DNP07-2007-000475

Abstract for an Invited Paper for the DNP07 Meeting of the American Physical Society

Electroweak and Precision Physics: Overview DAVID HERTZOG, University of Illinois at Urbana-Champaign

Probing for new physics using the approach of low-energy precision measurements is a fertile ground for discovery. What is the nature and mass of the neutrino? How is it that we live in a matter dominated universe? What extensions to the standard model are required? These fundamental questions are being addressed by tools that include sensitive searches for highly suppressed processes, and by precision measurements of accurately calculated standard model quantities. I will introduce the framework for a broad program of efforts where nuclear physicists play leading roles. These include neutrinoless double beta decay, neutron decay correlations and lifetime, EDM searches in several systems, beta-decay of trapped nuclei, precision muon parameter measurements, and parity-violating electron scattering.