
Gravity and Condensed Matter: an unexpected love story

November 30, 2016

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Abstract: Strongly coupled/correlated (and often many body) systems represent a big challenge for modern theoretical physics because standard perturbative techniques are neither efficient nor suitable for computations. Condensed matter (CM) provides a plethora of such strongly coupled phenomena which are interesting from both the theoretical and experimental perspectives. I will introduce a new tool, known as AdS-CFT, for computing observables in strongly coupled field theories using a dual gravitational picture. I will focus in particular on applications of the duality toward the CM world (AdS-CMT) and upon recent developments to deal with the introduction of momentum dissipation into such a framework. We will aim to discuss the possibility of describing strongly coupled insulators and metal-insulator transitions using particular black holes solutions in higher-dimensional spacetimes.