1. Record Nr. UNINA9910139454403321

Titolo	Quantum information, computation and cryptography : an introductory survey of theory, technology and experiments / / Fabio Benatti ... [et al.], (eds.)
Pubbl/distr/stampa	Heidelberg, : Springer, 2010
ISBN	3-642-11914-X
Edizione	[1st ed.]
Descrizione fisica	1 online resource (X, 350 p. 48 illus.)
Collana	Lecture notes in physics, , 0075-8450
Classificazione	530004
Altri autori (Persone)	BenattiFabio
Disciplina	530.12
Soggetti	Quantum computers Cryptography Quantum dots Information theory
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Bibliographic Level Mode of Issuance: Monograph
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Hilbert Space Methods for Quantum Mechanics -- Classical Information Theory -- Quantum Probability and Quantum Information Theory -- Bipartite Quantum Entanglement -- Field-Theoretical Methods -- Quantum Entropy and Information -- Photonic Realization of Quantum Information Protocols -- Physical Realizations of Quantum Information -- Quantum Cryptography -- Quantum Algorithms.
Sommario/riassunto	This multi-authored textbook addresses graduate students with a background in physics, mathematics or computer science. No research experience is necessary. Consequently, rather than comprehensively reviewing the vast body of knowledge and literature gathered in the past twenty years, this book concentrates on a number of carefully selected aspects of quantum information theory and technology. Given the highly interdisciplinary nature of the subject, the multi-authored approach brings together different points of view from various renowned experts, providing a coherent picture of the subject matter. The book consists of ten chapters and includes examples, problems, and exercises. The first five present the mathematical tools required for a full comprehension of various aspects of quantum mechanics, classical information, and coding theory. Chapter 6 deals with the

manipulation and transmission of information in the quantum realm. Chapters 7 and 8 discuss experimental implementations of quantum information ideas using photons and atoms. Finally, chapters 9 and 10 address ground-breaking applications in cryptography and computation.