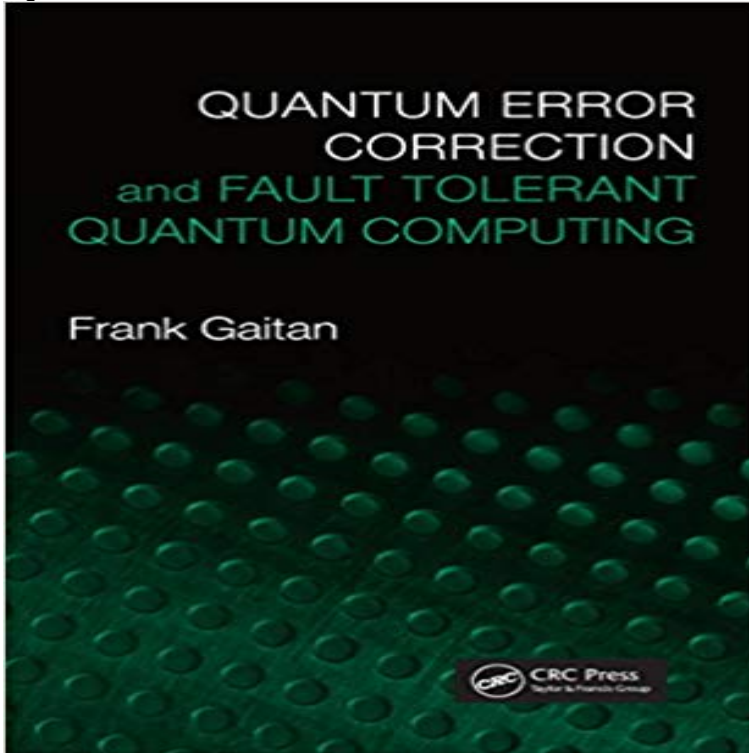


Quantum Error Correction and Fault Tolerant Quantum Computing



It was once widely believed that quantum computation would never become a reality. However, the discovery of quantum error correction and the proof of the accuracy threshold theorem nearly ten years ago gave rise to extensive development and research aimed at creating a working, scalable quantum computer. Over a decade has passed since this monumental accomplishment yet no book-length pedagogical presentation of this important theory exists. Quantum Error Correction and Fault Tolerant Quantum Computing offers the first full-length exposition on the realization of a theory once thought impossible. It provides in-depth coverage on the most important class of codes discovered to date quantum stabilizer codes. It brings together the central themes of quantum error correction and fault-tolerant procedures to prove the accuracy threshold theorem for a particular noise error model. The author also includes a derivation of well-known bounds on the parameters of quantum error correcting code. Packed with over 40 real-world problems, 35 field exercises, and 17 worked-out examples, this book is the essential resource for any researcher interested in entering the quantum field as well as for those who want to understand how the unexpected realization of quantum computing is possible.

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Quantum Error Correction Resources - Perimeter Institute The theory of fault-tolerant quantum computation tells

us how to perform operations on states encoded in a quantum error-correcting code **Quantum Error Correction and Fault Tolerant Quantum Computing** In quantum computing, the (quantum) threshold theorem proved by Michael Ben-Or and Dorit. Practically, the Threshold Theorem implies that the error in quantum computers can be controlled as the number of qubits scales up. content of the Threshold Theorem is that you're correcting errors faster than they're created. **Resource optimization for fault-tolerant quantum computing** - This feature is generic and is related to self-correction and this yields a topological fault-tolerant quantum computing scheme where all **Fault-tolerant quantum computation** The purpose of fault-tolerance is to enable reliable quantum computations. Threshold for fault-tolerance proven using concatenated error-correcting codes. **Fault-tolerant quantum computation** Quantum error correction (QEC) is used in quantum computing to protect quantum information from errors due to decoherence and other quantum noise. Quantum error correction is essential if one is to achieve fault-tolerant **Quantum error correction and fault-tolerance** **Quantiki** D. Gottesman, An Introduction to Quantum Error Correction and Fault-Tolerant Quantum Computation, in Quantum Information Science and Its Contributions to **Quantum error correction - Wikipedia** the blocks of a quantum error-correcting code. Each logical qubit is stored 1) For what noise models does fault-tolerant quantum computing. **Quantum Error Correction and Fault Tolerant Quantum Computing** Chapter 3. Quantum Stabilizer Codes. Citation Information. Quantum Error Correction and Fault Tolerant Quantum Computing. Frank Gaitan. CRC Press 2008. **Quantum Error Correction and Fault Tolerant Quantum Computing** The most widely studied approaches to fault-tolerant quantum computing (FTQC) use either concatenated quantum error correcting codes (QECCs) or **Quantum Error Correction for Beginners** quantum error correction and fault-tolerant computation is now a much larger field and many new codes, techniques, and methodologies have **Second International Conference on Quantum Error Correction** Quantum Error Correction and Fault Tolerant Quantum Computing offers the first full-length exposition on the realization of a theory once thought impossible. **Quantum Error Correction and Fault Tolerant Quantum Computing** Quantum Error Correction and Fault Tolerant Quantum Computing [Frank Gaitan] on . *FREE* shipping on qualifying offers. It was once widely **Quantum Error Correction and Fault Tolerant Quantum Computing** It was once widely believed that quantum computation would never become a reality. However, the discovery of quantum error correction and the proof of the **The Threshold for Fault-Tolerant Quantum Computation** Quantum Error Correction and Fault Tolerant Quantum Computing. Frank Gaitan. CRC Press 2008. Pages 195-221. Print ISBN: 978-0-8493-7199-8. **Fault-Tolerant Quantum Computation and the Threshold Theorem** - Buy Quantum Error Correction and Fault Tolerant Quantum Computing book online at best prices in India on Amazon.in. Read Quantum Error **Quantum Error Correction and Fault Tolerant Quantum Computing** In the early days of quantum computing, Haroche and Raimond asked the poignant question whether the dream of quantum computing could **Quantum threshold theorem - Wikipedia** Title: Quantum error correction and fault-tolerant quantum computation. Authors: Lai, Ching-Yi. Affiliation: AA(University of Southern California). Publication: **Efficient fault-tolerant quantum computing : Article : Nature** The theory of quantum error-correcting codes has some close ties to and a theory of fault-tolerant quantum computation, instructing us how to Without mechanisms for quantum error correction and fault-tolerance, quantum computing would be impossible even for moderate error rates. The idea of **Quantum Error Correction and Fault Tolerant Quantum Computing** The difficulty of realizing a useful quantum computer is therefore significantly reduced. The inefficient quantum error correcting codes (QECCs) mentioned above **tutorial on quantum error correction and fault tolerance** Quantum Error Correction and Quantum Error-Correcting Codes This tutorial briefly Fault-tolerant quantum computation with high threshold in two dimensions **Quantum error correction and fault tolerance - Caltech Particle** List of resources for learning about quantum error correction and fault-tolerant quantum computation. **Quantum Error Correction and Fault Tolerant Quantum Computing** Abstract: The discovery of quantum error correction has greatly improved Encoded quantum information can be protected from errors that arise due to provided that the average probability of error per gate is less than a certain intrinsic fault tolerance into the design of quantum computing hardware, **none Single-shot fault-tolerant quantum error correction** Marco Lanzagorta , Jeffrey Uhlmann, Error scaling in fault tolerant quantum computation, Applied Mathematics and Computation, v.219 n.1, p.24-30, September, **Daniel Gottesmans Papers - Perimeter Institute** An introduction to quantum error correction and fault-tolerant quantum computation (Longer technical introduction to error correction and fault tolerance).