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Simulating a Multi-Reflection Time-of-Flight Mass Spectrograph for the Purification of Radioactive Isobars[1] CATHERINE NICOLOFF, Wellesley College, MAXIME BRODEUR, University of Notre Dame — A Multi-Reflection Time-of-Flight mass spectrograph (MR-TOF) is being designed for the future Notre Dame Radioactive Ion Beam facility. The MR-TOF will provide isobarically pure beams to experiments. Design considerations for the MR-TOF include its geometry, its electrode voltages, and the choice of ion extraction scheme. These considerations were investigated using SIMION simulations. As a benchmark, we first optimized the electrode voltages of the ISOLTRAP MR-TOF geometry. The preliminary simulations involved varying two electrode voltages with the remaining electrodes held fixed and resulted in a mass resolving power <TOF>/ ΔTOF $\approx$ 45,000. Further simulations to optimize the remaining three electrodes will be required to reach higher mass resolving power.

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