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Jet-based TMD measurements with H1 data and machine-learning unfolding

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Recently, jet measurements in deep-inelastic scattering (DIS) events close to Born kinematics have been proposed as a new probe to study transverse-momentum-dependent (TMD) PDFs, TMD fragmentation functions, and TMD evolution. In this talk, I will report measurements of lepton-jet momentum imbalance in high- Q^2 DIS events collected with the H1 detector at HERA. These data bridge DIS measurements from fixed target experiments and Drell-Yan measurements at colliders, thus providing a stringent test of TMD factorization, evolution and universality. This measurement also represents the first example of unfolding assisted with machine learning. These results serve as a pathfinder for the Electron-Ion Collider jet-based 3D imaging program, which I will describe briefly.

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