SEMINARIO

Prof. Juan Mateos-Guilarte

U. de Salamanca

Elementary treatment of single and double delta potentials in 1D Dirac Hamiltonians

Abstract: Starting ten years ago during the Gadella-Fest in Valladolid J.M. Muñoz and myself proposed the analysis of scalar field fluctuations propagating on a line searching for the simplest possible approach to understand the Casimir effect going farther than Dirichlet boundary conditions. We thus were forced to study the spectrum of the Schrödinger operator with a double delta zero range potential. The prospect of continuing this line of research for Fermi particles requires to replace the Schrödinger by the Dirac Hamiltonian. It happens that delta potentials in the Dirac framework are not so well analysed as their Schrödinger counterparts. In this talk I will present work (still in progress) on zero-range potentials in 1D Dirac Hamiltonians in a, hopefully, pedagogical manner.

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