

GEOMETRIC METHODS IN QUANTUM MECHANICS

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The present lectures cover some of the differential geometric methods naturally involved in quantum mechanics; more specifically, we shall discuss geometric quantum mechanics, wherein the basic theory is recast in (projective) geometric form, and geometric quantization, which, roughly speaking, yields a differential geometric procedure for quantizing a classical system, starting from the geometric structure of the latter. Physical applications and connections with other parts of mathematics will be discussed as well.

Programme (tentative)

1. Review of classical and quantum mechanics
2. Geometric quantum mechanics
3. Geometric quantization
4. Examples/ applications I
5. Examples/ applications II