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Titolo	Introduction to Quantum Technologies // by Alto Osada, Rekishu Yamazaki, Atsushi Noguchi
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Descrizione fisica	1 online resource (298 pages)
Collana	Lecture Notes in Physics, , 1616-6361 ; ; 1004
Disciplina	621.382
Soggetti	Quantum computers Quantum optics Quantum computing Quantum theory Quantum communication Quantum Computing Quantum Optics Quantum Information Quantum Measurement and Metrology Quantum Imaging and Sensing Quantum Communications and Cryptography
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Introduction -- State representations and operators in quantum mechanics -- Wavefunction and notations in quantum mechanics -- Time evolutions in quantum mechanics -- Perturbation theory -- Harmonic oscillator -- Two-level system and interaction with electromagnetic waves -- Electromagnetic cavities and cavity quantum electrodynamics.
Sommario/riassunto	This book is a concise primer of quantum technology aiming at providing a comprehensive material of fundamentals to help beginners understand the common concepts and background theories to technologies for individual quantum systems. Further, it also describes how the concepts and theories are applied to technologies in various systems. This book consists of three parts. The first part looks back

over basics of quantum mechanics necessary for the main content, including quantum state and operators, time evolution and perturbation theory. The second part explains in detail key components indispensable to follow quantum technologies: two-level systems, harmonic oscillator and cavity quantum electrodynamics and resonators. In the third part, the physical quantum systems are treated in a more abstract way by introducing quantum logic gates, quantum measurement and quantum error correction. Technical supplements are included in Appendices. The well-compiled topics and concise presentation feature the book as a supplemental primer in the courses of quantum technologies including quantum computing, quantum communication, quantum sensing and quantum simulation. .

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