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GT Nuclear resonances for 71Ga(nu,e)71Ge reaction investigation

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Neutrino-matter interaction has great importance for neutrino physics and astrophysics. Neutrino capture cross-section depends on the structure of the target nucleus strength function. 71Ga(v,e)71Ge process could be analysed using the charge-exchange strength functions of 71Ga(p,n)71Ge and 71Ga(3He,t)71Ge reactions. Nuclear phenomenology of charge-exchange reactions describes not only discrete excited levels, but also collective resonant states such as GTR and pygmy-resonances. It is shown that accounting of GT-resonances increase neutrino capture rate and that capture rate is very sensitive to the exact behavior of the Fermi function at low energies. We will discuss the quenching effect estimation and the accuracy of B(GT) extraction from experimental data as a function of resonance width. The talk proposes a comparison of the experimental data processing and calculations obtained in the framework of the self-consistent theory of finite Fermi systems.

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