Advanced Classical Physics

Aims and Objectives

Aims

To cover the topics of

Rotation Centrifugal and Coriolis forces, Inertia tensor, Principal axes of inertia, Gyroscopes.

Lagrangian and Hamiltonian Mechanics


Dynamical Systems

First and second order dynamical systems. Phase space picture and stability analysis. Action angle variables. Integrability of systems.

Electrodynamics and Relativity

4–vectors, Lorentz transformations for electromagnetic fields, Magnetic field required by relativity, 4–vector potential, Maxwell’s equations in 4–vector form