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Titolo	Quantum Physics in the Nanoworld : Schrödinger's Cat and the Dwarfs / / by Hans Lüth
Pubbl/distr/stampa	Berlin, Heidelberg : , : Springer Berlin Heidelberg : , : Imprint : Springer, , 2013
ISBN	3-642-31238-1
Edizione	[1st ed. 2013.]
Descrizione fisica	1 online resource (472 p.)
Collana	Graduate Texts in Physics, , 1868-4513
Disciplina	530.12
Soggetti	Quantum theory Nanochemistry Nanotechnology Nanoscience Nanostructures Quantum Physics Nanotechnology and Microengineering Nanoscale Science and Technology
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes index.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Some Fundamental Experiments -- Particle-Wave Duality -- Quantum States in Hilbert Space -- Angular Momentum, Spin and Particle Categories -- Approximate Solutions for Important Model Systems -- Superposition, Entanglement and other Oddities -- Fields and Quanta.
Sommario/riassunto	The book deals with all essential aspects of non-relativistic quantum physics up to the quantization of fields. In contrast to common textbooks of quantum mechanics, modern experiments are described both for the purpose of foundation of the theory and in relation to recent applications. In this respect applications to nano-electronics as well as the realization of quantum-bits are presented and discussed. Furthermore, links are made to other important research fields and applications, such as elementary particle physics, solid state physics and nuclear magnetic resonance tomography in medicine. Even though the representation of the topics is largely performed in terms of Dirac's bra-ket notation and by use of commutator algebra, the

concrete description of the physical basis and the corresponding theoretical concepts are emphasized. Because of little requirement of complex mathematics, the book is suitable as an introduction into quantum physics, not only for physicists but also for chemists, biologists, engineers, computer scientists and even for philosophers as far as they are interested in natural philosophy and epistemology.
