



## DIRECTOR'S DESK...

It is a pleasure for me to record my appreciation for the effort put in by the Editorial Board in compiling the January 2005 issue of CAT Newsletter, covering most of the activities completed during the second half of the year 2004. The issue also contains two theme articles, one entitled "Efficient Macroscopic Separation of C-13 Isotope using High Average Power TEA CO<sub>2</sub> Laser" authored by Manoj Kumar and Dr. A.K. Nath and the other titled "Technological Development for the UHV System of Indus-2" contributed by A.K. Jain and S.K. Shukla which describes the details of various work segments related to fabrication of UHV chambers and associated systems for Indus-2. The choice of these two topics reflects the noteworthy accomplishments in these areas in the Centre, and I would like to compliment the authors of these theme articles and all the staff members of these Sections for these contributions. I also wish to acknowledge the hard work put in by staff of Alignment and QA Section, Beam Diagnostic Laboratory, Beam Dynamics Section, Instrumentation & Control Division, Magnet Division, Power Supplies Division, RF & Microwave Section, UHV Section, Workshop-A, to complete their respective assignments pertaining to Indus-2. The way Indus-2 subsystem installation and integration activity has advanced, I feel confident that we would soon be ready to make first trial to store the beam in the storage ring at around 600 MeV energy. I want to thank one and all for working as a well-knit team.

From this year we have also started the tradition of holding the "Foundation Day Function" of the Centre. We organized the first such function on February 19, 2005, since the Foundation Stone of our Centre was laid on February 19, 1984 by the then Hon'ble President Shri Gyani Zail Singh. Chairman, AEC, Dr. Anil Kakodkar, Former Chairman, AEC, Dr. P.K. Iyengar, Chairman, NPCIL, Shri S.K. Jain and former Director, CAT, Dr. D.D. Bhawalkar graced the occasion and expressed their appreciation for the growth of the activities of the Centre. I may also add that the manner in which the entire CAT staff contributed whole-heartedly to this function, winning appreciation from all quarters was only natural. I sincerely wish to compliment all staff members for the effort that they had put in to make the function a memorable event.

Finally, I wish to compliment the Editorial Board for the zeal and great devotion with which they have worked. I look forward to comments or other feedbacks from our readers.

**V.C. Sahni**  
**April 2005**

## EDITORIAL DESK...

The response for the theme articles and news items was very encouraging. Indus-2, the biggest multi disciplinary scientific facility setup in whole of South East Asia, in the advanced stage of assembly. The scientific community is looking forward to the availability of this facility. In this issue we are carrying a theme article on one of the sub systems of Indus-2, the development of ultra high vacuum system, the biggest and the most complex vacuum system developed in the country. This technological landmark is the result of dedicated efforts from the team at CAT amply supported by the Indian industries. In forthcoming issues we plan to highlight the other sub system of Indus-2, each of which is a high-end technological development in its own right. The other theme article is on the use of gas laser for C13 isotope enrichment. This is again an extremely important technology developed in the country and would find important applications in geological, environmental and medical sciences. We sincerely hope that the readers would enjoy reading about these technologically important development activities.

In addition to the two theme articles we are carrying specific studies/ developments in laser and accelerators in form of news items. The research centre serves its purpose if we keep balance between the indigenous technology developments with the proper enhancement of our knowledge in basic sciences. This is fulfilled when we see the long list of research publications during these six months. We hope that we will come up with the forthcoming issue by similar support and response from our contributors. We thank our contributors for this issue and hope they will show their keen interest in the forthcoming issues.

The World Year of Physics (WYP) is celebrated throughout the year 2005 to commemorate one hundred years of seminal papers of Einstein in 1905 on Relativity, Photoelectric effect and the Brownian motion. The effort is led by the United Nations. It is worth mentioning here that the activities at CAT covers the large part of the electromagnetic spectrum from x-rays and lasers in different regions. On this occasion we dedicate this issue to WYP.

The Editorial Board is thankful to Director CAT for his support, timely advice and keen interest in bringing out this issue.

**Editorial Board**  
**April 2005**