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ECRIS operation and developments at TRIUMF

Monday, September 16, 2024 11:30 AM (30 minutes)

Rare isotope beams are used at the ISAC facility at TRIUMF for studies mainly in nuclear and astrophysics, but also for applications ranging from material science to medicine. The isotopes are produced via the ISOL technique and ionized via a set of different ion sources depending on the application. In cases where highly charged ions are needed, charge state breeding is done with a 14.5 GHz PHOENIX ECR ion source from PANTECHNIK. The source has been operational for more than a decade providing a wide range of ions from Na to U at A/Q <7 for post-acceleration. A second ECR ion source, a SUPERNANOGAN also from PANTECHNIK is used to provide highly charged ions from stable isotopes either for set-up and calibration for the rare isotope beams or for nuclear reaction studies with stable ions. The presentation will give a summary of results and will describe the challenges and improvements to the original sources. For the charge state breeding this is mainly increasing the efficiency and the purity of the delivered beams. In the case of the SUPERNANOGAN special emphasis is put on operational aspects to cover a wide range of elements and easy switchover. The latest in this series of improvements is the implementation of two frequency plasma heating in both ion sources.

Footnotes

Funding Agency

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Yes

Primary authors: AMES, Friedhelm (TRIUMF); ADEGUN, Joseph (TRIUMF); CHARLES, Christopher (TRIUMF); JAYAMANNA, Keerthi (TRIUMF); KESTER, Oliver (TRIUMF); SCHULTZ, Brad (TRIUMF)

Presenter: AMES, Friedhelm (TRIUMF)

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