

Investigation of double beta decay of ^{100}Mo to excited final states of ^{100}Ru

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Double beta decay of ^{100}Mo to the excited states of daughter nuclei has been studied using a 600 cm³ low-background HPGe detector and an external source consisting of 2588 g of 97.5% enriched metallic ^{100}Mo , which was formerly inside the NEMO-3 detector and used for the NEMO-3 measurements of ^{100}Mo . The half-life for the two-neutrino double beta decay of ^{100}Mo to the excited 0+1 state in ^{100}Ru is measured to be $T_{1/2} = [7.3 \pm 0.6(\text{stat}) \pm 0.6(\text{syst})] \times 10^{20}$ yr.

For other ($0\nu + 2\nu$) transitions to the 2+1, 2+2, 0+2, 2+3 and 0+3 levels in ^{100}Ru , limits are obtained at the level of $\sim (0.25-1.1) \times 10^{22}$ yr. All results are still preliminary.

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