

Non-local heat-kernel expansion and decoupling in semi-classical gravity

Introduce

Giuseppe Nardelli

Università Cattolica del Sacro Cuore

Interviene

Sebastián Franchino VIÑAS

FSU Jena, Germany & UN La Plata, Argentina

Abstract

The terms in the non-local expansion of the heat-kernel correspond generically to increasing powers of the manifold's curvature. In this construction, a form factor, i.e. a function of the laplacian, is associated to each relevant polynomial of Riemann's curvature tensor (considering also possible contractions). In this way, all the "derivative" contributions get grouped into a single term. We will show that this technique can be of use in the realm of semi-classical gravity to compute the one-loop contributions of matter fields to the gravity sector. The final result is the renormalization of operators of at most second power in the curvature and the derivation of the corresponding beta functions. An explicit computation shows that the Applequist-Carazzone decoupling theorem is satisfied.

Seminario

Giovedì 30 gennaio 2020

Sala Riunioni, ore 14.30

Via dei Musei 41 - Brescia

