APR18-2018-000742

Abstract for an Invited Paper
for the APR18 Meeting of
the American Physical Society

Neutrino-Mass Limits Through Beta Decay

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Twenty years after the discovery of neutrino oscillations established non-zero neutrino mass, the absolute neutrino-mass scale remains unknown. In this talk, I will review current laboratory-based efforts to measure the neutrino mass directly, with minimal model dependence, through the endpoint kinematics of beta decays in two isotopes: tritium and holmium-163. The KATRIN collaboration has commissioned its beamline with calibration sources, and is moving toward tritium commissioning; the Project 8 collaboration is working to demonstrate its measurement principle with tritium gas for the first time. Meanwhile, the ECHo, HOLMES, and NuMECS collaborations are finalizing detector technologies, and scaling up to pursue competitive holmium-based measurements. I will discuss some of the technical and scientific challenges faced by each approach, and share recent achievements on the path to a better understanding of neutrino mass.