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# Casimir energy and Casimir entropy

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## Abstract

Casimir forces arise from the radiation pressure of quantum field fluctuations on scatterers, with contributions from vacuum and thermal fluctuations. They are associated with interaction entropies at non zero temperatures. Negative interaction entropies have been predicted to occur, for example between parallel metallic plates modeled by a Drude permittivity, but the predictions drawn from this model are not confirmed by experiments. Negative interaction entropies occur also from pure geometry, say between perfectly reflecting sphere and plate. The latter effect is most pronounced in the dipole approximation, which is reliable when the size of the sphere is small compared to the separation between the sphere and the plate.

Astrid Lambrecht & Serge Reynaud, Casimir Effect, Theory and Experiments <http://arxiv.org/abs/1112.1301v1> and references therein.

Kim Milton, Romain Guérout, Gert-Ludwig Ingold, Astrid Lambrecht & Serge Reynaud, Negative Casimir Entropies in Nanoparticle Interactions, <http://arxiv.org/abs/1405.0311v2> and references therein.

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