

Symmetries and conservation laws are a constant theme in physics, and nowhere more so than in particle physics. To understand the connection between these we consider firstly a simple example, that of translational invariance, and show that it leads directly to the conservation of linear momentum. In atomic physics, spectroscopy is a vital ingredient in understanding the structure of atoms in terms of nuclei and electrons, and it plays an analogous role in elucidating the internal structure of hadrons in terms of their constituent quarks. In both cases, each state in the spectrum has not only a specific energy but also well-defined values of 'good' quantum numbers associated with conserved observables, like angular momentum, whose quantum mechanical operators commute with the Hamiltonian of the system. Conservation laws have an equally important place in hadron spectroscopy, and the first task in studying hadrons is to determine which are the appropriate conserved quantities and to measure their values for observed states.