

High-precision direct mass measurement of (super)heavy nuclides with MRTOF via GARIS-II and KISS setups

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The multi-reflection time-of-flight mass spectrograph (MRTOF-MS) is one of the tool for highprecision direct mass measurement of the nuclides. We have operated several MRTOFs in the RIKEN RIBF facility. The SHE-Mass facility, which couples MRTOF-MS + α -TOF detector with gas-filled recoil ion separator GARIS-II, is working on the mass measurement of heavy and superheavy nuclides produced in fusion reactions. The MRTOF-MS connected to the KEK isotope separation system KISS allows the mass measurement of neutron-rich nuclides produced via multinucleon transfer reaction. Recently, KISS-MRTOF has successfully measured the masses of 19 actinide nuclides, including the new isotope ²⁴¹U, in a first attempt to explore the southeast region of uranium.

In this talk, I would like to explain the overview result of our recent activity of the mass measurement of heavy and superheavy nuclides.