

Generation of Maximally Entangled States for Many Two-Level Atoms in a Thermal Cavity

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Abstract: We propose a scheme for generating maximally entangled states for two or more two-level atoms in a thermal cavity. The cavity frequency is large-detuned from the atomic transition frequency, so the Hamiltonian can be expressed as an effective form. The photon-number-dependent parts in the effective Hamiltonian are cancelled with the assistance of a strong classical field, thus the scheme is insensitive to both the cavity decay and the thermal field. The scheme can be used to generate multi-atom Bell-state and Greenberger-Horne-Zeiliner (GHZ) state.

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Key words: entanglement, GHZ state, large-detune

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