

## **Recent Developments in RF Accelerators at IUAC**

P.N.Prakash

Inter-University Accelerator Centre, Aruna Asaf Ali Marg, New Delhi-110067

The increasing demand for energetic ion beams and large beam currents has been the driving force behind various developments in accelerator technology in the country. Among them, the technology associated with superconducting radio frequency (SRF) niobium cavities has generated a lot of interest among accelerator physicists in recent times and is witnessing rapid growth. Inter-University Accelerator Centre (IUAC) has been engaged in the indigenous development of SRF cavities for almost one and a half decades. During this period IUAC created the necessary infrastructure and successfully developed niobium cavities for its superconducting linac. The proposed high current injector (HCI) at IUAC aims to significantly increase the beam currents available from the HCI-Superconducting Linac combination. In addition, it will also provide beams of noble gases which are not available from the Pelletron accelerator. For the HCI, several room temperature RF structures are being developed. In addition, the HCI will also incorporate a superconducting low beta module, for which a new low beta niobium resonator has been designed and successfully prototyped. Apart from the in-house projects, IUAC has shared its expertise with other Indian laboratories for developing niobium cavities for a wide range of velocities. Recently a single spoke niobium resonator has also been successfully developed at IUAC as part of an international collaboration. This development will have significant impact on the indigenous programs also. This talk will present details of the various developments associated with RF accelerators at IUAC, especially highlighting the significant contributions made in SRF technology.