Abstract Submitted
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Mass Measurements of Rare-Earth Nuclei Near N = 100[1] RODNEY ORFORD, FRITZ BUCHINGER, McGill University, JASON CLARK, Argonne National Laboratory/University of Manitoba, GUY SAVARD, MARY BURKEY, Argonne National Laboratory/University of Chicago, JEFFREY KLIMES, University of Notre Dame, DWAIPAYAN RAY, KUMAR SHARMA, University of Manitoba — The recent observation of gravitational wave event GW170817 has confirmed that neutron star mergers are a site of heavy-element production from rapid neutron capture nucleosynthesis (r process). As we learn more about the nature of the r process, the importance of accurate nuclear data of neutron-rich isotopes far from stability will become paramount. In order to constrain calculations which model the formation of the rare-earth peak at late stages in the r process, more nuclear data in the region is needed. Many of these neutron-rich isotopes are readily available at the CARIBU facility of Argonne National Laboratory where the Canadian Penning Trap mass spectrometer (CPT) is housed. A phase-imaging mass measurement technique (PI-ICR) has dramatically increased the experimental sensitivity of the CPT allowing for several new mass measurements in the rare-earth region. The experimental results as well as the astrophysical implications of these measurements will be discussed.

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