Canadian Association of Physicists
Association canadienne des physiciens et physiciennes

Contribution ID: **376** Type: **Oral not-in-competition (Graduate Student) / Orale non-compétitive (Étudiant(e) du 2e ou 3e cycle)**

Improvement of the Efficiency of the TRIUMF Charge State Booster

Monday 7 June 2021 12:20 (5 minutes)

The Electron Cyclotron Resonance Ion Source is a versatile and reliable source to charge-breed rare isotopes at the TRIUMF's Isotopes Separation and Acceleration (ISAC) facility. Significant research work has been done by different groups worldwide to improve the efficiency and performance of the ECRIS as a charge state booster. The most recent of these research works is the implementation of the two-frequency heating on the ECRIS. At the ISAC facility of TRIUMF, a 14.5 GHz PHOENIX booster which has been in operation since 2010 was recently upgraded to accommodate the two-frequency heating system using a single waveguide. The efficiency for charge breeding into a single charge state, which depends on the rare isotope that is being charge-bred, has been determined to be between 1 - 6 and will be improved by the activities started at TRIUMF. The CSB, and the corresponding beam transport lines are being investigated in terms of beam properties like beam emittance from the extraction system, and after the beam separation. A systematic investigation of the effect of the two-frequency heating technique on the intensity, emittance, and efficiency of the extracted beam is presently being conducted.

Author: Mr ADEGUN, Joseph (TRIUMF)

Co-authors: Prof. KESTER, Oliver (TRIUMF); AMES, Friedhelm (TRIUMF)

Presenter: Mr ADEGUN, Joseph (TRIUMF)

Session Classification: M1-7 ACC Developments in Canada (DAPI) / Développements ACC au Canada (DPAI)

Track Classification: Applied Physics and Instrumentation / Physique appliquée et de l'instrumentation (DAPI / DPAI)