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Abstract for an Invited Paper for the SES21 Meeting of the American Physical Society

The Status of Present Neutrino-less Double Beta Decay Experiments and Proposed Next Generation FRANK AVIGNONE, U. of South Carolina

The only practical way to determine if neutrinos are their own antiparticles is with neutrino-less double beta decay experiments. This process would violate the conservation of lepton number, thus far not observed, while a measurement of its rate would, when combined with neutrino-oscillation data, would determine the mass of neutrino mass eigenstates. Therefore, a direct observation and measurement of the half life would have great impact on nuclear physics, particle physics, astrophysics and cosmology. In this talk, I will discuss the recent major experiments and their results, as well as the proposed next generation projects.