

Monitoring shock wave collisions with non local observables

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Understanding the complicated field dynamics taking place in a heavy ion collision is a difficult task. Holography provides us with a framework that enables us to study the strongly coupled sector of certain gauge theories.

We mimic the heavy ion collision by two gravitational shock waves and monitor the time evolution of the dual strongly coupled super Yang-Mills plasma via non-local observables such as two-point functions and entanglement entropy.

Different initial conditions exhibit different phenomenology with respect to non-local observables. We show that entanglement entropy can be used as an order parameter to distinguish between the two phases of the cross-over from the transparency to the full-stopping scenario in dynamical Yang-Mills formation.

Primary author: STRICKER, Stefan (TU Wien)

Presenter: STRICKER, Stefan (TU Wien)

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