

Neutrino cross sections within the Continuum Random Phase Approximation

The description of the energy spectrum above the nucleon emission threshold requires a proper treatment of the continuum part of the single particle configuration space. The Random Phase Approximation equations, written in coordinate space representation, are solved in this work, using an expansion on the Sturmian functions basis. This approach can be applied also when finite range interactions with tensor channel are used. The possibility of applying this approach to the study of low-energy neutrino scattering cross-sections will be shown, with the purpose of studying their sensitivity to the tensor components of the interaction.

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