## XIIIth Quark Confinement and the Hadron Spectrum



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## Matching the non-equilibrium initial stage of heavy ion collisions to hydrodynamics with QCD kinetic theory

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In the collision of nuclei at high energies the produced matter reinteracts and form a plasma which ultimately equilibrates and exhibits collective hydrodynamic flow. While a general theory of the equilibration process has been outlined previously, there were no practical frameworks to smoothly connect the early gluon production in classical field simulations with hydrodynamic simulations of the late time plasma expansion. We provide this practical tool (called KøMPøST) by constructing a set of non-equilibrium Green functions calculated in QCD kinetic theory. We demonstrate with a realistic simulation of a heavy ion collisions the smooth transition from the classical fields to hydrodynamics, and calculate the pragmatic lower bound for the time when hydrodynamics becomes applicable.

## References:

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