

CERN-CAT Accelerator School

A school on physics and engineering for particle accelerators was held at CAT during November 7-16, 1993. The school, organized jointly by CERN and CAT, was attended by over 120 scientists and engineers from India and abroad. The faculty comprised 14 distinguished scientists from CERN and some other European organizations, and the topics covered included general accelerator physics, design of magnets and RF cavities, vacuum systems and control systems, in 35 lectures and tutorials. The school Directors were Dr E J N Wilson, Head, CERN Accelerator School, and Shri S S Ramamurthi, Project Manager (Accel.), CAT.

The school was inaugurated by Dr P K Iyengar, Member, Atomic Energy Commission. The keynote address at the inaugural function, presided over by Dr D D Bhawalkar, Director, CAT, was delivered by Dr Wilson. In his address, he described the role played by CERN in high energy physics research and presently also in disseminating the knowledge of accelerators all over the world through its Accelerator Schools. Later, he gave a few lectures on basic physics of circular accelerators covering transverse and longitudinal beam dynamics and beam instabilities. The School started with a lecture by Dr L Evans, CERN on the status of the LHC project – the biggest accelerator project presently being pursued in the world. During his lecture which highlighted the technological challenges of the project, he expressed his keenness for CAT to participate in this major venture. The design aspects of normal magnets were covered by Dr N Marks, Daresbury Laboratory (UK), and Dr B Trowbridge, Vector Fields Ltd (UK). Besides giving lectures, they also demonstrated design procedures of magnets with the help of a PC based computer program. The design considerations of superconducting magnets were discussed by Dr P Vedrine, Saclay (France). The power supplies used for magnets were discussed by Dr F Bordry, CERN. Dr Poncet from CERN gave a series of lectures on UHV covering cleaning methods, pumps, gauges and design aspects of vacuum systems. RF cavities and related issues were discussed by three lecturers – Dr E Haebel, CERN, delivered lectures on normal RF cavities and structures; Dr W Wiengarten, CERN, covered superconducting resonators; and Dr T Wieland, Darmstadt (Germany), discussed design of RF cavities using computer codes. The design of RFQ was also covered in one lecture by Dr A Schempp, Frankfurt University (Germany). Beam

diagnostic techniques used in accelerators for the measurement of beam position, emittance, current etc. were discussed by Dr C Bovet and Dr V Chohan, both from CERN. The control system of accelerators including hardware and software was discussed by Dr G Shering, CERN.

During the school, some time was also devoted to discussions on Indian projects; scientists from CAT and VECC (Calcutta) presented the accelerator activities being carried out at their Centres. To highlight the developments made in India in accelerators, a poster session was also organized. A number of posters on accelerators and their subsystems developed at CAT and VECC were displayed. The prize for the best poster earmarked for this session was awarded to Shri B J Vaidya, CAT for his poster "Control system for INDUS-1".



Dr Wilson giving the keynote address (above); and a section of the participants (below).

