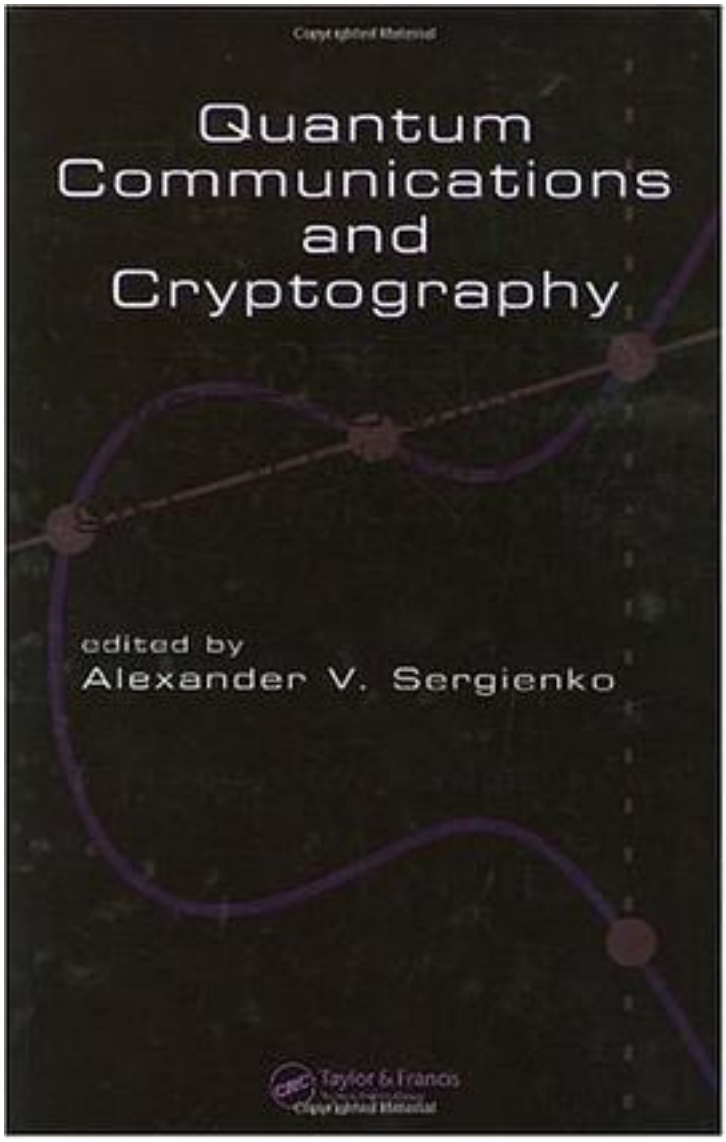
Quantum Communications and Cryptography



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All current methods of secure communication such as public-key cryptography can eventually be broken by faster computing. At the interface of physics and computer science lies a powerful solution for secure communications: quantum cryptography. Because eavesdropping changes the physical nature of the information, users in a quantum exchange can easily detect eavesdroppers. This allows for totally secure random key distribution, a central requirement for use of the one-time pad. Since the one-time pad is theoretically proven to be undecipherable, quantum cryptography is the key to perfect secrecy. "Quantum Communications and Cryptography" is the first comprehensive review of the past, present, and potential developments in this dynamic field.Leading expert contributors from around the world discuss the scientific foundations, experimental and theoretical developments, and cutting-edge technical and engineering advances in quantum communications and cryptography. The book describes the engineering principles and practical implementations in a real-world metropolitan network as well as physical principles and experimental results of such technologies as entanglement swapping and quantum teleportation. It also offers the first detailed treatment of quantum information processing with continuous variables. Technologies include both free-space and fiber-based communications systems along with the necessary protocols and information processing approaches. Bridging the gap between physics and engineering, "Quantum Communications and Cryptography" supplies a springboard for further developments and breakthroughs in this rapidly growing area.

作者介绍:

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