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Multi-differential Jet Substructure Measurement in High Q^2 Deep-Inelastic Scattering with the H1 Detector

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A study of different jet observables in high Q^2 Deep-Inelastic Scattering events close to the Born kinematics is presented. Differential and multi-differential cross-sections are presented as a function of the jet's charged constituent multiplicity, momentum dispersion, jet charge, as well as three values of jet angularities. Results are split into multiple Q^2 intervals, probing the evolution of jet observables with energy scale. These measurements probe the description of parton showers and provide insight into non-perturbative QCD. Unfolded results are derived without binning using the machine learning-based method Omnifold. All observables are unfolded simultaneously by using reconstructed particles inside jets as inputs to a graph neural network. Results are compared with a variety of predictions.

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