

# Mass Measurements around the $N = 32$ and $N = 34$ Shell Closures and Upgrades for TITAN's Measurement Penning Trap

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Mass measurement facilities are extremely important in furthering our understanding of nuclear structure away from the valley of stability. TRIUMF's Ion Trap for Atomic and Nuclear Science (TITAN) is among the world's premier precision trapping facilities, with the newly added Multiple-Reflection Time-of-Flight Mass Spectrometer (MR-ToF-MS) expanding its reach. The TITAN MR-ToF-MS was used in the measurement of neutron-rich scandium, vanadium and titanium isotopes in the  $A = 54 - 57$  mass region. In total, the masses of  $^{54-55}\text{Sc}$ ,  $^{54-57}\text{V}$  and  $^{54-56}\text{Ti}$  were measured, resulting in significant improvements over current literature uncertainties. These masses are critical to the evolution of the  $N = 32$  and  $N = 34$  shell closures, and our new measurements allow for better understanding of trends along these isotones. Moreover, the Measurement Penning Trap (MPET) at TITAN has undergone a series of upgrades to allow for the measurement of radioactive, highly-charged ions. Along with a new cryogenic cooling system, the implementation of the Phase-Imaging Ion-Cyclotron-Resonance (PI-ICR) technique will increase the resolution and precision capabilities of MPET. These upgrades, along with the aforementioned mass measurements, will be discussed.

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## Please select: Experiment or Theory

Experiment

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