1. Record Nr. UNINA9910786999003321

Autore	Wilde Mark <1980->
Titolo	Quantum information theory / / Mark M. Wilde, McGill University, Montreal [[electronic resource]]
Pubbl/distr/stampa	Cambridge : , : Cambridge University Press, , 2013
ISBN	1-316-09039-6 1-107-25577-5 1-107-05712-4 1-107-05961-5 1-107-05836-8 1-107-05604-7 1-139-52534-4
Descrizione fisica	1 online resource (xv, 655 pages) : digital, PDF file(s)
Classificazione	COM083000
Disciplina	003/.54
Soggetti	Quantum computers Quantum communication Information theory - Data processing Electronic data processing - Technological innovations
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Title from publisher's bibliographic system (viewed on 05 Oct 2015).
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Machine generated contents note: How to use this book; Acknowledgements; Part I. Introduction: 1. Concepts in quantum Shannon theory; 2. Classical Shannon theory; Part II. The Quantum Theory: 3. The noiseless quantum theory; 4. The noisy quantum theory; 5. The purified quantum theory; Part III. Unit Quantum Protocols: 6. Three unit quantum protocols; 7. Coherent protocols; 8. The unit resource capacity region; Part IV. Tools of Quantum Shannon Theory: 9. Distance measures; 10. Classical information and entropy; 11. Quantum information and entropy; 12. The information of quantum channels; 13. Classical typicality; 14. Quantum typicality; 15. The packing lemma; 16. The covering lemma; Part V. Noiseless Quantum Shannon Theory: 17. Schumacher compression; 18. Entanglement concentration; Part VI. Noisy Quantum Shannon Theory: 19. Classical

communication; 20. Entanglement-assisted classical communication; 21. Coherent communication with noisy resources; 22. Private classical communication; 23. Quantum communication; 24. Trading resources for communication; 25. Summary and outlook; Appendix A. Miscellaneous mathematics; Appendix B. Monotonicity of quantum relative entropy; References; Index.

Sommario/riassunto

Finally, here is a modern, self-contained text on quantum information theory suitable for graduate-level courses. Developing the subject 'from the ground up' it covers classical results as well as major advances of the past decade. Beginning with an extensive overview of classical information theory suitable for the non-expert, the author then turns his attention to quantum mechanics for quantum information theory, and the important protocols of teleportation, super-dense coding and entanglement distribution. He develops all of the tools necessary for understanding important results in quantum information theory, including capacity theorems for classical, entanglement-assisted, private and quantum communication. The book also covers important recent developments such as superadditivity of private, coherent and Holevo information, and the superactivation of quantum capacity. This book will be warmly welcomed by the upcoming generation of quantum information theorists and the already established community of classical information theorists.