

5. Gravitational Wave Event GW150914: Heralding the era of Gravitation Wave Astronomy:

Delivered by **Dr. Sendhil Raja S.**, Head, Laser & Optical Instrumentation Lab, Advanced Lasers and Optics Division on Feb 24, 2016.

On Sept 14, 2015 the two Advanced Laser Interferometer Gravitational Wave Observatories (aLIGO) detected an event (labeled GW150914) which was the first detection of Gravitation Waves in a "man-made" Detector. The talk covered an overview of Gravitational Wave Detectors, both bar detectors and interferometer based detectors. The talk included a detailed description of aLIGO, and a discussion on the first Gravitational Wave event GW150914 detected by these detectors. Setting up of a third aLIGO detector in India (LIGO-India) and efforts towards this activity at RRCAT were also described.



6. Spectroscopy of chiral molecules with femtosecond UV/VUV pulses:

Delivered by **Dr. Bhargav Ram Niraghatam**, Laboratory for Physical Chemistry, ETH Zurich, Germany on Jan 6, 2016.

Chirality is a ubiquitous phenomenon in nature seen across fundamental processes in particle physics, molecular chemistry, biology and has wide applications in food and pharmaceutical industry. Existing techniques of detecting chirality in molecules are based on circular dichroism in absorption. In the last decade, photoionization of chiral molecules by circularly polarized light has been demonstrated as a sensitive probe of chirality. Photoelectron angular distributions show strong signatures of chirality where electrons are scattered forward or backward depending on the handedness of molecule or light. The development of femtosecond laser sources and high harmonic generation (HHG) in gases has enabled VUV/XUV molecular spectroscopy. With techniques to generate circularly polarized high harmonic generation reported recently, this allows us to study the photoionization of chiral molecules. The seminar covered all these aspects.



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N.9: Honours and Awards:

H.1: Dr. Tarun Kumar Sharma, SOG and Head, Semiconductor Physics & Devices Lab., Solid State Lasers Division, RRCAT has been conferred MRSI Medal by Materials Research Society of India in recognition of his significant contributions to the field of Material Science and Engineering on February 18, 2016 at Jorhat, India.



H.2: Best Poster Awards:

1. A paper from Semiconductor Physics & Devices Lab., Solid State Lasers Division, RRCAT was selected for the Best Poster Award during the DAE-BRNS Symposium on Condensed Matter Physics under Extreme Conditions (CoMPEC-2016), held at BARC during April 13-16, 2016. The award carried a cash prize of Rs. 5,000. The details of the poster paper is given below.

Title: "Role of disorder and multi-valley scattering on the dynamics and effective mass of excitons in Al_xGa_{1-x}As/GaAs quantum wells investigated by magneto-photoluminescence"

Authors: S. Haldar, G. Vashisht, S. Porwal, S. K. Khamari, V.K. Dixit, T. K. Sharma and S. M. Oak

Shri S. Haldar, SRF, HBNI, RRCAT, who presented the poster paper received the award.



2. A paper from Computer Division, RRCAT was awarded best poster under category "Security Systems" during 9th DAE Vision for Information Exchange 2016 (DAE-VIE 2016) Symposium on "Emerging Trends in Instrumentation & Control and Computer Systems", which was held at Indira Gandhi Centre for Atomic Research, Kalpakkam during 23-24 June 2016. The award carried a cash price of Rs. 2000/- and a citation. The details of the poster paper is given below:

Title: Information and Application Security using open source database for Internet accessible deployment

Authors: Alok Jain, Diptikant Pathy, Manish Manyal, Gitika Khare, Umesh Sharma, Sarthak Gupta, Alpana Rajan, Jitendra Patil

Shri Alok Jain, SO/F, Computer Centre, Computer Division, who presented the poster paper received the award.



H.3: 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. Khageswar Sahu of Laser Biomedical Applications & Instrumentation Division (LBAID) has been awarded Doctor of Philosophy in Life Sciences on the dissertation, titled "Applications of photodynamic effects in dermatology", which was supervised by Dr. Mrinalini Sharma.



2. Dr. Surya Prakash Singh of Homi Bhabha National Institute (HBNI) has been awarded Doctor of Philosophy in Life Sciences on the dissertation, titled "Organically modified silica nanoparticle based approaches for improving efficacy of drugs for cancer therapy", which was supervised by Dr. Mrinalini Sharma.



3. Dr. Amol Singh of Homi Bhabha National Institute (HBNI) has been awarded Doctor of Philosophy in Physical Sciences on the dissertation, titled "Study of compound materials for X-ray optical applications", which was supervised by Dr. Mohammed H. Modi.



4. Dr. Shyam Sundar of Homi Bhabha National Institute (HBNI) has been awarded Doctor of Philosophy in Physical Sciences on the dissertation, titled "Experimental study of the normal state and superconducting properties and vortex-matter in binary Mo-Re alloys", which was supervised by Dr. S. B. Roy.



5. Dr. Debabrata Saha of Homi Bhabha National Institute (HBNI) has been awarded Doctor of Philosophy in Physical Sciences on the dissertation, titled "Effect of doping on carrier transport in ZnO thin films grown by atomic layer deposition", which was supervised by Dr. L. M. Kukreja.



N.10: Superannuations:

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

S.1: Dr. S.M. Oak, Outstanding Scientist, & Head, Solid State Laser Division, laid down his office on 31st January 2016 on superannuation. Dr. Oak, did his college education in Moscow, Russia and obtained Ph.D. in Ultrafast Laser Spectroscopy from Moscow State University, Russia in 1977. He joined Bhabha Atomic Research Centre, Mumbai in Jan. 1980 as a Scientific Officer and was later transferred to RRCAT, Indore. He started the activity on the development of ultrafast (picosecond time domain) lasers and their applications. Using these lasers he investigated the ultrafast non-linear response of semiconductor and metal nanostructures. He also worked on development of different types lasers, namely Nd:YAG high power lasers, CW, nanosecond and femto-second fiber lasers, Diode Pumped Solid State lasers with intracavity second harmonic generation. Under his guidance, a large numbers of projects were carried out in the nuclear power plants as well as in different units of DAE for laser cutting and welding in inaccessible and radioactive environment. He was a Senior Professor of Homi Bhabha National Institute (HBNI) and recognized Ph.D. guide of Indore University (DAVV) and several students have submitted thesis and have obtained PhD degrees under his guidance. He has published more than 120 research papers in international scientific journals. He was a recipient of DAE Group Achievement Award for Excellence in Science and Technology as a Team-leader. RRCAT family wishes Dr. Oak and his family a happy, healthy and fulfilling retired life.



S.2: Shri Bijaya Kumar Jena, Chief Administrative Officer, retired on superannuation on 31st May, 2016. He was born on 2nd May, 1956 at Cuttak (Odisha). He joined Heavy Water Plant (Kota) as Labour Cum Welfare Officer in the year 1990. He moved to Heavy Water Plant (Manuguru) as Industrial Relations Officer in the year 2000. He joined RRCAT in 2011 as Chief Administrative Officer. He played key-role in formulation of ISO Standards / Certification for Administration in HWP (Manuguru) and Played key-role in DAE Sports and Cultural Council in connection with Extra Curricular Activities of the Department. He has taken active part for removing encroachment at unoccupied area at North Gate, RRCAT. A beautiful rotary at Main Gate, RRCAT has been constructed under his supervision and guidance and coordination with local Administration and Police. RRCAT family wishes him and his family a fruitful, happy and fulfilling retired life.

