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Extended DeWitt-Schwinger subtraction scheme, heavy fields and decoupling

Monday, 5 July 2021 17:10 (20 minutes)

We will present the extended DeWitt-Schwinger subtraction scheme [1] in order to consistently remove the divergent pieces of the one loop effective action for a scalar field in curved spacetime. This scheme includes a μ dependence that results in the running of the coupling constants. We will prove that this scheme is compatible with the decoupling of heavy massive fields in the low energy limit as stated by the Appelquist-Carazzone theorem for flat spacetime. We will also use this scheme to construct an effective field theory that avoids the obstacles associated with the cosmological constant problem.

[1] A. Ferreiro and J. Navarro-Salas, Phys. Rev. D 102, 045021 (2020).

Primary authors: FERREIRO, Antonio (University of Valencia & IFIC); Prof. NAVARRO-SALAS, Jose (University of Valencia-IFIC (CSIC))

Presenter: FERREIRO, Antonio (University of Valencia & IFIC)

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