

## Unified Symmetry of Hamilton Systems

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**Abstract:** The definition and the criterion of a unified symmetry for a Hamilton system are presented. The sufficient condition under which the Noether symmetry is a unified symmetry for the system is given. A new conserved quantity, as well as the Noether conserved quantity and the Hojman conserved quantity, deduced from the unified symmetry, is obtained. An example is finally given to illustrate the application of the results.

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