

N.3: Honours and Awards:

H.1: Indian Nuclear Society Outstanding Service Award:

Dr. P. D. Gupta, Director, RRCAT has been conferred the prestigious "Indian Nuclear Society Outstanding Service Award" for the year 2013 in recognition of his outstanding achievements in the field of particle accelerators and lasers. The award, in the category of "High Technology Nuclear Related Areas", was presented to him by Prof. P. Rama



Rao, Chairman, Board of Research in Nuclear Sciences on December 15, 2014 during the 25th Annual Conference of Indian Nuclear Society (INSAC-2014) held at Hyderabad. The award carries a cash prize of Rs. 1 Lakh and a Citation. The Indian Nuclear Society, through this prestigious award, has recognized the various impact-making contributions of Dr. Gupta in the frontline areas of particle accelerators, lasers and related advanced technologies.

H.2: DAE Excellence in Science, Engineering & Technology Awards 2013:

The Department of Atomic Energy has instituted the Excellence in Science, Engineering & Technology Awards Scheme from the year 2006 to recognize outstanding accomplishments and exceptional achievements of the DAE staff, who are engaged in scientific research, technology development, engineering/project implementation, teaching, health care, and supporting services. There are ten categories of awards under the scheme and one Meritorious Service Award for Auxiliary, Administration, Accounts services etc. These awards are given annually. The awards for the year 2013 were given on the eve of Founder's Day on October 30, 2014 in BARC. The following scientists/engineers bagged the DAE awards for the year 2013.

H.2.1: Scientific and Technical Excellence Award:

The award carries a cash prize of Rs 1 Lakh, a Citation and a Medal. There are two award winners from RRCAT:

1. Dr. Tapas Ganguli, SO/G and Head, Materials Research Laboratory, Indus Synchrotrons Utilization Division, RRCAT has been conferred with the "DAE-ESET Scientific and Technical Excellence Award for the year 2013" for his significant contribution in the area of experimental materials science research using synchrotron radiation sources and the complete indigenous development and commissioning of a Metal Organic Vapor



Phase Epitaxy system for the growth of Nitride semiconductors. He has also developed a very strong expertise in the technique of High Resolution X-Ray diffraction and has used it for the understanding of several problems involved in the deposition of high quality epitaxial films. He has worked on the EXAFS data analysis of ternary semiconductors that has provided important insights into the microstructure in Be based II-VI alloy semiconductors. He has also contributed significantly towards the in-house development of semiconductor laser diodes and human resource development at the centre as an excellent teacher and guide.

2. Dr. Aparna Chakrabarti, SO/G, Indus Synchrotrons Utilization Division, RRCAT has been conferred "DAE-ESET Scientific and Technical Excellence Award for the year 2013" for her contribution in the field of 'Ab initio computational study of structural, electronic and magnetic properties of several technologically relevant materials'. The most significant



contribution of Dr. Chakrabarti is computational studies on the structural, electronic and magnetic properties of various doped and undoped as well as off-stoichiometric magnetic shape memory (MSM) alloys using ab initio methods by employing density functional theory (DFT). These studies helped in analyzing and augmenting the data obtained from angle-integrated and angle-resolved photoemission experiments, specifically obtained from synchrotron sources. Further, her theoretical work in combination with EXAFS experiments on technologically relevant oxide materials carried out at Indus-2 helped in achieving insight about oxygen vacancy formation in certain doped oxides and in removing the controversy in literature in this regard. Her study of structural and response properties of low-dimensional graphene-like systems is an important contribution, not only because of its fundamental importance but because these substances now have become reality in experiments. She has also successfully designed a few new MSM alloys using ab initio calculations, some of which have already been synthesized and experimentally characterized.

H.2.2: Young Engineer Award:

The award carries a cash prize of Rs. 50,000/-, a Citation and a Medal. There are three award winners from RRCAT:

1. Shri Surendra Yadav, SO/E, Accelerator Control & Beam Diagnostics Division, RRCAT has been conferred the "Young Engineer Award for the year 2013" for his excellent contributions in the field of "Development of beam diagnostic system for Indus-2". He has immensely contributed in the





development of betatron tune feedback system, transverse bunch by bunch feedback system and online beam parameter measurement system for Indus-2. The development of these system has resulted in enhanced performance of Indus-2 synchrotron radiation source like better beam injection efficiency and stable photon beams to the users. His efforts have played a major role in achieving major milestones for beam diagnostics systems of Indus-2 of RRCAT, Indore. His major achievements during the last five years include Betatron tune feedback system, transverse bunch by bunch feedback system, and development of online beam parameter measurement system.

2. Shri A. K. Gupta, SO/E, RF Systems Division, RRCAT has been conferred the "Young Engineer Award for the year 2013" for his outstanding contributions in "Design, development and deployment of 75 kW CW solid state RF amplifiers". His efforts for design and development of rigid coaxial line RF components for 75 kW solid state RF amplifiers have been remarkable. His contributions in successful development of 500 W RF amplifier modules, 16 kW 16 -Way power combiners, high power 3-Way power combiners, 75 kW 2-Way Power Combiners and high power broadband dual directional couplers, has resulted in replacement of imported klystron tubes with in-house developed solid state RF amplifiers for Indus-2. With the crucial support of these indigenous 75 kW RF amplifier system, Indus-2 has been running in round the clock mode and beam current in excess of 180 mA at design energy of 2.5 GeV has been achieved successfully.



3. Shri Praveen Mohania, SO/E, Pulsed High Power Microwave Section, RRCAT has been conferred the "Young Engineer Award for the year 2013" for his excellent contributions in the "Design, development and deployment of 10kW solid state amplifier for pre-buncher cavity for CUTE-FEL project".



H.2.3: Meritorious Technical Support Award:

The award carries a cash prize of Rs. 20,000/-, a Citation and a Medal. There are three award winners from RRCAT:

1. Shri Inderjeet Singh, SA/F, Laser Electronics Support Division, RRCAT has been conferred the "Meritorious Technical Support Award for the year 2013" for his excellent contributions in the "Development of specialized instruments and control electronics for accelerator and laser programmes". He has provided excellent support in design, development,



fabrication, assembly and installation of control electronics and specialized instrumentation for Accelerator and Laser Programmes. He has developed miniature plastic optical fiber based seriallink which is being used for master slave communications in CVL MOPA system extensively and routinely being used in other high power laser systems. He has expertise in the design of PCBs of surface mounted components with multi-layer technology. He has participated actively in trouble shooting, repairing of costly equipment and preventive maintenance of instruments in the Indus-2 beam lines.

2. Shri Nathan Singh, Foreman B, Power Supplies and Industrial Accelerators Division, RRCAT was conferred "Meritorious Technical Support Award for the year 2013" for his contributions in the field of "Development of power supplies and associated technologies by way of fabrication, mechanical assembly and mounting works in the power supplies for Indus-1, Indus-2 and DC accelerators". He worked with diligence and devotion to bring the assigned jobs to the stage of completion, ensuring quality and reliability.



3. Shri Bhim Singh, Foreman/B, Accelerator Magnet Technology Division, RRCAT was awarded with "Meritorious Technical Support Award for the year 2013" in recognition of his outstanding contribution to indigenous development of various magnets for Synchrotron Radiation - Indus-1 & Indus-2, Corrector magnets for Fast Orbit Feedback system for providing stable photon beams to users in Indus-2 and Mass spectrometer dipole magnets for BARC. His contribution in the magnet fabrication techniques resulted in reduction of variation within group of magnets, accomplishment of consistency in magnet quality, considerable reduction in manufacturing time & making of rigid magnets assemblies for reproducibility on reassembly for placement of vacuum chambers. His efforts have played a key role in achieving major milestones for the Accelerator Programme.



H.2.4: Meritorious Service Award:

The award carries a cash prize of Rs. 20,000/-, a Citation and a Medal. There is one award winner from RRCAT:

Late Shri S. P. Patidar, Driver, Special Grade, Office of Director, RRCAT was conferred the "DAE Meritorious Award for the year 2013" for his excellent ability to drive the vehicle and perform



duties uninterrupted for long hours. He has carried out driving the vehicle with extra-ordinary zeal and total commitment to the duty. The award carried a cash prize of Rs. 20,000/-, a Citation and a Medal.

The family of RRCAT is deeply saddened by the untimely death of such a worthy colleague.

H.2.5: Group Achievement Awards:

The award carries a Medal, a Citation and suitable cash prize for each group commensurate with the group size and its overall achievement. The following four groups of RRCAT, which received the "Group Achievement Award" for the year 2013:

1. A group comprising of 20 members from Laser Biomedical Applications and Instrumentation Division, of which one member has got transferred to Atomic and Molecular Physics Division, BARC, Vizag was conferred the "Group Achievement Award" for the year 2013 for its contribution on "Design, Development and Utilization of Optical Techniques, for High Resolution Biomedical Imaging".



The award was received by the group leader, Dr. P. K. Gupta, DS & Head, LBAID on behalf of the group.

2. A group comprising of 18 members from Optical Design and Fabrication Lab. and Electronics and Instrumentation Section was awarded the "Group Achievement Award" for the year 2013 for its contribution on the "Design and Development of Optical, Electronics, Instruments and Software Solutions" for characterization of optical components, developing instrumentation and multipurpose software for both accelerator and laser programme. The award was received by the group leader, Dr. Sanjib Chatterjee, SO/H & Head, ODFL on behalf of the group.



3. A group, consisting of 78 scientific personals, was awarded the "Group Achievement Award" for the year 2013 for "Development and Commissioning of Vertical Test Stand Facility for Characterization of Superconducting RF Cavities at 2K". The award was received by the group leader, Shri S. C. Joshi, OS & Head, PLSCD on behalf of the group.



4. A group, consisting of 51 scientific personals, was awarded the "Group Achievement Award" for the year 2013 for "Development of a Novel Technique for SCRF Cavity

Fabrication for Particle Accelerators Based on Laser Beam Welding". This development has a significant impact worldwide in the field of SCRF cavity fabrication due to its advantages like lower cost, small heat affected zones and no need to have vacuum environment. The award was received by the group leaders, Shri Prashant Khare, SO/G, CCDS and Dr. B.N. Upadhyay, SO/F, SSLD on behalf of the group.



H.3: Best Thesis Awards:

1. **Dr. Uday Chakravarty**, SO/E, Laser Plasma Division was awarded the Best Thesis Award at twenty ninth National Symposium on Plasma Science and Technology (PLASMA-2014), held at M.G. University, Kottayam, Kerala during 08-11 Dec. 2014. The award is named as "Buti Young Scientist Award 2014". The award is given every year by the Buti Foundation for plasma related thesis work and it carries a cash prize of Rs. 10,000.



2. **Dr. Amber Choubey**, SO/E, Solid State Laser Division was awarded the ILA Best Thesis Award at DAE-BRNS National Laser Symposium-23 (NLS-23), held at Sri Venkateswara University, Tirupati during 03-06 Dec. 2014. The title of the thesis is "Study and development of high power pulsed Nd:YAG lasers and its material processing applications" and the award money was Rs. 15,000/-.



H.4: Best Poster Awards:

The DAE-BRNS National Laser Symposium-23 (NLS-23), held at Sri Venkateswara University, Tirupati during 03-06 Dec. 2014, selected the following three papers of RRCAT for the Best Poster Awards of Indian Laser Association (ILA). The award carries a cash prize of Rs. 2500/- and a Citation. The details of the poster papers are given below:

- Title: Temperature measurement of cold atom cloud in metastable Krypton MOT by transient probe absorption
Authors: S. Singh, V.B. Tiwari, Y.B. Kale, S.R. Mishra and H.S. Rawat

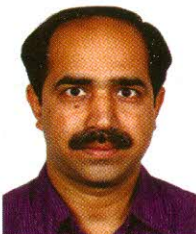
Shri Surendra Singh, SO/E, Laser Physics Applications Section, who presented the poster paper, received the award.



2. Title: Development of 215W of narrow linewidth all-fiber Yb-doped CW fiber laser based on MOPA configuration

Authors: Pushkar Mishra, R.K. Jain, Antony Kuruvilla, Rajpal Singh, B.N. Bindra and S.M. Oak. Upadhyaya, K.S.

Shri Pushkar Mishra, SA/F, Solid State Laser Division, who presented the poster paper, received the award.



3. Title: Spatially-offset Raman spectroscopy (SORS) of paraffin-embedded tissue blocks

Authors: Khan M. Khan, S. B. Dutta, S. K. Majumder and P. K. Gupta.

Mr. Khan Mohammad Khan, SO/D, Optical Spectroscopy and Diagnostic Lab, Laser Biomedical Applications and Instrumentation Division, who presented the poster paper, received the "Vivek Srinivas Memorial Best Poster Award".



4. The twenty ninth National Symposium on Plasma Science and Technology (PLASMA-2014), held at M.G. University, Kottayam, Kerala during 08-11 Dec. 2014, selected following paper of RRCAT for the Best Poster Award of the Plasma Science Society of India. The award carried a cash prize of Rs. 5,000. This was a joint work of Laser Plasma Division (LPD) and Laser Electronics Support Division (LESD). The details of the poster paper are given below:



Title: Measurement of gain coefficient of 46.9 nm capillary discharge soft x-ray laser

Authors: S. Barnwal, Y.B.S.R. Prasad, S. Nigam, K. Aneesh, P.A. Naik, C.P. Navathe and P.D. Gupta

Shri Shreekant Barnwal, who presented the poster paper, received the award.

5. During inaugural ceremony of National Welding Seminar-2014, held at Jamshedpur, a paper, which was presented in the International Conference on Welding (IC-2014) held in New Delhi during April 10-12, 2014, was adjudged the winner of Panthaki Memorial Award (for the year 2014) for the best paper presented in Welding of Non Ferrous Metals. The award

money was worth Rs. 5,000. The details of the poster paper are given below:

Title: "A study on Vacuum Brazing of Niobium-Stainless Steel Transition Joint for application in Superconducting Cavities"

Authors: Abhay Kumar, P. Ganesh, R. Kaul, V. K. Bhatnagar, P. Ram Sankar, K. Yedle, M. K. Singh, A. Bose, S. Ramteke, B. K. Sindal, K. V. A. N. P. S. Kumar, T. Veerhadraiah, R. Sridhar, G. Mundra, S. C. Joshi and L. M. Kukreja

6. The fifty ninth DAE Solid State Physics Symposium held at VIT University, Vellore, during 16-20 Dec. 2014, selected following paper of RRCAT for the Best Poster Award.

Title: Interface Study and Performance of Large Layer Pairs Ultra Short Period W/B4C X-ray Multilayer

Authors: P. C. Pradhan, M. Nayak, P. Mondal, and G. S. Lodha

Shri P. C. Pradhan, who presented the paper, received the award.

H.5: Best Presentation Award:

Ms. Madhusmita Baral, SO/D, Materials Research Lab., Indus Synchrotrons Utilization Division, received the Best Presentation Award for presenting a paper at the Research scholar workshop held during the Annual day function of the UGC-DAE-Consortium for Scientific Research held at UGC-DAE-CSR Indore Center on 1-2 Dec., 2014. The award consisted of a Certificate and a cash prize of Rs 1000/-. The details of the paper are given below:



Title: Evidence of Coulomb correlation in Co₂MnSn half metal investigated by resonant photoemission and ab-initio calculations

Authors: M. Baral, S. Banik, A. Chakrabarti, D. M. Phase and T. Ganguli

H.6: Award of Doctor of Philosophy (Ph.D.) Degrees:

The Homi Bhabha National Institute (HBNI), a Deemed University, has awarded Ph. D. Degrees to following employees of RRCAT for research work carried out in RRCAT:

1. **Dr. Vipul Arora** of Laser Plasma Division (LPD) was awarded Doctor of Philosophy in Physics on the dissertation, titled "X-ray spectroscopic studies of plasma produced by intense laser beams", which was supervised by Prof. P. D. Gupta and Prof. P. A. Naik.



2. Dr. Sanjay Kumar Rai of Indus Synchrotrons Utilization Division (ISUD) was awarded Doctor of Philosophy in Physics on the dissertation, titled "Interface Characterization of Multilayer Mirrors", which was supervised by Prof. G. S. Lodha.



3. Dr. Surjya Prakash Ram of Laser Physics Application Section (LPAS) was awarded Doctor of Philosophy in Physics on the dissertation, titled "Studies on Generation and Manipulation of Laser Cooled Atoms", which was supervised by Prof. S. R. Mishra.



4. Dr. C. Kamal of Indus Synchrotrons Utilization Division (ISUD) was awarded Doctor of Philosophy in Physics on the dissertation, titled "Ab initio Studies on Properties of Nanostructures", which was supervised by Prof. Aparna Chakrabarti.



5. Dr. Mahesh Kumar Swami of Laser Biomedical Applications & Instrumentation Division (LBAID) was awarded Doctor of Philosophy in Physics on the dissertation, titled "Optical Polarimetric spectroscopy of biological systems", which was supervised by Prof. P. K. Gupta.



6. Dr. Nageshwar Singh of Materials & Advanced Accelerator Sciences Division (MAASD) was awarded Doctor of Philosophy in Physics on the dissertation, titled "Studies on Narrow Bandwidth High Repetition Rate Dye Laser", which was supervised by Prof. S. K. Dixit.



7. Dr. Amalendu Sharma of Indus Operations and Accelerator Physics Design Division (IOAPDD) was awarded Doctor of Philosophy in Physics on the dissertation, titled "Optics design and optimization of electron bunch compressor transfer line (with a case study of CTF3 bunch compressor)", which was supervised by Prof. Pitambar Singh.



8. Dr. Ramakanta Mahakud of Laser Systems Engineering Section (LSES) was awarded Doctor of Philosophy in Physics on the dissertation, titled "Studies on fabrication of Fiber Bragg Gratings using high repetition rate ultraviolet radiation from frequency converted copper vapour laser", which was supervised by Prof. S. K. Dixit.



9. Dr. Arpana Parihar was awarded Doctor of Philosophy in Life Sciences on the dissertation, titled "Studies on the evaluation of photodynamic efficacy of chlorophyll derivatives in cancer cells and animal tumor model", which was supervised by Prof. Alok Dube and Prof. P. K. Gupta.



10. Dr. Akhilesh Jain of RF Systems Division (RFS) was awarded Doctor of Philosophy in Engineering Sciences on the dissertation, titled "Investigations on High Power Solid State RF and Microwave Amplifiers for Superconducting Structures", which was supervised by Prof. S. K. Pathak.



N.4: Superannuations:

The family of RRCAT wishes happy and healthy post retirement life to its following colleagues.

S.1: Smt. Harsha Bansal

Smt. Harsha Bansal, Scientific Assistant (E) retired from service on 31st August 2014. Smt. Bansal joined Laser Biomedical Application & Instrumentation Division on 16th January 1991 and has made valuable contribution to the studies carried out at the Division towards understanding the effects of light on mammalian cells and use of photodynamic treatment for antimicrobial applications. RRCAT family wishes Smt. Bansal and her family a fruitful, happy and fulfilling retired life.



S.2: Shri Jai Dev Singh

Shri Jai Dev Singh, Sr. Technician/J, working in Nd:Glass Laser Laboratory, Laser Plasma Division, retired on superannuation on 31st August 2014. He joined BARC on 17th December 1981 and shifted to RRCAT on 1st July 1991. He joined the high power laser activity at RRCAT and contributed to the development of the two beam high power Nd:glass laser system and was a part of the team which received Group Achievement Award for the year 2012 for the development of 40 TW Nd:glass laser system. He was quite popular among the staff members due to his involvement in a number of social activities in the RRCAT colony.

