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Quantum instability of global de Sitter space[1] PAUL R. ANDERSON, Wake Forest University, EMIL MOTTOLA, Los Alamos National Laboratory — Global de Sitter space is an exact solution to the semiclassical backreaction equations when the quantum fields are in the Bunch-Davies state. For massive scalar fields it is shown that perturbations of the Bunch-Davies state result in deviations of the energy density from its value in the Bunch-Davies state which grow exponentially during the early part of the contraction phase. During the expansion phase the sizes of these deviations decrease. However, in many cases the deviations become large enough to significantly alter the evolution of the universe before the expanding phase is reached.

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