

Abstract Submitted
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The nucleon structure, what an Electron-Ion Collider will teach us THOMAS BURTON, Brookhaven National Laboratory — The question after the individual parton (quarks and gluons) contributions to the spin of the nucleon is even after 20 years of experimental efforts not yet solved. After several precise measurements in polarized DIS it is clear, that the spin of the nucleon cannot be explained by the contribution of the quarks alone. This is affirmed by the newest results from COMPASS, HERMES and JLAB on the inclusive spin structure function g_1 and on the individual contributions from the different quark flavors from semi-inclusive DIS data. Measurements from the polarized pp-collider RHIC show that also the contribution from gluons is smaller than originally expected. Recent experimental evidence of exclusive reactions, especially DVCS, allows in the formalism of generalized parton distributions the study of an other nucleon spin component the orbital angular momentum. The most recent results on indications of the size of the orbital angular momentum of quarks from data and lattice measurements indicate a small contribution from quark orbital angular momenta to the spin of the proton. At the EIC it will not only be possible to measure all these contributions to the spin of the nucleon with unseen precision, but more importantly the range of all observables can be extended to smaller Bjorken x , which allows to minimize the biggest uncertainty in these observables, the extrapolation to the unmeasured low- x region.

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