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Small-x Physics in the EIC Era

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One of the central missions of the coming Electron-Ion Collider (EIC) is to discover evidence of gluon saturation in the nucleon and nuclei in the small-x regime at high energies. This phenomenon indicates the onset of the nonlinear, high-density regime of QCD characterized by intense semi-classical gluon fields, and it is intimately connected with the mechanism of unitarization in QCD itself. In recent years, significant progress has been made in refining the theoretical framework of small-x physics and gluon saturation, including the calculation of observables to NLO accuracy, the generalization to spin-dependent parton distributions at small x , and understanding of the relationship between the small-x and TMD formalisms. In this talk I will review recent developments with an emphasis on observables in the coming EIC era.