

Contribution ID: 164

Type: Invited Parallel

Short Range Correlations in Asymmetric Nuclei

Thursday 11 January 2018 16:30 (30 minutes)

The atomic nucleus is one of the most complex strongly-interacting many-body Fermionic systems in nature. A main challenge in describing nuclei is understanding the short interparticle part of the nuclear wave function. Recent high-energy proton and electron scattering experiments show that short-range interactions between the nucleons form correlated, high-momentum, neutron-proton pairs, known as Short-Range Correlations (SRC). There measurements suggest that these correlations account for 20% of the nucleons in the nucleus, and 60-70% of the kinetic energy carried by nucleons in nuclei, thereby having large implications to the modification of the bound nucleon structure function and more.

In this talk I will overview the experimental studies of SRC in nuclei with emphasis on new results on asymmetric nuclei and intriguing developments of effective theories for short-range physics that follow the experimental results. Given time I will also discuss some of the wide-ranging the implications of SRCs for various phenomena, including the isospin dependence of the bound nucleon wave function, the nuclear symmetry energy and the structure of neutron stars and more.

Author: HEN, Or (Massachusetts Institute of Technology)

Presenter: SCHMIDT, Axel (MIT)

Session Classification: Parallel Session 3