

Abstract Submitted
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Parton distributions in nuclear systems WOLFGANG BENTZ, TAKUYA ITO, Dept. of Physics, Tokai University, Japan, IAN CLOET, Dept. of Physics, University of Washington, USA, ANTHONY THOMAS, Jefferson Lab, USA — Quark distribution functions in the nuclear medium are calculated by using an effective quark theory of QCD. We mainly concentrate on the flavor dependence of the in-medium quark distributions, and discuss the following interesting applications: (1) The EMC effect for parity-violating deep inelastic scattering of charged leptons on nuclear targets: Here we make predictions for the spin asymmetries, which are relevant to future experiments. (2) An explanation of the NuTeV anomaly in deep inelastic scattering of neutrinos on nuclear targets: Here we point out that the medium modifications of parton distribution functions can explain a large part of the so called NuTeV anomaly, which was observed in 2002 by using an iron target.

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