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Nonlinear equation for coherent gluon emission

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Motivated by the regime of QCD explored nowadays at LHC where both the total energy of collision and momenta transfers are high, evolution equations of high energy factorization are investigated.

Briefly we overview results obtained so far for proton proton collisions within high energy factorization approach for jet related observables and we give some predictions for proton lead. This results motivate us to study such effects like parton saturation in final states where one is inevitably led to investigate how to combine physics of the BK and CCFM evolution equations. As a result of this study new equations are obtained. A new exclusive form of the BK equation is presented and also an extension of the CCFM equation to account for nonlinearity.

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