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Upgrades to ISAC target and ion source high voltage operation

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At the ISAC-TRIUMF facility, operating the target and ion source infrastructure at voltages from 10 keV to 60 keV is key to extracting ion beams and transporting them to experiments. However this high voltage operation provides numerous challenges for an ISOL facility. Because of the contamination and activation of the equipment, high voltage surfaces facing ground potential cannot be physically maintained and thus can deteriorate causing electrical breakdowns. These surfaces are often in small spaces which require components to be designed with complex and precise geometries. On top of this, the impact of the driver beam on the ISOL target, beam windows and surrounding infrastructure creates showers of charged particles that can interfere with the carefully designed electrical fields around the target. This contribution discusses the results of recent upgrades and tests of the ISAC target modules and target stations in the ongoing effort to reliably run at 60 keV.

Email address

cbabcock@triumf.ca

Supervisor's Name

Supervisor's email

Funding Agency

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Primary author: BABCOCK, Carla (TRIUMF)

Co-authors: SHKURATOFF, Alexander (TRIUMF); THOMPSON, Josh (TRIUMF); HRUSKOVEC, Tomislav

(TRIUMF)

Presenter: BABCOCK, Carla (TRIUMF)

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