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Seminar of the theory group of APC

Mardi 3 Mars 2015, 14 :00
APC, 454A - Valentin
Domaines : hep-th

Titre : *Cosmology in massive gravity – A status report*

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Résumé : *The construction of a four dimensional theory of a massive spin–2 particle has been arguably one of the most well-known and persistent challenges in classical field theory. Starting 75 years ago with the pioneering work of Fierz-Pauli, it was only recently that a theory with the correct number of degrees of freedom –which smoothly reduces to general relativity at small scales– was constructed. The theory admits cosmological solutions ; dark energy can in principle be associated with the mass term, for a graviton mass of the order of the present day Hubble rate. Unfortunately, these solutions were shown to suffer from severe pathologies, most of which can be alleviated by, among other ways, extending the theory to contain new degrees of freedom.*

In this talk, I will review various flavours of massive gravity, extended through additional scalar fields or by a dynamical reference metric. I will finally focus on some promising examples (e.g. strong two- metric interaction model, composite matter coupling...) where a cosmology can i) describe the late universe ; ii) be linearly stable ; iii) give new and potentially observable signatures.