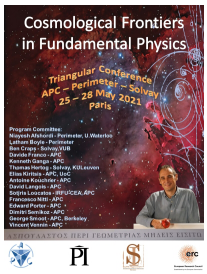

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A classification of Scalar-Tensor theories: applications to cosmology and astrophysics

mardi 25 mai 2021 15:40 (40 minutes)

The last few years have witnessed a great enthusiasm for modified theories of gravity and particularly for scalar-tensor theories. The motivations to modify gravity are to test the limits of general relativity on the one hand and also to propose “answers” to open questions of cosmology and astrophysics (for e.g. dark energy). In this context, many theories have emerged and a very complex landscape of theories has appeared in the literature. In this talk, I will show how we can clarify this landscape, classify some of these theories and how we can construct the most general tensor-scalar theories (aka DHOST theories) that are physically viable (in a precise sense that I will give). Finally, we will show how these modified theories can be applied to cosmology (to account for dark energy) and in astrophysics. We will also review their status in view of recent GW and other cosmological data.

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Classification de Session: First Session, Tuesday