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A study of scalar quantum electrodynamics in de Sitter spacetime

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The aim of this study is to explore some features of the nonperturbative, one-loop, regularized effective Lagrangian of scalar quantum electrodynamics (QED) in a uniform electric field background with constant energy density in the Poincare patch of 2-dimensional de Sitter spacetime (dS_2). Particularly, the electric permittivity of the vacuum, and the equation of state of the created Schwinger scalars have been investigated.

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