

# First steps in geometric quantum mechanics

Speaker:

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## Abstract

Geometric mechanics is an approach to dynamical systems based on the three cornerstones of phase space, classical observables and symmetries.

The scope of this talk is to briefly review the fundamental principles of geometric mechanics and discuss how they can be used to describe finite-dimensional quantum mechanical systems.

The key idea is that one can associate a smooth symplectic manifold to any finite-dimensional Hilbert space, i.e. its associated projective space equipped with the so-called Kirillov symplectic structure (KKS).

Eventually, this framework could be employed to increase the efficiency of quantum algorithms in the presence of well-defined symmetries.

## PhD Seminar

25<sup>th</sup> January 2023

Sala Riunioni S5, 16.40

via Garzetta 48, Brescia

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