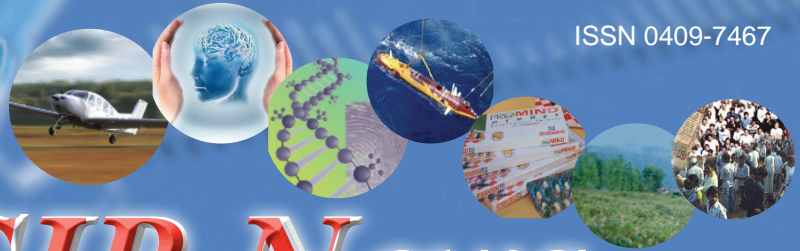




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# CSIR News

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April 2018

## In The News

### “Wings India 2018”

#### Telangana Minister Inaugurates CSIR-NAL's Mockup Cockpit



Hon'ble Minister Mr. K.T. Rama Rao inaugurating CSIR-NAL's RTA mockup cockpit on 8 March 2018 during “Wings India 2018”

**THE** RTA mockup cockpit developed by CSIR-National Aerospace Laboratories (CSIR-NAL), Bengaluru was inaugurated by Mr. K.T. Rama Rao, Hon'ble Minister for Industry & Commerce and IT, Government of Telangana on 8 March 2018. He was

accompanied by Civil Aviation Secretary Mr R.N. Choubey.

While Mr. K.T. Rama Rao and Mr. R.N. Choubey, Civil Aviation Secretary sat in the RTA cockpit, Mr Jitendra J. Jadhav, Director, CSIR-NAL explained

in detail about the electronic displays in the cockpit.

CSIR-NAL was taking part in the biennial event on Civil Aviation and Aerospace titled “Wings India 2018”, which was inaugurated by Mr. K.T. Rama Rao at the Begumpet Airport. The minister in his inaugural address said that Hyderabad city was set to become the centre for Aviation Sector and is an ideal location for the establishment of an Aviation University.

The theme of the four-day biennial event this year was “India – Global Aviation Hub”.

The event witnessed the presence of 125 exhibitors and 35 CEOs with representation from USA, Japan, UK, Russia, Singapore, France, Germany, Malaysia, Hong Kong, Italy and Iran. The exhibition saw participation from sectors such as aircraft manufacturing, aircraft machinery & equipment, aircraft interiors, airlines, airline services and air cargo, airports infrastructure and equipment, the Space Industry and the Skill Development and Aviation Training Institutes. The focus of the aviation show was on connecting the cities and towns aimed at increasing the regional connectivity in the country.

CSIR-NAL participated in the Wings India 2018 by putting up a brilliant exhibition stall. CSIR-National Aerospace Laboratories (NAL) showcased RTA mockup cockpit, SARAS mockup cockpit and HANSA NG cockpit.

The major attraction of the NAL stall in this edition was the cockpits.



Mr. K.T. Rama Rao sitting in the RTA mockup cockpit



CSIR-NAL stall

The work on the cockpit assembly took a whole two days by Dr. C.M. Ananda, Head, ALD and team members at the venue. The ALD team had begun work at NAL almost two months in advance. The outcome of the hard work was truly rewarding for Team ALD as the students and visitors came in large numbers to take a look at the cockpits.

The other displays included NAL developed DRISHTI, Flight simulator, Wankel engine, Carbon fibre, Composite parts for fighter aircraft, MAVs, VTOL, NiTi SMA (Shape Memory Alloy) products, scaled down models of aircraft, etc. NAL had a continuous stream of visitors on all the four days of the show. The important visitors to the stall included the Hon'ble Minister for Civil Aviation Mr. Jayant Sinha and Smt. Usha Padhee, Joint Secretary, Civil Aviation.

Business meetings were held with BEML, REDBIRD Aviation, S3M, Trujet, RG Engineering Technologies, Aanjaneya Aerodynamics Pvt. Ltd. etc. They evinced keen interest in SUCHAN, Hansa aircraft and design & development of 8-seat aircraft.

The T-Hub, India's largest incubator for start-up team also visited NAL stall and had a discussion with the Business Development Group and expressed their interest in partnering with NAL for setting-up Technology Business Incubation Centre (TBIC).



Hon'ble Minister of State for Civil Aviation  
Mr. Jayant Sinha visited the NAL stall

## CSIR-NPL Collaborates to Develop India's Own Gold Standard

Despite being one of the largest markets for gold, most of the gold reference material is imported in India to check the purity of gold. Currently, goldsmiths use certified reference material from the

National Institute of Standards and Technology (NIST) of the US.

But now India will have its own standard bar of gold – BND 4201. It is the reference material for gold of 9999

India's first home grown high purity gold reference standard is 99.99% pure with impurities of only 100 parts per million.

fineness and can be used to verify the purity of gold sold in shops. Bharatiya Nirdeshak Dravya (BND 4201) is India's first home grown high purity gold reference standard. It will mean that Indian jewelers will no longer need to import gold bars to check the purity of ornaments.

This high purity gold reference standard has been developed through a collaboration among the India Government Mint (IGM), Bhabha Atomic Research Centre (BARC), CSIR-National Physical Laboratory (CSIR-NPL) and National Centre for Compositional Characterisation of Materials.

The bars will be made by the IGM, a unit of Security Printing and Minting Corporation of India Ltd. The purity of the bars would be certified by CSIR-NPL while the technical aspects such as measurements would be the

responsibility of BARC.

The new bars being developed were 99.99% pure with impurities of only 100 parts per million. The bar weighs 20 grams with the dimension of a Parle-G biscuit. So far, 200 gold bars each 35 mm long, 15 mm wide and 1.5 mm thick have been made, informs Dr. D.K Aswal, Director, CSIR-NPL. He adds that the measurement of the high purity BND-4201 is traceable to SI units; therefore the possibilities of exporting to other economies are very high.

These bars could be a major source of revenue in future. The gold bar would be 25% cheaper than the imported version and will save foreign exchange as well as minimise dependency on foreign countries.

Gold reference standard is indispensable in gold and jewellery hallmarking. This will also be useful for



India Government Mint (IGM) signed an agreement with BARC and CSIR-NPL to develop the first Indian gold standard, the Bharatiya Nirdeshak Dravya (BND 4201) (Image Courtesy: [pibmumbai.gov.in](http://pibmumbai.gov.in))

collection and purity testing centers to certify the purity of gold deposits and assumes greater importance in the gold monetisation scheme of the Indian government.

Standard gold bars of standard fineness and purity of 10 g, 50 g, 100 g, 500 g and 1000 g denominations will be produced by the authority. Development

of this reference material indigenously will add to the Make in India campaign. It will also help jewellers to move towards more conductive methods rather than conventional fire assay methods for testing purity of gold, which is time consuming and environment destructive as poisonous gases are released.



## Graphene-based Supercapacitors from Lithium-Ion Batteries

Lithium-ion batteries are finding use in powering everything from smart phones to components in new jetliners, with global sales approaching \$8 billion annually. Millions of rechargeable Li-ion batteries are disposed each year due to its short life span of 2-4 years. The use of these batteries in portable electronic devices and electronic vehicles would further contribute to the electronic waste problem.

A new eco-friendly recycling process of these widely used Li-ion batteries has been developed by scientists from the CSIR-Central Electrochemical Research Institute (CSIR-CECRI), Karaikudi, Tamil Nadu and CSIR-Central Salt & Marine Chemicals Research Institute (CSIR-CSMCRI), Bhavnagar, Gujarat. They have produced graphene from discarded lithium-ion batteries which could potentially be an ideal material for next generation high-performance supercapacitors.

Supercapacitors are now being used explicitly in wind turbine pitch control, rail (on-board or wayside), automotive (including hybrid vehicles), heavy industrial equipment, UPS and



Image Courtesy: [www.csir.res.in](http://www.csir.res.in)

telecom systems for power delivery and memory backup. Graphene-based supercapacitors are novel energy storage system that combine high energy and power density.

Graphene oxide collected from Li-ion batteries showed high specific capacity at low current, 112 farad per gram which is almost equal to commercially available ones. The

The new electrodes developed from discarded Li-ion batteries when exposed to 20,000 cycles of charging and discharging at a high current density, retained 70% of their efficiency even after 85 cycles. The efficiency slowly increased and reached 108% after 20,000 cycles.

process involves conversion of graphite into graphene oxide by oxidation and subsequent exfoliation which is then further converted into reduced graphene oxide. The new electrodes made using the reduced graphene oxide showed high stability and high retention capacity. When exposed to 20,000 cycles of charging and discharging at a high current density, electrodes retained 70% of their efficiency even after 85 cycles. The efficiency slowly increased and reached 108% after 20,000 cycles.

“We are further evaluating the capacitive nature of our prepared

electrode in two electrode systems and hope to bring it out soon for large scale commercial applications,” said H.C. Bajaj, emeritus scientist at CSIR-CSMCRI and the corresponding author.

The process is faster and cheaper than the ones available in market today for generating reduced graphene oxide at lower temperatures. The long-term stability and robustness of the capacitor are the key parameters for creating better, long lasting batteries. The study has been published in *Colloids and Surfaces A: Physicochemical and Engineering Aspects*.

#### **MoU/Agreement**

## **CSIR-IGIB Licenses out Diagnostic Tests for Rare Genetic Diseases**

CSIR-Institute of Genomics & Integrative Biology (CSIR-IGIB), New Delhi has entered into an agreement with Dr Lal PathLabs to commercialise a set of 27 genetics tests it has developed over the years. Dr Lal PathLabs has a large network of diagnostic centres across the country. To be launched in phases over the year, these tests could make diagnosis of genetic diseases much easier.

It is estimated that over 70 million Indians have been affected by genetic diseases. The key to combating such diseases is correct diagnosis. Diagnosis in such cases is also often expensive.

CSIR-IGIB has a rich expertise in the area of genomics. Through

a unique programme called GOMED (Genomics and other Omics technologies for Enabling Medical Decision), CSIR-IGIB has carried out over 14,000 genetic tests, benefiting about 4,000 patients. These tests cover a variety of diseases/disorders including movement disorders, motor neuron disease, mitochondrial disorders, developmental and inborn errors of metabolism, and leukodystrophies.

Dr. Girish Sahni, Director-General, CSIR, said, “The genetic tests licensed would provide a much needed support system to doctors in diagnosing identified genetic disorders and thus helping the patients too.”

## R&D Highlights

# Synthesis of Quantum dots from 2D Materials: CSIR-CECRI

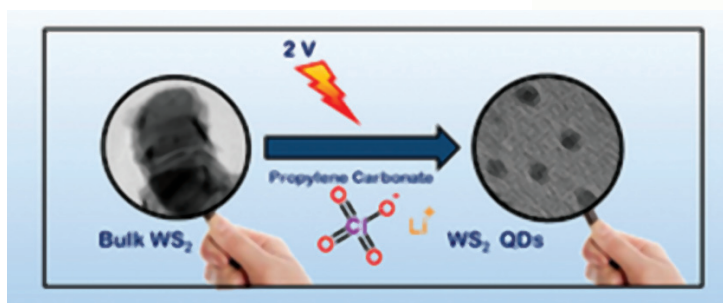


Transition metal dichalcogenides quantum dots (TMQDs) with few layers based on 2D layered materials are in the forefront of recent research owing to their unique band structure. Such quantum dots (QDs) can be employed for components in optoelectronic devices. Despite few attempts towards single step synthesis of MoS<sub>2</sub> QDs, limited methods are available for the synthesis of WS<sub>2</sub> QDs.

Researchers from CSIR-Central Electrochemical Research Institute, Karaikudi have reported a novel single step electrochemical route for the synthesis of tungsten-di-sulfide quantum dots (WS<sub>2</sub>) from their bulk counterpart. The average size of the WS<sub>2</sub> QDs is 3 nm ± 1 nm (N=102) with few layers.

This unprecedented electrochemical avenue offers a strategy to synthesize size tunable WS<sub>2</sub> nanostructures which has been systematically investigated by various characterization techniques such as Transmission Electron Microscopy (TEM), Photoluminescence Spectroscopy, UV-Visible Spectroscopy and X-ray Diffraction (XRD).

Time dependent TEM investigations revealed that time has played a vital role in this electrochemical transformation. This electrochemical transformation provides a facile method to obtain WS<sub>2</sub> QDs from their bulk counterpart which is expected to have greater impact on the design and development of nanostructures derived from 2D materials. Further, the QDs thus obtained exhibited higher photoluminescence (PL) quantum efficiency (5%) and exhibit an excitation-wavelength dependent photoluminescence.



Schematic representing the single step electrochemical transformation of bulk WS<sub>2</sub> to WS<sub>2</sub> quantum dots

## Reference

Manila O.V, Athira A, Shaijumon M, Vijayamohan K Pillai, Subbiah A, *Chemistry – A European Journal* 23 (38) (2017), 9144-9148

# Performance of Confined Masonry Buildings under Quasi-Static Condition: CSIR-CBRI, Roorkee

Since the dawn of civilisation, masonry is the most commonly used material in building industries, especially for low

to medium rise buildings due to several advantages such as resistance, acoustic and thermal insulation, simple and

The comparison showed that the CM\_RET building exhibited higher strength and ductility as compared to URM, RM and CM buildings. The performance of CM\_RET over URM, RM and CM in terms of strength demonstrated about 4.25, 3.27 and 1.24 times improvement respectively

economic construction, etc.

However, Unreinforced Masonry (URM) buildings have proven vulnerable in seismic events, with significant building damage and numbers of fatalities, the world-over. To improve the seismic resistance of masonry buildings, different methods have been attempted over the years, leading to the concept of reinforced masonry (RM) and confined masonry (CM) systems.

Quite often, the vulnerable/damaged buildings are required to be strengthened or retrofitted. It is pertinent that the safety of such buildings be assessed objectively based on experimental verifications. Thus, to study the seismic performance of different masonry building typologies, an experimental study was performed on full-scale single room masonry buildings measuring 3.01 x 3.01 m in plan and 3.0 m in height with similar geometry, material properties and construction practices for all the building typologies.

Unreinforced (URM), reinforced (RM) and confined masonry (CM) were tested under quasi-static cyclic loading and data was recorded in terms of displacement capacity at corresponding load. CM building performed significantly well when compared to URM and RM buildings demonstrating high displacement capacity, along with high initial stiffness, ductility,

energy dissipation with relatively lower structural damage. There is a need to explore the effective and efficient retrofitting measure for damaged CM building so as to improve its behaviour when subjected to lateral loading.

To explore the best suitable retrofitting technique, various alternate options viz. Welded Wire Mesh (WWM), Chicken Mesh (CM), Nylon Mesh (NM), Industrial Geo-grid (IG), Polypropylene Band (PB) and Plastic Cement Bag (PCB) were evaluated for retrofitting of masonry prisms and wallets. The results showed plastic cement bag mesh was the most effective strategy as retrofit measure. In addition, this material has advantages like low cost, high flexibility, minimum thickness, non-corrodible nature, adequate grip and reuse of waste material.

Figure 1 presents the preparation of mesh from empty plastic cement bags and cementitious grouting for filling the cracks in masonry walls of CM. Subsequently, plastic mesh was fixed on both faces of masonry wall by means of epoxy and nails, which were later embedded in 15 mm thick cement: sand (1:4) mortar.

Figure 4 shows the hysteresis curve of CM\_RET building, which was used to draw load-displacement envelop. The figure also illustrates the lateral load and displacement corresponding to occurrence of first significant crack

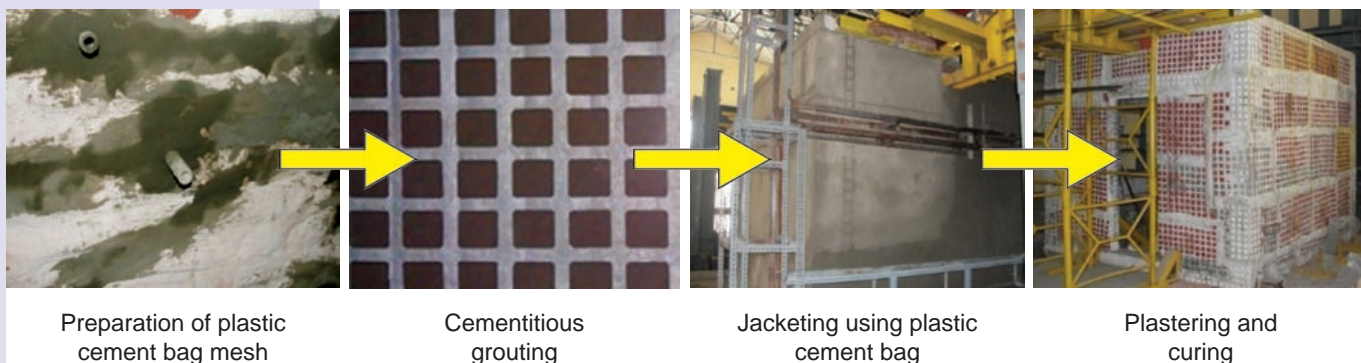


Fig. 1: Strengthening of damaged CM building



Fig. 2: Full-scale retrofitted confined masonry building subjected to lateral cyclic load



Fig. 3: Damage pattern for retrofitted confined masonry building subjected to lateral cyclic load

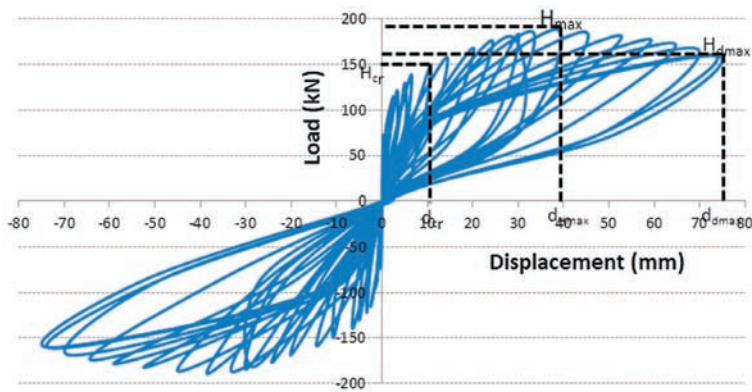


Fig. 4: Hysteretic curve for CM\_RET building

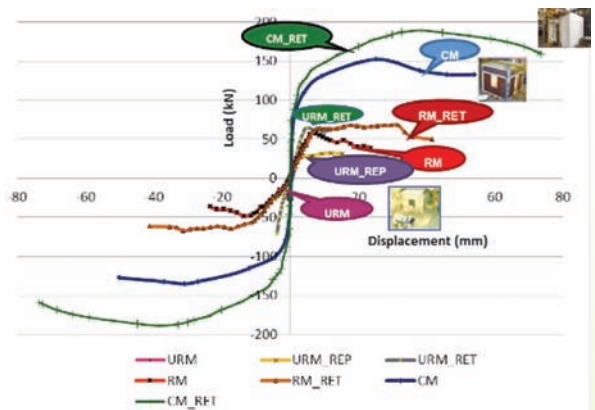


Fig. 5: Comparison of lateral load-deformation envelope for different masonry systems and its retrofit

( $H_{cr}$  and  $d_{cr}$ ), maximum resistance ( $H_{max}$  and  $d_{max}$ ), and maximum lateral displacement ( $H_{max}$  and  $d_{max}$ ). Figure 5 shows the comparison of load-displacement curve of CM\_RET with earlier tested URM, URM\_RET, URM\_RET, RM, RM\_RET, and CM.

The comparison showed that the CM\_RET building exhibited higher strength and ductility as compared to URM, RM and CM buildings. The performance of CM\_RET over URM, RM and CM in terms of strength demonstrated about 4.25, 3.27 and 1.24 times improvement respectively. Increase in initial stiffness was reasonable i.e. 4.27, 4.14 and 1.12 times respectively for URM, RM, CM as compared to

CM\_RET building. Similarly, substantial increase in ductility was also noted i.e. 44.6%, 42.7% and 23.19% respectively for URM, RM, CM as compared to CM\_RET building. Maximum drift calculated for CM\_RET building was 2.48% in comparison to 1.8% for CM building. Energy dissipated was 7804 kN-mm for CM\_RET, while that for CM building was calculated to be 4250 kN-mm. Thus, through experimental results, it can be concluded that the retrofitting of CM using mesh of plastic cement bag was more effective technique for masonry buildings.

*Ajay Chourasia, Jalaj Parashar & Shubham Singhal, CSIR-CBRI*

## National Science Day Lecture on “Transforming S&T in India” Organised by CSIR-NISCAIR

India's spending on R&D is about 0.6% of its Gross Domestic Product (GDP) in comparison to China (2.1 %) and U.S. (2.8%), said Dr. R. Sreedher.

On 28 February 2018, celebrated every year in India as the National Science Day, CSIR-National Institute of Science Communication and Information Resources (CSIR-NISCAIR), New Delhi organized a lecture on “Economic Survey 2017-2018: Transforming Science & Technology in India”.

Dr. R. Sreedher, Former Director, Commonwealth Educational Media Centre for Asia (CEMCA) delivered the National Science Day Lecture and the chief guest was Dr. Tarun Vijay, Former Hon'ble Member of Parliament, Rajya Sabha.

In his opening remarks, Dr. Manoj Kumar Patariya, Director, CSIR-NISCAIR talked about the significance of public policy research. He mentioned that public policy is a strong and dynamic tool to promote the knowledge and application of scientific methods globally. He said public policy is an important tool to promote innovation based growth. Dr. Patariya also said that this is the first time that the annual Economic Survey had incorporated a chapter on Science & Technology.

Delivering the National Science Day Lecture, Dr. R. Sreedher

highlighted the link between technology, innovation and national economic prosperity. India's spending on R&D is about 0.6% of its Gross Domestic Product (GDP) in comparison to China (2.1 %) and U.S. (2.8%), he said. He also highlighted that the investments in science in India in terms of Gross Expenditure on R&D (GERD) have consistently been increasing over the years but the public expenditures on research have been stagnant over the past two decades – between 0.6-0.7 per cent of GDP. He said that according to the survey the private sector carries out bulk of the research in most countries like U.S and China unlike in India, where the government is the primary source of R&D funding.

The other critical input for R&D is a well trained workforce among which Ph.D. students play an essentially important role. Ph.Ds. in Science, Technology, Engineering and Mathematics (STEM) have been less in India in recent years than other countries. Also, universities in India play a relatively small role in research activities of the country. This is critical, said Dr. Sreedher, as educational institutions in many countries play a substantial role in both creating the diverse talent pool for research and generating high quality research output.

He also shared his experience in mathematics education through the radio by means of a programme initiated by the National Council for Science & Technology Communication (NCSTC), a unit of the Department of Science



Dr. R. Sreedher, Former Director, Commonwealth Educational Media Centre for Asia (CEMCA) delivering the National Science Day Lecture

& Technology, Government of India over six different states in the country. The programme was a challenging experiment to teach mathematics by an oral medium without chalk and board. Five stations targeted women who were empowered in various ways.

Talking about scientific outputs in previous years, he said India had improved its output of scientific publications and is currently sixth in the world. Also, India is the seventh largest patent filing office in the world. However, in quality, India is still sorely short. India needs to redouble its efforts to improve science and R&D by doubling national expenditures, he added. To construct a broader and inclusive value system in society the following efforts should be made:

1. Improve math and cognitive skills at the school level
2. Increase funding for research from private sector as well as from state governments
3. Link national labs to universities and create new knowledge eco-systems
4. Take a mission driven approach in areas such as dark matter, genomics, agriculture, cyber physical systems, etc.
5. Leverage scientific diaspora and improve the culture of research
6. Improve public engagement of science and research establishments.

Next up was Dr. Tarun Vijay, Former Hon'ble Member of Parliament, Rajya Sabha. He stressed on the language barrier that still is a major barrier in the spread of science and technology among the people. English has grown to dominate in areas of science and technology and everything that was not in English was considered less enriching, less knowledgeable and less reputed. He said, we are keeping more than 95% of the Indian population out of the S&T

information loop as about 1-1.25 % people understand and speak in English only. Rest of the people are more conversant in their own languages like Hindi, Tamil, Urdu, etc.

He found that having a scientific temper is something that we do not care about. The more we claim to progress in the area of space technology and felicitate our scientists who have created satellites, the lesser number of people we see around us having a scientific temper and scientific mind.

Talking about the immense interest of Swami Vivekananda in science and scientific temper, he said that there was a time when spiritual leaders like Swamiji had the vision to create scientific temper among people to uplift India in the area of S&T. He cited the example when Swamiji met Jamshed ji Tata on his way to America via Japan and encouraged Jamshed ji to grow science education in India. The talk between them resulted in the foundation of the Indian Institute of Science, Bangalore, which is a foremost scientific institute in India today.

*Compiled by Ms Kirti Bansal, Science Reporter, International and Popular Science Division, CSIR-NISCAIR, Pusa Campus, New Delhi*



Dr. Tarun Vijay, Former Hon'ble Member of Parliament, Rajya Sabha



Dr. Manoj Kumar Patairiya, Director, CSIR-NISCAIR

## CSIR-CBRI Celebrates National Science Day



Prof. Raj Hirwani, Former Head and Technical Advisor, CSIR-URDIP

CSIR - Central Building Research Institute, Roorkee celebrated the National Science Day on 28 February 2018. Prof. Raj Hirwani, Former Head and Technical Advisor, CSIR Unit for Research and Development of Information Products (CSIR-URDIP), Pune graced the occasion as the Chief Guest and

Prof. Anjan Sil, Head, Department of Metallurgical and Materials Engineering, IIT, Roorkee was the Guest of Honour.

Dr. N. Gopalakrishnan, Director, CSIR-CBRI, Roorkee presided over the function.

Prof. Raj Hirwani gave a lecture on “Patent Information for Research and Business Development”, and gave information about patents, patent citing analysis, patent mapping etc. Explaining the importance of patents, he said that patinformatics opens

new areas of research and plays a crucial role in determining the Institute’s core strength, structure, capacity, mergers and acquisitions, investment risk, human resources management etc.

Prof. Anjan Sil in his lecture on “Energy Storage Materials for Sustainable Future” talked about green energy, lithium ion batteries and their miniaturisation, electronic vehicles, polymer based materials, energy storage devices, nanotechnology, carbon nanotubes etc. He also discussed the research being carried on in the advanced areas of sustainable lithium alternates, new cost effective techniques, reuse of lithium extracts etc.

In his Presidential Address, Dr. N. Gopalakrishnan, Director, CSIR-CBRI discussed the contributions and achievements of CSIR-CBRI, Roorkee.



Prof. Anjan Sil, Head, Department of Metallurgical and Materials Engineering, IIT, Roorkee



Dr. N. Gopalakrishnan, Director, CSIR-CBRI

# National Science Day Celebrated at CSIR-CSIO

CSIR-Central Scientific Instruments Organisation celebrated the National Science Day on 28 February 2018 with a lecture by Prof. Ajoy Ghatak, Professor Meghnad Saha Fellow of NASI (The National Academy of Sciences, India).

Prof. R.K. Sinha, Director, CSIR-CSIO, said to celebrate the National Science Day this year, all laboratories of CSIO were kept open for the public. Around 1000 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 CSIR-CSIO.

Prof. Ajoy Ghatak delivered a lecture on the topic “Raman Effect & A Brief History of Development of Science in India”. He started his talk by explaining the Raman Effect and its use in the latest fibre technology. During a brief recollection of the development of science in India, Prof. Ghatak highlighted the Mission to Mars, Nuclear Energy and Green Revolution as the prime achievements of India in the field of scientific research. However, he also spoke about the challenges faced by science in modern India. “Ten manual scavengers died in Delhi’s sewers last year which is a national shame. But, we as Indians, are preoccupied with everyday superstition,” he said, displaying a slide with news clips on a baba.

Prof. Ghatak reiterated theoretical physicist Albert Einstein’s views on religion and theology. He said Einstein believed in the “infinite power of creation and had no belief in the theology that rewards good and punishes evil”. He



Prof. R.K. Sinha, Director, CSIR-CSIO welcoming Prof. Ajoy Ghatak



Students visiting CSIR-CSIO laboratories

talked about learned personalities and prime educational institutions in India's past that promoted scientific temper and encouraged new inventions.

However, he said science soon succumbed to religious orthodoxism as schools of learning turned into madrasas and gurukuls fell victim to orthodox Vedantism. "It is true that even today India's backwardness can be attributed to backwardness in the pursuit of science. The younger generation has to wake up as the world faces new challenges in peace and human security," he added. He said "we should not concern ourselves with

where a mandir or a mosque should be built. Education, especially of women, will help us progress."

My family calls me an atheist, he said. But I tell them that the only religion that they have to follow is that of compassion. There are so many who do not even have one-tenth of what we have, he said.

Before the talk, Prof. Ghatak visited laboratories and praised the demonstration of Divyanayan, a portable reading machine for the blind, pesticide spraying system, earthquake warning system and other versions of the head-up display.

## CSIR-NISCAIR Celebrates International Women's Day 2018



International Women's Day is celebrated every year on 8 March across the globe to mark the achievements of women and call for accelerating gender parity and women's rights. A National Symposium

in connection with International Women's Day 2018 was organised by CSIR-National Institute of Science Communication and Information Resources (NISCAIR), in association with Vigyan Bharati on 13 March 2018 at NASC Complex, New Delhi. The theme for the Symposium was "Women in Science: Science for Women; Science meets Journalism and Poetry".

The programme saw the presence of many distinguished personalities from the field of Science, Health, Journalism, Media, Literature and Poetry. The function was presided by the Chief Guest, Dr. Sunil Baliram Gaikwad, Hon'ble Member of Parliament, Lok Sabha. Shri Rameswar Teli, Hon'ble Member of Parliament, Lok Sabha was the Guest of Honour. The theme of the programme was health concerns of women, and media & health communication. The programme also had a panel discussion on "Women in

media” and a Vigyan Kavi Goshthi.

Dr. Manoj Kumar Patairiya, Director, CSIR-NISCAIR in his welcome address said that the participation of women in science and the involvement of science in lives of women in different ways can work for the collaborative development of women. He said we should always be open to communicate as communication is a tool that can eradicate many problems and misconceptions. The conjugation of science with journalism, literature and poetry makes it more interesting and easy to understand.

Consultant ophthalmologist and specialist in Cataract and Glaucoma, Dr. Tutul Chakraborty delivered an enlightening talk on “Let’s understand Glaucoma, Especially in Women”. She said, “Early detection of Glaucoma is more difficult because there are no specific symptoms of Glaucoma. The patient suffering from Glaucoma feels no pain and the vision also stays normal even till the last stage of Glaucoma.”

Explaining the global scenario, Dr. Chakraborty said Glaucoma is the cause of irreversible blindness worldwide. People above 40 or 50 age are more vulnerable to all types of Glaucoma viz. Primary Open-Angle Glaucoma (POAG), Primary Angle-Closure Glaucoma (PACG) and Normal Tension Glaucoma (NTG). Women are especially vulnerable to Glaucoma as they go through cycles of hormonal changes. They face risk of glaucoma in early menopause. PACG affects women 50% more often than men. Women with very high plus eye power are more likely to have Glaucoma. Using birth control pills may increase the risk of Glaucoma in women. In India, especially, women’s less access to healthcare worsens the scenario.”

Dr. Neeraj Tandon from the Publications & Information division of the Indian Council of Medical Research



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



Dr. Tutul Chakraborty, Ophthalmologist, Kolkata

(ICMR), New Delhi delivered a talk on “Women in Health Communication”. Dr. Tandon said that health communication



Dr. Neeraj Tandon, Publication & Information, ICMR, New Delhi

or medical journalism in India, largely appears from crisis perspective on some specific problems like heart, diabetes, blood pressure etc., but the issues related to women's health largely remain unattended due to various social stigmas attached. Communicating to women, particularly on reproductive and

important role, especially in nutrition, child health, family planning and sexual & reproductive health of women."

A panel discussion on "Women in Media" was coordinated by Shri Onkareshwar Pandey, Editor, Rashtriya Sahara. Presenting his views on role of women in media Shri Pandey said, "Women's participation in media began in 1990s through Akashvani and Doordarshan and with the boom in television industry, women were seen working significantly in all aspects of media. Today, many popular newspapers and media channels have women as their heads."

Shri Onkareshwar Pandey also highlighted the importance of bridging the gap between science authors and media. He said that a reporter is not an expert of a particular field and the experts are highly academic in their presentation, which is difficult for the common readers to understand. So, we need science writers who can communicate science and health related information in simple and popular language.

Winner of 'Alami Farogh-e-Urdu Adab, Doha (Qatar) Award 2015' and

sexual health, is not an easy exercise.

Talking about the role of women in health communication, Dr. Neeraj said, "Women's perspectives arise from community's belief, knowledge and attitude. Worldwide women often respond to health messages delivered through women only to improve their well-being. Women's participation in health communication can play an



Shri Onkareshwar Pandey, Editor, Rashtriya Sahara



Shri Musharraf Alam Zauqui, Famous Urdu & Hindi Poet and Journalist

renowned Urdu & Hindi Poet and author Shri Musharraf Alam Zauqui said, “The sudden explosion in media with the beginning of the 21st century contributed a lot in changing the lives of women in many ways. It gave them a wide exposure to social media, created awareness and taught them to have their say. Media helped women to know about their rights and fight for them.”

Ms. Seema Gupta, Former CEO, Lok Sabha Television talked about the status and security of women in media and shared her personal experiences. Ms. Gupta said, “Media played a great role in portraying the character of women as black and white. The television era used the image of women to advertise and sell their products. In spite of advocating gender equality everywhere, a silent inequality still persists in our minds which makes women feel insecure about how they should behave, look and talk adding to their psychological pressure at workplace.”

Shri Dilip Kumar Nigam, Ministry of Road Transport & Highways said that experts in science should also do science journalism as they can elaborate the scientific facts accurately and convey the knowledge to the masses aptly.



Ms. Seema Gupta, Former CEO, Lok Sabha Television being welcomed by Director, CSIR-NISCAIR

Expressing his thoughts on security and betterment of women, Shri Nigam said, “We should teach our daughters to be assertive and fearless and we should teach our sons to respect women and treat them equally.”

Dr. Gayatri Devi, wife of Shri Laxmi Narayan Yadav, Hon’ble Member of Parliament, Lok Sabha, showed concern over the grim conditions of women in rural India. She said, “Women



Shri Dilip Kumar Nigam, Ministry of Road Transport & Highways



Dr. Gayatri Devi, wife of Shri Laxmi Narayan Yadav, Hon’ble Member of Parliament, Lok Sabha

are excelling in every field today, be it space, politics or defence, but in our villages they have to struggle for basic

rights. We need to work towards the betterment of our rural sisters to give a true meaning to programmes like this.”

Speaking on the occasion, Guest of Honour, Shri Rameshwar Teli, Hon'ble Member of Parliament, Lok Sabha from Dibrugarh, Assam, said that participation of women in states like Assam is prominent in all fields. Women are treated equally. There is no dowry system in Assam. They take part in Panchayats. Women are self-sufficient and

independent. He wished to see the same status of women in all parts of the country.

Chief Guest, Dr. Sunil Baliram Gaikwad, Hon'ble Member of Parliament, Lok Sabha from Latur, Maharashtra, in his presidential address said, “The rights for men and women are same and equal, but even today women are not given complete freedom. The policy makers should practice the words into action to empower the women of our society. Change should begin at home to set motivating and idealistic examples for the society.”

A Vigyan Kavi Goshthi was also organised as part of the event. Poetess Dr. Kirti Kale coordinated the programme, in which popular poetesses like Ms. Anubhuti Chaturvedi, Ms. Richa Banerjee, Ms. Ranjana Agarwal, Ms. Alka Sinha, Ms. Tabassum, Ms. Renu Hussain and Ms. Mamta Kiran participated highlighting in their poems and songs the importance of science in our lives and issues related to environment.

*Compiled by Sonam Choudhary, Research Intern, Science Reporter, CSIR-National Institute of Science Communication And Information Resources, New Delhi*



Shri Rameshwar Teli, Hon'ble Member of Parliament, Lok Sabha



Dr. Sunil Baliram Gaikwad, Hon'ble Member of Parliament, Lok Sabha



From left: Ms. Renu Hussain, Ms. Tabassum, Ms. Anubhuti Chaturvedi, Ms. Kirti Kale, Ms. Alka Sinha, Ms. Richa Banerjee and Ms. Mamta Kiran at the poetry session

## Dr. Manoj Kumar Patairiya Receives “Ariviyal Kalanjiyam Award” (Treasure Trove of Science Communication Award)



Dr. Manoj Kumar Patairiya, Director, CSIR-National Institute of Science Communication and Information Resources (CSIR-NISCAIR), New Delhi has been awarded the “Ariviyal Kalanjiyam Award”. Also called the “Treasure Trove of Science Communication Award”, the award is in appreciation for his commendable research in Science, Technology, Global Initiatives for Sustainable Developments and Remarkable Services in Science Communication. He has been awarded for the Tamil version of his book “Ariviyal Ithazhial” (*Science Journalism*), the Foreword to which was written by the former Secretary of the Department of Science & Technology Dr. T. Ramasami.

The award instituted by the MTS Academy, Chennai and Bhartiya Vidya Bhawan, was given away by Dr. M. Ponnaivaiko, Vice President, MTS Academy and former Vice Chancellor, Bharatidhasan University and Dr. B. Chandrasekharan, Director, CSIR-Central Leather Research Institute (CSIR-CLRI), Chennai.

Dr. Manoj Kumar Patairiya is Director of the CSIR-National Institute of Science Communication And Information Resources (CSIR-NISCAIR), New Delhi since 2016. In his earlier assignment, Dr. Patairiya was the Additional Director General, Prasar Bharati (Doordarshan/All India Radio), where he was responsible for setting up the Kisan TV Channel. He also served as the Channel Head of DD Kisan Channel.

Dr. Patairiya has served as Adviser/Scientist ‘G’ in the Department of Science & Technology, Govt. of India and is decorated with prestigious

national and international awards including Global Science Popularization Award by Centre for Global Studies, Houston, USA; Indira Gandhi National Award by Ministry of Home Affairs, Dr. Atmaram Award by Ministry of Human Resource Development; Bhartendu Harischandra National Award by Ministry of Information & Broadcasting; Chaudhary Charan Singh National Award by Ministry of Agriculture & Farmers’ Welfare, and Dr. B.C. Deb Award by Indian Science Congress, etc.



Dr. Manoj Kumar Patairiya, Director, CSIR-NISCAIR receiving the award from Dr. M. Ponnaivaiko, Vice President, MTS Academy and former Vice Chancellor, Bharatidhasan University (Left) and Dr. B. Chandrasekharan, Director, CSIR-Central Leather Research Institute (Right)



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

## Nominations are invited for

# G N Ramachandran Gold Medal for Excellence in Biological Sciences and Technology 2018

The Council of Scientific & Industrial Research (CSIR) invites nominations for the G N Ramachandran Gold Medal for Excellence in Biological Sciences and Technology for the year 2018. The award is bestowed every year to an outstanding Indian scientist, who has made conspicuously important contributions, applied or fundamental, in the inter-disciplinary subject/field of Biological Sciences and Technology. The award would be given for the work done primarily in India during ten years preceding the year of the award.

Nominations addressed to Scientist Incharge, SSB YSA Unit, Human Resource Development Group, CSIR Complex, Library Avenue, Pusa, New Delhi 110 012 should be sent as per prescribed pro-forma (Original + one copy) along with reprints of five most significant publications of the last 10-year's period by 31 May 2018. The details of the award and the prescribed pro-forma for nomination may be downloaded from the website [www.csirhrdg.res.in](http://www.csirhrdg.res.in).

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