

Estimation of solar neutrino background in the experiment GERDA

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The work evaluates the background induced by solar neutrinos into the experiment GERDA, that was organized to search for neutrinoless double beta decay of Ge-76 nucleus. A feature of this background is its fundamental inevitability, which imposes restrictions on the sensitivity of the entire experimental setup. To calculate the cross section for the solar neutrinos capture by Ge-76 nuclei, the self-consistent theory of finite Fermi systems was taken into account. There carried out the decomposition of the charge-exchange reaction spectrum for Ge-76 nucleus. It is shown in the work that considering Gamow-Teller resonances (GGTR and pygmy resonances) increases the total capture cross section by 25 to 50%. Finally a Monte Carlo simulation of the beta decay for the formed As-76 nucleus was performed. A verdict was made on the effect of the solar neutrino background in GERDA experiment and the next-generation experiment LEGEND.

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