



Contribution ID: 189

Type: **Poster (by default)**

Development of a Novel Internal Radiofrequency Ion Source for Cyclotrons

Abstract:

IRISC (Internal Radiofrequency Ion Source for Cyclotrons) is an innovative design of an internal ion source, primarily for producing H⁻ ions, in which radiofrequency (RF) power is supplied to its electrodes for achieving electron emission. Theoretical work shows that both lower electrode sputtering and higher ion production efficiency may be achieved as compared to its standard direct current (DC) counterparts. Thus, IRISC arises as a ground-breaking Penning ion source with significant importance for compact cyclotrons. IRISC dimensions have been matched to CIEMAT's AMIT DC cold-cathode ion source so that side-by-side testing might be carried out and, eventually, both types can be used within the AMIT cyclotron. This contribution presents IRISC RF simulations, key design aspects, feedback from manufacturing process of the first prototype and early-stage test results.

Funding Agency

EU Horizon 2020 Grant Agreement 101004730

Email Address

miguel.leon@ciemat.es

I have read the Code of Conduct to attend ICIS2023.

Yes

Presenter if not the submitter of this abstract

Miguel LEON LOPEZ

Primary author: LEON LOPEZ, Miguel (CIEMAT)

Co-authors: ESTEVEZ FORNARI, Antonio (CIEMAT); OLIVER AMOROS, Concepción (CIEMAT); GAVELA PEREZ, Daniel (CIEMAT); OBRADORS CAMPOS, Diego (CIEMAT); TORAL FERNANDEZ, Fernando (CIEMAT); PEREZ MORALES, José Manuel (CIEMAT); GARCIA-TABARES RODRIGUEZ, Luis (CIEMAT); CALVO PORTELA, Pedro (CIEMAT); ERIKSSON, Tomas (GE HealthCare)

Presenter: LEON LOPEZ, Miguel (CIEMAT)

Session Classification: Tuesday

Track Classification: Negative Ion Sources and Sources for Fusion Facilities