



Poster session 4 – Friday 8 July

P4.057 Active background suppression with the liquid argon scintillation veto of GERDA Phase II

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A low background light instrumentation (LAr veto) consisting of photomultiplier tubes (PMTs) and wavelength shifting fibers read-out with silicon photomultipliers (SiPMs) has been installed in the GERDA (GERmanium Detector Array) neutrinoless double beta decay experiment. The detection of scintillation light allows to efficiently suppress background events in the high purity germanium detectors that simultaneously deposit energy in the surrounding liquid argon.

Together with new low mass holders and pulse shape discrimination of germanium detector signals, the LAr veto is one of the key features to reach the intended background index of 10^{-3} cts/(keV·kg·yr) of GERDA Phase II.

The poster will show the design of the LAr veto, the performed analysis and its performance during commissioning runs as well as Phase II background data taking, which started in December 2015. Combining its background reduction capability with the complementary information from pulse shape discrimination a background suppression of more than two orders of magnitude for ^{228}Th and ~ 25 for ^{226}Ra around $Q\beta\beta$ was achieved during commissioning runs in a single string detector configuration.