

Physics

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Part I.

Mechanics

1. Newtonian Mechanics

1.1. Constraints

A **constraint** is a relation between coordinates and velocities, reducing the number of degrees of freedom of a system. Using a set \mathbf{q} of generalised coordinates, it can be represented as an equality or inequality involving a **constraint function** $f(\mathbf{q}, \dot{\mathbf{q}}, t)$.

In Newtonian Mechanics, constraints manifest in terms of forces that prevent the system from violating the constraint. These **constraint forces** are usually denoted with Φ .