed by CSIR-CBRI, Roorkee, for corrosion detection in buildings and its eradication.

He said that we need to take inspiration from the life stories of great scientists reflecting their intellectual and scientific achievements.

The students were shown a science film displaying the achievements of the Council of Scientific and Industrial Research (CSIR) and its laboratories.





Dr. Abha Mittal, Senior Principal Scientist, proposed a vote of thanks.

About 100 class XII students of Kendriya Vidyalaya No. 1 and Kendriya Vidyalaya No. 2, along with their teachers, Anita Bisht, Shivani Chaudhary, Anil Gaur, Vijaya and Harendra Kumar,

participated in the programme. Students responded positively to the programme and described it as interesting, enlightening and inspirational, and expressed their desire to participate in many such programmes in the near future.

International Women's Day at CSIR-CBRI



International Women's Day was celebrated on 9 March 2018 at CSIR-Central Building Research Institute,

Roorkee, with the theme "Time is Now: Rural & Urban Activists Transforming Women's Lives" to draw inspiration from the vibrant life of the women activists whose passion and commitment have won women's rights over the generations.

Mrs Hema Raghvan graced the occasion as the Chief Guest and Mrs Charu Chaturvedi was the Guest of Honor. Mrs Jaishree Gopalakrishnan, Patron, CSIR-CBRI Ladies Club presided over the function.



Mrs Hema Raghvan said that we need to take inspiration from the remarkable women activists all over the world, who have bravely spoken out to gain access to justice, advocated legal reforms, stood up for their custodial rights and taken to the streets to turn protests into broader-based movements for women's rights, to show everyone that when women support one another, they can overcome any stigma.

Mrs Charu Chaturvedi said that it is our responsibility to speak with one voice for equal opportunity and accountability for all genders, from grass root networks to government leadership. We need to put an end to the impunity and the silent suffering of women in rural and urban areas, including women domestic workers, and empower the oppressed women of the society, by awakening them to their basic rights.

Mrs Jaishree Gopalakrishnan said that a healthy society is one that provides equal power to a wide mix of voices,

debates and learns from the varied threads of experience and perspectives, for every decision-making. If the voices of the women are missing, then there is an important gap in the fabric of society, as these quietened voices count in millions. We need to empower these voices to rise in strength and solidarity to set things right.

Dr. N. Gopalakrishnan, Director, CSIR-CBRI, Roorkee, while expressing his thoughts on women empowerment, said that the culture of gender-based poverty, abuse and exploitation has to come to an end for a new generation of equality to be born.



Dr. Purnima Parida, Senior Principal Scientist, welcomed the dignitaries and the guests. Mrs Rashmi Rathore, Section Officer expressed her views on the challenges faced by women at the workplace.

Dr. Abha Mittal, Senior Principal Scientist, said that we need to recognise the tireless work of activists who have been central to the global movements for gender equality by highlighting the complexities of the challenges facing women and influencing policies.

CSIR-NISCAIR Bags Excellence Award in Hindi

CSIR-NISCAIR, New Delhi, has been awarded the second prize under the medium category offices (empanelled

under TOLICs) for the best performance in implementing Rajbhasha policies among institutions for the year 2017-2018. The award



was given in the annual meeting of Town Official Language Implementation Committee (North Delhi) held at the National Agricultural Science Complex (NASC), New Delhi, on 22 June 2018.

This was a proud moment for the institute as this was the third year in succession that CSIR-NISCAIR received this award. During the last two years 2015-16 and 2016-17, the institute won the first prize under the same category. Besides this, last year CSIR-NISCAIR also bagged the first prize for Rajbhasha Patrika Sanchetna under the house magazine category.

This year, Nodal Officer from CSIR-NISCAIR, Smt. Meenakshi Gaur, Senior Translator, has also been felicitated for coordination and contribution in the Coordination Committee of TOLICs.

The awards were conferred by the Town Official Language Implementation Committees (TOLICs), North Delhi, which have been constituted in various towns all through the nation for ensuring progress of implementation of Hindi language. TOLICs (North Delhi) comprise 56 offices.



Dr. Manoj Kumar Patariya, Director, CSIR-NISCAIR, Sh. Hasan Jawaid Khan, HOD, IPSD and Sh. Anirudh Tiwari, Translator, receiving the award for excellence in Hindi



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