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## Beam optics modelling of slow-extracted very high-energy heavy ions from the CERN Proton Synchrotron for radiation effects testing

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

Testing of space-bound microelectronics plays a crucial role in ensuring the reliability of electronics exposed to the challenging radiation environment of outer space. This contribution describes the beam optics studies carried out for the run held in November 2023 in the context of the CERN High-Energy Accelerators for Radiation Testing and Shielding (HEARTS) experiment. It also delves into an investigation of the initial conditions at the start of the transfer line from the CERN Proton Synchrotron (PS) to the CERN High Energy Accelerator Mixed-field (CHARM) facility. Comprehensive optics measurement and simulation campaigns were carried out for this purpose and are presented here. Using a validated optics model of the transfer line, the impact of air scattering on the beam size was quantified with MAD-X and FLUKA, providing valuable insights into the current performance and limitations for Single Event Effects (SEE) testing at CHARM.

### Footnotes

### Funding Agency

### Paper preparation format

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### Region represented

Europe

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