

Anticontrol of Quantum Chaos in Hamiltonian Systems

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Abstract: We present a method of realizing anticontrol chaos in a quantum confined system consisting of N two-level atoms within a cavity, using a time-delayed optic field. The delay time plays a construction and organization role for producing temporal chaos, while the interaction between atoms and photons creates spatial chaos. The chaos is quite sensitive to small time delayed. The spectral decomposition of the Hamiltonian obtained by using projection methodology reveals that evolution of the left eigenvectors shows quite complicated chaotic fashions. The method we proposed may be easily tested in experiment, and provides a general method using a sort of driving optic field to achieve anticontrol of chaos for quantum systems.

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