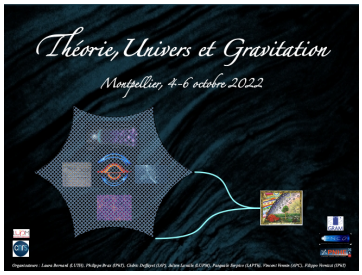

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Holographic stability of maximally symmetric spacetimes

mardi 4 octobre 2022 17:35 (25 minutes)

Maximally symmetric spacetimes are well known to be stable under small metric perturbations if they propagate into the vacuum. But this statement is not always verified in the presence of matter.

Starobinsky inflation is based on the idea that a quantum Conformal Field Theory (CFT) backreacts in an initial de Sitter spacetime, driving it to a FLRW spacetime after a period of inflation.

In this talk, we use AdS/CFT duality to construct correlation functions of the stress-tensor in a **strongly coupled CFT** with a **dynamical metric**. These correlations contain all the necessary information to study the stability of spacetimes such as (Anti) de Sitter.

Our work is a first step to generalize the Starobinsky model to a non-perturbative strongly coupled CFT. We find the existence of **tensor instabilities** which exist in addition to the usual scalar inflaton. Depending on the background curvature and a few other parameters of the holographic setup, we show that these tensor perturbations can destabilize (A)dS faster than the usual scalar inflaton. The backreacting CFT gives a possible inflationary model, in which the duration of inflation is fixed by the characteristic time of the most unstable mode.

Auteur principal: NOURRY, Valentin (APC, Université de Paris)

Co-auteurs: NITTI, Francesco (APC, Université de Paris); KIRITSIS, Elias (UoC and APC)

Orateur: NOURRY, Valentin (APC, Université de Paris)