ID contributo: **8** Tipo: **non specificato**

The EMC effect of light nuclei within the light-front Hamiltonian dynamics

mercoledì 11 ottobre 2023 14:00 (30 minuti)

In this talk I will discuss the calculation of the so called European Muon Collaboration (EMC) effect for light-nuclei. To this aim the nuclear structure is described within the relativistic Light-Front (LF) approach. Thanks to this choice, calculations fulfill Poincaré covariance, macroscopic locality, number of particles and momentum sum rules. The procedure has been applied to electron deep inelastic scattering (DIS) on He3 [1], H3 and He4 targerts in the Bjorken limit and in the valence region. The main theoretical ingredient for the calculations is the LF nuclear spectral function which can be related to the momentum distribution. As inputs, use has been made of the nuclear wave-functions obtained from the phenomenological Av18 + UIX potential and the chiral potentials called NVIa +3N and NVIb +3N. The evaluated momentum distribution has been used to calculate the structure functions of the considered nuclei. Our analysis predicts a sizable EMC effect [2]. Results are rather independent with respect to the use of different parametrizations of the nucleon DIS structure functions and the nuclear potentials. To our knowledge these are first realistic calculations of the EMC effect, for different targets, which fulfills Poincaré covariance and thus preserving all the fundamental sum rules. For these reasons, this is a relevant study also in view of the present and future experimental scenarios.

REFERENCES

[1] E. Pace, M. Rinaldi, G. Salme', S. Scopetta, PLB 839 (2023) 137810

[2] F. Fornetti, E. Pace, M. Rinaldi, G. Salme', S. Scopetta and M. Viviani, in prep.

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