
Contribution ID: **29** Type: **Poster**

# Constraining early time dynamics in ultrarelativistic Heavy Ion Collisions

*Wednesday 6 April 2022 17:34 (4 minutes)*

It is frequently supposed that quark-gluon plasma created in heavy-ion collisions undergoes free streaming at early times. We examine this issue based on the assumption that a universal attractor dominates the dynamics already at the earliest stages, which offers a way to connect the initial state with the start of the hydrodynamic expansion in an approximate but conceptually transparent fashion. We demonstrate that the centrality dependence of the measured particle multiplicities can be used to quantitatively constrain the pressure anisotropy and find that it strongly depends on the model of the initial energy deposition. As an illustration, we compare three initial state models and show that they predict rather different early-time values of the pressure anisotropy. This strongly suggests that assuming free streaming prior to hydrodynamization is not necessarily compatible with a generic initial state model and that features of the pre-hydrodynamic flow need to be matched with the model of the initial state.

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**Session Classification:** Poster Session 1 T01

**Track Classification:** Initial state physics and approach to thermal equilibrium