

**Abstract Title**

The geometry dependence of the Casimir effect

**Symposium Track****Authors' names**

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**Abstract body**

Casimir effect is probably the deepest manifestation of the quantum nature of light. It is a force which arises between neutral conducting bodies at very small distances (micrometer to nanometer) due to the exchange of virtual photons. In recent experiments it has been proved to be essential for the dynamics of micro electromechanical systems and must be taken into account when designing them.

Even though the nature of the force is well-known since the 1940's, accurate methods for calculating it from first principles in quantum field theory have been lacking until recent years. Since the year 2000 however, motivated by recent experiments, theorists have been looking at the problem with renovated interest and developed tools to calculate the force in the case of bodies of arbitrary shapes.

The topic of the talk will be one of the above approximations, developed to deal with smooth bodies at short distances.

**Keywords**

Casimir effect, quantum field theory, optical approximation

**References**

A. Scardicchio, PhD Thesis, MIT, (May 2006); R.L. Jaffe and A. Scardicchio, Phys. Rev. Lett. 070402 (2004).

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