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#### H.4: Award of Doctor of Philosophy (Ph.D.) Degrees:

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

**1. Dr. Harishchandra Singh** of Homi Bhabha National Institute (HBNI) has been awarded Doctor of Philosophy in Physical Sciences on the dissertation, titled “*Structural and Spectroscopic studies of transition metal based Multiferroics and Oxides*”, which was supervised by Dr. A. K. Sinha, Head, Hard X-ray Applications Lab. Synchrotrons Utilization Section.



**2. Dr. Ekta Rani** of Homi Bhabha National Institute (HBNI) has been awarded Doctor of Philosophy in Physical Sciences on the dissertation, titled “*Study of Semiconductor Nanocomposites using Raman and AFM Mapping*”, which was supervised by Dr. Alka Ingale, Head, Raman Spectroscopy Lab., Laser Physics Applications Section.



**3. Dr. Amit Kumar Das** of Laser Materials Processing Division has been awarded Doctor of Philosophy in Physical Sciences on the dissertation, titled “*Effects of disorder on electrical and optical properties of doped ZnO thin films grown by pulsed laser deposition*”, which was supervised by Dr. L. M. Kukreja, Head, Laser Materials Processing Division.



#### N.9: Superannuations:

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

**S.1: Dr. P.D. Gupta**, Distinguished Scientist, & Director RRCAT, laid down his office on 31<sup>st</sup> July 2016 on superannuation after completion of an illustrious scientific career of 43 years in the Department of Atomic Energy. He received B.Sc. and M.Sc. degrees from Punjab University, Chandigarh, securing Gold Medals. Dr. Gupta had joined Bhabha Atomic Research Centre, Mumbai in August 1973 after graduating from 16<sup>th</sup> batch of BARC Training School, where he secured First rank amongst trainees of all disciplines and was awarded Homi Bhabha Gold Medal and Prize. He received his Ph.D. in the field of laser plasma interaction from Mumbai University in 1984 and did his post-doctoral work at the Department of Electrical Engineering, University of Alberta, Canada during 1984-86. In 1990, Dr. Gupta moved from BARC to RRCAT, where he set-up an ultra-intense laser plasma interaction laboratory of international standards. He has scientifically contributed in the fields of laser plasma interaction, laser driven particle acceleration, coherent x-ray generation, ultrashort pulse table-top terrawatt lasers, high power Nd:glass laser, ultrafast optical and x-ray diagnostic systems, capillary discharge plasma, etc. Dr. Gupta is an internationally known laser-plasma physicist. He is a Fellow of National Academy of Sciences, India. RRCAT family wishes him and his family a fruitful, happy and fulfilling life ahead.



**S.2: Dr. P. K. Gupta**, Distinguished Scientist, & Acting Director RRCAT, laid down his office on 31<sup>st</sup> August 2016 on superannuation after completion of a meritorious scientific career of 42 years in the Department of Atomic Energy. With a bright academic



record, Dr. Gupta joined the Laser Division, BARC in 1974 after graduating from 17<sup>th</sup> batch of BARC Training School. He got his Ph.D. degree in 1981 from the Herriot Watt University, UK where he worked as Commonwealth Research Scholar during November 1979 to November 1981. His doctoral work was on efficient mid-infrared generation, by optical pumping of molecular gases and non-linear mixing. He won the prestigious Satyamurthy Memorial Award of the Indian Physics Association for the year 1988 in recognition to his contributions to the research and development of lasers in the mid infra-red region. Dr. Gupta has also worked at Heriot Watt University, U.K as a Research Associate during April 1988 - April 1989. Dr. Gupta moved to RRCAT in 1990 and initiated work on CO<sub>2</sub> laser pumped FIR laser and set up a world class laboratory for pursuing biomedical applications of lasers. Dr. Gupta has been awarded the Homi Bhabha Science and Technology Award of the Department of Atomic Energy for the year 1998 in recognition of his contributions on biomedical applications of lasers. He has scientifically contributed in the fields of generation of coherent radiation in the mid infrared region, nonlinear optical frequency conversion, CO<sub>2</sub> lasers, CO<sub>2</sub> laser pumped NH<sub>3</sub> laser and 16 μm CF<sub>4</sub> laser, biomedical applications of lasers, etc. Dr. Gupta received the annual award of Society for Cancer Research and Communication for the year 2006. Dr. Gupta is a Fellow of the Indian Academy of Sciences, Bangalore, National Academy of Sciences, Allahabad and Optical Society of America. RRCAT family wishes him and his family a fruitful, happy and fulfilling life ahead.

**S.3: Dr. H. S. Rawat**, Scientific Officer (H) & Head, Laser Physics Applications Section (LPAS), laid down his office on 31<sup>st</sup> December 2016 on superannuation. Dr. Rawat, did B.Sc. from Gopeshwar (Chamoli) and M.Sc. from Srinagar (Garhwal) in Uttarakhand. Dr. Rawat joined NRL (BARC), Srinagar (J & K) in 1981 after graduating from 24<sup>th</sup> batch



of BARC Training School. Later he moved to RRCAT, Indore in 1991 and joined the Laser Programme. He obtained Ph.D. from DAVV, Indore in 1994. He worked on several experimental R&D activities including development of various laser systems, nonlinear optics, laser atom cooling and Bose-Einstein condensation. He was a Senior Professor of Homi Bhabha National Institute (HBNI). Several students have completed Ph.D. and M. Tech. projects under his guidance. He has published more than 48 research papers in International Scientific Journals and more than 60 research papers in National and International Conferences. He was a recipient of DAE Group Achievement Award for Excellence in Science and Technology. RRCAT family wishes Dr. Rawat and his family a happy, healthy and fulfilling retired life.

**S.4: Shri S. M. Jalali**, Superintending Engineer (JL) & Head Fire & Safety Section, laid down his office on 31<sup>st</sup> December 2016 on superannuation. He joined the Department as Scientific Officer (C) in the year 1984 at DCSEM, Mumbai. He joined RRCAT in the year 1994. He had been leading a team of Engineers and Supervisors for execution of Housing, Infrastructural Development and Civil & PH maintenance works. In addition to this, he was also carrying out the responsibility of fire and safety at RRCAT as Head, Fire & Safety Section and also Member-Secretary, Apex Safety Committee, RRCAT. RRCAT family wishes him and his family a fruitful, happy and fulfilling retired life.



**S.5: Shri R. K. Mishra**, Scientific Officer (G), Accelerator Magnet Technology Division (AMTD), laid down his office on 31<sup>st</sup> October 2016 on superannuation after serving RRCAT for 34 years. He did his M.Sc. (Physics) from Kanpur University in 1981. He joined TPPD, BARC in 1983 after graduating from 26<sup>th</sup> batch of BARC Training School. He contributed to design and development of electron gun and electrostatic lenses. Shri Mishra moved to RRCAT in 1986 and joined Magnet Technology Division



where he was involved in the design, development and characterization of various magnets for Indus Accelerators. He was on deputation to CERN Geneva for the two years 2001-2003, where he worked on magnetic field data analysis of LHC dipole magnets - main dipole magnet and reconstruction of LHC dipole coils from the measured data. In view of his outstanding contribution towards this work, CERN extended his deputation by two years. He had also greatly contribution in characterization of Dipole magnets for CLICK facility at CERN. He was involved in the magnet design and developmental activity since the inception of Indus-1 and Indus-2 synchrotron radiation sources. He had made excellent contribution towards the indigenous development of Indus magnets, solenoid magnets for ARPF, Mass spectrometer and FOTIA project at BARC. His efforts have played a key role in achieving major milestones for the Accelerator Programme at RRCAT. His works on magnet development is reflected in the successful smooth operation of national facilities Indus-1 and Indus-2 storage rings. He is a recipient of Group Achievement Awards of DAE for Excellence in Science & Engineering. RRCAT family wishes him and his family a fruitful, happy and fulfilling retired life.

**S.6: Dr. B. N. Singh**, Scientific Officer (G), Laser Materials Processing Division (LMPD), laid down his office on 31<sup>st</sup> July 2016 on superannuation after serving RRCAT for 28 years. Dr. Singh had received M.Sc. (Physics) and Ph.D. degrees from Banaras Hindu University (BHU), Varanasi in 1979 and 1987 respectively. He joined RRCAT in March 1988 as Scientific



Officer (D). Dr. Singh contributed significantly in the development of Nitrogen laser and Nitrogen laser based instruments, like Uranium fluorimeter. He played a key role in installation of Nitrogen lasers at Choithram Hospital & Research Centre Indore and M.Y. Hospital, Indore and interacted with doctors for application of the laser in burn treatment and tuberculosis (TB) treatment. Various laser systems, developed by him, were delivered to different institutions like to NRL (BARC), Mumbai; IAEA, Vienna; Jamia Millia Islamia, New Delhi; Pune University, Pune. Dr. Singh also worked in the areas of dye laser, polarization gated

optical imaging, pulsed laser deposition (PLD) based thin films, etc. Dr. Singh had been a very sincere, simple and hard-working person. RRCAT family wishes him and his family a fruitful, happy and fulfilling retired life.

**S.7: Smt. K. C. Ratnakala**, Scientific Officer (G), Ultra High Vacuum Technology Section (UHVTS), laid down her office on 30<sup>th</sup> September 2016 on superannuation after serving the Department for 35 years. Smt. Ratnakala did M.Sc. (Physics) from Cochin University and joined Metallurgy Division in BARC in 1981 as a Scientific Assistant. She moved to RRCAT in 1986 and joined vacuum group, now called Ultra High Vacuum Technology Section (UHVTS). She had contributed immensely in the characterization and performance evaluation of large number of in-house produced Sputter Ion Pumps, Titanium Sublimation Pumps, UHV qualification of vacuum chambers and pumping speed measurements of various pumps. She also acquired TQLC training in 2010 and served as a dynamic Shift-in-Charge during Indus operations since 2011. Smt. Ratnakala has about 40 papers to her credit. She is a recipient of two Group Achievement Awards. She served as member of KG committee of AECS, Parents Advisory Committee of AECS, CAT Co-op Consumer Society, Woman cell of RRCAT, Woman Cell of AECS and various promotion committees. RRCAT family wishes Smt. Ratnakala and her family an active, happy and fulfilling retired life.

