LA-UR-20-22575
Approved for public release; distribution is unlimited.

Title: Electron and neutrino scattering from nuclei

Author(s): Gandolfi, Stefano
Carlson, Joseph Allen
Lonardoni, Diego

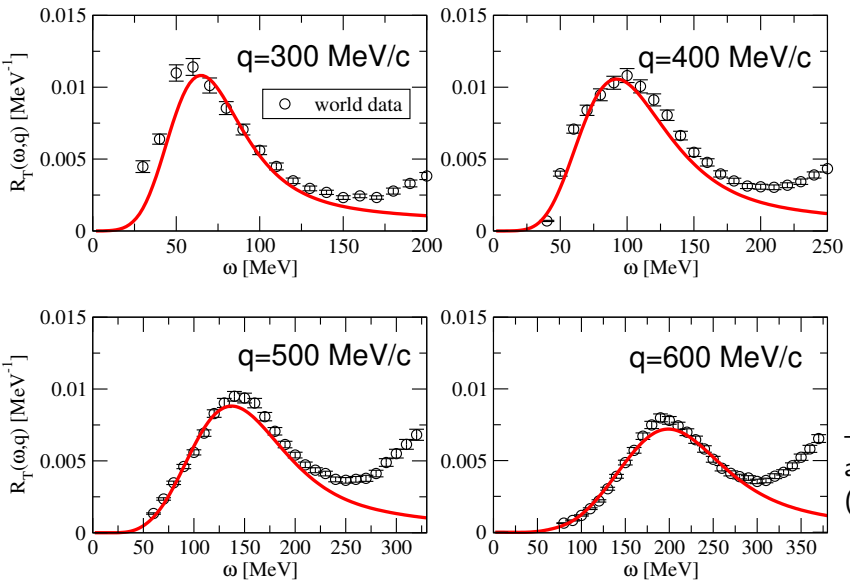
Intended for: Report

Issued: 2020-03-27

S. Gandolfi, J. Carlson, D. Lonardoni T-2:

Electron and neutrino scattering from nuclei

The knowledge of how electrons and neutrinos interact in nuclei is fundamental for many reasons, and the proper inclusion of many-body correlations between nucleons is crucial. The calculation of the nuclei from two- and three-nucleon interactions obtained from first principle is, however, one of the most challenging problems for many-body nuclear physics.



- We have developed a new technique to calculate electroweak response functions in nuclei, the Short Time Approximation (STA).
- We have calculated the STA electromagnetic response functions of ^4He, finding excellent agreement with experimental data.

- S. Pastore, J. Carlson, S. Gandolfi, R. Schiavilla, R.B. Wiringa, "Quasielastic lepton scatterin and back-to-back nucleons in the short-time approximation", arxiv:1909.6400, PRC in press (2020).

Work Supported by LDRD, and DOE ECA and SciDAC. Computer time made available by LANL Institutional Computing and by NERSC.
LA-UR-XX-YYYYY