

Symbiotic mass measurement with ZD-MRTOF

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We will place the third prototype setup of SLOWRI which consists of a gas catcher and a multi-reflection time of flight mass spectrograph (MRTOF-MS) at the beam dump of the Zero-degree forward spectrometer of RIKEN RI-beam factory. The gas catcher thermalizes energetic RI-beam from BigRIPS and extracts low-energy bunched ions from the catcher using RF-carpet ion guide technique. The bunched ions are stored for several milliseconds in the MRTOF device for mass measurement with a relative precision of 0.1 ppm level. Thanks to the spectrographic feature of MRTOF-MS, many different nuclides can be measured at once without any scans. This feature is essential to perform comprehensive mass measurements of all available nuclides at RIBF. With this setup (ZD-MRTOF), we will be able to run mass measurements of short-lived nuclides simultaneously with other BigRIPS experiments. We discuss possible collaboration with the in-beam gamma team for such “symbiotic” mass measurement.

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