

CHAPTER OVERVIEW

14: Hamiltonian Mechanics

Hamiltonian mechanics can be used to describe simple systems such as a bouncing ball, a pendulum or an oscillating spring in which energy changes from kinetic to potential and back again over time, its strength is shown in more complex dynamic systems, such as planetary orbits in celestial mechanics. The more degrees of freedom the system has, the more complicated its time evolution.

[14.1: Introduction to Hamiltonian Mechanics](#)

[14.2: A Thermodynamics Analogy](#)

[14.3: Hamilton's Equations of Motion](#)

[14.4: Hamiltonian Mechanics Examples](#)

[14.5: Poisson Brackets](#)

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