Abstract Submitted
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**Towards Identification of Super Heavy Elements by Means of Mass Spectroscopy** PETER SCHURY, YUTA ITO, MICHIHARU WADA, FUMIYA ARAI, DAIYA KAJI, KOUJI MORIMOTO, KOSUKE MORITA, TETSU SONODA, ICHIROU KATAYAMA, RIKEN Nishina Center for Accelerator-Based Science — The present standard technique for determining the identity of Super Heavy Elements is by alpha-decay spectroscopy, wherein chains of alpha-decays to well-known species provide unique fingerprints to identify the parent nucleus. However, as advances in production capabilities bring us closer to the much-anticipated "island of stability," decay spectroscopy will become less tenable. It is already seen that the heaviest elements, those above Z=113, decay chains all terminate in spontaneous fission before reaching well-known nuclei. As the island of stability is more closely approached, alpha-decay will be replaced by beta-decay and spontaneous fission while half-lives become exceedingly long. To work towards overcoming the looming limitations in identification via decay spectroscopy, we have installed a multi-reflection time-of-flight mass spectrograph coupled to the GARIS-II separator at RIKEN. The device has been proven to be highly efficient and capable of accurate high-precision mass measurements [1]. In initial studies we will aim to make precision mass measurements of trans-uranium elements up through Lr to validate the device. We will describe the progress of this project and describe the long-range strategy.

[1] P. Schury et al., Nucl. Instrum. Meth. B 335, 39 (2014).

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