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One-loop effective action of quantum gravity with fakeons and its phenomenology

Monday, 9 September 2019 16:30 (45 minutes)

In this talk I will expose the features of a new local higher-derivative theory of quantum gravity. The model is based on the concept of “fakeons” or “fake degrees of freedom”, which solves the problem of ghosts and leads to a unitary, renormalizable theory. In particular, I will show the absorptive part of the graviton self-energy at one loop and its contributions to the effective action, both in pure gravity and in the theory coupled with any type of matter field. I will point out the differences with respect to the usual treatment of higher-derivative gravity and some phenomenological implications. Finally, possible applications in cosmological perturbation theory will be addressed.

Presenter: PIVA, Marco (Penn State University)