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Linearly polarized gluons and axial charge fluctuations in the Glasma

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We calculate energy deposition and axial charge production from color flux tubes at early times in a heavy-ion collision. Based on analytic expressions for the space-time dependent fluctuations of the axial charge and energy density distributions in terms of the unpolarized and linearly polarized gluon distributions of the nuclei, we develop a phenomenological model for the initial state, which can be used as an input to anomalous hydrodynamic simulations. Besides fluctuations of the axial charge density, we also calculate fluctuations of the energy density and discuss how our results can be used to consistently include fluctuations of the energy density on sub-nucleonic scale into simple initial state models, such as for example the MC-Glauber model.

Content type

Theory

Collaboration

Centralised submission by Collaboration

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