Contribution ID: **39** Type: **Parallel session talk**

The azimuthal correlation between the leading jet and the scattered lepton in deep inelastic scattering at HERA

Friday 19 July 2024 11:45 (15 minutes)

The azimuthal correlation angle, $\Delta\phi$, between the scattered lepton and the leading jet in deep inelastic ep scattering at HERA has been studied using HERA II data collected with the ZEUS detector. Differential cross sections, $d\sigma/d\Delta\phi$, are presented for the first time as a function of the azimuthal correlation angle in various ranges of the jet transverse momentum $p_{\mathrm{T,jet}}$, photon virtuality Q^2 and jet multiplicity. Perturbative calculations at $\mathcal{O}(\alpha_s^2)$ accuracy successfully describe the data within the defined fiducial region, while a lower level of agreement is observed near $\Delta\phi \to \pi$ for events with high jet multiplicity due to limitations of the perturbative approach in describing soft QCD phenomena. Monte Carlo predictions that supplement leading-order matrix elements with parton showering describe the data as well as the $\mathcal{O}(\alpha_s^2)$ calculations do.

Alternate track

I read the instructions above

Yes

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