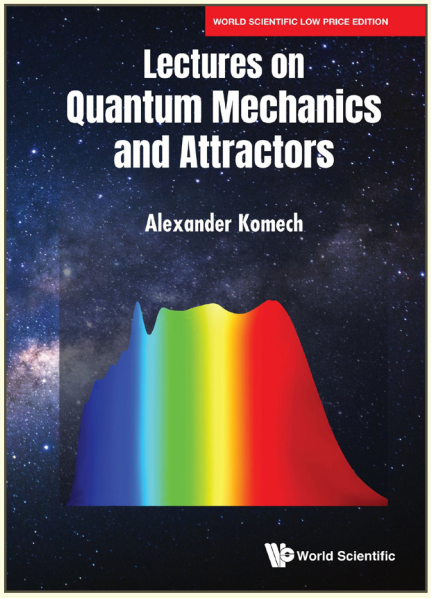
Lectures on Quantum Mechanics and Attractors



By **Alexander Komech**
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ABOUT THE BOOK

This book gives a concise introduction to Quantum Mechanics with a systematic, coherent, and in-depth explanation of related mathematical methods from the scattering theory and the theory of Partial Differential Equations.

The book is aimed at graduate and advanced undergraduate students in mathematics, physics, and chemistry, as well as at the readers specializing in quantum mechanics, theoretical physics and quantum chemistry, and applications to solid state physics, optics, superconductivity, and quantum and high-frequency electronic devices.

The book utilizes elementary mathematical derivations. The presentation assumes only basic knowledge of the origin of Hamiltonian mechanics, Maxwell equations, calculus, Ordinary Differential Equations and basic PDEs. Key topics include the Schrödinger, Pauli, and Dirac equations, the corresponding conservation laws, spin, the hydrogen spectrum, and the Zeeman effect, scattering of light and particles, photoelectric effect, electron diffraction, and relations of quantum postulates with attractors of nonlinear Hamiltonian PDEs. Featuring problem sets and accompanied by extensive contemporary and historical references, this book could be used for the course on Quantum Mechanics and is also suitable for individual study.

READERSHIP

Discipline/profession: Physics and Mathematics. Sector: university, academia and industry. Level: Graduate students and advanced undergraduate students physicists, chemists and mathematicians, lecturers in Quantum Mechanics.

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