Dipartimento di Fisica
Università di Cagliari
INFN, Sezione di Cagliari

High Energy Physics Colloquia

9 marzo 2016 · ore 15:00 · aula C

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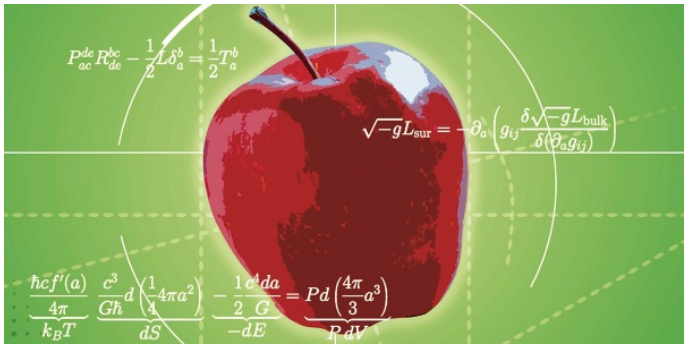
Exploring the Nature of Spacetime: the Emergent Gravity Approach

Abstract

Since the '70s of the last century, we know that black holes possesses thermodynamical properties like temperature and entropy which can be essentially attributed to their event horizon. However, in the last decade, physical and geometrical investigations about the relationship between horizon thermodynamics and gravitational dynamics suggest that gravity could be an emergent phenomenon with its field equations having the same status as the equations of fluid dynamics. This leads to the possibility to study spacetime as an effective macroscopic description of a more fundamental microscopic theory ("atoms of spacetime") at the Planck scales, reconciling the large scale description of gravity and the small one of quantum physics. This new perspective is called *emergent gravity* and it represents a thermodynamical approach to (quantum) gravity.

In this seminar I will discuss the features and implications of this approach, and how it can help us in understanding the intrinsic nature of spacetime.



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