

Characterization of the Ge detectors for the Majorana Demonstrator

Wednesday, September 11, 2013 7:30 PM (2h 30m)

High purity germanium (HPGe) crystals will be used for the Majorana Demonstrator, where they serve as both the source and the detector for neutrinoless double beta decays. It is crucial for the experiment to understand the performances of the HPGe crystals. A variety of crystal properties are being investigated, including both basic properties such as energy resolution, efficiency, uniformity, capacitance, leakage current and crystal axis orientation, as well as more sophisticated properties, e.g. pulse shapes and dead layer and transition layer distribution. In this talk, we will present our measurements to characterize the HPGe crystals and discuss the results. Since additional information regarding the crystals can be learned by data-simulation comparison, we will also discuss the experiment's simulation package for the detector characterization setup and for the prototype cryostat of the Demonstrator.

This work is supported by grants from the DOE Office of Nuclear Physics and the NSF Particle Astrophysics program.

Primary author: Dr XU, Wenqin (LANL)

Presenter: Dr XU, Wenqin (LANL)

Session Classification: Poster Session

Track Classification: Double Beta Decay