COMPACT AND COMPLETE BEAM DIAGNOSTIC SYSTEM FOR HCI AT IUAC

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**HIGH CURRENT INJECTOR**
- Novel HTSC ECR Ion Source
- State of the Art Accelerator Development
- High Current ~ A Few Hundreds of microAmperes
- Accelerate Ions of Mass <120 A.M.U.
- More Species-Nobel Gases
- Pelletron as a Stand-Alone Operation
- HCI as an Injector for Existing SC-LINAC
- Accelerate Ions with A/q<6
- Output Energy ~ 1.8 MeV/ A.M.U.

**Prototype CDB**
- Compact Size (Longitudinal) ~70 mm
- Approximately 10 pA to 100 µA
- Water Cooled/1kW Beam Power (approx.)
- Ease of Machining
- Mechanical Robustness
- Electrical/ Electronic Operation
- Compatible with DTL Tank
- Low Cost and Reliable
- Beam Current, Position, Profile, Spot Size and Bunch Length

**Ion Beam**
- 307 mm
- 973 mm*
- 1166 mm*
- 977 mm*
- 1500 mm*

**Beam Digitzation and Matching with NEC BPM**

**Data Acquisition & Current in FC Vs. **NEC-FC**

**Results:**
- Developed indigenously a very compact diagnostic system. Current and Profile results match with NEC.
- Can replace any conventional beam diagnostic components in the beam line.
- Low cost, high accuracy (~10pA), high reliability and simplicity are the figure of merit of this system.

**Beam Parameters Measurement**
- Beam Current, Beam Profile and Beam Position
- Beam Spot Size and Bunch Length
- Beam Energy

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