

Abstract Submitted  
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**Neutrinoless double beta decay in GERDA** PETER GRABMAYR, Tuebingen University, GERDA COLLABORATION — The Germanium Detector Array (GERDA) experiment searches for the neutrinoless double beta decay in  $^{76}\text{Ge}$ . This lepton number violating process is predicted by extensions of the standard model. GERDA follows a staged approach by increasing mass and lowering the background level from phase to phase. GERDA is setup at the Gran Sasso underground laboratory of INFN, Italy. An array of high-purity germanium detectors is lowered directly in liquid argon for shielding and cooling. Further background reduction is achieved by an instrumented water buffer. In Phase I an exposure of 21.6 kg yr was collected at a background level of  $10^{-2}$  cts/(keV kg yr). The lower limit on the half-life of  $^{76}\text{Ge} > 2.1 \cdot 10^{25}$  yr (90 % C.L.) has been published. Further analyses search for decay into excited states or the accompanied Majoron decay. Presently, Phase II is in preparation which intends to reach a background level of  $10^{-3}$  cts/(keV kg yr) and to increase the exposure to 100 kg yr. About 20 kg of novel thick-window BEGe (Broad Energy Germanium) detectors will be added and the liquid argon will be instrumented. The status of Phase II preparation and results from the commissioning runs will be presented as well as some further results from Phase I.

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