

XXVIII International Workshop on Deep-Inelastic Scattering and Related Subjects



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Studying hadronization at LHCb

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The LHCb experiment at the Large Hadron Collider (LHC) is suited for studying how hadrons are formed from scattered quarks and gluons, collectively referred to as partons, in energetic proton-proton collisions. The hadronization process, conventionally described in terms of non-perturbative fragmentation functions in collinear factorization, can be learned in full picture at present via measurements such as those involving jet substructure. Fragmentation jet functions within the framework of jet substructure factorization provide access to transverse momentum dependent fragmentation functions (TMD FF's) which characterize multi-dimensional hadronization processes, and their flavor dependence within jets. Equipped with a forward spectrometer, the LHCb experiment achieves a transverse momentum resolution of $\frac{\Delta p_T}{p_T} < 1\%$ up to 200-GeV/c for charged tracks and a jet p_T resolution of $< 15\%$. This along with excellent particle identification capabilities offers a unique opportunity to measure with great precision hadronization variables j_T , z and r in TMD FF's. This talk will present published results for measurements of nonidentified hadrons within light quark-initiated jets as well as the status of other ongoing hadronization measurements at LHCb.

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