DNP15-2015-000231

Abstract for an Invited Paper for the DNP15 Meeting of the American Physical Society

## Future Challenges for Double Beta Decay Experiments

STEVEN ELLIOTT, Los Alamos National Laboratory

Neutrino oscillation experiments have shown that at least one neutrino has a mass greater than 50 meV. In the inverted hierarchy pattern of neutrino masses, one would expect an effective Majorana neutrino mass of 15 meV or greater. This fact has led to a strong resurgence of interest in neutrinoless double beta decay experiments that can reach this mass target. If this rare nuclear decay process exists it would demonstrate that Lepton number conservation is violated, that neutrinos are their own anti-particles and the decay rate would give an indication of the neutrino mass. This presentation will summarize the double beta decay experimental program with a focus on the technical challenges that will be faced.