

1. Record Nr.	UNINA9910254626803321
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Titolo	Lectures on Quantum Mechanics : With Problems, Exercises and their Solutions // by Jean-Louis Basdevant
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2016
ISBN	3-319-43479-9
Edizione	[2nd ed. 2016.]
Descrizione fisica	1 online resource (XVI, 501 p. 122 illus.)
Collana	Graduate Texts in Physics, , 1868-4513
Disciplina	530
Soggetti	Quantum physics Quantum computers Spintronics Elementary particles (Physics) Quantum field theory Quantum Physics Quantum Information Technology, Spintronics Elementary Particles, Quantum Field Theory
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	The appeal of physics -- A quantum phenomenon -- Wave function, Schrödinger equation -- Physical quantities -- Energy quantization -- Principles of quantum mechanics -- Two-state systems -- Algebra of observables -- Approximation methods -- Angular momentum -- The Hydrogen Atom -- Spin 1/2 -- Addition of angular momenta -- Identical particles, the Pauli Principle -- Lorentz force in quantum mechanics -- The evolution of systems -- Entangled states. The way of paradoxes -- Solutions to the exercises.
Sommario/riassunto	The new edition of this remarkable text offers the reader a conceptually strong introduction to quantum mechanics, but goes beyond this to present a fascinating tour of modern theoretical physics. Beautifully illustrated and engagingly written, it starts with a brief overview of diverse topics across physics including nanotechnology, statistical physics, materials science, astrophysics, and cosmology. The core of the book covers both established and emerging aspects of quantum

mechanics. A concise introduction to traditional quantum mechanics covers the Schrödinger equation, Hilbert space, the algebra of observables, hydrogen atom, spin and Pauli principle. Modern features of the field are presented by exploring entangled states, Bell's inequality, quantum cryptography, quantum teleportation and quantum mechanics in the universe. This new edition has been enhanced through the addition of numerous problems with detailed solutions, an introduction to the mathematical tools needed and expanded discussion of the state-of-the-art in applications of quantum mechanics. Reviews of the 1st Edition: "This stimulating book on quantum mechanics documents many of the lively introductory lectures given by Jean-Louis Basdevant during the past 25 years...written in a very engaging manner with regular mention of interesting applications and events and personages in the history of quantum mechanics...An insightful discussion is given of the methodology involved in the construction of quantum theory..." (Howard E. Brandt, *Mathematical Reviews*) "The strength of the book lies in Bedevant's obvious talent as a lecturer. He is engaging and interesting and uses a wide variety of examples and sources. ... These are interesting lectures and would be useful to anyone interested in an advanced introduction, or a review, of the topic." (E. Kincanon, *CHOICE*) "This textbook presents theoretical physics with a breathtaking array of examples and anecdotes. The author's style is clear and stimulating, in the manner of a brisk classroom lecture that students can follow with ease and enjoyment. The book is written in physical language, without the excessive mathematics." (Vladimir Dzhunushaliev, *Zentralblatt MATH*).
