

Abstract Submitted
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The MAJORANA DEMONSTRATOR Neutrinoless Double-beta Decay Experiment V.E. GUISEPPE, Univeristy of South Dakota, MAJORANA COLLABORATION — Neutrinoless double-beta decay searches play a major role in determining the nature of neutrinos, the existence of a lepton violating process, and the effective Majorana neutrino mass. The MAJORANA Collaboration is assembling an array of HPGe detectors to search for neutrinoless double-beta decay in ^{76}Ge . Our proposed method uses the well-established technique of searching for neutrinoless double-beta decay in high purity Ge-diode radiation detectors that play both roles of source and detector. The use of p-type point contact Ge detectors present advances in background rejection and a significantly lower energy threshold than conventional Ge detectors. The lower energy threshold opens up a broader and exciting physics program including searches for dark matter and axions concurrent with the double-beta decay search. Initially, MAJORANA is constructing a prototype module to demonstrate the potential of a future 1-tonne experiment. The status and potential physics reach of the MAJORANA DEMONSTRATOR module will be presented.

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