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Edizione	[2nd ed. 2023.]
Descrizione fisica	1 online resource (xxii, 314 pages) : illustrations
Collana	Lecture Notes in Physics, , 1616-6361
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Soggetti	Quantum theory
Lingua di pubblicazione	Inglese
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Livello bibliografico	Monografia
Nota di contenuto	1st edition: Position operators of non-relativistic quantum mechanics -- A bundle picture of quantum mechanics -- A beam of particles = a plane wave? -- Star-product formulation of quantum mechanics -- Can there be a non-linear quantum mechanics? -- Interaction = exchange of quanta -- Proof of Wigner's theorem. 2nd edition new topics: A very brief history of Matrix mechanics -- Hydrogen atom and $O(4)$ -- Minimum Uncertainty States -- Time Energy Uncertainty Relations? -- Force = curvature in Quantum Mechanics too! -- What is an 'essentially self-adjoint' operator? -- Time re-parametrization in path-integrals -- What are rigged Hilbert spaces? -- Relativistic configuration states, Dirac and Weyl equations.
Sommario/riassunto	This second edition of Some Unusual Topics in Quantum Mechanics builds upon the topics covered in the first, with additional chapters that delve deeper into the mathematical foundations of the subject. New topics include Hilbert spaces and unbounded operators, minimum uncertainty states, path integrals in general coordinates, Fock spaces, second quantization, relativistic particle states, and quantum fields. Historical insights are also included, such as a pre-history of matrix mechanics and Pauli's proof of the H-atom spectrum using $O(4)$ symmetry. Finally, readers are introduced to Bell's inequality and the non-locality in quantum mechanics that is revealed through its violation. These topics are rarely covered in introductory textbooks but are crucial to developing a student's interest and deeper understanding of quantum mechanics. This book serves as valuable supporting

material for graduate-level core courses on the subject.

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