Contribution ID: **1837** Contribution code: **THPG87**　　　　　　　　Type: **Poster Presentation**

Autofocusing accelerator beams

Thursday, 23 May 2024 16:00 (2 hours)

A novel tuning approach, Model Coupled Accelerator Tuning (MCAT), has been applied to the separated function DTL at TRIUMF's Isotope Separator and Accelerator (ISAC). A digital twin of the rare-isotope postaccelerator is used for transverse and longitudinal tune optimizations, which are then loaded directly into the control system. Beam-based testing produced accelerated beam with a 0.26% error in output energy, with a 1.6% energy spread. This method significantly reduces the operational complexity of tuning interventions, rendering them more efficient. An analysis of the high energy beam lines (HEBT) is also presented, including analysis of dispersive couplings in certain sections of the beamline. A mitigation strategy involving buncher cavities is discussed.

Footnotes

Funding Agency

Paper preparation format

LaTeX

Region represented

North America

Primary author:　KATRUSIAK, Alexander (TRIUMF)

Co-authors:　SHELBAYA, Olivier (TRIUMF); BAARTMAN, Rick (TRIUMF); KESTER, Oliver (TRIUMF); RUIZ, Chris (TRIUMF)

Presenter:　KATRUSIAK, Alexander (TRIUMF)

Session Classification:　Thursday Poster Session

Track Classification:　MC6: Beam Instrumentation, Controls, Feedback, and Operational Aspects: MC6.T33 Online Modelling and Software Tools