

OTHER ACTIVITIES / NEWS

N₂ Laser treatment of pulmonary tuberculosis

The use of N₂ laser in treatment of pulmonary tuberculosis and other disorders is being investigated at Choithram Hospital and Research Center (CHRC), Indore in collaboration with a Soviet group of doctors and physicists. The team led by Prof M Eshankhanov, Head, Tuberculosis Department, Second Medical Academy, Tashkent, USSR visited CAT and CHRC twice - during February and August 1991.

A large number of patients with chronic and advanced pulmonary tuberculosis have been treated by the team using N₂ laser system brought by them from USSR as well as with N₂ laser system developed at CAT. The results have been quite encouraging. The patients were found to become sputum AFB negative, i.e. no tubercle bacilli (Acid Fast Bacilli) in the sputum, within 24-72 hours. and the cavity was found to close or shrink in about 8-10 weeks time. The exact mechanism of N₂ laser therapy is not yet fully known. Both bactericidal effect of the UV laser radiation and stimulation of immunoresponse are believed to play a role.

The treatment of pulmonary tuberculosis involves insertion of a needle attached to a syringe into the lung cavity through the thoracic wall. Once inside the cavity, the syringe is detached and a quartz fiber is introduced through the needle into the cavity. The tubercle cavity is then exposed for a few minutes to the N₂ laser radiation (~2 mW average power, 100 Hz, 5 ns) coupled inside via the quartz fiber. The procedure is very simple and is carried out on an outpatient basis. Therefore, if unequivocally demonstrated this should prove a boon to millions in our country afflicted with this disease.

Special Issue of 'Phase Transitions'

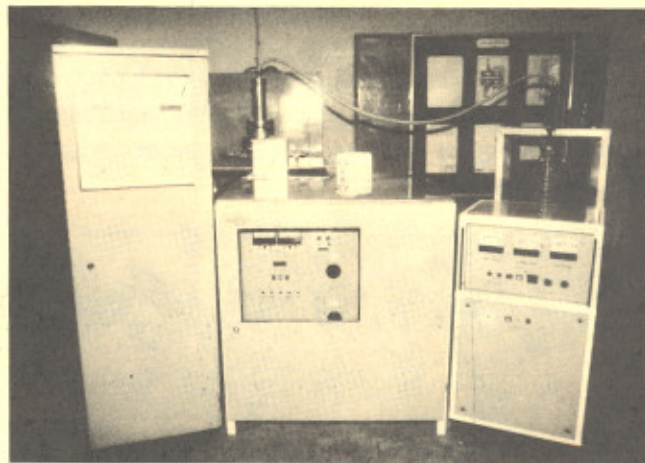
Dr V K Wadhawan of CAT and Dr V Janovac of the Institute of Physics, Prague, edited a special issue of the journal Phase Transitions. The issue (vol 34) is devoted exclusively to the latest developments in the field of ferroelasticity.

Instruments developed for other institutes

Two N₂ lasers each with peak power of ~200 kW, ~7 ns pulse duration and operating at 10-20 Hz were fabricated in-house and supplied to Neutron Physics Division, BARC, Bombay and Choithram Hospital and Research Centre, Indore.

Four Copper vapour lasers (average power 15W/35W) were supplied to various divisions of BARC Bombay.

A rotating anode X-ray generator model RAX-5V designed and developed at CAT was supplied to Vikram University, Ujjain.



The rotating anode X-ray generator model RAX-5V designed and developed at CAT.



Dr P K Iyenger, Chairman, Atomic Energy Commission handing over the rotating anode X-ray generator developed at CAT to Prof S K Chauhan, Vice Chancellor, Vikram University, Ujjain at a ceremony held at CAT on March 20, 1991. Also seen in the picture are Shri S S Ramamurthi, Project Manager (Accel.) and Dr D D Bhawalkar, Director, CAT.

National Science Day

National Science Day was celebrated at CAT on March 2, 1990 with great enthusiasm. About 460 children from over 20 schools accompanied by their teachers visited CAT on this occasion. They were shown Laser and Accelerator Laboratories and also participated in some specially arranged experiments. The young visitors were

accorded a warm welcome by Dr D D Bhawalkar, Director, CAT who also briefed them about the activities at CAT. Dr T G K Menon Director, Kasturbagram, Indore was the chief guest on this occasion and Dr L M Rangarajan, CAT was the Chairman, local organisation committee.

Personnel News

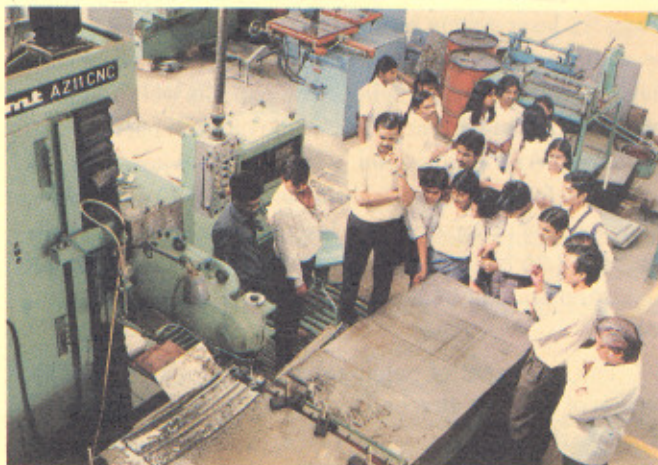
Shri V K Kulkarni, Chief Engineer, CAT has been appointed Head Civil Engineering Division, BARC, Bombay. He will also continue to be Chief Engineer, CAT.

Shri S D S Walia, Scientific Officer (Liason), CAT Office, Bombay retired after being with the Department of Atomic Energy for 29 years. We offer our best wishes to him for a very happy retired life.

Honours / Awards

Dr D D Bhawalkar, Director, CAT was conferred the honour 'Indore Ratna' by Satkar Kala Kendra, Indore. The award was presented to him by the Vice-President of India, Dr Shankar Dayal Sharma at a function organised at Indore on December 7, 1991.

Shri M Murugan of glass and ceramic techniques section CAT shared with Shri M Sirinivasan, DRDE, Bangalore, the second best glass blower award at the VII th seminar of ISSG held at Indian Institute of Science, Bangalore from February 9-13, 1991. The award was given for the work done by them at CAT on the development of a Jet separator gas interface for G C Mass spectrometer.



School children visiting CAT laboratories during National Science Day celebrations at CAT

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