

Through Thick and Tin: Investigating Tin Isotopes Approaching $N=Z$ Nuclei

Friday, 16 February 2024 10:30 (15 minutes)

Of particular interest for nuclear structure and astrophysical processes are nuclides in the vicinity of $N=Z=50$, where the proton and neutron shells are each full or “magic”. These doubly magic isotopes can give unique insights into nuclear structure due to their doubly magic nucleons which give rise to extraordinary nuclear stability, like high binding energy, and tests of isospin symmetry. In addition, these nuclides are critical inputs to understanding the rapid-proton (or rp-)process driving x-ray bursts, more specifically closing the SnSbTe cycle. For this reason, the masses of $^{104-107}\text{Sn}$ were measured at TRIUMF’s Ion Trap for Atomic and Nuclear science (TITAN) facility with the Multiple-Reflection Time-of-Flight technique. The TITAN mass values will be presented in this poster and will be used to investigate the stability of $N=Z$ nuclei as well as their impact on our understanding of the rp-process.

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