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Current and future searches for neutrinoless double beta decay

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With the discovery of neutrino oscillations and neutrino mass, it has become a pressing question whether neutrinos have distinct antiparticle states. The most practical experimental approach to answering this question is the search for neutrinoless double beta decay, a version of a rare nuclear process that would violate lepton number conservation. The observation of neutrinoless double beta decay would prove that neutrinos are their own antiparticles. Neutrinoless double beta decay experiments deploy large source masses consisting of a select few (usually enriched) isotopes of interest. Detectors must achieve extremely low levels of radioactive background to detect this rare decay. I will report on recent searches for neutrinoless double beta decay and discuss the technical challenges that the next generation of experiments will overcome.