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Casimir effect as a probe for extended theories of gravity

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In this talk, I explore the Casimir effect for a massless scalar field in the context of a generic curved background. In this perspective, the mean vacuum energy density and the pressure between the binding plates are the relevant physical objects to evaluate. After the above general discussion, a systematic procedure to derive interesting pieces of information on the free parameters of extended theories of gravity is presented. In particular, I focus the attention on some recent results regarding the Standard Model Extension and several quadratic models of gravity.

Summary

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