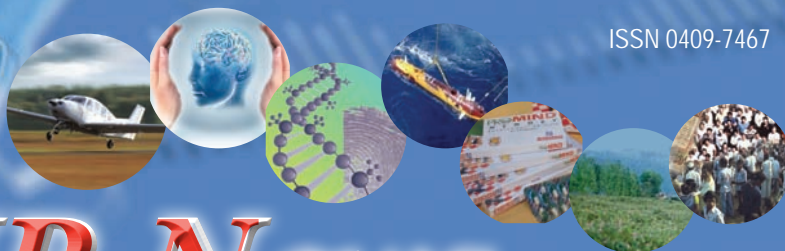




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In The News

CSIR-NBRI and CSIR-CIMAP launch New Drug for Type 2 diabetes

INDIA is also called the 'diabetes capital of the world'. According to estimates, there are almost 61 million diabetics in India. The number could go up to 100 million in the coming years, as per statistics furnished by the International Diabetes Federation.

Two CSIR laboratories have now stepped in with a herbal answer to diabetes. The herbal drug is named BGR-34, which has been jointly developed by the Lucknow-based National Botanical Research Institute (NBRI) and Central Institute for Medicinal and Aromatic Plants (CIMAP). The drug is targeted at type II diabetes – the majority of Indians are suffering from this type of diabetes.

The drug has been patented and will be marketed across the country by Delhi-based Aimil Pharmaceuticals. BGR-34 has been validated scientifically. Studies have found it safe and effective, with clinical trials showing more than 67 per cent success. The scientific teams from the two laboratories studied plants



such as **vijaysar** and **tinospora**, which have been documented extensively in ancient ayurveda texts. These plants have antioxidant properties, enhance immunity, help repair the pancreas and increase production of insulin within the body. The scientists claim that the drug, which does not have any side effects, can slowly reduce the dosage of allopathic drugs meant for type II diabetes.

A note of caution though: scientists from both the laboratories agree that BGR-34 might not be effective for those who are dependent on insulin injections. However, it may be effective for pre-diabetics or those in the initial stages.

Dr. Harsh Vardhan visits CSIR-NIO's research vessel *Sindhu Sadhana*

Dr. Harsh Vardhan, Hon'ble Minister for S&T and ES participated in a short cruise onboard RV *Sindhu Sadhana* from 28th to 29th September 2015. He was accompanied by Dr. Girish Sahni, Director General, CSIR and a 15 member group of journalists and press persons from national television and print media.

During the cruise, Dr. SWA Naqvi, Director and other scientists made

presentations on the research programmes of CSIR-NIO, in general, and capabilities of RV *Sindhu Sadhana*, in particular. It was mentioned that RV *Sindhu Sadhana* is the first indigenously built multi-disciplinary research ship that has been acquired by CSIR-NIO during 2014.

The Hon'ble Minister, the DG and presspersons onboard the ship were demonstrated various activities carried out in a typical multi-disciplinary cruise. The activities included (i) underway data acquisition (bathymetry by echosounders, multibeam systems; sub-bottom data by parametric sonar; currents by ADCP; partial pressure of carbon dioxide in seawater), (ii) CTD profiling and collection of seawater; (iii) sediment sampling with spade corer; biological sampling with HQ net; and various onboard analysis of samples collected.

The dignitaries and press party also witnessed deployment of in-house



DG-CSIR addressing the gathering



Hon'ble Minister taking a round of RV *Sindhu Sadhana*



developed Autonomous Vertical Profiler (AVP) and online data receiving techniques.

Subsequently, the honorable Minister and Director General also visited the Institute and interacted with the scientists on 29 September. They were explained about the major contributions of CSIR-NIO in the fields of identifying a minesite for deep-sea minerals in the Indian Ocean, carrying out archaeological surveys for ancient civilisations and shipwreck to reconstruct the history, geophysical studies for exploring the gas hydrates from the seabed, as well as services offered by CSIR-NIO towards the industry and society in terms of marine pollution, ballast water management, biotechnological research and EIA studies.

Sharing his thoughts, Dr. Harsh Vardhan said that he had a feel of what was being done by NIO in terms of Ocean Science. The vessel has sophisticated laboratories and a lot of bearing for the future challenges; he appreciated the good quality advanced

research done by NIO. He further stated that, “The Indian Ocean is a huge storehouse of knowledge that can be used for the betterment of mankind.” On the work being done by NIO in Oceanography, he also added that, he is very passionate about science and intends to make it a people’s movement because it is knowledge that brings rich dividends to the people.

Dr. Girish Sahni suggested that, “In order to motivate students to take up a career in science and research, one has to instil interest in students even while they are in school. Laboratories should demonstrate what kind of research is being done in the country. Interactions with scientists will motivate students to think of a career in the direction of science.”

Dr. Sahni also encouraged the scientists to reorient their research towards solving problems faced by the industry so as to contribute towards the economy of the country and make research more relevant in the present day context.



Technology Transfer**Transfer of Technology by CSIR-AMPRI, Bhopal**

CSIR-Advanced Materials and Processes Research Institute (AMPRI), Bhopal has transferred the technology for making composite panels using industrial wastes, natural fibres and polymer as a hybrid wood substitute Composite Material (CM-Wood) to M/s. VSM Industries Pvt. Ltd, Gujarat on 29 August 2015 for commercial production.

AMPRI will transfer more technologies for the benefit of the masses. He congratulated all the staff who are associated with the technology directly or indirectly.

In India, use of timber has been restricted due to increasing price, non-availability and various environmental threats due to global warming, and greenhouse gas emission, which prioritise the necessity of safeguarding our forest reserve. Architects, builders and user agencies are looking for alternative materials to wood in construction and other engineering applications, as mentioned by Dr. Asokan P., Sr. Principal Scientist, Advanced Construction Materials Group, CSIR-AMPRI, Bhopal.

CSIR-AMPRI, Bhopal has developed this technology in view of the National Forest Policy of Ministry of Environment and Forest (MoEF), Government of India for development of wood substitute for building application so that consumption of timber in building and house construction can be minimised. Furthermore, this will be a potential solution for effective utilisation of different industrial wastes such as red mud, fly ash and other mineral wastes.

The innovative composite materials have shown variety of applications such as use as doors, false ceilings, flooring, partition and furniture, etc. They are stronger, durable, environment friendly, cost effective and have ample scope for a variety of applications. CM Wood can be used as a finished product alone as well as as a core and/or as a skin element in sandwich composites as an alternative to



The licensing is expected for effective use of different industrial wastes stream and introduces unique materials to the composites industry. Prof. Indranil Manna, Director, IIT-Kanpur and Chairman, Research Council, CSIR-AMPRI, Bhopal chaired the function.

Dr. Manna, in his address on the occasion, congratulated the scientists and staff of AMPRI on this major achievement and said that this technology transfer is a step towards the cause of betterment through scientific and technical intervention. It is waste utilization as well as green technology, he said.

Dr. S. Das, Director, CSIR-AMPRI welcomed the guests and said that

wood in building construction, and transport system. CM-Wood is comparable to natural wood in terms of

its quality and applications and thus could be used as a substitute for wood.



R&D Highlights

Investigating the Bio-safety of Molybdenum-di-sulfide Nanosheets for Futuristic Biomedical Applications

Dr. Subbiah Alwarappan (Senior Scientist) at CSIR-CECRI together with his collaborator Tharangattu Narayanan (Reader) at DAE-TIFR (TCIS) and Prof. C-Z. Li from Florida International University, Miami, FL, USA studied the biocompatibility of few-layered molybdenum-di-sulfide nanosheets using cytotoxicity assay and electrical impedance spectroscopy for the first time. The cytotoxicity was measured using rat pheochromocytoma cells (PC12) and rat adrenal medulla endothelial cells (RAMEC). Results indicated that the MoS₂ nanosheets synthesized in their work are safe 2D nanosheets for futuristic biomedical applications.

This work was published in the journal *Nanotechnology* **26** (31), 315102. Further, this work was highlighted and

appeared as a “Lab talk” in the journal web page and received special attention.

In this work, the author(s) employed a liquid exfoliation route to obtain a few layered MoS₂ sheets and their surface morphology was carefully characterized using Transmission Electron Microscopy, Raman Spectroscopy and x-ray photoelectron spectroscopic techniques. The MoS₂ nanosheets were then tested for their nanotoxicity in the rat pheochromocytoma cells (PC12) and rat adrenal medulla endothelial cells (RAMEC). Initially, the *in vitro* cytotoxicity of the exfoliated MoS₂ nanosheets were performed using dose-dependent Sulforhodamine (SRB) assay. In this assay, RAMEC cells were incubated with varying amounts of MoS₂ nanosheets (1 ngmL⁻¹ to 1 µgmL⁻¹) for a

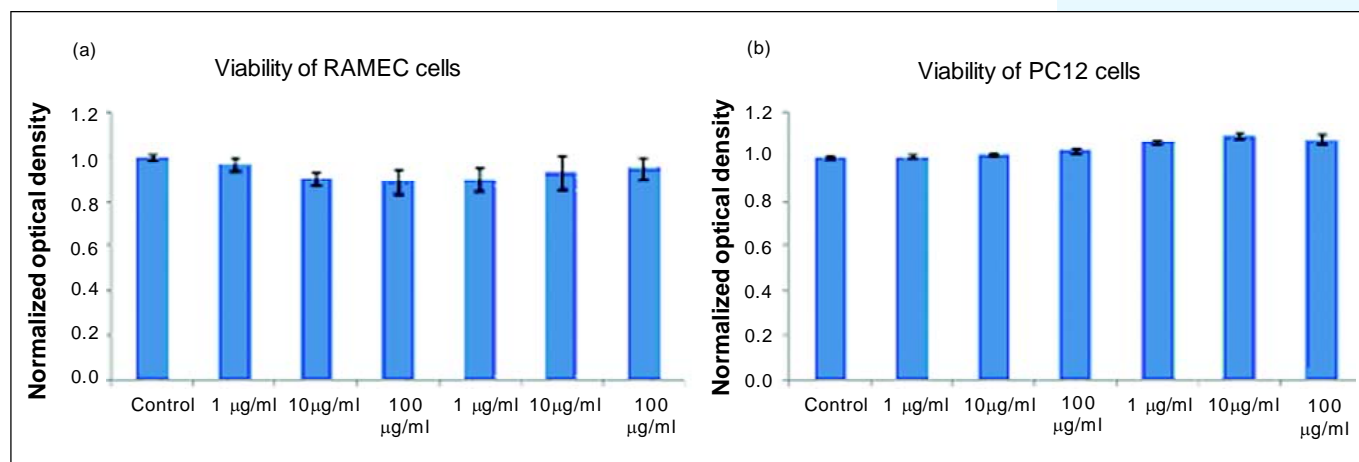


Fig. 1: Histograms representing the viability of RAMEC and PC12 cells upon exposure to MoS₂ nanosheets at various concentrations (Control represents 0 µg/mL MoS₂ nanosheets)

day. The viability of the cells were found to be 97, 90, 89, 90, 93 and 95% corresponding to 1 ng mL⁻¹, 10 ngmL⁻¹, 100 µg mL⁻¹, 1 µgmL⁻¹, 10 µgmL⁻¹ and 100 µgmL⁻¹ concentrations of MoS₂ nanosheets respectively.

In another set of experiments with PC12 cells (under same condition as before), author(s) have not noticed any significant drop in the cell availability except a 9% influence at 10 µgmL⁻¹ concentration. In order to validate the above trend, the author(s) also imaged the morphology of the RAMEC and PC12 cells upon incubation with MoS₂ nanosheets at different concentrations. A careful microscopic image analysis confirmed that the morphology and the cell density of both the RAMEC and PC12 remained unaltered even after two days. From these observations, the author(s) confirmed that MoS₂ are indeed safe nanomaterials for biological applications.

Further, electrical impedance studies were also conducted to assess the

cytotoxicity of the MoS₂ nanosheets. The results of this EIS study also confirmed that the MoS₂ nanosheets are indeed safe for futuristic biological and biomedical applications. From all these observations, the author(s) claim that the insignificant cytotoxicity associated with this nanomaterial is due to the fact that MoS₂ cannot penetrate the cell membrane or incapable of disrupting the cell membrane or to cause any stress that can induce cell death.

The findings in the work hold great promise and evidence of MoS₂ nanosheets as a potential candidate rather than its other 2D analogs for gene transfection, cellular imaging and DNA binding.

Acknowledgement(s): Dr. Subbiah Alwarappan and Dr. Narayanan thank DST-SERB (Fast-track) for funding their research.

Reference

P. Shah, T.N. Narayanan, C-Z.Li, S. Alwarappan, *Nanotechnology* **26** (31), 315102

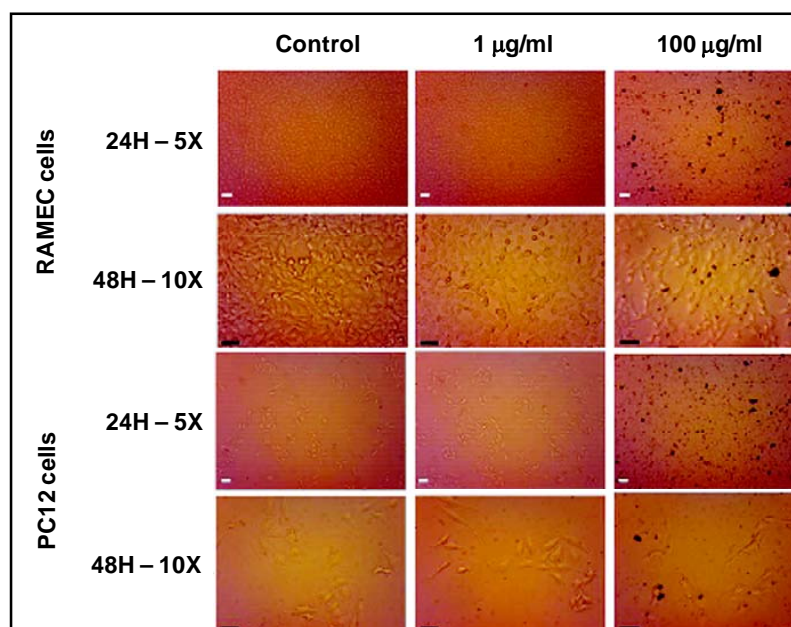


Fig. 2: Cell Morphologies of RAMEC and PC12 Cells were investigated at 24 hrs and 48 hrs after these cells were exposed to MoS₂ nanosheets. Images were recorded using 5X and 10X magnifications. Scale bar (white) 10 µm (black) 20 µm

Workshops**Workshop on Corrosion and its Control
organized by CSIR-CECRI**

The National Corrosion Council of India (NCCI), in collaboration with CSIR-Central Electrochemical Research Institute (CSIR-CECRI), Karaikudi and Oil India Limited, Duliajan, organized a two-day Workshop on *Corrosion and its Control* at Guwahati on 28th and 29th September 2015 to create awareness about corrosion and its control among engineers, teachers and students in the North East Zone.

Delegates from different organizations such as Oil India, Numaligarh Refinery, Indian Oil Corporation, DNP, Assam Gas Company, and faculty from Guwahati University, IIT-Guwahati, Assam Engineering College and students from

Assam Engineering College participated in the workshop.

Dr. G.T. Parthiban, Chief Scientist, CSIR-CECRI & Chairman, NCCI delivered the welcome address. Dr. Vijayamohan K. Pillai, Director, CSIR-CECRI and Patron, NCCI, highlighted the expertise available and also the capabilities of CSIR-CECRI and the activities of NCCI to the participants. Shri M.C. Nihalani, General Manager, R&D Projects, Oil India, briefed the essentials of the workshop.

The significance of corrosion and its control pertaining to oil and gas industries was highlighted in the Presidential Address by Shri Pramod Kumar Sharma, Director (Operations), Oil India. The inaugural address by Prof. D. Ramaiah, Director, CSIR-North East Institute of Science & Technology (NEIST), Jorhat covered the contributions of NEIST to North Eastern India, the prevalence of corrosion in that region and the importance of controlling it. Shri S. K. Mishra, General Manager (Chemical), Oil India, released the CD containing the lectures and the details of the demonstrations that would be conducted during the two day workshop.

Lectures on the following topics were delivered: Basic Aspects of Corrosion; Forms of Corrosion; Corrosion Testing Procedures; Coatings for Oil and Gas Industries; Coating Inspection Techniques; Corrosion Inhibitors; Cathodic Protection; CO₂ Corrosion in Oil and Gas Industry; Microbial Induced Corrosion in Oil and Gas Industry; Corrosion in Concrete; Failure Analysis.



Inaugural Address by Prof. D. Ramaiah



Address by Dr. Vijayamohan K. Pillai

Scientists from CSIR-CECRI demonstrated various techniques and explained in detail Electrochemical Testing, Coating Evaluation, Corrosion Monitoring in Concrete and Erosion Corrosion. The Corrosion Clinic session received overwhelming response where more than 60 problems faced by the Oil and Gas Industries were deliberated upon.

In his valedictory address, Shri Rahul Chaudhury, Group General Manager (Pipeline Services), Oil India Limited, stressed the need for expertise in corrosion and its control to prevent unwarranted incidence in the oil and gas sectors. Few suggestions received in the feedback session were promised to be included in the future workshops.

Shri A.K. Gogoi, Executive Director-R&D, Oil India, and Dr. K. Thangavel,

Head, Corrosion and Materials Protection Division, CSIR-CECRI gave away the certificates and Shri M.C. Nihalani, General Manager-R&D Projects, Oil India felicitated the resource persons.

Dr. V. Saraswathy, Chief Scientist, and CSIR-CECRI & Treasurer, NCCI, Karaikudi delivered the vote of thanks.



A section of the delegates

Lectures

21st Dr. J.N. Baruah Memorial Lecture held at CSIR-NEIST



Dignitaries on the dais (from left), Dr. R. K. Bordoloi, Principal, DKD College; Prof. Santanu Bhattacharyya, Director, Indian Association for the Cultivation of Science, Kolkata; Dr. R. C. Boruah, Former Outstanding Scientist, CSIR-NEIST & President, Assam Science Society (Jorhat branch); Dr. D. Ramaiah, Director, CSIR-NEIST and Shri S. R. Medhi, Director (Technical), NRL, Numaligarh.

CSIR-NEIST, Jorhat organized the 21st Dr. J.N. Baruah Memorial Lecture jointly with the Dr. J. N. Baruah Memorial Trust and Assam Science Society (Jorhat branch) in association with DKD College, Dergaon (Golaghat, Assam) on 1 September 2015. The programme is held annually in honour and fond memory of Late Dr. J.N. Baruah,

Former Director of CSIR-NEIST and also an eminent scientist and educationist from Assam who contributed significantly to science popularization among the students.

Prof. Santanu Bhattacharyya, Director, Indian Association for the Cultivation of Science, Kolkata graced the occasion as

Chief Guest and delivered the Memorial Lecture. The function was presided over by Dr. R.C. Boruah, Former Outstanding Scientist, CSIR-NEIST & President, Assam Science Society (Jorhat branch). Shri S.R. Medhi, Director (Technical), Numaligarh Refinery Limited, Numaligarh (Golghat) was present as Guest of Honour.



Prof. Bhattacharyya delivering the 21st Dr. J. N. Baruah Memorial Lecture

Delivering the Lecture on the topic, "Natural Science and Scientists", Prof. Bhattacharyya spoke vividly about who can be a scientist and how one can become a scientist. His lecture was intended to inspire the students to pursue science as a career while highlighting the need for scientists

and scientific research in the country.

In his brief address, Shri S.R. Medhi stressed on strengthening and building strong relations between research/academic Institutions and industries which he said is the need of the hour.

The programme was attended by a galaxy of scientists, students, researchers and prominent personalities of Jorhat town including members from the Late Dr. J.N. Baruah Memorial Trust, family members of Late Dr J.N. Baruah and

members from CSIR-NEIST, Assam Science Society and DKD college.

The welcome address was delivered by Dr. R.K. Bordoloi, Principal, DKD College. Dr. J.C.S. Katak, Former President, Assam Science Society, Guwahati spoke about the Memorial Trust and said that the Trust is dedicated to conferring awards, student fellowships, publication, and providing support to research activities in the area of biological and chemical sciences in the region.

The Memorial Lecture programme was inaugurated by lighting the lamp and paying homage to the portrait of Late Dr. J. N. Baruah by the dignitaries along with brief remarks by Dr. D. Ramaiah, Director, CSIR-NEIST. Dr. R.L. Bezbaruah, Chief Scientist, CSIR-NEIST spoke about Late Dr. J.N. Baruah and his contribution to science while Er R. Bhuyan, Secretary, Assam Science Society, Jorhat branch introduced the Chief Guest to the audience.

Mr Rabishankar Bhattacharyya and Mr Santanu Bordoloi were conferred the Dr. J. N. Baruah Student Fellowship and one-time cash assistance in the memory of Dr. J. N. Baruah for securing more than 96% marks in HSSLC Exam of SEVA Board from a family with monthly income less than Rs. 5000/month by the Chief Guest on behalf of the Trust.

Ms. Smitashki Goswami, a student of higher secondary science was conferred the J.N. Baruah Student Fellowship as second year grant. In their lectures Ms Manashi Baruah Sarmah, daughter of Late Dr. J.N. Baruah and Dr. R.C. Boruah mentioned the relevance, utility and success of the programme in northeast India.

The programme ended with a vote of thanks proposed by Dr. S. P. Saikia, Scientist, CSIR-NEIST & Secretary, Dr. J.N. Baruah Memorial Trust.



A section of audience attending the programme

CSIR-Advanced Materials and Processes Research Institute (AMPRI), Bhopal



CSIR-AMPRI, Bhopal celebrated the 73rd CSIR Foundation Day on 26 September 2015. Prof. Rishikesha T. Krishnan, Director, IIM-Indore was the Chief Guest and delivered the Foundation Day lecture on “Can India Become an Innovation Powerhouse?” Prof. T.C. Rao, Former Director, AMPRI was the Guest of Honour at the function.

In his address Prof. T.C. Rao lauded the progress made by the Institute. He exhorted the youth to do what they enjoy and try to break a complex problem into a simple problem working in a team. He also highlighted the importance of human quality.

Prof. Rishikesha T. Krishnan delivered the foundation day lecture on “Can India Become an Innovative Powerhouse?” He highlighted the barriers to innovations and other aspects of innovations giving examples of different management strategies.

On this occasion, a technology for “High Performance Hybrid Composite Materials” was transferred to M/s Chauhan Fly Ash Products, Ballarpur, Chandrapur, Maharashtra for commercial exploitation. This technology was developed with multiple objectives for multifunctional application as well as in view of the National Forest Policy of Ministry of Environment & Forests and Climate Change (MoEFCC), Government of India for development of wood substitute for building application so that consumption of timber in building and house construction can be minimised. The innovative composite materials have a variety of application potential in the construction sector, rail coaches and other transport system and infrastructure



Prof. T.C. Rao addressing the audience as Guest of Honour on the occasion



Prof. Rishikesha T. Krishnan delivering the Foundation Day Lecture

such as doors, false ceilings, flooring, architectural wall panels, partition and furniture, etc.

Dr. S. Das, Director, CSIR-AMPRI welcomed the guests and highlighted the R&D achievements of the Institute and the expertise in various disciplines of R&D available here.

Shri P.D. Ekbote, Chief Scientist, AMPRI, in his address spoke about the CSIR Foundation Day and underlined the activities of CSIR labs.

Mementoes were given to the staff for completing 25 years of service in

CSIR and to the staff retired on superannuation. Prizes for General Knowledge Quiz and three recently constituted prizes, A C Khazanchi Memorial Table Tennis Tournament, B C Pal Memorial Badminton Tournament and P K Rangari Memorial Photography Competition were given away on the occasion.

Dr. Amol Kumar Jha, Chief Scientist proposed the Vote of Thanks.

In the afternoon an Open Day Programme was organized for the students, to help them in getting acquainted with the activities of AMPRI and CSIR. Engineering and school students interacted with the scientists and visited various laboratories.

CSIR-Central Electrochemical Research Institute (CECRI), Karaikudi

The fundamentals that underpin chemical processes involve selective formation and breaking of chemical bonds. While the

carbon-carbon bond is fundamental to catalysis and all of organic chemistry, the carbon-nitrogen bond is fundamental to the industry. A nation's economy is, therefore, powered by science, said Prof. R.N. Mukherjee, Director of the Indian Institute of Science, Education and Research, Kolkata.

Delivering the CSIR Foundation Day address at the CSIR-Central Electrochemical Research Institute, Karaikudi, he said it all boiled down to electron transfer, the foundation of electrochemistry. Modern concepts of electrochemical processes, he added, were enunciated by three Nobel laureates: Jaroslav Heyrovsky by his work on polarography, Henry Taube by his work on electron transfer mechanisms, and by Rudolph Marcus by his theory of electron transfer.

The Foundation Day marked the completion of 72 years of CSIR's existence. Inaugurating the celebrations, Director Dr. Vijayamohan K. Pillai said that there was a perception among the public that CSIR was not doing enough although it continued to contribute significantly to critical areas such as energy, food, water and drugs. This, despite the fact, that India spends only a paltry 0.9% of its GDP to science and



Dr. Mukherjee delivering the Foundation Day Lecture



Dr. Mukherjee unveiling the plaque of Dr. Abdul Kalam Auditorium



Release of CSIR-CECRI Annual Report (2014-15)



technology.

Earlier, the renovated Science Auditorium, renamed Dr. Abdul Kalam Auditorium was unveiled by Dr. Mukherjee. Dr. M. Jayachandran, Chief Scientist, welcomed the gathering and Mr. Christu Raj, the Controller of Administration, proposed the vote of thanks.

After his Foundation Day Lecture, Dr. Mukherjee released the Annual Report (2014-15) of CSIR-CECRI. Staff members who have completed 25 years of service and those who superannuated during the previous year were honoured on this occasion and prizes were distributed to the winners in the various competitions conducted by CSIR-CECRI Club. The celebrations included showcasing the laboratory's scientific and technological capabilities to the public for two days.



Distribution of prizes to winners in Foundation Day Competitions



Open Day 2015 - Public being explained about the various R&D activities of CSIR-CECRI

CSIR-Central Scientific Instruments Organisation (CSIO), Chandigarh

The CSIR-Central Scientific Instruments Organisation celebrated the 73rd CSIR Foundation Day by organizing a Foundation Day Lecture entitled “The Story of the Optical Fiber” by Prof. Ajoy Ghatak, Former Professor of Physics, IIT Delhi, on 26 September 2015. Professor Ghatak is also an author of several books;

the title of his latest book is *Albert Einstein: A Glimpse of his Life, Philosophy and Science*.

He is a recipient of several awards including the 2008 SPIE Educator award and the 2003 Optical Society of America Esther Hoffman Beller award in recognition of his contributions to



Sitting from left to right:
Prof. R.K. Sinha,
Director, CSIR-CSIO,
Chandigarh,
Prof. Ajoy Ghatak
Chief Guest and
Formerly Professor of
Physics, IIT Delhi and
Dr. C. Ghanshyam,
Chief Scientist, CSIO

optical science and engineering education, the 1979 CSIR SS Bhatnagar award, 16th Khwarizmi International award and the International Commission for Optics Galileo Galilei award for his research contributions in Fiber Optics.

In his talk Prof. Ghatak highlighted the importance of research in the area of Fiber Optics. He said that Sir Charles Kuen Kao has been awarded half of the 2009 Nobel Prize in Physics for “groundbreaking achievements concerning the transmission of light in fibers for optical communication”.

He emphasized that this is truly a very apt recognition of an area which has touched almost everyone. In addition to the phenomenal application in communications, he also talked about many beautiful experiments in fiber

optics like the fiber laser and the super continuum generation due to non-linear effects, which find very important applications. The talk gave a brief history of the evolution of the field of fiber optics and also discussed a few fascinating experiments.

Earlier, Prof. R.K. Sinha, Director, CSIR-CSIO, Chandigarh while welcoming the Chief Guest talked at length about the aims and goals of CSIR and its contributions in the field of Science and Technology. He highlighted various incentives and awards/schemes of CSIR for young scientists and school children. Prof. Sinha also presented an overview of the on-going projects and future plans of the Laboratory.

All those staff members of CSIR-CSIO, Chandigarh who completed 25 years of regular service in CSIR and also who retired during the preceding year were honored with mementoes, Shawls and Sammaan Patra on the occasion. The programme ended with the prize distribution to the wards of staff who had excelled in various sports and other events.

Prior to this, a quiz competition was organized for the CSIO staff on 24 September 2015. It was a broad spectrum quiz in which all the scientists, technical and administrative staff



School students at CSIR-CSIO

participated with lot of enthusiasm. Besides this, various competitions were organised for the wards of CSIO staff as part of the CSIR Foundation Day celebrations.

These competitions were in different age groups. In all, 67 children participated in these events and were given prizes. In the poetry competition the children exhibited their creativity by composing poems in Hindi in praise of CSIR and on various subjects of science and technology. Children of classes 1st to 5th recited poems in Hindi some of which were their original composition. A dance competition was also organized for children of CSIO employees.

The function concluded with a formal vote of thanks by Dr. C. Ghanshyam, Chief Scientist, CSIR-CSIO, Chandigarh.

As part of the Foundation Day celebrations, CSIO labs were kept open for the general public on 26th September. More than 1500 visitors, including students from various schools, engineering colleges, university and general public went around the various laboratories of the organisation. This provided them a unique opportunity to see the live demonstration of the instruments developed at CSIO and a chance to interact with the scientists. A team of students from IIT Ropar also visited the organisation for the first time.



CSIR-Indian Institute of Chemical Biology (IICB), Kolkata

CSIR-IICB, Kolkata, observed the 73rd Foundation Day of CSIR on 26 September 2015 at the Dr. J.C. Ray Memorial Auditorium of the Institute. Dr. Samit Chattopadhyay, Director, CSIR-IICB presided over the function in which Prof. Samir Bhattacharya, Emeritus Professor, Centre for Advance Studies in Zoology, School of Life Sciences, Visva-Bharti, Santiniketan and former Director of CSIR-IICB was present as the Guest-in-Chief.

Dr. Amit Ghosh, Emeritus Scientist, National Institute of Cholera & Enteric Diseases, Kolkata and former Director of CSIR-IMTECH, Chandigarh delivered the Foundation Day invitation lecture.

In his welcome address, Dr. Samit Chattopadhyay expressed with great pleasure that CSIR-IICB is the place where he loved to work earlier as a research student and so was happy to have got an opportunity to serve as

Director in this prestigious laboratory. He emphasized on translational research. In this regard he mentioned that we should use our expertise to look for new drug development and development of diagnostic kits. Dr. Chattopadhyay expressed his interest in starting the functioning of the Salt Lake campus of CSIR-IICB as soon as possible. He also emphasized greater co-operation among different categories of staff.

In the introductory lecture, Dr. Rupak Kumar Bhadra, Senior Principal Scientist, CSIR-IICB and Chairman, CSIR Foundation Day Organizing Committee described the contributions of Professor Shanti Swarup Bhatnagar as founder Director General of CSIR. He mentioned that recently in the 'Dehradun Declaration' the main theme proposed by CSIR was realized 75 years back by Prof. Bhatnagar and he advised the then Government of India to form a Research Utilization Committee for

translating science and technology into applications and business. Dr. Bhadra said that the R&D activities of CSIR include almost all fields of science and expressed the belief that CSIR will continue to generate scientific knowledge, provide nation-wide infrastructural support in science and technology, work in collaboration with industry, university, foreign institutions and will remain as a key organization of the country for human resource development.

Prof. Samir Bhattacharya, the chief guest, in his address mentioned that he was very happy on receiving the invitation for delivering the inaugural address on this occasion where once he worked as a PhD student and later as Director only a few years back. Prof. Bhattacharya mentioned that the Government as well as CSIR wanted products and without basic science applied science cannot be successful. He said that the researchers were stressed

for money, publication, citation and translation. Dr. Bhattacharya opined that crying for technology might be good but there was doubt whether we were mentally, physically and traditionally prepared for it or not. He feared that critical days might be coming which might destroy our creativity if we always look only for the summit and fail to think positive.

The employees of CSIR-IICB who have completed 25 years of council service and employees who have retired from their services in CSIR-IICB during September 2014 and August 2015 were honoured by presenting mementos. The function was graced by invited guests, distinguished scientists, present employees, ex-colleagues and the students. The meeting ended with vote of thanks by Mr. Kaushik Bhattacharya, AO, CSIR-IICB and Convener of the organizing committee.

After the first session, the Foundation Day Lecture was delivered



Glimpses of CSIR Foundation Day celebrations at CSIR-IICB

by Dr. Amit Ghosh. The topic of the lecture was *'Creativity and Life in Science'*. In his mesmerizing lecture, Dr. Ghosh briefly described the progress of creativity and science in different eras. He informed that genetically we are 95% similar to chimpanzee but our music, art, science, etc. are the results of our creativity which makes the difference. Dr. Ghosh discussed about different theories of creativity, essence of creativity

and different phases of creativity. He said that basic emotions can augment creative sense.

The institute also observed 'Open House' on 24th September 2015 to enable students to visit CSIR-IICB. More than one hundred students from seven schools with their teachers visited different laboratories and interacted with the scientists and research scholars expressing great interest and enthusiasm.



CSIR-Indian Institute of Integrative Medicine (CSIR-IIIM), Jammu

The 73rd Foundation Day of Council of Scientific and Industrial Research (CSIR) was celebrated here today at the Indian Institute of Integrative Medicine (CSIR-IIIM), Jammu. Prof. Sudhir K. Jain, Vice-Chancellor, Shri Mata Vaisho Devi University, Katra, J&K delivered the Foundation Day Lecture during the function.

Since it was an Open Day at the Institute, students from various colleges and schools visited the departments of the Institute. Scientists demonstrated their research and developmental

activities to the visiting students.

In an impressive function, Dr. Ram Vishwakarma, Director, CSIR-IIIM, Jammu described Prof. Jain as a leading economist and prominent figure in IPR matters who has been a member of several national-level committees set up by different ministries of the government of India on issues related to entrepreneurship and IPR education policy.

Prof. Sudhir K. Jain, while delivering the CSIR Foundation Day Lecture "Need for Strategic Change in Science &



Glimpses of CSIR Foundation Day celebrations at CSIR-IIIM



Technology R&D”, talked about the role of CSIR in Indian science & society and said that much of the science policy of this country in research and education can be traced back to the early initiatives taken by Jawaharlal Nehru but there is still huge scope to strategize further.

On this occasion, the chief guest also distributed prizes for best research papers,

best patents, winner of science quiz and overall excellence. Mementos were also presented to seven employees who have this year completed 25 years of service and eighteen such employees who superannuated during September 2014 and August 2015.

Er. Abdul Rahim, Head PME & IT Divisions presented the vote of thanks.

CSIR-North East Institute of Science and Technology (NEIST), Jorhat



Dr. D. Ramaiah, Director, CSIR-NEIST delivering the welcome address.

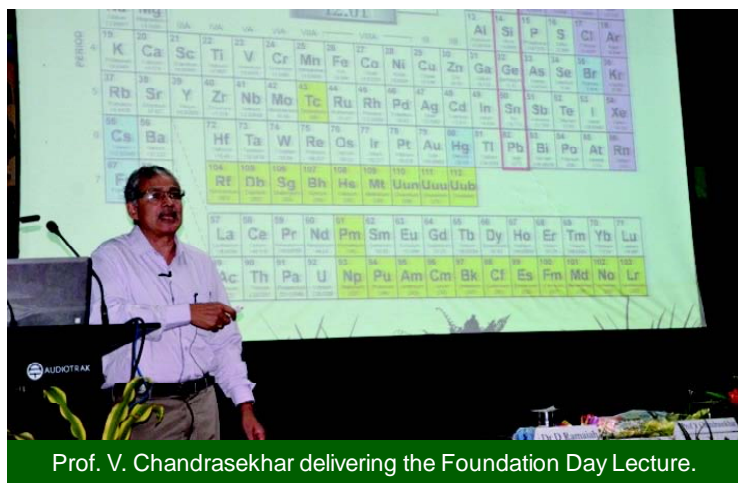
Dignitaries seated on the dais are (from left) Prof. V. Chandrasekhar, Director, NISER, Bhubaneswar & Chief Guest of the event and Dr. N.C. Barua, Chief Scientist & Area Coordinator-Chemical Sciences, CSIR-NEIST

and attended by a large gathering of distinguished guests, invitees, press & media personnel besides CSIR-NEIST family. Dr. D. Ramaiah in his welcome address mentioned the contributions of CSIR towards S&T development and said that today CSIR has not only touched the heights of the sky with technologies like Light Combat Aircrafts but also reached the rural & remote areas of the country through its various S&T intervention programmes. He urged the CSIR-NEIST family members to re-align their activities on the lines of the various National Mission Programmes and continue to work in the endeavour to create a better CSIR for a new and a vibrant India.

CSIR-NEIST celebrated the 73rd Foundation Day of its apex body CSIR on 26 September 2015 with various programmes held at its premises. The day was celebrated with a special function at the Dr. J.N. Baruah Auditorium wherein Prof. V. Chandrasekhar, Director, National Institute of Science Education & Research, Bhubaneswar graced the occasion as Chief Guest and delivered the Foundation Day Lecture.

The function was presided over by Dr. D. Ramaiah, Director, CSIR-NEIST

Delivering the Foundation Day Lecture on ‘Lord of the Rings: The Rise of Carbon’, Prof. Chandrasekhar very lucidly narrated parallel stories behind the discovery of Fullerenes, Graphite & Carbon Nanotubes (CNT) and about Prof. C.V. Raman and the discovery of the Raman Effect which made him the first Asian to receive the Nobel Prize in Physics in 1930. Prof Chandrasekhar mentioned that Carbon has been used in the form of various materials right from the Stone Age period. The work on



The 'CSIR-NEIST Golden Jubilee Scholarship scheme for bright students of NE region' which started in 2013 with the aim to enthuse the NE students towards basic science (in UG level) was continued this year also by awarding the



Carbon has led to the development of new materials and these will further lead to the development of future materials. He explained in detail the structure of Fullerenes, Carbon Nanotubes and Graphene (from Graphite) and the contributions of the great scientists like Lavoisier, Kroto, Iijima, Geim and Novoselov in these areas.

On the occasion, the CSIR-NEIST Annual Report 2014-15 was released by the Chief Guest, Prof. Chandrasekhar. The MRSI website created in view of the MRSI Symposium to be held at CSIR-NEIST in February 2016 was also inaugurated by the Chief Guest.

Employees who retired during September 2014 to August 2015 were felicitated with the CSIR Samman Patras and Mementoes and also those who completed 25 years in the Council's service were felicitated with token gifts. Drawing, Essay and Quiz competitions were also held among the children and staff members. The winners of these competitions were awarded with prizes.

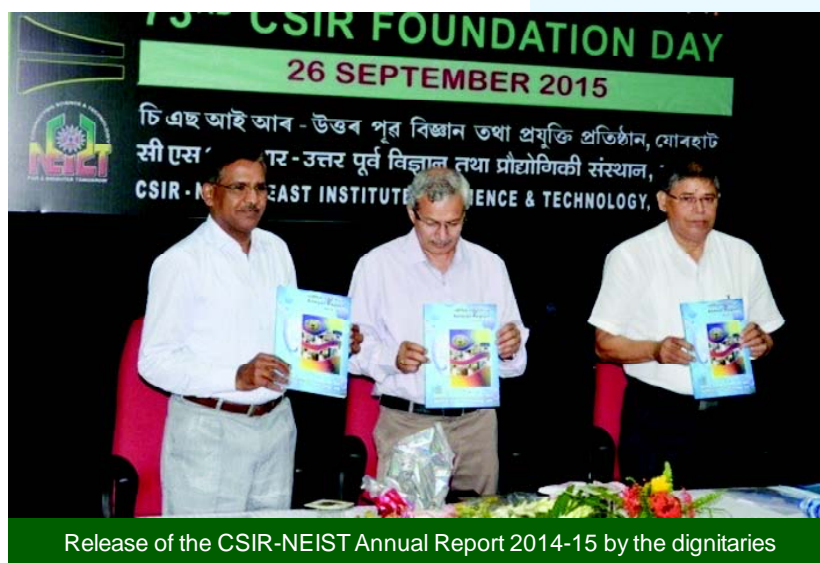
This year also CSIR-NEIST awarded cash prizes to SC/ST students of NE region who secured the highest percentage in class X this year from various state boards under the 'CSIR scheme of cash award to SC/ST students of NE region' to motivate them to take up science at the higher secondary level.

scholarship for 2015-16 to two selected students from Assam.

Besides, children of CSIR-NEIST employees who secured 90% and above marks in three science subjects in the Senior Secondary examination in 2015 were awarded with one-time lump sum cash award. Other felicitations included the staff member(s) who excelled in Sports during 2014-15.

The day was also observed as 'Open Day' in the morning hours during which a large number of students and members from the general public visited various divisions of the Institute.

The programme concluded with vote of thanks offered by Dr. N.C. Barua, Chief Scientist & Area Coordinator, Chemical Sciences.



CSIR-National Metallurgical Laboratory (NML), Jamshedpur

CSIR-National Metallurgical Laboratory (NML), Jamshedpur celebrated the 73rd CSIR Foundation Day with about 270 students visiting the Institute. The students belonged to five institutes, namely – NML Kerala Public School, Agrico, BPM+2 High School; Sister Nivedita English High School, Burmamines; Kasturba Gandhi Balika Vidyalaya, Sundarnagar and Aditya Institute of Technology, Adityapur.

CSIR-NML director, Dr. S. Srikanth while delivering the welcome address traced the history of CSIR, right from the formative days and also elaborated on the future plan. He said, “CSIR pervades all aspects – social, economic and quality of life.” He said that the present government has placed renewed emphasis on financial self sustenance as well as alignment of R&D towards several of the country’s mission programs enunciated by the Prime Minister such as Swachh Bharat, Make in India, Swasthya Bharat, Skill India, Smart Cities, Digital India and Namami Ganga. CSIR is making a concerted effort to align several programs with these missions.

Dr. Srikanth said that there is no denying the fact that in the future market forces will dictate and determine the direction of R&D, whether in the industrial, strategic or societal sectors. Therefore, an organization has to remain relevant and internationally competitive.

While delivering the Foundation Day Lecture on “CSIR – A Path Forward”, the Chief Guest Dr. T. Ramasami, Former Secretary, Department of Science & Technology (DST), Government of India said, “The Foundation Day of an organization is like the anniversary of wedding of a happily married couple. On this day, relationships are renewed and commitments made are reiterated. It is a day of re-dedication to enduring

relationship with the cause. There are several landmarks in the history of CSIR which connected the strength of the agency to the national agenda of transition to industrial economy.”

According to Dr. Ramasami, in the next 10 years, India is likely to emerge as one of the four major economies of the world. Its demography with about 30 per cent share of the global youth population is likely to make India a major market for consumer goods. India cannot remain a major importer of high technology based goods with negative balance of trade. Technology-enabled development of the country is the need today. The path forward for CSIR translation research for technology leadership should include – Insight into industrial needs of time; Critical investments; Partnerships and alliances; and Sense of time in R&D priority selection.

Dr. Ramasami mentioned about the 10-point agenda for CSIR for making it a more vibrant organisation. These are – Clear selection and enrolment of industrial sectors for technology missions and transformative actions; Preparation of sector-specific technology missions linking to national missions; Finalization of detailed economic feasibility reports for mission mode action; Resource mobilization plans for portfolio; Establishment of partnerships and alliances for overall R&D plan; Capitalization of intellectual assets and strengths in mind-to-market chain; Creation of niches for global innovation leadership for transnational space; Positioning a master plan through consensus and enrolment of internal stakeholders for R&D portfolio of private, public and social goods; Position a financial plan for major deliverables for private and public good, and Redesigning governance to suit portfolio for technology partnerships/translations.

Visits

French Delegation visits CSIR for Strategic Partnership in Optics & Photonics



A French delegation in the area of “Optics and Photonics”, comprising 13 participating organizations, including two Clusters (OPTITEC and Photonics Bretagne) and 11 companies, visited CSIR on 10 September 2015. The delegation was led by Dr. Katia Mirochnitchenko-Pirrero, General Director of *OPTITEC* and Dr. David Mechin, Managing Director, *Photonics Bretagne*.

The Trade Commissioner, French Consulate, Mumbai Mr Sylain Biard and Mr Philippe Arhets, Counselor for Science & Technology, French Embassy, New Delhi also accompanied the delegation to CSIR. The delegation held discussions towards exploring the possibilities for collaboration in the area of Optics & Photonics with CSIR scientists working in these areas.

The domains of excellence of the participating French organizations range from ultrafast lasers, supercontinuum laser sources, beam shapers, homogenizers and splitters for lasers, wave front analyzers, flashlamps, adaptive optics, deposition printers for printed electronics, optic systems, hexapods, custom optic fibers etc. Their domain of applications cover scientific instrumentation, optics materials, medical biotechnologies, green photonics, manufacturing industries, electronics, astronomy, defense, aeronautics etc.

Dr. Girish Sahni, DG, CSIR & Secretary, DSIR joined the meeting briefly and in his welcome remarks emphasised the need for starting joint ventures and start-ups in the area of Optics & Photonics. He apprised the



Dr. Girish Sahni, DG-CSIR & Secretary, DSIR flanked by Dr. Katia Mirochnitchenko, GM, OPTITEC (left) and Dr. Amitava Bandopadhyay, Head, CSIR- ISTD (right) addressing the French delegation

visitors that CSIR would be happy to collaborate with the French companies in these strategic areas.

Prof. R.K. Sinha, Director, CSIR-CSIO, Chandigarh informed the gathering that 2015 is the International Year of Light as declared by the UN and it was indeed the most appropriate time to be discussing this collaboration.

Earlier a networking session was organized at the Laser World of Photonics India 2015, Pragati Maidan, New Delhi on 9th September 2015 by the French Trade and Investment Commission in India – Business France and was also attended by CSIR scientists. Presentations on R&D on Photonics and Optics at CSIR were made by scientists from CSIR-CSIO, CSIR-NPL, CSIR-CEERI and CSIR-CGCRI.

Dr. Katia Mirochnitchenko, GM, Optitec, and Dr. David Méchin Managing Director, Photonics Bretagne gave an overview of the French Optics & photonics sector. Representatives of the French cluster and companies briefed

CSIR scientists about their respective domains of excellence and the possible areas in which they could partner with CSIR institutes.

Prof. R.K. Sinha and Dr. Amitava Bandhopadhyay, Head, CSIR-ISTAD led

the discussions on the “way forward”. Some of the areas identified for possible collaboration were high-powered fibre lasers and their strategic and societal applications, Optical components as well as design and development of specialty optical fibers. The French side also proposed to have student exchange programmes with CSIR laboratories. CSIR agreed to host a joint workshop in the area of Optics & Photonics tentatively around February 2016. It was mutually decided that both sides would identify a road-map for fostering co-operation in these areas.

Dr Purnima Rupal, Principal Scientist, CSIR-ISTAD proposed a Vote of Thanks.



Representatives of the French Optics & Photonics delegation and officials from French Embassy along with Prof. R.K. Sinha, Director, CSIR-CSIO (sitting on second right) and CSIR scientists from CSIO, NPL, CGCRI, NPL and ISTAD

Dr. M.O. Garg (former DG-CSIR) visits CSIR-CGCRI



DG-CSIR Dr M. O. Garg addressing the scientists at CSIR-CGCRI

Dr. M.O. Garg, former Director-General, CSIR visited CSIR-Central Glass and Ceramic Research Institute, Kolkata, on 11th August 2015. A meeting of all the Scientists of the institute was convened so that Dr. Garg could brief them about CSIR's role in meeting the government's mandate.

Dr. Garg said that he had decided to visit the laboratories headed by new Directors to send the powerful message that CSIR stood firmly behind the Director and the laboratory. His visit was a gesture of support and solidarity but, more importantly, one meant to welcome the new Directors to the CSIR family.

Dr. Garg said that he wished to share with the scientists of CSIR-CGCRI the

events of the Director's Conference at CSIR-IIP, Dehra Dun. Events that foretold the paradigm shifts in the way science would be done and managed in India in the future. To do so, he turned briefly to focus on the legacy of CSIR before he elaborated on the road ahead.

CSIR was created as an instrument to help a newly independent India bridge the gap between what was available and what was needed on the S&T front. It was designed as a very unique organization with a separate laboratory dedicated to a specific sector. For example, there was CGCRI for glass, CLRI for leather, CBRI for building research, CRRRI for roads and even a laboratory dedicated to marine chemicals.

Dr. Garg sketched a roadmap about how public perception needed to be shaped to reflect the reality of the enormous contributions of CSIR to the national cause. He said that CSIR has to make Industry dependent on CSIR; not because indigenization is needed but because CSIR has the competitive edge. Each laboratory will have to look to its areas of strength.

CSIR-CGCRI had an advantage because along with the know-how for processes it has also developed many products. Processes are more of B-to-B transactions; consumers most often than not remain unaware about the process technology involved. Products, on the other hand, are visible. People relate to products. This is something CSIR-CGCRI can capitalize on.

With specific reference to CSIR-CGCRI, he said that Ceramic Membrane research was one such fertile and almost-virgin area that had enormous potential for both basic research and its translation to commercial applications. 21st century India will be ruled by those in the field

of Materials. There is so much scope for new products, particularly those designed or customized for specific sectors. He then gave a couple of examples drawn from his vast repertoire of experience; one of which related to the use of ceramic membrane for polypropylene separation.



Dr. K. Muraleedharan, Director CSIR-CGCRI and DG-CSIR Dr M.O. Garg share their thoughts

His message to the scientists was succinctly put. "Try to excel in your own area; the country needs it. It is important for the future of our children that the nation becomes strong. The nation cannot be strong without the strong backbone of science and technology. The S&T backbone cannot be strong unless CSIR is strong. CSIR is the S&T backbone of the country...In CSIR whenever we are pushed hard; we deliver. Now, we push ourselves hard so it becomes a habit."

Earlier, Former Acting Director, Shri Kamal Dasgupta introduced Dr. M.O. Garg to the assembled scientists. Director, Dr. K. Muraleedharan, summed up the DG's message and thanked him warmly.

COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH

HUMAN RESOURCE DEVELOPMENT GROUP

CSIR Complex, Library Avenue, Pusa, New Delhi 110 012

NOMINATIONS INVITED

2016 CSIR Young Scientist Awards

The Council of Scientific & Industrial Research (CSIR) invites nominations for the CSIR Young Scientist (YS) Awards for the year 2016. The awards are to be given for research contributions made primarily in India.

The nominee should be a regular scientific staff of CSIR system holding a post of Junior/Trainee Scientist or above (Previously Scientist 'B' or above in Group IV) and should have joined the CSIR laboratory on or prior to 26th September 2015. The age of the nominee should not be **more than 35 years as on 26th September 2015**.

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

Nominations addressed to **Scientist Incharge, SSB YSA Unit, Human Resource Development (HRD) Group, CSIR Complex, Library Avenue, Pusa, New Delhi 110 012** should be sent as per the prescribed proforma (original + one copy) latest by **31st January 2016**. A CD/DVD/USB flash drive is also required containing digital photograph (in JPEG format), duly filled proforma and significant publications (*in PDF format*) of the nominee.

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

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