

# GEOMETRIC METHODS IN QUANTUM MECHANICS

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Since its emergence during last century's twenties, quantum mechanics has fostered the development of both old and entirely new mathematical domains, thus providing a perennial source of fascinating research problems. The present course, mainly geared towards (but not limited to) mathematicians, is intended as a gentle introduction to the mathematical aspects of quantum mechanics, focussing on the geometrical ones. Here is a cursory and tentative list of the planned topics: quantum mechanics (overview), geometric quantum mechanics, geometric quantization and applications, geometry of the Madelung-Bohm hydrodynamical approach, abelian varieties and theta functions. Basic acquaintance with differential geometry is required; however, specific technical tools will be introduced when needed.

#### *General references*

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## PhD Course

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