EURORIB 2010



Contribution ID: 109

Type: poster

Implementation of a MR-ToF isobar separator at the on-line mass spectrometer ISOLTRAP

A multi-reflection time-of-flight mass separator (MR-ToF-MS) was installed at the ISOLTRAP/CERN mass spectrometer for isobaric purification of rare isotope ensembles as a preparation for precision mass determinations. The MR-ToF-MS consists of two ion optical mirrors between which ions are oscillating and are separated by their mass-over-charge ratio m/q. Flight paths of several hundreds of meters are folded to an apparatus length of less than one meter. Previous tests resulted in a mass resolving power of up to m/ Δ m \approx 10⁵5 and the separation was demonstrated for the isobaric ions CO⁺ and N_2⁺. In combination with a Bradbury-Nielsen beamgate, the MR-ToF-MS will support the existing purification methods of the setup to gain access to nuclides produced with high isobaric contamination yields at the ISOLDE facility. The modified ISOLTRAP setup and its performance will be presented.

Authors:

N. Robert Wolf[1], Klaus Blaum[2], Christopher Borgmann[2], Martin Breitenfeldt[1], Daniel Fink[2], Alexander Herlert[3], Magdalena Kowalska[3], Susanne Kreim[2], Dave Lunney[4], Gerrit Marx[1], Sarah Naimi[4], Marco Rosenbusch[1], Lutz Schweikhard[1]

1 University of Greifswald, Germany
2 MPI for Nuclear Physics, Heidelberg, Germany
3 Cern, Geneva, Switzerland
4 Csnsm, Orsay, France

Primary author: Mr WOLF, Robert (PH-UIS)

Presenter: Mr WOLF, Robert (PH-UIS)

Track Classification: Production and manipulation of RIB