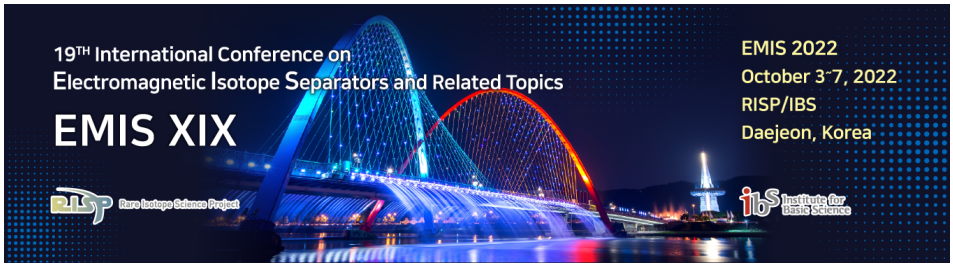

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Simulation Studies for Beam Commissioning at FRIB Advanced Rare Isotope Separator

Monday, 3 October 2022 22:06 (8 minutes)

The Facility for Rare Isotope Beams (FRIB) includes a powerful superconducting driver accelerator and an Advanced Rare Isotope Separator (ARIS). The ARIS collects and purifies the rare isotope fragments of interest for experiments in nuclear physics, nuclear astrophysics, fundamental symmetries, etc. ARIS consists of a vertical pre-separator and downstream horizontal separator section (C-Bend). Each section can provide a high-resolution separation alternatively. The resolution reduction due to the emittance induced by momentum compression can be avoided by isotope separation in different dispersive planes. Beam commissioning of ARIS for the first experiments was completed and demonstrated particle identification of fragments. The beam tuning in ARIS largely relies on numerical simulations since the limited space for diagnostics. We report the result of the beam trajectory correction, transverse matching, and beam-based misalignment studies at ARIS.

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