

The Majorana Demonstrator for $0\nu\beta\beta$: Current Status and Future Plans

Monday, 9 September 2013 14:40 (20 minutes)

The Majorana Collaboration is constructing the Majorana Demonstrator, an ultra-low background, 40-kg modular Germanium detector array to search for neutrinoless double beta decay in Germanium-76. The P-Type Point Contact (PPC) design of the Demonstrator's germanium detectors allows for significant reduction of background through pulse-shape analysis. The low energy thresholds achievable by PPCs allows for novel searches for rare low-energy physics events, most notably the possible direct detection of low-mass Weakly Interacting Massive Particles (WIMPs). The Demonstrator's compact passive shield design serves as a complementary design effort to the liquid cryogen shield of the Gerda experiment, and will allow for an educated down-select for a future tonne-scale effort based on the background reduction achievements of both collaborations. An introduction to the Majorana Demonstrator technical design will be given, progress of the detector's construction at the Sanford Underground Research Facility at Homestake will be highlighted, and the physics reach to double-beta decay and beyond will be discussed.

Primary author: GREEN, Matthew (University of North Carolina)

Presenter: GREEN, Matthew (University of North Carolina)

Session Classification: Double Beta Decay/ Neutrino Mass I

Track Classification: Double Beta Decay