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Phenomenological Study of Fragmentation Functions in Hadronization Processe

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The hadronization process turns partons produced in hard-scattering reactions into the physical, colorless, non-perturbative hadronic bound states detected in experiments. Within the standard framework, processes with an observed hadron in the final state can be described in terms of perturbative hard-scattering cross sections and certain non-perturbative but universal fragmentation functions, ending the details of the subsequent hadronization process. We determine unpolarized fragmentation functions for the pion in LO and NLO from electron-positron annihilation data and based on a phenomenological model. The resulting sets are in good agreement with the other models and all data.

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