Contribution ID: **109** Type: **Invited Oral Presentation**

Beam commissioning of K=500 Superconducting Cyclotron at VECC

Thursday 5 June 2025 11:00 (30 minutes)

A program to develop K=500 superconducting cyclotron was launched in India at VECC, Kolkata during the beginning of this century. Such an accelerator was planned to be built to provide ion beams heavier compared to that provided by K=130 cyclotron in the same campus. Through this project, India ventured into the technology of superconducting cyclotron. Although the construction of this cyclotron was completed in the beginning of last decade and internal beam was observed, challenge was faced in getting the external beam. Massive R&D efforts were required to be initiated to overcome this challenge, and campaign was started to perform several magnetic field measurements at intricate locations, as a result of which it was understood that the problem was occurring due to field errors arising due to misalignment of superconducting coils. After making the required rectifications, first external beams (252 MeV N+4) were extracted in the beginning of this decade, and now efforts are ongoing to accelerate a wide variety of ion beam in this cyclotron. The proposed speaker will start by giving an introduction to the K=500 cyclotron project, briefly describing the milestones achieved in the project, and an account of the R&D efforts to diagnose the problems that were faced in extracting the beam, along with the beam commissioning results. Future plans for extending the operational regime further of the superconducting cyclotron will also be discussed by the proposed speaker.

Footnotes

Funding Agency

Primary authors: BANDYOPADHYAY, Arup (Department of Atomic Energy); DEBNATH, Jayanta (Department of Atomic Energy)

Presenter: DEBNATH, Jayanta (Department of Atomic Energy)

Session Classification: THYN:Hadron Accelerators (Invited)