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(I) The Pursuit of precision and fundamental symmetries at TITAN

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The pursuit of fundamental interactions requires ever increasing precision in theory and experiment. Ion-trapping techniques have been deployed and pioneered to investigate radioactive nuclides at the TITAN-TRIUMF facility. Experiments include precision mass spectrometry of superallowed β emitters to investigate isospin symmetry and to test the unitarity of the quark-mixing matrix. To further these studies, a redesigned Penning-trap system has been commissioned to achieve precisions as low as $\delta m/m \sim 10^{-10}$. In this talk, I will contextualize the new Penning trap and other technical developments for studies of fundamental symmetries.

Keyword-1

ion traps

Keyword-2

fundamental symmetries

Keyword-3

experimental nuclear physics

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