

SEMINARIO

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Vacuum energy and Casimir effect - history and some recent applications

Abstract: The notion of ground state energy dates back to Planck's quantization hypothesis and became well known in Quantum Mechanics. In 1948, H.B.G. Casimir introduced the first example of vacuum energy in a field theory. 20 years later, Boyer calculated first the Casimir effect for a spherical shell. Later numerous applications to more complicated geometries and topologies were considered, especially by means of zetafunctional methods. We represent recent investigations of vacuum energy and, at finite temperature, free energy and entropy for a spherical shell and for flat sheets. Of interest are also applications to periodic structures. We show latest applications to lattices of Dirac delta functions.

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