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Short-range correlations and the phenomenological determination of nuclear PDFs

Tuesday 3 May 2022 17:10 (20 minutes)

We construct a new parametrization of nuclear PDFs (nPDFs) inspired by short-range correlation (SRC) models, and implement this in a global fit. The SRC motivated parametrization decomposes the nPDFs into a free nucleon component, and a part describing the formation of the bound nucleon pairs. Here, the A-dependence enters only through multiplicative factors describing the number of the nuclear SRC pairs. This new parametrization yields a good description of a wide range of data with a quality comparable to the traditional parameterization. Additionally, the fraction of SRC nucleon pairs appears to rise uniformly with the increasing mass of the nuclei (from about 10% to 30%). We also observe that the number of SRC proton and neutrons are comparable across the full range of nuclei, suggesting that the SRC pairs are proton-neutron combinations in general agreement with current SRC models.

Submitted on behalf of a Collaboration?

No

Primary authors: KUSINA, Aleksander; OLNESS, Fred (Southern Methodist University (US)); JEZO, Tomas (WWU ITP)

Presenter: KUSINA, Aleksander

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