



From the Director's Desk

I am glad to see that Issue 1 of RRCAT Newsletter for 2008 is ready. Editorial Board has done very well to compile a good account of many recent achievements of the Centre.

Over the past 6 months operation of Indus-2 has improved and we are now at the threshold of starting a user programme with 2 or 3 beam lines nearly ready to produce data. In parallel, we have developed some beam diagnostic devices that will help us track the electron beam as it passes through the Indus accelerator structures and the transport lines. This issue contains a glimpse of these activities, as well as some other accelerator component development useful for upcoming programmes in the XI plan. In the area of materials the progress made on study of magneto-caloric materials, nano-particles and quantum well structures have been reported upon.

In the field of lasers, activities related to the development of laser marker systems, capillary discharge based x-ray sources, laser wake field based electron acceleration experiments and other laser plasma related studies are covered in this issue. Infrastructure developments linked to computers, networking and major facilities, like, vacuum brazing furnace (which will be used for making accelerator components) are also discussed. The three theme articles cover the Bose-Einstein condensation (on which activities have been going on in this Centre for some time), modification of metallic surfaces with high power CO₂ laser, where our Centre has been a pioneer, and radiation protection issues in high energy electron accelerators. As usual, other news items and events have been also added.

I wish to compliment the Editorial Board Members for their dedicated efforts in bringing out this issue so speedily. I hope this pace will be continued in future also.

V.C.Sahni
February 25, 2008

From the Editorial Board

The editorial board is happy to be able to bring out the first issue of the Newsletter of 2008 in the first quarter of the year itself. This trend can certainly be sustained, and we will strive to achieve it through the continuous involvement, active participation and support of the scientific community of RRCAT.

This issue contains many interesting news items covering various areas of Laser and Accelerator Programme of RRCAT. It is heart warming to see continuation of this Centre as a cradle where exciting developments take place regularly. Since the flow of information is a prerequisite for progress of any society, in our view, this Newsletter is a vital element in the dissemination of information pertaining to the scientific and technological developments in the Centre. The editorial board believes that if the contributions to the Newsletter are backed up by intensive scientific seminars on the developments, then the information exchange could be even more effective.

The theme articles in the present issue cover two interesting areas of our activities, namely, "Bose-Einstein condensation in a dilute atomic gas" and "Modification of metallic surfaces with high power CO₂ laser". Dr. G. Haridas has contributed to the Young Scientists Forum of this issue with an article on "Radiation physics studies at Indus-1 synchrotron radiation source". The editorial board is quite pleased to see that the younger members of the RRCAT community are enthusiastically contributing to the Newsletter. Such enthusiasm is quite essential for the betterment of the Newsletter.

Last but not the least, the editorial board would like to express its gratitude to all the members of RRCAT community and Director, RRCAT, for their kind help and support.

Editorial Board
March 2008