

Abstract Submitted
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Status of Multi-Reflection Time-of-Flight Spectrometer for Radio-Isotopes at RIKEN PETER SCHURY, Tsukuba University, MICHIHARU WADA, TETSU SONODA, AIKO TAKAMINE, YASUNORI YAMAZAKI, RIKEN, HERMANN WOLLNIK, Universitat Geissen — The new Radioactive Ion Beam Factory at RIKEN will provide unprecedented access to exotic neutron-rich isotopes such as are important for r-process nucleosynthesis. To utilize these exotic RI beams, we continue to develop a Multi- Reflection Time-of-Flight (MRTOF) spectrograph. Our system will make use on an advanced gas cell to thermalize relativistic ions of exotic radioactive ions and transfer them to high-vacuum quickly and efficiently. An RF ion trap of novel geometry will cool and bunch ions extracted from the gas cell. A pair of electrostatic mirrors creates an extended flight path of 1 km or more for the ions. By combining high-quality ion pulses with the long flight path, simulations have indicated that the device should be capable to achieve mass resolving powers of $R = \frac{m}{\Delta m} > 500,000$. The high-resolving power will allow the MRTOF spectrograph to be competitive with Penning trap mass spectrometers. We will present the current state of development of our MRTOF along with an overview of our anticipated impact on the nuclear landscape.

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