MATHEMATICS OF QUANTUM MECHANICS - 057889

D. Fermi & M. Moscolari

LECTURE PLAN

1. **17/09/2023, 10.15 - 12.15 (2 hours - D.F.).** Crisis of classical physics: black body radiation, photoelectric effect, Compton effect, atomic spectra, double slit experiment, wave-particle duality.

2. **20/09/2023, 08.15 - 10.15 (2 hours - D.F.).** Recap of classical physics: Newtonian, Lagrangian and Hamiltonian mechanics, theory of electromagnetism (Maxwell equations). Instability of classical atomic models.

3. **27/09/2023, 08.15 - 10.15 (2 hours - D.F.).** Optical/mechanical analogy, the Schrödinger equation, conservation of probability and Copenhagen interpretation. Average values and standard deviations of position and momentum operators, canonical commutation relations, Ehrenfest theorem, Heisenberg's uncertainty principle. Von Neumann postulates: states, observvables, dynamics, measurement.

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