

ACCELERATOR SEMINAR

Fabio Maimone

GSI

Thursday, 1st November 2018 at 4 pm

KBW lecture hall

Planckstraße 1, 64291 Darmstadt

“Frequency Tuning of ECR Ion Sources”

In order to improve the quality of ion beams extracted from Electron Cyclotron Resonance Ion Sources (ECRIS) it is mandatory to better understand the relations between the plasma conditions and the beam properties. The tuning of the microwave frequency feeding the plasma affect the electromagnetic field distribution and the dimension and position of the ECR surface inside the plasma chamber. This in turn has an influence on the generation of the extracted ion beam in terms of intensity, shape and emittance. In order to analyse the corresponding effects, measurements have been performed with the CAPRICE-Type ECRIS installed at the ECR Injector Setup (EIS) of GSI. The investigation confirmed that the frequency tuning is a powerful method to optimise the extracted current of highly charged ions in CW and pulsed mode. For this reason this technique can be routinely used to enhance the performance of the ECRIS for the ion beams production for accelerator facilities.



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