

Accelerator & experimental nuclear physics facilities at VECC

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At VECC, the K-130 room temperature cyclotron, operating since 1977, initially designed to deliver light ions beam had successfully delivered heavy ion beams using ECR ion source for nuclear physics and other experiments. At present, this cyclotron is operating with PIG source, accelerating proton and alpha beams for experiments, and it also delivers heavy ion beams using ECR ion source as and when requires. Moreover, the first superconducting cyclotron (K-500 SCC) of the country, is expected to deliver soon, a large variety of particle ion beams over a wide range of energies (up to ~ 80 MeV protons, ~10-80 MeV/nucleon medium heavy ions with mass $A < 60$ and ~ 5-20 MeV/nucleon for heaviest ions) and open up a new frontier in intermediate energy nuclear physics research in India. The light – ion beam delivered from K-130 cyclotron will serve as primary beam for the upcoming Radioactive Ion Beam (RIB) facility. The RIB facility has also made significant progress in recent years.

Several experimental facilities (large volume scattering chamber, charge particle detector array, neutron time-of-flight array, high energy photon spectrometer etc.) have also been developed as a part of the superconducting cyclotron utilization programme, the status and utilization of these facilities in different physics issues will be presented in this talk. Moreover, the utilization of different gamma arrays viz. VENUS, VENTURE will also be presented.