

# Nonlinearity and constrained quantum motion

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## Abstract:

A general prescription for the treatment of constrained quantum motion, leading to nonlinear quantum dynamics of various types, is outlined. As an extension of the formalism, the dynamical equation satisfied by the general density matrix when a quantum system is subjected to one or more constraints arising from conserved quantities is derived. The resulting nonlinear evolution of the density matrix has the property that it is independent of the specific composition of the pure-state mixture generating the initial state of the system. As an illustrative example, evolution of a quantum state that is constrained to a coherent-state subspace of the quantum state space is worked out.

## References:

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