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Vacuum Persistence in Fierz-Pauli Theory on a Curved Background

By explicitly constructing the Hilbert space, Higuchi showed that there is a lower bound on the mass of a minimally-coupled free spin-2 field on a curved background. Using the vacuum persistence amplitude, we show that this bound is modified by taking into account additional terms not prohibited by symmetry in the case of a maximally symmetric spacetime. This result can further be generalized to the maximally symmetric space case, such as the FRW universe, and its corresponding bound of the deformation parameter is discussed.

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