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Quark Orbital Angular Momentum

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Generalized Parton Distributions (GPDs) provide information on the distribution of quarks in impact parameter space. For transversely polarized nucleons, these impact parameter distributions are transversely distorted and this deviation from axial symmetry leads on average to a net transverse force from the spectators on the active quark in a DIS experiment. This force when acting along the whole trajectory of the active quark leads to transverse single-spin asymmetries. For a longitudinally polarized nucleon target, the transverse force implies a torque acting on the quark Orbital Angular Momentum (OAM). The resulting change in OAM as the quark leaves the target equals the difference between the Jaffe-Manohar and Ji OAMs.

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Session Classification: Talks