Contribution ID: **31** Contribution code: **TUP09** Type: **Poster Presentation**

Characterization of an proton ECR ion source for low beam current

Tuesday, September 17, 2024 5:00 PM (1h 30m)

In this paper we analyze the behavior of a low beam current proton ECR ion source for linac. During the operation of the source, as a function of the operating parameters we have observed a complex behavior. The state of the plasma is highly dependent on the input parameters, and in some cases even bi-stable conditions can be achieved showing abrupt changes in the state. To try to understand this behavior we carried out a series of experiments varying the input parameters both sequentially and randomly to avoid following the same path every time. Thanks to these experiments we have been able to observe the change in the luminosity of the plasma, which is an indirect measure of the degree of ionization in the plasma, along with the changes in reflected and transmitted RF power delivered to the source. We also characterized the relation between the outside temperature of the ion source chamber walls and the plasma. In addition to this we have analyzed the resulting extracted ion beam using a pepperpot and a faraday cup. We have observed that our beam doesn't have one dominant species and has three species that are found in comparable quantities.

Footnotes

Funding Agency

Basque Government, Department of Industry, Elkartek KK-2022/00026
Basque Government, Department of Education, IT1533-22

I have read and accept the Privacy Policy Statement

Yes

Primary author: USABIAGA, Pello (University of the Basque Country)

Co-authors: ARIZ, Iratxe (Fundación TEKNIKER); Dr ARREDONDO, Iñigo (University of the Basque Country); PORTILLA, Joaquin (University of the Basque Country); VIVAS, Jon (University of the Basque Country); FEUCHTWANGER, Jorge (Ikerbasque, Basque Foundation for Science); SEARA EIZAGUIRRE, Jose Mari (Fundación TEKNIKER); ETXEBARRIA, Victor (University of the Basque Country)

Presenters: FEUCHTWANGER, Jorge (Ikerbasque, Basque Foundation for Science); USABIAGA, Pello (University of the Basque Country)

Session Classification: TUP: Poster Session

Track Classification: MC6: Applications and Diagnostics