

SELF-CONSISTENT APPROACH TO NEUTRINO CAPTURE BY HEAVY NUCLEI

Saturday, 17 October 2020 10:55 (25 minutes)

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A self-consistent approach to the cross-sections of neutrino capture by heavy nuclei due to charged currents is presented. Non-magic nuclei with pairing in the neutron and proton sectors are considered in the framework of the energy density functional (EDF) theory. Various versions of the EDFs proposed by Fayans et al. are used (DF3 [1], DF3-a [2]). In order, to calculate the strength functions of the Fermi, Gamow-Teller and spin-dipole excitations we use the quasiparticle random-phase approximation with the particle-hole continuum taken into account [1, 2, 3]. Particular attention is paid to the neutrino capture by $^{72,74}\text{Ge}$ nuclei. This is the background process in the measurements of double beta decay. The work is supported by the Russian Foundation for Basic Research (Grant no.18-02-00670_a) and the grant by the Department of Neutrino Studies of the NRC KI.

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Session Classification: Section 5. Neutrino physics and astrophysics

Track Classification: Section 5. Neutrino physics and astrophysics.