Contribution ID: **68** Type: **not specified**

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

The azimuthal decorrelation angle $\Delta\varphi$ between the leading jet and scattered lepton in deep inelastic scattering has been measured with the ZEUS detector at HERA.The experimental data set was taken in the HERA II data-taking period and corresponds to an integrated luminosity of 326 pb-1. The measurement was performed within a range of the exchanged photon virtuality Q2 from 10 to 350 GeV2, the lepton energy Ee > 10 GeV, and the lepton angle 140 < θe < 180. The jets were measured in the transverse-momentum and pseudorapidity ranges 2.5 GeV < p_{T,jet} < 30 GeV and −1.5 < eta_{jet} < 1.8. The differential cross section was normalized to the inclusive cross section and are presented here as a function of $\Delta\varphi$ in various ranges of p_{T,jet}, Q2 and the jet multiplicity. The measurements obtained in this study show good agreement with predictions from perturbative calculations up to next-to-next-to-leading order.

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