

Search for neutrinoless double beta decay with GERDA

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The GERDA (GERmanium Detector Array) experiment, located at the Laboratori Nazionali del Gran Sasso (LNGS) of the Istituto Nazionale di Fisica Nucleare (INFN) in Italy, searches for the neutrinoless double beta decay ($0\nu\beta\beta$) of ^{76}Ge . During Phase II, 35.6 kg of bare high purity germanium diodes enriched in ^{76}Ge have been deployed in liquid argon; they serve both as source and detector. The use of active background rejection methods, e.g liquid argon scintillation light read-out and pulse shape discrimination of germanium detector signals, has allowed to achieve a background index of $6 \cdot 10^{-4}$ cts/(keV·kg·yr). No evidence for $0\nu\beta\beta$ decay has been found establishing the up-to-date most stringent half-life limit for this process in ^{76}Ge with a sensitivity of $1.1 \cdot 10^{26}$ yr at 90% C.L. The experimental setup, the analysis procedures and the latest results of GERDA are summarized in the present work.

Author: SALAMIDA, Francesco (University of L'Aquila and INFN LNGS)

Presenter: SALAMIDA, Francesco (University of L'Aquila and INFN LNGS)

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