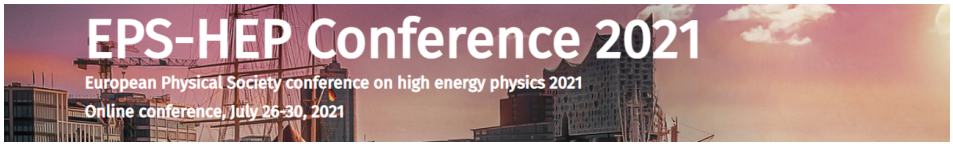

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Trace anomaly for Weyl fermions using the Breitenlohner–Maison scheme for γ_*

Computations of the trace anomaly of chiral fermions have raised a discussion regarding possible unitarity issues at one-loop in four-dimensional theories involving chiral fermions. This was manifested by the claimed existence of an imaginary CP-violating term in the trace of the energy momentum tensor –the Pontryagin density. We revisit this computation using dimensional regularization and standard Feynman diagram techniques. Working in n dimensions and employing the Breitenlohner-Maison scheme of a strictly four-dimensional γ_*, we show that the parity-odd term vanishes, preserving the reality of the trace and thus the unitarity of the Hamiltonian. We further show that the parity-even contribution is half that of a Dirac fermion.

Collaboration / Activity

Poster

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