

Global PDF analysis in an intermediate-mass scheme

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The zero-mass (ZM) parton formalism is widely used in high-energy physics because of its simplicity and historical importance, even while the latest global QCD analyses are carried out in the more precise general-mass (GM) QCD formalism. We explore the possibility of rectifying obvious kinematical inconsistencies of the conventional implementation of the ZM formalism, while preserving the simplicity of its matrix elements. The resulting intermediate-mass (IM) scheme for perturbative QCD calculation can be regarded either as an improved ZM formulation with the correct treatment of heavy-flavor final state kinematics; or, alternatively, as a simplified GM formulation with approximate ZM hard cross sections. I discuss representative global analyses based on the IM formulation, and show that they come quite close to reproducing the more accurate GM results.

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