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A New Beamline for Extremely Clean Beams at ISOLDE

With the advent of nuclear structure studies using antiproton annihilations on the surface of unstable nuclei at the PUMA experiment [1], isobaric beam purity and vacuum requirements with < 10ˆ-10 mbar motivate the installation of a new beamline at ISOLDE. A Multi-Reflection Time-of-Flight mass spectrometer (MR-ToF MS) is currently in commissioning at the MIRACLS experiment [2], promising up to a factor hundred higher throughput with mass separation powers in excess of 100,000 within only a few milliseconds of storage time [3]. In this contribution, the current design plans for the new transfer beamline at RC6, incorporating the MIRACLS Paul trap and MR-ToF MS, will be presented.
[1] T. Aumann et al., Eur. Phys. J. A (2022) 58: 88
[2] F. Maier et al., NIM A 1048 (2023), 167927
[3] F. Maier et al., NIM A 1056 (2023), 168545

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