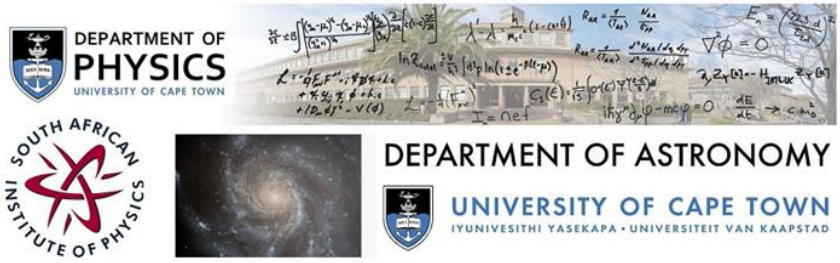

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Production of ion beams with ECR ion sources and the pre-acceleration with injector cyclotrons at iThemba LABS

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Abstract content
   (Max 300 words)
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Charged particle beams at iThemba LABS are produced with different ion sources before pre-accelerated with the Solid Pole Injector Cyclotrons (SPCs). From the injector cyclotrons the beam is transported and injected into the Separated Sector Cyclotron (SSC) for final acceleration to the required energy. For high intensity beam application an internal Penning Ion Gauge (PIG) source is used. For the production of heavy ions with high charge states, two Electron Cyclotron Resonance (ECR) ion sources are being used. The two sources are as follows, a 14.5 GHz ECRIS4, originally built for the Hahn Meitner Institute (HMI) and a new ECRIS based on the design of the Grenoble Test Source (GTS). The GTS operates at room temperature and uses two microwave frequencies of 14 GHz and 18 GHz. The two ECR ion sources deliver highly charged ions of sufficient intensity for Nuclear Physics experiments. Principles and the performance of the different ion sources, as well as the transport, injection and pre-acceleration of charged particles with SPCs will be discussed.

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