Quasi-Probability Husimi-Distribution Information and Squeezing in a Qubit System Interacting with a Two-Mode Parametric Amplifier Cavity

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Abstract:

Squeezing and phase space coherence are investigated for a bimodal cavity accommodating a two-level atom. The two modes of the cavity are initially in the Barut-Girardello coherent states. This system is studied with the SU(1,1)-algebraic model. Quantum effects are analyzed with the Husimi function under the effect of the intrinsic decoherence. Squeezing, quantum mixedness, and the phase information, which are affected by the system parameters, exalt a richer structure dynamic in the presence of the intrinsic decoherence.

Keywords:

decoherence; two modes; squeezing; Husimi distribution

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