

Topics in Quantum Mechanics

The aim of this course is to give an introduction to some aspects of quantum mechanics usually covered with less detail in standard courses. We assume familiarity with quantum mechanics at the level of Griffiths textbook.

We plan to cover as many topics listed below as time permits

- 1) WKB quantization, semiclassical expansions
- 2) Existence and counting of bound states
- 3) Rotation matrices and addition of angular momentum
- 4) Path integrals
- 5) Semiclassical expansion in the path integral
- 6) Exactly solvable problems—harmonic oscillator and the Kepler problem
- 7) Examples from group theory used in quantum mechanics

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