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Saridakis: ”Torsional Modified Gravity and Cosmology”

Thursday, 28 September 2017 09:30 (35 minutes)

Torsion has been proved to be crucial in gauging gravity, which is in turn a necessary step towards its quantization. On the other hand, almost all the efforts in modifying gravity has been performed in the usual curvature-based framework. We investigate theories of modified gravity based on its torsional-teleparallel formulation, and their cosmological applications. Moreover, we analyze the perturbations of the theory examining the growth history, we construct a cosmological bounce, and we use solar system and cosmological observations in order to impose constraints on the torsional modifications. Finally, we study the case where torsion is nonminimally coupled to a scalar field or its derivatives, as well as other extensions of the theory, using higher-order torsion invariants, or various torsion-matter couplings.