

# Path integral measure and the RG equations of pure gravity

*Tuesday, 10 September 2024 17:45 (25 minutes)*

It is largely known that the calculation of the (euclidean) effective action in quantum gravity is plagued by the appearance of quartic and quadratic UV-sensitive contributions to the vacuum energy. However, it has been recently shown in the Einstein-Hilbert truncation of pure gravity that a careful treatment of the measure in the path integral reveals the disappearance of these problematic terms. The resulting vacuum energy only presents a mild logarithmic sensitivity to the UV scale. Along the same lines, in this talk I will present the derivation and solution of the renormalization group equations of Einstein-Hilbert truncated pure gravity. Differently from what happens in previous implementations, we will see that the RG flow of the cosmological constant is not governed by the fourth power of the running scale. This gives rise to a significantly different renormalization pattern.

**Primary author:** BRANCHINA, Carlo (Università della Calabria - INFN Cosenza)

**Co-authors:** PERNACE, Arcangelo (Istituto Nazionale di Fisica Nucleare); CONTINO, Filippo (Istituto Nazionale di Fisica Nucleare); BRANCHINA, Vincenzo (University of Catania)

**Presenter:** BRANCHINA, Carlo (Università della Calabria - INFN Cosenza)