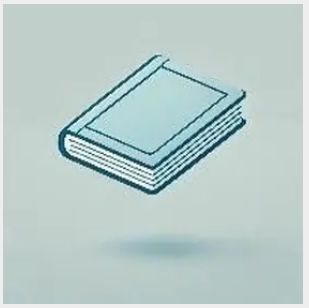
Gautam / Dongre / Chavan

Quantum Cryptography and Secure Communications

An Applied Approach



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Quantum Cryptography and Secure Communications: An Applied Approach explores the fundamentals of quantum computing, quantum cryptography, and secure communication, and offers an insight into quantum key distribution (QKD) and Post-Quantum Cryptography (PQC). The book looks at QKD protocols, techniques and algorithms, such as BB84, E91 and SARG04, and how secure communication uses quantum physics to construct a cryptographic protocol which allows two parties to generate a shared secret key that is known only to them. The applied approach of the book examines recent implementations of quantum cryptography for secure communication among different industry vertices, discusses algorithms which are quantum resistant, such as lattice based and code based algorithms, and considers how secure quantum computing applications addresses societal challenges such as sustainability, as well as the crucial role played by simulations. Quantum Cryptography and Secure Communications finishes with a study of current research trends and uses cases within quantum cryptography to provide a structured learning process that intertwines theory with practical applications, to make quantum cryptography more approachable and relevant.

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