

Status and Results from EXO-200

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EXO-200 is an ongoing experiment searching for neutrinoless double beta decay using ^{136}Xe . Such a search can shed light on the Majorana nature of the neutrino (whether the neutrino is its own anti-particle), the absolute mass scale of neutrinos, and beyond standard model processes that violate lepton number conservation. The EXO-200 detector uses 200 kg of xenon with 80% enrichment in ^{136}Xe in a single-phase liquid xenon time projection chamber (TPC). The double beta decay of xenon is detected in the ultra-low background TPC by collecting both the scintillation light and the ionization charge. The detector has been taking low background physics data with enriched xenon at the Waste Isolation Pilot Plant (WIPP) in New Mexico since early May 2011. The results produced from the collaboration include the first observation of two-neutrino double beta decay of ^{136}Xe , and a neutrinoless double beta decay search result that places one of the most stringent limits on the effective Majorana neutrino mass. A significant amount of data has been taken since the first 0nbb results, and the data analysis tools have been refined. If time permits, I will briefly discuss the prospects of a future multi-tonne scale experiment named nEXO.

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