

Abstract Submitted  
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**Multi-reflection time-of-flight mass spectrometer (MR-ToF) simulation and commissioning at the University of Notre Dame** JAMES M KELLY, University of Notre Dame, CATHERINE NICOLOFF, Wellesley College, BRADLEY E SCHULTZ, TRIUMF, MAXIME BRODEUR, University of Notre Dame — The production of rare isotopes entails efficient ion beam purification for precision measurements that require samples of a single species. To this end, a multi-reflection time-of-flight mass spectrometer (MR-ToF) has been built and is being commissioned in an offline test setup at the University of Notre Dame. MR-ToFs can accommodate low production yields and short half-lives of desired radionuclides, and can separate isobars with resolving powers  $>10^5$ . This MR-ToF will be a critical component for quickly removing radioactive contaminants produced at the future  $N = 126$  beam factory addition to ATLAS at Argonne National Laboratory. This unique thermalized ion beam facility will produce through deep-inelastic reactions very neutronrich nuclei relevant to the astrophysical r-process. A series of simulations done to optimize the MR-ToF's operation, as well as preliminary commissioning results, will be presented. This work is supported by the National Science Foundation.

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