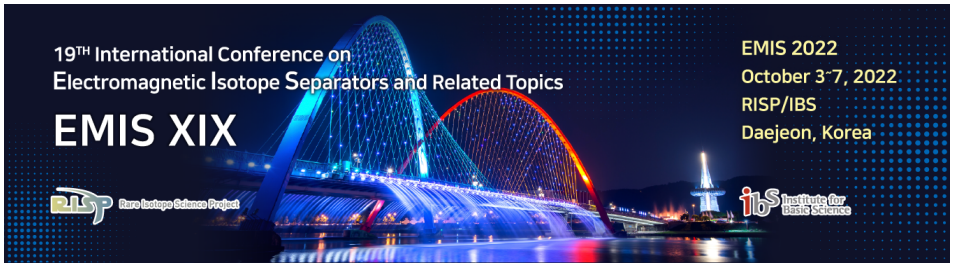

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Status report of in-flight recoil separators RITU and MARA

Friday, 7 October 2022 11:30 (20 minutes)

The gas-filled in-flight separator RITU at Jyväskylä, Finland, has been recently re-commissioned. A new focal plane instrumentation has been constructed and set-up at the RITU focal plane. It shares the same dimensions with the MARA focal plane which enables the use of same detectors and vacuum parts in both. Alongside the instrumentation the RITU recommissioning results and the brief operational principle will be presented.

The in-flight recoil mass spectrometer MARA has been used successfully over many years. The main objective has been the study of the neutron deficient nuclei close to the proton drip line and nuclei around the N=Z line. Several new isotopes and proton emitters have been identified in the decay studies at the focal plane and new nuclear structure information extracted via in-beam studies utilizing MARA and the Jurogam Ge-detector array. A new scintillator detector, Tuike, has been taken in use at the focal plane to improve the identification of weakly produced isospin-multiplet members under study by detecting high-energy betas. In addition to the brief overview of these type of MARA experiments, the description of charge plunger set up, able to probe lifetimes of highly converted transitions in heavy nuclei, will be given.

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