Institut Henri Poincaré

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String Theory in Greater Paris

Rencontres Théoriciennes

"Supergravité, théorie des cordes et théorie M"

Jeudi 12 Janvier 2017, 11:45

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Towards weak coupling in holography

Despite the many successes of holography during the past two decades, we face several challenges in connecting its predictions with measurable experiments. Most formidable is establishing a bulk dual to non-supersymmetric Yang-Mills theory. We must also further develop our formalism for performing calculations at finite N and finite coupling strength. In this talk, I will discuss recent progress in addressing the latter of these problems. Namely, I will present new holographic results for the behaviour of coupling-dependent properties of hydrodynamics, thermalisation and higher-energy spectrum, as well as physics far from equilibrium in a model of heavy ion collisions. By analysing higher-derivative bulk theories, I will argue that in holography, coupling-dependent properties of the spectrum and transport transition to those expected from weakly coupling quantum field theory at a remarkably fast rate.

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