



Contribution ID: 706 Contribution code: THPA139

Type: **Poster Presentation**

Cryogenic surfaces in a room temperature SIS18 ion catcher

Thursday, 11 May 2023 16:30 (2 hours)

The existing heavy ion synchrotron SIS18 at GSI will be used as a booster synchrotron for SIS100 at FAIR operation. In order to reach the intensity goals, low charge state heavy ions will be used. Unfortunately, such ions have very high ionization cross sections in collisions with residual gas molecules, yielding in beam loss and pressure rise via ion impact stimulated gas desorption. To reduce the desorption yield, room temperature ion catcher providing low desorption surfaces have been installed.

Simulations with cryogenic surfaces show, that their high sticking probability prevents the vacuum system from pressure built-ups during operation with heavy ions. Such, the operation with heavy ion beams can be stabilized at higher heavy ion intensities, than solely with room temperature surfaces.

A prototype ion catcher containing cryogenic surfaces has been developed and built. The surfaces are cooled by a commercial cold head, which easily allows this system being integrated into the room temperature synchrotron. The development, laboratory tests, and improvements of this system will be presented.

Funding Agency

Footnotes

I have read and accept the Privacy Policy Statement

Yes

Primary author: BOZYK, Lars (GSI Helmholtzzentrum für Schwerionenforschung GmbH)

Co-authors: AUMÜLLER, Simone (GSI Helmholtzzentrum für Schwerionenforschung GmbH); SPILLER, Peter (GSI Helmholtzzentrum für Schwerionenforschung GmbH)

Presenter: BOZYK, Lars (GSI Helmholtzzentrum für Schwerionenforschung GmbH)

Session Classification: Thursday Poster Session

Track Classification: MC7: Accelerator Technology and Sustainability: MC7.T14: Vacuum Technology