Contribution ID: **1234** Contribution code: **WEPS075** Type: **Poster Presentation**

A new method for the RFQ inter-vane voltage diagnostic

Wednesday 4 June 2025 16:00 (2 hours)

Radio frequency quadrupole (RFQ) is one of the first cavities in a protons or ions accelerator. It aims to focus, bunch, and accelerate the beam, using a high-intensity electric field concentrated between rods or vanes. At CEA, similarly to other labs, a method to evaluate the inter-vane voltage and to tune the cavity (usually with 4 vanes) has been developed, based on the bead pull measurement. It consists of inserting a small bead in the back of each of the 4 quadrants. The induced magnetic field perturbation aims to evaluate the electric field close to the beam axis. This method requires the insertion of a bead along the cavity, whose length can be about several meters. In this paper, we propose to study the possibility of measuring and tuning the cavity using the insertion of slug tuners which would demonstrate the feasibility of obtaining this diagnostic, without opening the cavity.

Footnotes

Paper preparation format

LaTeX

Region represented

Europe

Funding Agency

Author: HAMEL, Pierrick (Commissariat à l'Energie Atomique)

Co-authors: HASSANE, Florian (Commissariat à l'Energie Atomique et aux Energies Alternatives); PIQUET, Olivier (Commissariat à l'Energie Atomique)

Presenter: HAMEL, Pierrick (Commissariat à l'Energie Atomique)

Session Classification: Wednesday Poster Session

Track Classification: MC7: Accelerator Technology and Sustainability: MC7.T06 Normal Conducting RF