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The 3He spin-dependent structure functions within the Light-front Hamiltonian Dynamics

ABSTRACT
In this talk I will present the results of the calculations of the spin-dependent structure functions (SSFs) of the ^{3}He nucleus.
These quantities parametrize the hadronic tensor entering the deep inelastic scattering cross-section involving polarized beams and targets. In particular, the SSFs encode
relevant information on the spin structure of the target. In this analysis we calculate the ^{3}He SSFs [1]
within the relativistic Light-Front approach successfully tested
to evaluate the ^{3}He EMC effect [2]. In this framework, the calculation fulfills
Poincaré covariance, macroscopic locality,
number of particles and momentum sum rules.
As nuclear input use has been made of the
realistic ^{3}He wave-functions obtained from
the
phenomenological Av18 + UIX potential. Moreover, a procedure to extract the neutron SSFs from those of the ^{3}He and the proton is also proposed. Finally, I show that the calculations here discussed are in excellent agreement with the present data for the ^{3}He SSFs.
Hence, this analysis could be very relevant in particular for the future experimental program of, e.g., the Electron ion Collider, where processes off polarized ^{3}He targets are planned.

REFERENCES

[1] E. Proietti, F. Fornetti, E. Pace, M. Rinaldi, G. Salmè and S. Scopetta, in prep

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

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