



Contribution ID: 263 Contribution code: THP12

Type: **Poster Presentation**

Energy spectrum of an ICP-RF ion source using a spherical electrostatic energy analyzer

Thursday, 12 September 2024 16:00 (1h 30m)

The energy characterization of an RF ion beam, generated by an inductively coupled plasma (ICP) RF ion source, has been conducted using a spherical electrostatic energy analyzer. The RF ion source, operating at an applied frequency of 13.56 MHz and a power level of 300 W, was assessed in both pulse and continuous modes. The ion energy spectrum of the hydrogen beam was meticulously measured under various conditions, with the extraction voltage ranging from 1 to 10 keV. The analysis revealed variations in the energy profiles under different operational conditions, providing insights into the ion source's performance and optimization. These findings contribute to a deeper understanding of RF ion beams for enhancing the design and efficiency of ion sources used in particle accelerators and related technologies. The importance of precise energy spectrum measurements in enhancing the efficiency and functionality of ion sources in advanced beam instrumentation is underscored by this research.

Footnotes

Funding Agency

I am interested in exploring potential grant opportunities to support our participation in the conference.

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Yes

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Session Classification: THP: Thursday Poster Session

Track Classification: MC1: Beam Charge and Current Monitors