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Towards a study of the effects of dynamical factorization breaking at LHCb

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The factorization of short-distance partonic cross sections from universal nonperturbatively-generated kinematic distributions is fundamental to phenomenology at hadron colliders. It has been predicted however that certain observables cannot be factorized in the usual way, even at high energies. Specifically, observables that are sensitive to momenta transverse to the direction of an energetic parton or hadron cannot be factorized with the standard basis of nonperturbative functions, instead requiring a larger basis of functions with significantly less universality. It should be possible to probe the effects of factorization breaking using Z+jet production in high-energy proton-proton collisions by studying azimuthal correlations between a Z boson and unidentified charged hadrons. This talk will introduce a plan to perform this measurement with data collected by LHCb at a center of mass energy of 13 TeV. Related work will also be discussed.

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