XXI International Workshop on Deep-Inelastic Scattering and Related Subjects



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BFKL Evolution as a Communicator Between Small and Large Energy Scales

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We analyze, in leading and next to leading order of the BFKL equation,

the effects of the quantization of the singularities of the *j*-plane, t-channel partial waves due to the imposition of appropriate infrared and ultraviolet boundary conditions. We show that the intercepts, ω_n of the Regge poles, which contribute significantly to the gluon density in the kinematic region measured at HERA and which can be calculated in QCD and in a supersymmetric extension of QCD, are substantially modified by Beyond the Standard Model (BSM) effects. We also develop a physically motivated heuristic model for the infrared boundary condition and apply it to the gluon density. We argue that, using this type of model, the analysis of present and future low-*x* data could allow one to detect supersymmetry at a high energy scale.

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