



## *From the Convener's Desk...*

The Editorial Board of RRCAT Newsletter is delighted to bring out the second issue of the Newsletter of 2015, which gives an account of various activities that have taken place in RRCAT during first half of the past year.

The Newsletter begins with reports covering different aspects of research and development in the area of accelerators. The first report discusses the design, development and commissioning of “Soft X-ray Reflectivity Beamline” at Indus-2 and with this, the total number of operational beamlines at Indus-2 has become thirteen. There are several interesting reports on various aspects of the Indus-2 machine, like development of upgraded stripline kickers for Indus-2, control system for Indus-2 insertion devices U1 & U2, active shunt for Indus-2 quadrupole magnet for beam based alignment study, etc. An important report is on enhancement of liquefaction capacity of indigenous helium liquefier. The other important reports are on development of 1 MW, 352.2 MHz cw and pulsed RF test stand, development of 650 MHz, 30 kW solid state RF amplifier, brazing of unplated SS316L to copper, etc.

Then there is an account of various accomplishments in the field of lasers and its applications. The first report discusses underwater laser cutting technology for flared fuel assemblies of Dhruva reactor, which is an important application of laser in the area of nuclear technology. There are some reports, which are related to several developmental activities like compact high energy Nd:phosphate glass laser system, fiber Bragg grating (FBG) based distributed temperature sensor, 400 W of all-fiber Yb-doped cw fiber laser and control system for Table Top Terra-watt laser. An interesting report is on laser additive manufacturing of specially designed nuclear components.

A report on commissioning of high performance computing cluster, Kshitij-4 is given in the Newsletter. Several important works on development of infrastructure in our Centre are also reported in the Newsletter. A diamond jubilee guest-house and commemorative-structure was constructed and a micro-irrigation system for gardens was developed.

There are three theme articles, which focus on three important areas of R & D activities in RRCAT. The first article presents an overview of plasmonic nanoparticles synthesized using pulsed laser ablation and their optical properties. The second article gives an account of X-ray diffraction studies of amorphous solids using ADXR beamline (BL-12) on Indus-2 synchrotron source. The third article discusses analysis, fabrication and characterization of fiber Bragg gratings (FBGs) written by second harmonic of copper vapour laser. The publications from RRCAT in Journals, Conference Proceedings, etc., during January 2015 – June 2015, are also listed in the Newsletter.


Celebration of several important events in RRCAT, viz. Foundation Day, National Science Day, Fire Service Week, Women's Day, etc. are covered in the Newsletter. The reports on the first Orientation Course on Accelerators, Lasers and related Science and Technologies (OCAL) - 2015 at RRCAT and various activities carried out in our Centre for promotion and propagation of Hindi are given in the Newsletter. The Newsletter describes the accomplishments of our distinguished colleagues, who have received various honours and awards at different forums during this period and we congratulate them. The Newsletter also remembers those colleagues, who are superannuated during this period and we wish them a happy and healthy post retirement life.

We feel privileged in compiling these reports to bring out a comprehensive picture of new developments at RRCAT. The publication of the present issue of the Newsletter has been possible only due to excellent cooperation from many colleagues of different Divisions of RRCAT. We express our sincere gratitude to all of them. In the last but not the least, we would like to express our deepest gratitude to the Director, RRCAT, for his keen interest, stimulating support and continuous encouragement.

With warm regards.

September 19, 2015

Indore

  
( **Rajeev Khare** )  
Convener  
RRCAT Newsletter