



CGCRI

NEWS LETTER



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Diamond Jubilee Year, Aug - Nov 2010

CGCRI Bags CSIR Technology Award

Central Glass & Ceramic Research Institute (CGCRI), Kolkata has bagged the CSIR Technology Award for Physical Sciences including Engineering Category for the 2010 year for developing indigenous bioceramic prosthesis and implants for biomedical applications. Dr. D. Basu, Head, Bioceramics & Coating Division of CGCRI received the award on behalf of the Institute on the auspicious occasion of CSIR Foundation Day on September 26, 2010 in New Delhi. The award carried a cash prize of Rs.2 lakhs besides a plaque and a citation.

The development includes technology for manufacturing of (i) Hydroxyapatite based porous orbital eye implant for damaged eye which facilitates synchronized movement with the other eye., (ii) Ceramic headed hip-joint fitted with polymer5/ alumina based acetabular cups that offers enhanced life of the artificial hip joint and (iii) Bioactive coating /Scaffolds expected to help eliminate infection from donors bones used for grafting. The technologies for manufacture of orbital implant5s and hip-joint prosthesis and bio-active coatings are licensed to M/s IFGL Bioceramics Limited, Kolkata.

Instituted in year 1990, the award seeks to foster multi-disciplinary in-house team efforts and external interaction for technology development, transfer and commercialization. The other areas in which the Technology Award is given are: Life Sciences, Innovation, Business Development & Technology Marketing besides the Most Significant CSIR Technology of the Five year plan once in 5 years coinciding with country's 5 year plan periods.



Dr. D. Basu receiving Technology Award from Shri Prithviraj Chavan, Hon'ble Minister for Science & Technology and Earth Science and Vice-President, CSIR

Diamond Jubilee Celebration

The Institute launched its year-long Diamond Jubilee Celebration with pomp and grandeur on September 4, 2010. This gala event was inaugurated by Shri Prithviraj Chavan, Hon'ble Minister of State for Science & Technology and Earth Sciences and Vice-President, CSIR. Among other important dignitaries, Dr. J J Irani, Director, Tata Sons and Ex-MD, Tata Steel was the Guest of Honour, while Prof. S. K. Brahmachari, Director General-CSIR and Secretary-DSIR and Dr. Srikumar Banerjee, Secretary-DAE and Chairman-AEC, Government of India, who is also the Chairman of CGCRI's Research Council, graced the function as Distinguished Guests. India's renowned Orthopaedic surgeon, Padma Vibhushan Dr K. H. Sancheti, Director of Sancheti Institute of Orthopaedics & Rehabilitation, Pune, Prof. Siddhartha Roy, Director, Indian Institute of Chemical Biology, Kolkata, Dr. S. Srikanth, Director, National Metallurgical Laboratory, Jamshedpur and Dr. S. Basu, Chairman, Nuclear Research Board were among the important guests. The function began with traditional lighting of lamp by the dignitaries including the Hon'ble Minister, who also released the CGCRI's maiden logo and a souvenir for the Diamond Jubilee.

In his welcome address, Prof. Indranil Manna, Director, CGCRI retraced the Institute's journey over 60 years and highlighted a few notable achievements. Prof Manna also narrated the recent success stories of CGCRI concerning

the specialty fibre and glasses, prosthesis and implants, non-oxide ceramic components, water purification plants and FBG based sensors. He declared that CGCRI would soon set up a water purifier plant in the Taki Municipality close to Bangladesh border in West Bengal with a capacity of 30,000 gallons per hour. He spelt out CGCRI's priorities in the forthcoming 12th five year plan period including a supra-institutional project on specialty glasses and network projects on bio-prosthesis, structural ceramics, nano-coatings and new ceramics for energy and environmental applications. Prof Manna informed that the Institute will soon initiate an M.Tech/Ph.D programme in glass and ceramics under AcSIR.

In his address, Dr. Srikumar Banerjee hailed CGCRI for the supply of RSW glasses to BARC. He stressed the need of transferring the technology to a joint venture company for continuous supply of RSW glasses to the reprocessing plants of DAE. Dr. Banerjee reminded that fundamental studies on glass are as essential as the applied projects. In this connection, he announced that DAE would actively consider the proposal of Director - CGCRI to establish a CGCRI-DAE Advanced Technology Cell in CGCRI.

Prof S.K. Brahmachari, hailed CGCRI contributions to the strategic, industrial, societal and academic sectors. He reminded how CGCRI could do justice to these difficult and demanding activities which on one side necessitates high quality science and on the other side demands knack to the technology assessment, development and implementation in the competitive market. Prof Brahmachari explained that CSIR has launched CSIR-800 programme to remain relevant to the 800 million poor masses of the country. He hailed Acharya P.C. Roy, whose 150th birth year falls this year and said that Acharya became entrepreneur at the age of 32 by launching Bengal Chemicals. Congratulating CGCRI on the 60th birthday, he reminded the employees of CGCRI about their future tasks and milestones to achieve in order to establish this Institute as the leader in Glass and Ceramics.

In his lecture, Dr. K. H. Sancheti explained that with further enhancement in life expectancy, bone ailments are likely to increase. He lauded the fruitful interaction of his Institute with CGCRI. He made on stage presentation of few beneficiaries belonging to different age groups, of CGCRI's prosthesis technology, who underwent surgery under his supervision. Dr. Sancheti was felicitated with a memento by the Hon'ble Minister.

There were also presentations by organizations : IFGL-Kolkata, NEST-Cochin, OCL-Bhubaneswar, RCI-Hyderabad, H R Johnson-Mumbai and Entech-Kolkata who have successfully implemented CGCRI technologies in the recent past.

The Guest of Honour, Dr. J J Irani, said that small countries in area like France and Britain could dominate the world because they had undergone an early development in their science & technology. There is a problem in our mind set which we must shake off. Dr. Irani lauded CSIR as the brain of nation.

In his speech as Chief Guest, the Hon'ble Minister lauded the contributions of CGCRI in the area of Bioceramics, Fibre optics, Specialty glass and Refractories. The Hon'ble Minister advocated that the clustered approach adopted by DG-CSIR was a welcome strategy to streamline the activities of CSIR laboratories and achieve the desired goal. The Minister lauded the DAE-CGCRI cooperation as a classic example of a success story. He congratulated CGCRI on its Diamond Jubilee year and hoped that the Institute would contribute strongly to transform India into a scientific and technological leader. The Minister also addressed the media in a press conference and inaugurated exhibition and two facilities -- Bioceramics Building and the Specialty Fibre Fabrication Facility.

In the afternoon DG-CSIR met several representatives from the industry, the partners of CGCRI and the concerned scientists. The day also saw inauguration of a newly built Gymnasium of CGCRI Staff Club. The Gymnasium was inaugurated by Prof. Sidhartha Ray, Director, Indian Institute of Chemical Biology, Kolkata.



Clockwise: Hon'ble Minister Shri Prithviraj Chavan, DG-CSIR Prof. S K Brahmachari and Director Prof. Indranil Manna assemble before the traditional floral work, Lighting of lamp by Minister, Address by DG-CSIR and Minister releasing the CGCRI Logo at Megnad Saha Auditorium of CGCRI

CGCRI Foundation Day : Staff take Pledge

To commemorate sixty years of journey of CGCRI, a programme entitled **Down Memory Lane** was organised on August 26, 2010 at the Institute. Two Former Directors Dr. S Kumar and Dr. B K Sarkar and Mr. V K Vaish, the oldest surviving scientist of CGCRI, who witnessed the inauguration of the Institute were felicitated on this occasion. The past Directors narrated the opportunities and constraints through which they had to steer the Institute and encouraged the staff to perform better and wished all success. The staff took pledge on this day by signing on the pledge board which resolved - *We pledge ourselves to achieve the vision of the Institute and commit ourselves to its cause.*



Staff greet Prof. I. Manna after he signed on the pledge board



The signed pledge board

Seventh Atma Ram Memorial Lecture

This 7th *Atma Ram Memorial Lecture* was delivered on August 26, 2010 by Prof. Ajay K Sood, Department of Physics, Indian Institute of Science, Bangalore. The title of his topic was “*Graphene and Nanotubes: The Rising Stars of Nanotechnology*”. Prof. Sood in his deliberation lucidly explained the phenomenon of the carbon nanotubes and graphene which are the one and two-dimensional forms of carbon with many fascinating physical properties translating into new devices and applications. His talk also elaborated the new science being carried out with these nano-systems in his laboratory that has a realizable potential for applications. Examples of his work included the new results on generation of voltage by the flow of air on carbon nanotubes and graphene. The talk aroused a huge response and appreciation. The function was chaired by Prof Ajoy Kumar Ray, Vice-Chancellor, BESU, Shibpur.



(L) Prof A Sood delivering lecture and (R) Prof A K Ray presenting the 7th Atma Ram Memorial plaque to Prof A K Sood after lecture

Promotion of Innovation awards

CGCRI has recently instituted a new system of identifying and rewarding talents in different categories of employees in order to inspire and motivate the internal staff members to perform and achieve. It is a scheme for awarding staff in different areas internally. The aim of the scheme is to encourage innovation at all levels of Institute. The list of awardees are as follows:

- (i) **Best Young Scientist** - The 1st prize awarded to Dr. Kaushik Biswas, the 2nd prize jointly awarded to Mr. Bishwanath Kundu and Dr. Debdulal Saha.
- (ii) **Best Young Research Scholar** - The 1st prize awarded to Ms. Saheli Ganguly and the 2nd prize awarded to Ms. Tirtha Som.
- (iii) **Best Paper Award on Glass & Ceramics** - Dr. K. Biswas, Mr. A. D. Sontakke, Mr. J. Ghosh and Dr. K. Annapurna for their publication “Enhanced blue emission from transparent oxyfluoride glass-ceramics containing $\text{Pr}^{3+}:\text{BaF}_2$ nanocrystals, J. American Ceramic Society, 93 (2010), pp. 1010 - 1017 published during the period April, 2009 - March, 2010.
- (iv) **Best Paper Award on Materials Science** - Ms. S. Ghosh, Dr. A. Das Sharma, Dr. A. K. Mukhopadhyay, Dr. P. Kundu and Dr. R. N. Basu for their publication “Effect of BaO addition on magnesium lanthanum alumino borosilicate-based glass-ceramic sealant for anode-supported solid oxide fuel cell”, J. Hydrogen Energy, 35 (2010), pp. 272-283 published during the period April, 2009 - March, 2010.
- (v) **Best Project Award** - Dr. S. K. Das, Dr. M. K. Halder, Mr. S. Gupta, Mr. P. K. Mondal, Mr. N. Singh and Mr. S. Dasgupta for the project “Best Technology development to manufacture vitrified ceramic tiles utilizing sand stone dust generated at the plant of M/s. DVPL” received from M/s Diversified Vyapar Pvt. Ltd., Jharkhand during the period April, 2009 - March, 2010.
- (vi) **Best Technology Transfer Award** - Dr. D. Basu, Dr. M.K. Sinha, Dr. S. Dutta, Mr. S. Gangadharan, Mr. B. Kundu and Mr. A. Karmakar for their work “Active coating for orthopedic and dental application” transferred to M/s IFGL Bioceramics Ltd., Kolkata on October 25, 2010 during the period April, 2009-March, 2010.
- (vii) **Best Employee Award** - Mr. Ananda Ram Halder, Central Reprography Facility for providing the general service in various activities of the Institute during the period April, 2009-March, 2010.
- (viii) **Best Supporting Section** - Civil Engineering Section of the CGCRI awarded the Best Supporting Section award for the best support provided in various activities of the Institute during the period April, 2009-March, 2010.

The awards were given away by Prof. Siddhartha Roy, Director, Indian Institute of Chemical Biology, Kolkata on August 26, 2010 which also marked the Foundation Day of the Institute.

Important Visitors

August 13, 2010 : Prof. Jyoti Mazumder, Robert H. Lurie Professor of Engineering, University of Michigan, USA delivered a lecture on “Challenges and promise of laser materials processing” at CGCRI.

August 31, 2010 : Prof. Kang Li, Professor of Chemical Engineering, Department of Chemical Engineering & Chemical Technology, Imperial College London, South Kensington, London delivered a lecture on “Ceramic hollow fibre membranes for energy utilization”.

September 15, 2010: Mr. Stuart Wakefield, Regional Manager & Application Specialist, Malvern Instruments Ltd, United Kingdom delivered a talk on “Application of dynamic light scattering system for different kind of nano samples, data analysis by the software of

Malvern Nano System, Zeta Potential analysis of different kind of samples etc.”

September 26, 2010: Prof. Soumitro Banerjee, Indian Institute of Science Education and Research, Kolkata delivered 68th CSIR Foundation day lecture entitled, “Fractals: The Geometry of Nature”.

October 7, 2010 : Dr. Gianluca Gagliardi, Senior Scientist, CNR, Naples, Italy delivered a lecture on “High sensitivity physical and chemical sensing by optical fibre resonators”.

October 8, 2010 : Prof. Vinay Gupta, Department of Physics, University of Delhi, Delhi delivered a lecture on “SAW sensors”.

Peer Recognitions

- Ms. Tirtha Som , CSIR-NET Senior Research Fellow, and a Ph.D. Student under Dr. Basudeb Karmakar in the Glass Division was awarded the "Young Scientist Award - 2010" of the Materials Research Society of India (MRSI), Kolkata Chapter in the "Young Scientists' Colloquium-2010" for her creditable contribution to the advanced materials research held on October 29, 2010 at Bengal Engineering & Science University, Shibpur (BESU).
- Dr. Jui Chakraborty, Ms. Manjusha Chakraborty, Ms. Sudakhisna Roy, Ms. Somoshree Sengupta, Mr. Sudip Dasgupta, Dr. Mithlesh K. Sinha, Dr. Suchitra Sen and Dr. Debabrata Basu received the best oral presentation award for their paper entitled “Unique Self assembled Structures of Hydroxyapatite in the Biomimetic Coating on Dense Alumina Biomedical Implant Material” at the International Conference Aluminas-2010, held during November 25 - 27, 2010 at CGCRI, Kolkata.

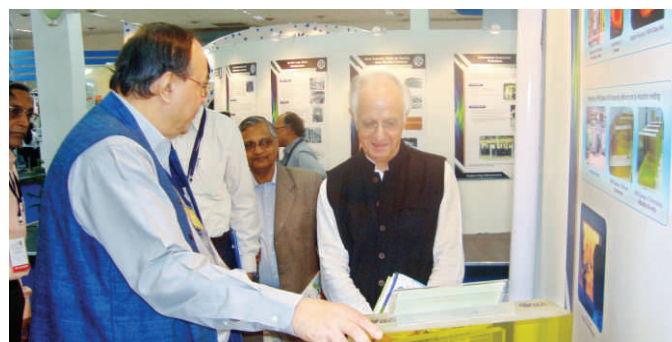
CSIR Technofest 2010 : CGCRI Showcases Product and Exhibits

CGCRI participated in the CSIR Technofest 2010, along with the other CSIR laboratories, that was organized as a part of the India International Trade Fair at Pragati Maidan in New Delhi. Spread over 14 days, the mega event was inaugurated on November 14, 2010 by Shri Kapil Sibal, Union Minister for Human Resource Development , Science & Technology and Earth sciences. The event of this kind was a first ever in the history of CSIR and it highlighted the spirit of Team CSIR in its persistent effort to transform India through science and innovation. A special focus was to project as to how CSIR can enable and empower the country's underprivileged masses with CSIR technologies and



Prof. I. Manna briefing Hon'ble Minister Shri Kapil Sibal about the CGCRI activities in the health sector pavilion

create opportunities for research-oriented higher level education in specialized areas of science & technology. The novelty of the show was to project CSIR's contribution to Indian society in a theme specific manner instead of traditional lab centric approach. CSIR projected its contribution in 15 theme areas out of which CGCRI turned up in 6 themes stalls. These themes were Aerospace, CSIR 800, Energy, Healthcare, Mining Minerals & Materials and Water. While CGCRI led several other labs in the Strategic sector theme, it partnered with many other labs in rest of the themes. Few beneficiary industries of the CGCRI technologies partnered with the Institute in this big event and showcased the products successfully marketed by them. Several important personalities of the country visited the CGCRI stalls.



Prof. S. K. Brahmachari showing RSW glass block developed by CGCRI to Mr. Arun Maira, Member, Planning Commission in strategic sector pavilion

Diamond Jubilee: Fixture of Events

- International Symposium on Advances in Nanomaterials (December 6-7, 2010)
- National Seminar on Ceramics: Energy & Environment (January 11-13, 2011)
- 42nd S.S. Bhatnagar Memorial Tournament: Indoor-Zonal (February 4-6, 2011)
 - DST-SERC School on Guided Wave Optics (February 7-25, 2011)
- International Symposium on Energy Materials: Opportunities & Challenges (March 1-2, 2011)
- National Conference on Sensors & Actuators : Science to Technology (March 11-12, 2011)
 - National Seminar on Traditional Ceramics - New Trends (March 23-24, 2011)
- National Seminar on Information and Knowledge Dissemination : Recent Status and Future Direction (May 6-7, 2011)