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2p2h effects on the weak pion production cross section

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The one pion production process $\nu A \rightarrow A'\pi N$ results to be an important background to the quasielastic $\nu A \rightarrow A'\pi N$ process used as signal in neutrino oscillation experiments, at the moment of constrain fake events. When only 1p1h final states are considered, the calculated cross section is rough 50% below the experimental data. In this contribution we analyze the effect of adding 2p2h final states.

Summary

The $\nu A \rightarrow A'\pi N$ cross section is calculated including in the elementary amplitude the $\Delta(1232 \text{ MeV})$ resonance and nucleon pole, cross and meson exchange nonresonant contributions. Nuclear effects are introduced in the Relativistic Hartree Approximation of QHDI, while pion final state interactions are accounted using the eikonal approach. Both, 1p1h and 2p2h configurations in the final state are considered.

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