# Notes on Noether theorem and conserved quantities in dynamical systems

D. Gueorguiev 1/5/23

## Introduction

Noether’s theorem states that every differentiable symmetry of a dynamical system with conservative forces has corresponding conservation law.

Example:

If a dynamical system behaves the same regardless of how it is oriented in space, its Lagrangian is symmetric under continuous rotation. From this symmetry, Noether’s theorem