

# Simple applications of Noether's first theorem in quantum mechanics and electromagnetism

Brown, Harvey R and Holland, Peter (2003) Simple applications of Noether's first theorem in quantum mechanics and electromagnetism.

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## Abstract

Internal global symmetries exist for the free non-relativistic Schrodinger particle, whose associated Noether charges---the space integrals of the wavefunction and the wavefunction multiplied by the spatial coordinate---are exhibited. Analogous symmetries in classical electromagnetism are also demonstrated.

**Commentary on:** [Brown, Harvey and Brading, Katherine \(2002\) General covariance from the perspective of Noether's theorems.](#)

**EPrint Type:** Preprint

**Keywords:** Noether, symmetry, free Schrodinger equation, Maxwell's equations, Lagrangian formalism

**Subjects:** [Specific Sciences: Physics: Fields and Particles](#)  
[Specific Sciences: Physics: Quantum Mechanics](#)

**ID Code:** 995

**Deposited By:** [Brown, Harvey R](#)

**Deposited On:** 12 Febuary 2003

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