2006 Vol.45 No.3 pp.499-504 DOI:

# Casimir Effect for Dielectric Plates

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(Received: 2005-5-30; Revised: 2005-7-12)

Abstract: We generalize Kupisewska method to the three-dimensional system and another derivation of the Casimir effect between two dielectric plates is presented based on the explicit quantization of the electromagnetic field in the presence of dielectrics, where the physical meaning of "evanescent mode" is discussed. The Lifshitz's formula is rederived using all the vacuum mode functions, which include the contribution of the 'evanescent modes'. Only in the case of the perfect metallic plates will the evanescent modes become unimportant.

PACS: 12.20.Ds

Key words: Casimir effect, electromagnetic field quantization, evanescent mode

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