Non–Selfadjoint Operators in Quantum Physics. Mathematical Aspects

Description:
A unique discussion of mathematical methods with applications to quantum mechanics

Non–Selfadjoint Operators in Quantum Physics: Mathematical Aspects presents various mathematical constructions influenced by quantum mechanics and emphasizes the spectral theory of non–adjoint operators. Featuring coverage of functional analysis and algebraic methods in contemporary quantum physics, the book discusses recent emergence of the unboundedness of metric operators, which is a serious issue in the study of parity–time–symmetric quantum mechanics. The book also answers mathematical questions that are currently the subject of rigorous analysis, with potentially significant physical consequences. In addition to prompting a discussion of the role of mathematical methods in the contemporary development of quantum physics, the book features:

- Chapter contributions written by well–known mathematical physicists who clarify numerous misunderstandings and misnomers while shedding light on new approaches in this growing area
- An overview of recent inventions and advances in understanding functional analytic and algebraic methods for non–selfadjoint operators as well as the use of Krein space theory and perturbation theory
- Rigorous support of the progress in theoretical physics of non–Hermitian systems in addition to mathematically justified applications in various domains of physics such as nuclear and particle physics, condensed matter physics

An ideal reference, Non–Selfadjoint Operators in Quantum Physics: Mathematical Aspects is useful for researchers, professionals, and academics in applied mathematics and theoretical and/or applied physics who would like to expand their knowledge of classical applications of quantum tools to address problems in their research. Also a useful resource for recent and related trends, the book is appropriate as a graduate–level and/or PhD–level text for courses on quantum mechanics and mathematical models in physics.

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