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# From full stopping to transparency in a holographic model of heavy ion collisions

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We numerically simulate planar shock wave collisions in anti-de Sitter space as a model for heavy ion collisions of large nuclei. We uncover a cross-over between two different dynamical regimes as a function of the collision energy. At low energies the shocks first stop and then explode in a manner approximately described by hydrodynamics, in close similarity with the Landau model. At high energies the receding fragments move outwards at the speed of light, with a region of negative energy density and negative longitudinal pressure trailing behind them. The rapidity distribution of the energy density at late times around mid-rapidity is not approximately boost-invariant but Gaussian, albeit with a width that increases with the collision energy.

## Keywords

AdS/CFT, Initial state, Thermalization, out-of-equilibrium, hydrodynamic flow

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