Quantum Mechanics (I)

- Two examples for applications of quantum mechanics (1) Quantum calculations or first-principles calculation (2) Quantum computing Quantum mechanical states (The Hilbert space, complex vector space, Linearity) a Random nature of quantum mechanics and its difference with classical random phenomena
- Linear algebra: Basis Sets, Orthonormality and orthogonality, Inner (scalar, dot) product, Hermitian Operators, Unitary transformations, Eigen value problem
- Experimental facts: Double slit experiment, Photoelectric effect, Black body radiation and Hydrogen atom spectrum
- Postulates of QM, Review on probability and statistics
- Eigen functions of momentum operator, Kronecker delta, Fourier transform
- Time evolution, Poisson bracket, commutators with H and preserved observables, Noethers theorem, Time dependent Schrodinger equation