Contribution ID : **21** Type : **Contributed (oral)**

The MAJORANA DEMONSTRATOR: Progress towards showing the feasibility of a tonne-scale 76Ge neutrinoless double-beta decay experiment

Tuesday, 5 June 2012 15:50 (0:20)

Abstract content

The MAJORANA collaboration will search for the neutrinoless double-beta decay of 76Ge. The observation of this rare decay would indicate the neutrino is its own anti-particle, demonstrate that lepton number is not conserved, and provide information on the absolute mass scale of the neutrino. The MAJORANA collaboration is constructing the DEMONSTRATOR, an array of high purity germanium detectors. The array will consist of a mixture of natural (15-20 kg) and >86% enriched 76Ge (up to 30 kg) germanium detectors. The DEMONSTRATOR is being assembled at the 4850 foot level of the Sanford Underground Research Facility in Lead, SD. The array will be contained in a low-background environment surrounded by passive and active shielding. The goals for the DEMONSTRATOR consist of: demonstrating a background rate of less than 4 counts/tonne/year/ROI; establishing the technology required to build a tonne-scale germanium based double-beta decay experiment; testing the recent claim of observation of neutrinoless double-beta decay [H. V. Klapdor-Kleingrothaus and I. V. Krivosheina, Mod. Phys. Lett. A21, 1547 (2006)]; and performing a direct search for light WIMPs (3-10 GeV). This presentation highlights recent research and will detail the status of the DEMONSTRATOR construction.

Primary author(s) : FINNERTY, Padraic (UNC-Chapel Hill / TUNL)

Presenter(s) : FINNERTY, Padraic (UNC-Chapel Hill / TUNL)

Session Classification : Neutrinos

Track Classification : Particles