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Charged-Current Deep Inelastic Scattering at Third Order

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For Deep Inelastic neutrino-proton scattering in the combination $\nu P - \bar{\nu}P$, we compute the exact $\mathcal{O}(\alpha_s^3)$ perturbative QCD corrections to the charged-current structure functions F_2 , F_L and F_3 . These results supersede previous approximations based on the first few Mellin moments by providing all- N expressions for the coefficient functions. We discuss the numerical size of the third-order corrections and their behaviour in the threshold and high-energy limits.

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