

INFLUENCE OF CHARGE-EXCHANGE RESONANCES ON THE CAPTURE OF SOLAR NEUTRINO BY MOLYBDENUM 98 AND 100

The work presents calculations of the solar neutrino capture cross-section $\sigma(E)$ by $^{98,100}\text{Mo}$ nuclei. In calculations experimental data on strength function $S(E)$, received in charge-exchange reactions (p, n) [1] and (^3He , t) [2, 3] were used. Calculations of the charge-exchange strength function $S(E)$ for these nuclei were performed as part of the self-consistent theory of finite Fermi-systems. The resonance structure of the strength function $S(E)$ was analyzed and Gamow-Teller (GTR) [4], Analog (AR) [5] and Pigmy resonances (PR) [6] were isolated. The effect of the resonant structure $S(E)$ on the calculated solar neutrino capture section $\sigma(E)$ was studied. The question of changing the neutrino capture cross section due to taking into account the effect of neutron emission from the daughter nucleus is considered. It was noted that the capture of solar neutrinos by the ^{100}Mo nucleus is a background process in the study of double beta decay of this nucleus.

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1. J.Rapaport, P.Welch, J.Bahcall, et al. // Phys. Rev. Lett. 1985. V. 54. P. 2325.
2. H.Akimune, H.Ejiri, M.Fujiwara, et al. // Phys. Lett. B 394, 23 (1997).
3. J.H.Thies, T.Adachi, M.Dozone, et al. // Phys. Rev. C 86, 044309 (2012).
4. Yu.V.Gaponov, Yu.S.Lutostansky // JETP Lett. 15, 120 (1972).
5. Yu.S.Lutostansky, V.N.Tikhonov // Bull. Russ. Acad. Sci. Phys. 78, 373 (2014).
6. Yu.S.Lutostansky // JETP Letters, 106, 7 (2017).

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