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Euler-Lagrange equations for the high energy effective actions in QCD and gravity

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The theory of high energy processes in QCD is based on the gluon reggeization. In particular, Pomeron and Odderon are composite states of two and three reggeized gluons, respectively. We discuss the effective action and corresponding classical equations for quarks and gluons interacting with reggeized gluons. In the extended N=4 supersymmetric gauge model the Pomeron is dual to the reggeized graviton living on the anti-de-Sitter 10-dimensiona space. Therefore to construct the Gribov Pomeron calculus in this model one should calculate the Regge trajectory and various vertices for reggeized gravitons. We formulate the effective action describing the reggeized graviton interactions and derive the Euler-Lagrange equation for this action.

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