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Quantum effects in anti-de Sitter spacetime for electromagnetic vacuum state

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The two-point functions of the vector potential and of the field tensor for the electromagnetic field in background of anti-de Sitter (AdS) spacetime are evaluated. First we consider the two-point functions in the boundary-free geometry and then generalize the results in the presence of a reflecting boundary parallel to the AdS horizon. By using the expressions for the two-point functions of the field tensor, we investigate the vacuum expectation values of the electric field squared and of the energy-momentum tensor. Simple asymptotic expressions are provided near the AdS boundary and horizon.

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