

TECHNICAL INFRASTRUCTURE

LIBRARY

The library continued to render documentation and reprographic service to the scientists of the laboratory. About 262 books in physics and related sciences were added, raising the book collection to 89,372. In Hindi collection it added 74 books. The journal subscription was reduced this year, it continued to receive 19 journals as gratis. The patent specifications from the Indian Patent Office were received. The services rendered by the library included document lending, inter-library lending, bibliography service, literature search, the selective dissemination of information and photocopying service. The research scholars and visitors from scientific and technical institutions used the facilities.

COMPUTER FACILITY

VAX-11/780 Computer system was in regular operation during the year. The computer was utilized by the scientists for their computational work, by the library and other staff for creating/maintaining information systems and the administrative staff for monthly pay roll and allied activities.

Zenith SC, was also used to provide training on the usage of softwares like Word Star and D base. A computer appreciation training programme for the administrative and technical staff of the laboratory was conducted. The outside jobs regarding software design and its execution on our VAX system were undertaken. Since Dec. 91, a new activity of E-MAIL services to its users was started. One can contact the persons working on computers in other organizations and exchange messages.

MECHANICAL PROCESSING ACTIVITY

The developmental studies of hot deformation behaviour of metal matrix composites and aluminium-lithium alloys using hot extrusion and warm forging

were continued. The characterization of the extruded products was done. The routine heat treatment and tool room jobs for other divisions were carried out.

GLASS WORKSHOP

Assistance was provided by the unit in the design and fabrication of glass and silica apparatus to various projects of the laboratory and outside organisations. Various items fabricated and reconditioned included compact double distillation apparatus and heaters, helium and nitrogen Dewars, standard glass joints, separating funnels, manometers, stop cocks, glass tubes and columns, various types of condensers and mercury diffusion pumps.

The laboratories, institutes and organisations assisted included NEERI, Nagpur, RRL, Bhubaneswar, RRL, Jammu; IARI, New Delhi; JNU, New Delhi; Allahabad University, IISc, Bangalore; Jamia Millia Islamia New Delhi; IOC, Faridabad and LNJP Hospital, Delhi. The jobs worth Rs. 3.697 lakhs approximately were completed during the year.

INSTRUMENTATION

A laboratory model of a standard crystal frequency generator was fabricated and tested. Additional improvement was made in a pulsedelayed generator to shift 1pps obtained from standard 10 MHz in steps of 100 msec, 10 msec, 100 μ sec and 1 μ sec. The fabrication of micro-processor based temperature controlled crystal oscillator was completed. Improvements were made in the electronic ultrasonic powermeter.

The work on calibration of lithotripsy instrumentation and focal transducers was carried out. An ultrasonic adulteration detection system was developed for liquid food and biological materials. The materials studied included diesel and honey. Basic piezoresistive silicon micro-sensor chips were designed and fabricated during deputation at Delft University of Technology, Netherland. The maintenance of equipment/devices and their recalibration was done. Assistance was provided in the procurement and verification of electronic, electrical and glass stores.