CASIMIR EFFECT BETWEEN TWO COMPACT OBJECTS: MODE SUMMATION APPROACH

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In recent years, great breakthroughs have been achieved in computing the Casimir energy between two compact objects. Using path integral and the theory of multiple scattering, it was shown that the Casimir energy can be expressed in terms of a functional determinant, which is referred to as the TGTG formula. The T matrices are the scattering matrices and the G matrices are the translation matrices. However, it remains obscure how to derive explicitly these matrices. In the talk, we discuss how to derive the TGTG formula using the mode summation approach, which do not rely on the theory of path integral and multiple scattering.