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Particle Theory Seminar of LPT Orsay

Jeudi 27 Septembre 2018, 16 :00
LPT, 114
Domaines : hep-ph

Titre : *Self-Organized Higgs Criticality*

Orateur : **Jay Hubisz (Syracuse U.)**

Résumé : *I will discuss an approach to the scalar hierarchy problem that draws on concepts that have so far been primarily applied to certain dynamical systems. These are systems that are naturally driven to critical points and are maintained there by dynamical internal adjustment (i.e. by avalanche phenomena, slippage, etc). Motivated in part by conjecture and experimental hints that some such systems exhibit log periodic scaling associated with complex valued scaling dimensions, I will discuss a 5 dimensional dual to a renormalization group trajectory that runs towards a regime of approximate discrete scale invariance. Such behavior is forbidden as a "healthy" trajectory, and is dual to an emergent Breitenlohner-Freedman tachyon instability for scalar fields in AdS space. We explore how bulk 5D physics responds to this instability, and how this model might simultaneously relate to the lightness of the Higgs and issues of cosmology through a mechanism akin to frustration in condensed matter systems.*