



# CSIR - CGCRI

## NEWS LETTER

Volume 6 | No. 3

December, 2015 – March, 2016

### FOCUS

#### Dr Harsh Vardhan Visits CSIR-CGCRI, Kolkata

Hon'ble Union Minister of Science Technology and Earth Sciences visited the Institute on February 8, 2016. Dr K Muraleedharan, Director, CSIR-CGCRI greeted the important visitor. The Minister's programme started with a visit to a gallery of displays on products and processes developed by the Institute followed by lunch.

After lunch Dr Muraleedharan presented the various activities of CSIR-CGCRI to the Minister and his entourage. He explained how the human resource and the technological capability maps were drawn to align the Institute's technical activities with the National Missions identified by the Government.

Dr Harsh Vardhan also interacted freely with the senior scientists and officers. He appreciated the programme initiated by Dr Muraleedharan to train young scientists on various equipment so that the younger scientists can take over the responsibility when their seniors superannuate. He suggested Dr Sudeep Kumar, Head, PPD, CSIR who was among the officials accompanying the Hon'ble Minister to explore possibility for implementation of similar programme in other Institutes and laboratories of CSIR. Dr Harsh Vardhan appreciated the globally competitive R&D efforts being made by CSIR-CGCRI. He appreciated the proposal of initiating a National Photonics Programme to the Institute.



*Hon'ble Minister addressing staff*

Dr Harsh Vardhan emphasized that CSIR-CGCRI should coordinate and develop a focused programme on cost effective water purification technology with other CSIR labs so that potable water can be provided to masses. He appealed to the scientists to pursue customer focused innovation and give proper publicity among masses for translation of valued research. He also visited some of the facilities in the Institute later and appreciated the products developed.

The Hon'ble minister also addressed the staff in general. In his address, Dr Harsh Vardhan reminded all about the vision of the Prime Minister to contribute by heart and soul for the successful implementation of the

National Programmes. He hailed science luminaries like, Acharya P C Ray, Dr J C Bose, Dr M N Saha and Prof C V Raman who despite various constraints carried out world class research based on frugal methods. He encouraged the young researchers to aim high and emulate the feat of these luminaries.

### TECHNOLOGY NEWS

#### AGREEMENTS/MoU

#### Licensing of Knowhow on Ceramic Membrane based Technology for Removal of Arsenic(Including the process of Media Preparation) Iron from Ground water)

The agreement was signed on October 7, 2015 between CSIR-CGCRI and M/S Victor Engineering Co, Tinsukia, Assam. CSIR-CGCRI granted the license to Victor to utilize the process knowhow on non-exclusive basis up to a capacity of 20000 LPD to use and sell the product in India. The party will work on the process knowhow and commercialize the product after demonstration and or an agreement for commercialization is signed. The license came into force from the date of signing and will remain valid for 3 years subject to a host of generic factors.



*Exchange of documents after signing of agreement*

#### Non-Disclosure and Confidentiality Agreement

This agreement was signed between CSIR-CGCRI and Dr Reddy's Laboratories Limited, Hyderabad on July 31, 2015. Both parties desired to evaluate the possibility at a R&D collaboration for possible transfer of technical knowhow with regard to inorganic based antacid with improved and novel properties that has been developed by the Institute. Both agreed to facilitate exchange of information between themselves and assure confidentiality of such information as per the terms of the agreement.

#### Agreement for Collaborative Research

This agreement was signed with the West Bengal University for Animal and Fishery Sciences (WBUAFS), Kolkata on September 8, 2015 for a tenure of 3 years for collaborative research on taking animal trial of ceramic based antacid developed by Institute. CSIR-CGCRI will disclose to WBUAFS the

work done in the laboratory related to the said research. The Institute should synthesize, optimize process parameters of the newly synthesized antacid molecule and also characterize the molecule samples. CSIR-CGCRI shall provide the samples to WBUAFS for the said trial. During the tenure of agreement, both parties should disclose in written about the improvements in the knowhow or product. The improvements will then form the integral part of the project.

## MoU for IP Search and Analysis Services

The MoU was signed on November 2, 2015 with CSIR's Unit for Research and Development of Information Products (URDIP). CSIR-CGCRI felt the need to do detailed prior art analysis of its research programmes related to glass, ceramics and allied materials through intellectual property search followed by analysis. CSIR-URDIP has expertise in Patinformatics & Intellectual Property Management and agreed to provide information and technical services on mutually agreed price. As per the MoU, the CSIR-URDIP will carry out information search for CSIR-CGCRI in the requested areas, share relevant results and supply interim reports followed by a final report. The MoU will remain effective for a year.

## WORKSHOP

### International

#### International Workshop on Emerging Areas in Photonics and Future Applications (IWPFA-2015; December 7-12, 2015)

This 6-day Workshop successfully provided a platform for discussion and interaction on various aspects of specialty optical fibers, photonic crystal fibers, optical materials, guided wave optics, fiber lasers, optical fiber sensors, nanoplasmonics and metamaterials. The event was staged against the backdrop of year 2015 which is the International Year of Light (IYL-2015) and attracted nine reputed speakers along with seven well known scientists and industry experts from both home and the overseas. About 21 invited lectures were delivered by experts from India, Russia, UK, USA, Slovenia and Germany. The Indian academia hailed from the IIT-Delhi, RR-CAT-Indore and the local education bodies of Indian Association for Cultivation of Science, University of Calcutta and Jadavpur University. The industry experts came from SOV Technologies Pvt Ltd-Cochin, Mahindra Ecole Centrale-Hyderabad and Sahajanand Laser Technology-Gandhinagar, Gujarat.

Apart from tutorial lectures, intensive practical demonstration on fabrication of specialty optical preforms/fibers, drawing of microstructured fibers, in-fiber grating writing, working of fiber lasers and supercontinuum light sources and characterize area of fibers were also organized. CSIR-CGCRI is the only laboratory with such all-round facilities and infrastructure in India. In all, 131 participants took part in the event out of which 57 were students.

The Chief Guest Dr V K Aatre, Former Scientific Advisor to Raksha Mantri, Govt of India in his address stressed on the need for big share of funds and manpower for success in high end technological missions. He mooted the proposal for Integrated Photonics Initiative in India and stressed on the need for indigenous development of photonic products for country's civilian and strategic domains.. Later he went round few labs in the Institute.

The Workshop served to expose and train Ph.D. level students and young researchers, as well as technologist and engineers engaged in photonics to



Chief Guest Dr V K Aatre delivering his address during inaugural session of IWPFA-2015

the latest tools and techniques. For the first time, it provided an opportunity to gather practical knowledge about the optical fiber fabrication technology along with geometrical and optical characterizations.

## HUMAN RESOURCE DEVELOPMENT

### Training Programme on Terracotta Processing

A Training Programme on Terracotta Processing was organized during March 10-11, 2016 at Institute for 25 artisans of from Duttapukur, South 24 Parganas West Bengal. The primary objective was to infuse the knowledge of basic requirements for setting up a modern day terracotta unit and also encourage trainees to pursue this traditional craft for livelihood. The module discussed and demonstrated major aspects of terracotta processing such as raw material processing, slip casting process, glaze applications etc. The event was organized under CSIR 800 project on "Technological intervention of terracotta sector in Bankura / South 24 Parganas district of West Bengal" currently under progress in the Institute. The event drew seven women participants and was well received by the participants.



Participants at demonstration session

## IMPORTANT EVENTS

### Science Day

Dr S K Bhadra, Chief Scientist, Fiber Optics and Photonics Division and Head, Human Resource Development Group, CSIR-CGCRI delivered the National Science Day Lecture on February 29, 2016 in CSIR-CGCRI. His topic was "Wonders of Raman Scattering and Its Importance in Optical Fiber". The lecture was well received. Dr H S Maiti, Former Director, CSIR-CGCRI presided as the Chairman of the lecture session. The speaker was conferred with a plaque at the end of lecture. Dr Bhadra superannuated on this important day. In recognition of his services, he was presented with a photo album of his life and work at CSIR-CGCRI from the hands of Chairman of Institute's Research Council, Dr Srikumar Banerjee few days after the event.



Speaker Dr Bhadra on dais flanked by (L) Dr K Muraleedharan and (R) Dr H S Maiti

### Women's Day

This Institute celebrated the International Women's Day on March 8, 2016. A twin lecture was arranged on this occasion in the A P C Roy Seminar Hall of Institute. The speakers were Mrs Lakshmi Edakunni, wife of Dr K Muraleedharan, Director, CSIR-CGCRI and Dr Sukanya Datta, Senior Principal Scientist, CSIR-CGCRI. The first speaker spoke on the theme of



the occasion, "Pledge for Parity", the other speaker delivered the promised sequel lecture, "Women's Day and Weapon of Empowerment" to appraise the female students with their rights and privileges. Both lectures were well received by the employees and students. Mr R K Roushan, Administrative Officer II concluded the lecture session.



From left: Mrs Lakshmi Edakunni, Mr R K Roushan and Dr Sukanya Dutta

## PEER RECOGNITION

### Professional Awards

1. **Dr K Muraleedharan**, Director, CSIR-CGCRI received the 28<sup>th</sup> M G Bhagat Memorial Lecture Award (2015) at the 79<sup>th</sup> Annual Session of the Indian Ceramic Society, held during December 14-17 in Bangalore.



Dr K Muraleedharan delivering the 28<sup>th</sup> M G Bhagat Memorial Lecture

2. **Dr R N Basu**, Chief Scientist and Head, Fuel Cell and Battery Division:
  - (i) Elected as a Fellow of the Indian National Academy of Engineering with effect from 1<sup>st</sup> January, 2016 at the INAE Annual Convention during December 10-11, 2015 in the Defence Institute of Advanced Technology, Pune.
  - (ii) Elected as the Chairman of Materials Research Society of India (MRSI) Kolkata Chapter. Being a Chapter Chairman, he is also the Ex-officio member of the MRSI parent body.



Dr R N Basu being conferred Fellow of IAE

3. **Dr Arup Ghosh**, Chief Scientist and Head, Refractory & Traditional Ceramic Division
  - (i) Received the IRMA Life Time Achievement Award from Indian Refractory Makers Association
  - (ii) Received the Refractory Technologist Award - 2015 for Lifetime contribution in the field of Refractories at the 79<sup>th</sup> Annual Session of the Indian Ceramic Society in Bangalore.



Dr Arup Ghosh receiving IRMA Life Time Achievement Award and Refractory Technologist Award - 2015

4. **Dr Swapan K Das**, Retired Chief Scientist, Refractories Division received the D N Agrawal Memorial Award (2015).
5. **Dr G Banerjee**, Chief Scientist and Head, Publication and Publicity Section received a recognition of Honorary Member, Neutrosophic Science International Association, University of New Mexico, USA.
6. **Dr LK Sharma**, Scientist-in-charge, Khurja Outreach, CSIR-CGCRI received Global Ambassador award of The American Ceramic Society at the 79<sup>th</sup> Annual Session of the Indian Ceramic Society in Bangalore.
7. **Dr P Sujatha Devi**, Principal Scientist & Head, Sensor & Actuator Division elected 'Secretary of DNA Society of India', Kolkata and re-elected as the Secretary of the Materials Research Society of India, Kolkata Chapter.
8. **Dr Mrinal Pal**, Principal Scientist, Sensor & Actuator Division has been conferred the MRSI Medal in recognition of his significant contributions to the field of Materials Science and Engineering for the year 2016 at MRSI AGM held during February 18-20, 2016 at CSIR- NEIST, Jorhat.



Dr Mrinal Pal (left) receiving the MRSI medal from Dr Suresh Das, President, MRSI

9. **Dr H S Tripathi, Dr A Ghosh, Dr M K Haldar, Dr B Mukherjee and Dr H S Maiti** received the Deokaran Award for 'Refractories' (2015) for their paper entitled "Microstructure and Properties of sintered mullite developed from Indian bauxite" published in the Bull. Mater Sci., Vol 35(4), 639-643, 2012.
10. **The Naroda Outreach** of CSIR-CGCRI received the Prof Sasadhar Ray Memorial Award at the 79<sup>th</sup> Annual Session of the Indian Ceramic Society in Bangalore.

### Invited Talks

**Dr P Sujatha Devi**, Principal Scientist, Sensor & Actuator Division was invited to deliver the talks as follows:

- (i) Size Dependent Property Correlations in Functional Nanomaterials Excitements and Challenges, at the CSIR Special Session at the International Conference on Nanomaterials and Nanotechnology (NANO-15) held during December 7-10, 2015 at K S Rangasamy College of Technology, Tiruchengod, Tamil Nadu.
- (ii) Functional Nanomaterials for Energy and Environmental Applications, Indo- Belarus joint workshop held during 16-17, November, 2015 at Gurgaon, New Delhi.

### Oral Awards

1. **Arindam Saha**, CSIR Nehru Post Doctoral Science Fellow received Best Paper Award for the presentation entitled "Multifunctional Nanomaterials for Responsive Drug Delivery" coauthored with Debabrata Maiti, and P Sujatha Devi, Sensor & Actuator Division at the International Conference on Nanomaterials and Nanotechnology (NANO-15) Tiruchengode, Tamil Nadu.
2. **Mrinmoy Garai**, Nibedita Sasmal, Basudeb Karmakar of Glass Division received Best Oral Presentation Award for Paper entitled, "Intensified Crystallization and Microstructure in ZnO, TiO<sub>2</sub> and ZrO<sub>2</sub> Doped Boroaluminosilicate Glasses: A Study on SOFC Sealing Performance" during National Conference on Functional Glass/Glass-Ceramics and Ceramics (NCFGC-2015) organized by Department of Applied Physics, VNIT, Nagpur in association with Materials Research Society of India (MRSI), Mumbai Chapter held during December, 10-12, 2015 at Visvesvaraya National Institute of Technology (VNIT), Nagpur.

### Poster Awards

1. **Indranee Das** and **Goutam De** received another Best Poster Award for the poster entitled 'Zirconia based Superhydrophobic Coatings on Cotton Fabrics Exhibiting Excellent Durability for Versatile Use' by

Indranee Das and Goutam De\* in the 4<sup>th</sup> International Conference on Advanced Nanomaterials and Nanotechnology (ICANN 2015) held during December 8-11, 2015 at IIT Guwahati.

2. **Gaurav Gupta, Sathravada Balaji, Kaushik Biswas and Kalyandurg Annapurna** of Glass Division received Best Poster Presentation Award for Paper titled, "Enhanced Mid-IR Emission at 4.08  $\mu\text{m}$  from Ho<sup>3+</sup>-Yb<sup>3+</sup> Codoped La-Ti-Tellurite Glass: Correlation of Experimental with Simulation" during National Conference on Functional Glass/Glass-Ceramics and Ceramics (NCFGC-2015), Nagpur.
3. **Anurag Roy, Partha Pratim Das, M Tathavadekar and P Sujatha Devi** of Sensor & Actuator Division received Best Poster Award for the poster presentation entitled "Electrospun Zn<sub>2</sub>SnO<sub>4</sub> Photoanodes for Dye Sensitized Solar Cell" during the Materials Research Society of India (MRSI) Symposium on 'Advanced Materials for Sustainable Applications' at the 27<sup>th</sup> Annual General Meeting of MRSI at CSIR-NEIST, Jorhat.
4. **Sayantan Ray, Suman Saha, Rituparna Acharya and Jui Chakraborty** of Bioceramics and Coating Division received Best Poster Award for the poster presentation entitled "Value Added Multifunctional Injectable Bone Augmentation Material for Treatment of Osteoporotic Vertebral Compression Fracture in Elderly Patients" at International Conference on 'Energy, Functional Materials & Nanotechnology' (ICEFN-2016), held during March 27-29, 2016, organised by Nanoscience and Nanotechnology Centre, Department of Chemistry, Kumaun University, Nainital, Uttarakhand. The first author also received Young Scientist Award for the same presentation.

## IMPORTANT MEETINGS

### Research Council Meeting

The 51<sup>st</sup> Research Council Meeting of CSIR-CGCRI was held on December 26, 2015. As per directives of Director General, CSIR, this was a special RC meeting held in open mode in which all the Group IV scientists were invited. The agenda items were deliberated intensely on short and medium term goals of the Institute. The members expressed their satisfaction with the presentations made by scientists and proposals placed to meet the short and medium term goals. A roadmap was identified by members under Chairmanship of Dr Srikumar Banerjee, Homi J Bhabha Chair Professor, Department of Atomic Energy, Govt of India based on which a roadmap was submitted to DG, CSIR.

### Meeting with Chinese Delegation

A Chinese delegation that participated in the India International Refractories Congress 2016 at Hyderabad visited CSIR-CGCRI on January 23, 2015. The members of delegation which comprised of research and academia personalities from SINOSTEEL Luoyang Institute of Refractories Research, Henan University of Science & Technology and Wuhan University of Science & Technology in China interacted with scientists of Refractory and Traditional Ceramics Division and explored research areas of mutual interest. The team was led by Prof Yawei Li of The State Key Laboratory of Refractory and Metallurgy, Wuhan University of Science Technology. The team also went round few laboratories in the said division.



Interactive session with Chinese scientists

### Meeting with Thailand Delegation

A six member delegation from Thailand Institute of Science and Technological Research (TISTR), Thailand visited CSIR-CGCRI on February 10, 2016 and held discussions on possibilities of collaborative research for application of ceramic membrane in water and gas treatments. There were technical presentations made by scientists of both sides. The Thailand delegation was led by Dr Luxsamee Plangsangmas, Governor of TISTR. The team went round the Exhibition Hall and the individual laboratories of Ceramic Membrane, Bioceramics & Coating and Fibre Optics & Photonic Divisions of Institute. It may be noted that TISTR and India's CSIR has signed the 7th Working Program of S&T Cooperation for years 2015-2017 during February 24-25, 2015.



Dr Muraleedharan greeting Governor, TISTR with a memento

## DEPUTATION

Dr K Muraleedharan, Director, CSIR-CGCRI visited Taiwan from January 25-29, 2016 as a member of CSIR delegation led by Dr Girish Sahani, Director General CSIR and Secretary, DSIR, Govt of India upon invitation from His Excellency Prof Chung-Liang Chien, Hon'ble Deputy Minister of Science & Technology, Taiwan to explore S&T cooperation between CSIR and Taiwan's research institutions and industry. Team CSIR showed specific interest in collaborating with Taiwan in areas of sustainable environment, smart living, optics & photonics and fibre manufacturing technology from bamboo besides learning from Taiwanese counterparts about converting proof-of-concept ideas to marketable products and services. The other members were Dr Sanjay Kumar, Director, CSIR-IHBT, Palampur and Dr Sudeep Kumar, Head PPD, CSIR, New Delhi besides DG, CSIR.



### OBITUARY

Dr Manas Kamal Haldar, Principal Scientist, Refractory and Traditional Ceramics Division died on 22nd October 2015 after a brief illness. He is survived by his wife and son. We share our grief and anguish with the bereaved family. In his passing away, the Institute has lost a dear friend and valued colleague. We deeply mourn his sad and untimely demise. May his soul Rest in Peace.

## Forthcoming Events

- December 7-12, 2015: International Workshop on Emerging Areas in Photonics & Future Applications (IWPPA-2015) at CSIR-CGCRI, Kolkata
- December 26, 2015: 51<sup>st</sup> Research Council Meeting of CSIR-CGCRI
- April 21-22, 2016: Bio-LEAP 2016, Two Day Workshop on Biomedical Implants for Orthopedic; Leveraging Efficacy through Alliance Programme
- April 25-29, 2016: T&D Programme on Physico Chemical Analysis of Ceramic Raw Materials at CSIR-CGCRI Outreach, Naroda, Ahmedabad
- May 15-July 15, 2016 (Tentative): Summer Internship Programme for Engineering (3<sup>rd</sup>/4<sup>th</sup> year BE/BTech, 1<sup>st</sup> Year ME/MTech and 2<sup>nd</sup> Year MSc) Students