



EINLADUNG

im Rahmen des Teilchenphysikseminars

zum Vortrag

von

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über

„Simulating the earliest stages of heavy-ion collisions“

Abstract:

The quark-gluon plasma is a state of matter which can be created at the Large Hadron Collider (LHC) and the Relativistic Heavy Ion Collider (RHIC). The initial stage right after the collision of two heavy nuclei at sufficient energies is dominated by strongly anisotropic gluonic fields and is known as Glasma.

In this talk, I present our three-dimensional simulations of the Glasma stage. The formalism is based on the color glass condensate framework using a colored particle-in-cell method. By incorporating nuclei with finite thickness along the beam axis, we naturally break boost invariance and obtain Gaussian-like rapidity profiles of energy densities which agree well with experimental data. The applicability of our simulations is limited by the numerical Cherenkov instability. By constructing a new lattice action, we can cure this instability along one lattice direction. This paves the way for simulations at higher energies and better resolution.

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gez.: A. Hoang, S. Plätzer