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Anisotropic RG Flows, Black Holes and Holography

Thursday, 24 January 2019 17:00 (30 minutes)

In this talk, I will describe a new set of anisotropic, non-conformal and confining gauge theories that are holographically realized in gravity by Einstein-Axion-Dilaton systems. In the vacuum, the new solutions describe RG flows from a conformal field theory in the UV to generic scaling solutions in the IR with generic hyperscaling violation and dynamical exponents θ and z. At finite temperature, we discover that the anisotropic deformation reduces the confinement-deconfinement phase transition temperature suggesting a possible alternative explanation of inverse magnetic catalysis solely based on anisotropy. This conjecture is tested in a more realistic model of holographic QCD with backreacted flavors, where one can explicitly track down the chiral transition. We conclude that anisotropy by itself yields qualitatively similar physics than a magnetic field.

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