# The initial state of QGP

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**Abstract**

The realistic and detailed description of an energetic heavy ion reaction requires a Multi Module Model, where the different stages of the reaction are each described with suitable theoretical approach. It is important that these Modules are coupled to each other correctly: on the interface all conservation laws should be satisfied and entropy should not decrease. In energetic collisions of large heavy ions, especially if Quark-Gluon Plasma (QGP) is formed in the collision, one-fluid dynamics is a valid and good description for the intermediate stages of the reaction. After hadronization and FO matter is already dilute and can be described well with kinetic models.

Recently we developed an "effective string rope model" to describe initial stages of ultra-relativistic heavy ion collisions. We describe the initial moments of the reaction in the framework of classical Yang-Mills theory, assuming larger

field strength (string tension) than in ordinary hadron-hadron collisions. The single phenomenological parameter describing our effective field strength must be fixed from comparison with experimental data.

Our results show that QGP forms a tilted disk, such that the direction of the largest pressure gradient stays in the reaction plane, but deviates from both the beam and the usual transverse flow directions. Such initial conditions may lead to creation of the elliptic flow structure. The combination of our initial state model with a one-fluid hydro model gives us a Two Module Model, which could be used for simulation of the ultra-relativistic heavy ion collisions at RHIC and LHC.