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Measurement of the azimuthal decorrelation angle between the leading jet and scattered lepton in deep inelastic scattering at HERA

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The azimuthal decorrelation angle between the leading jet and scattered lepton in deep inelastic scattering is studied with the ZEUS detector at HERA. The data was taken in the HERA II data-taking period and corresponds to an integrated luminosity of 330 pb^{-1}. Azimuthal angular decorrelation has been proposed to study the Q^2 dependence of the evolution of the transverse momentum distributions (TMDs) and understand the small-x region, providing unique insight to nucleon structure. Previous decorrelation measurements of two jets have been performed in proton-proton collisions at very high transverse momentum; these measurements are well described by perturbative QCD at next-to-leading order. The azimuthal decorrelation angle obtained in these studies shows good agreement with predictions from Monte Carlo models including leading order matrix elements and parton showers.

Primary author: WING, Matthew (UCL)

Presenter: WING, Matthew (UCL)

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