Contribution ID: **194** Type: **Poster presentation**

Enhanced Production of Electron Cyclotron Resonance Plasma by Positioning Plate-Tuner

Monday, 16 October 2017 18:45 (15 minutes)

It has been investigated how to produce various ions efficiently on the electron cyclotron resonance ion source (ECRIS) in Osaka Univ. We attach the movable reflector, like bias plate, called plate-tuner, which is inserted from the mirror end plate opposite side to the extractor in the ECRIS. Standing waves are generated by placing the plate-tuner at nodes of the microwave and the microwave can efficiently be propagated in the vacuum chamber. As a result, the net microwave power absorbed by plasma changes by moving the position of the plate-tuner, and it is suggested that the plate-tuner contributes to enhance ion beam intensity. The effect of the plate-tuner will be investigated experimentally to measure plasma parameters by Langmuir probe, and also to measure beam intensity and charge state distribution (CSD) of extracted ion beams. Now we are trying to produce Ar, Xe, and fullerene plasmas for the support gases. We obtained the result that the net microwave power and the ion saturation current periodically by moving the plate-tuner. In near future, moreover, we are planning to improve methods of launching microwave as well as the plate-tuner for production of various ion beams, e.g. multicharged ions and heavy molecular ions, like fullerene.

Primary author: Mr HAMADA, Kouta (Osaka University)

Co-authors: Mr WATANABE, Takuto (Osaka University); Mr TSUDA, Yuto (Osaka University); Mr ONISHI, Koji (Osaka University); Mr TAKEDA, Tatsuto (Osaka University); KATO, Yushi (Osaka University)

Presenter: Mr HAMADA, Kouta (Osaka University)

Session Classification: Poster Session 1

Track Classification: Fundamental processes