

Abstract Submitted
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Detection of supernovae neutrinos with neutrino-iron scattering

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— The ν_e - ^{56}Fe cross section is evaluated in the projected quasiparticle random phase approximation (PQRPA). This model solves the puzzle observed in RPA for nuclei with mass around ^{12}C , because it is the only RPA model that treats the Pauli principle correctly. The cross sections as a function of the incident neutrino energy are compared with recent theoretical calculations of similar models. The average cross section weighted with the flux spectrum yields a good agreement with the experimental data. The expected number of events in the detection of supernova neutrinos is calculated for the LVD detector leading to an upper limit for the electron neutrino energy of particular importance in this experiment.

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