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Distribution on electron energy in two-neutrino double beta decay of 100Mo

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Nowadays a considerable attention is paid to experiments on two-neutrino double beta decay of stable isotopes. In large-scale projects a great amount of data on 2□2□-transitions is accumulated, which gives the possibility to build the intensity distribution on total emitted electrons energy.. These information can be used in searching for new physics, for example, aimed at investigation of neutrino statistics [1], Lorentz violation effects [2], two-neutrino double beta-decay with sterile neutrinos [3].
In measurements, produced with the help of NEMO-3 detector, which is capable to reconstruct the full topology of □□ processes, characteristics of more than 600 000 2□2□-decays of 100Mo have been recorded [4].
In order to provide a way for new physics searches it is necessary to determine the nuclear mechanism of 2□2□-transition. In the same way as for the ordinary □-decay, it is reasonale to consruct Kurie plot for double beta-process [3]. Kurie plot has different form for two kinds of 2□2□-amplitude : when contribution of lowest 1+ -energy level of intermediate nucleus dominates - single state dominance, SSD, and for the case of higher-states dominance, HSD. Kurie plots for 100Mo two-neutrino double beta-decay were built for SSD mechanism with a certain addition to amplitude of low-lying excited 1+ - states of intermediate nucleus 100Tc [5], for HSD mechanism, and for double beta−decay with emission of sterile neutrino, corersponding to both SSD and HSD nuclear mechanisms.

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The speaker is a student or young scientist

No

Section

1. Neutrino physics and nuclear astrophysics

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