Exact Solution for Jaynes-Cummings Model with Bosonic FieldNonlinearity and Strong Boson-Fermion Coupling

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Abstract: We use Lewis-Riesenfeld invariant approach to treat the modified Jaynes-Cummings models involving any forms of nonlinearty of the bosonic field when strong boson-fermion couplings are nilpotent Grassmann valued. The general state functions, time evolution operator and the time-evolution expressions for both the bosonic number and the fermionic number are presented.

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