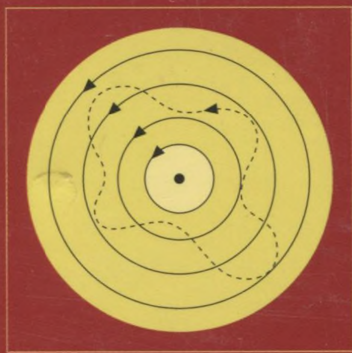

An accessible introduction to advanced quantum theory, this graduate-level textbook focuses on its practical applications rather than on mathematical technicalities. It treats real-life examples, from topics ranging from quantum transport to nanotechnology, to equip students with a toolbox of theoretical techniques.

Beginning with second quantization, the authors illustrate its use with different condensed matter physics examples. They then explain how to quantize classical fields, with a focus on the electromagnetic field, taking students from Maxwell's equations to photons, coherent states, and absorption and emission of photons. Following this is a unique master-level presentation on dissipative quantum mechanics, before the textbook concludes with a short introduction to relativistic quantum mechanics, covering the Dirac equation and a relativistic second quantization formalism.

The textbook includes 70 end-of-chapter problems. Solutions to some problems are given at the end of the chapter, and full solutions to all problems are available for instructors at www.cambridge.org/9780521761505.

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