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Update to the Bodek-Yang Unified Model for Electron- and Neutrino- Nucleon Scattering Cross Sections

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We present update to the Bodek-Yang model for inelastic neutrino- and electron-nucleon scattering cross sections using effective leading order parton distribution functions with a new scaling variable ξ_w .

Non-perturbative effects are well described using the ξ_w scaling variable, in combination with multiplicative K factors at low Q^2 for $Q^2 < 1 \text{ GeV}^2$.

Our model describes all inelastic charged lepton-nucleon scattering (including resonance) data (HERA/NMC/BCDMS/SLAC/JLab) ranging from very high Q^2 to very low Q^2 and down to the photo-production region. The model describes existing inelastic neutrino-nucleon scattering measurements, and is currently used in analyses of neutrino oscillation experiments in the few GeV region.

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