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## Breaking Boost Invariance: IP-Glasma Phenomenology Beyond 2D

*Monday, May 14, 2018 4:50 PM (20 minutes)*

We present a novel formulation of the IP-Glasma initial state model in 3+1D, where the 2D boost invariant IP-Glasma is generalized to 3D through JIMWLK rapidity evolution of the pre-collision Wilson lines [1]. By breaking boost invariance, the 3D model no longer trivially satisfies Gauss' law at the initial time, and we now enforce it locally. We compare the time evolution of the chromo-electric and chromo-magnetic fields in the 3D case with the boost invariant result.

As the longitudinal dynamics of heavy ion collisions are measured to greater levels of precision, it is imperative that theoretical models describe the 3-dimensional nature of the Quark Gluon Plasma. We couple our 3D IP-Glasma model to MUSIC+UrQMD, for a fully 3-dimensional simulation of heavy ion collisions, and study the rapidity dependence of the second Fourier harmonic  $v_2(\eta)$  and the charged hadron multiplicity  $dN_{ch}/d\eta$ .

[1]Bjoern Schenke and Soeren Schlichting. "3D glasma initial state for relativistic heavy ion collisions". In: Phys. Rev. C94.4 (2016).

### Content type

Theory

### Collaboration

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**Primary authors:** MCDONALD, Scott (McGill University); JEON, Sangyong (McGill University); GALE, Charles (McGill University)

**Presenter:** MCDONALD, Scott (McGill University)

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