

Abstract Submitted
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Mass Measurements of Neutron-Rich Indium Isotopes for Enhanced r -Process Studies and Developments for the TITAN Penning Trap CHRIS IZZO, TRIUMF, ELEANOR DUNLING, TRIUMF/University of York, GABRIELLA KRIPKO-KONCZ, JLU Giessen, MARILENA LYKIARDOPOULOU, WILLIAM S. PORTER, TRIUMF/UBC, TIMO DICKEL, JLU Giessen/GSI, IRIS DILLMANN, ANIA KWIATKOWSKI, TRIUMF/University of Victoria, TITAN COLLABORATION — TRIUMF's Ion Trap for Atomic and Nuclear science (TITAN) is among the world leaders in achieving precise mass measurements of exotic nuclei. The TITAN Measurement Penning Trap (MPET) has been used for more than a decade, and the recent addition of a Multiple-Reflection Time-of-Flight Mass Spectrometer (MR-TOF-MS) has expanded the capabilities at TITAN. The TITAN MR-TOF-MS was recently used to measure the masses of neutron-rich indium isotopes in the $N = 82$, $Z = 50$ region, which is crucially sensitive for the astrophysical r -process. Indium masses from $A = 125$ -134 were measured, including the first ever mass measurements of $^{133,134}\text{In}$. Several isomer masses with half-lives as short as 5 ms were resolved from the ground states as well. These results will be presented with a discussion of their impact for the r -process. Additionally, MPET has recently undergone developments for improved measurements of highly charged radioactive ions. These developments include the addition of a cryogenic system to improve the vacuum quality and upgrades to allow mass measurements by Phase-Imaging Ion-Cyclotron-Resonance with MPET, which will allow a substantial increase in mass precision and resolution. A brief overview of these recent MPET developments will be presented.

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