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## Fast hydrodynamization with bulk viscosity

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Ever since the discovery of the quark-gluon plasma the understanding of its fast thermalization has been a topic of intense research. We use the gauge/gravity duality to model the out-of-equilibrium first stage of a heavy ion collision through the collision of gravitational shockwaves in numerical relativity. This investigation of collisions of sheets of energy density in a non-conformal theory with a gravity dual is the first non-conformal holographic simulation of a heavy ion collision. We demonstrate new non-conformal physics that arises (as compared to the much simpler conformal case) such as a new plasma relaxation channel, the equilibration of the conformal symmetry breaking scalar condensate and the presence of a sizeable bulk viscosity. These ingredients are crucial to make contact of the fast hydrodynamization process of hot plasmas with real-world QCD deconfinement matter.

### Content type

Theory

### Collaboration

HoloLHC

### Centralised submission by Collaboration

Presenter name will be specified later

**Primary authors:** ATTEMS, maximilian (University of Barcelona); CASALDERREY SOLANA, Jorge (University of Oxford); MATEOS, David (ICREA & U. Barcelona); ZILHÃO, Miguel

**Presenters:** CASALDERREY SOLANA, Jorge (University of Oxford); MATEOS, David (ICREA & U. Barcelona)

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