

Abstract Submitted
for the APR17 Meeting of
The American Physical Society

Multi-Nucleon Short-Range Correlation Model for Nuclear Spectral Functions.¹ OSWALDO ARTILES, MISAK SARGSIAN, Florida International University — We develop a theoretical model for nuclear spectral functions at high missing momenta and energies based on the multi-nucleon short-range correlation(SRC) model aimed at probing nuclear structure at short-distances. The model is based on the effective Feynman diagram method which allows us to account for the relativistic effects in the SRC domain. We derive the contribution of two-nucleon SRC with center of mass motion, and three-nucleon SRCs to the nuclear spectral functions. The spectral functions are based on two theoretical approaches in evaluating covariant Feynman diagrams: In the first, referred to as virtual nucleon approximation, we reduce Feynman diagrams to the time ordered non-covariant diagrams by evaluating nucleon spectators on the SRC at their positive energy poles, neglecting the contribution from vacuum diagrams. In the second approach, referred to as light-front approximation, we formulate the boost invariant nuclear spectral function on the light-front reference frame, on which the vacuum diagrams are suppressed. Numerical calculations and parametrization of spectral functions and momentum distributions are presented.

¹This work is supported by U.S. Department of Energy grant under contract DE-FG02-01ER41172.

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Date submitted: 29 Sep 2016

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