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Semi-phenomenological spectral functions in neutrino-nucleus inclusive reactions

Thursday, 28 September 2017 15:30 (30 minutes)

In order to develop a reliable model for neutrino-nucleus interaction, one has to account for various nuclear effects which go beyond Fermi gas picture. In this talk I will present a recent study of neutrino-nucleus inclusive reactions at low and intermediate energies where in medium modifications are introduced in terms of the hole and particle semi-phenomenological spectral functions (SFs). Concentrating on the quasi-elastic mechanism, I will show how SFs are included into the particle-hole propagator (which is the basic notion in our approach). I will also describe the interplay of RPA effects (which are crucial part of the model developed by Valencia group) and SFs. Finally I will present results (and comparisons with other approaches) for both neutrino and antineutrino CC quasi-elastic processes for various targets and energies.

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