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SoLID SIDIS proton target experiment at Jefferson Lab¹

VLADIMIR KHACHATRYAN, Duke University, SOLID COLLABORATION — One of the upcoming experiments within the semi-inclusive deep-inelastic scattering (SIDIS) program, which is planned to be carried out using the proposed Solenoidal Large Intensity Device (SoLID) at Jefferson Lab, will be on the transversely polarized proton (NH_3) target. The SIDIS- NH_3 target experiment will allow for multi-dimensional binned measurements of the Collins, Sivers and Pretzelosity single spin azimuthal asymmetries of the proton in the valance quark region, by having high statistics and well-controlled systematics. Along with another similar experiment on the transversely polarized ^3He (neutron) target, the Collins asymmetry measurement will allow the quark tensor charge extraction, via the u and d quark flavor separation. The Sivers and Pretzelosity asymmetry measurements will help uncover information about the orbital angular momentum of the partons inside the nucleon. In this talk, we will give details on the SIDIS- NH_3 experimental setup as well as present the most recent study on the SoLID tensor charge, transversity and Sivers projections for the u and d quarks, in comparison with the available world data.

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