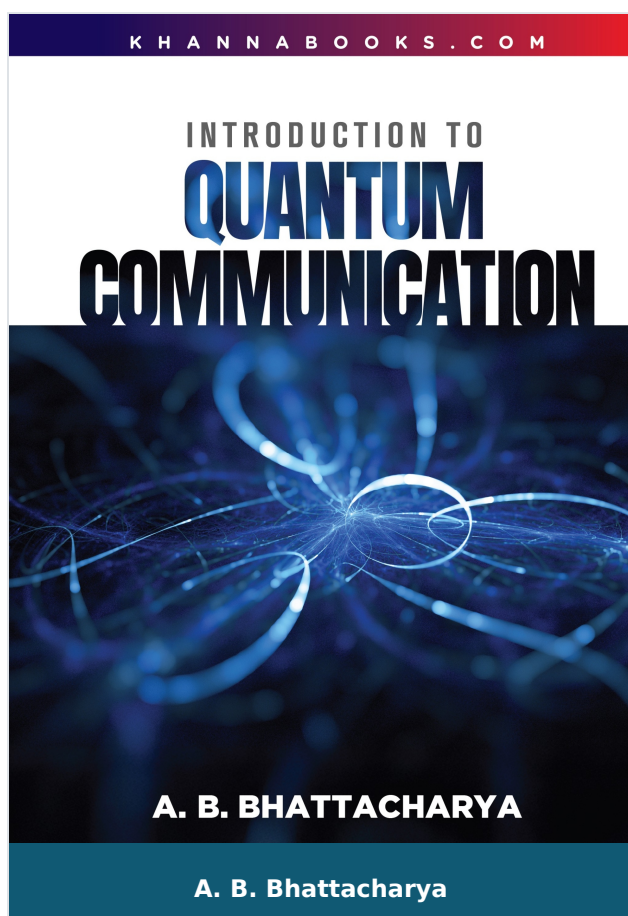




Introduction to Quantum Communication

Author :	A. B. Bhattacharya
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Product Description

Explore the unbreakable Future of Communication

Welcome to a new era where communication is no longer limited by classical boundaries. “Introduction to quantum communication” is your definitive guide to understanding the intricate and revolutionary field that merges quantum physics with information technology.

From the foundations of quantum mechanics to the cutting-edge protocols and technologies that power secure quantum networks, this book offers a clear, structured, and comprehensive journey through the quantum realm, whether you’re a student, researcher, or tech enthusiast, you’ll discover how photons, entanglement, and no-cloning theorems are reshaping the way we think about privacy, data transfer, and global connectivity.

What you’ll learn inside:

- The fundamental difference between classical and quantum communication systems
- The secrets behind quantum key distribution (BB84, E91, B92, DI-QKD)
- Practical implementations like quantum teleportation and quantum internet
- The role of entanglement, dense coding, secret sharing, and quantum bit commitment
- Security threats such as eavesdropping and their quantum countermeasures
- Future directions: satellite-based QKD, post-quantum cryptography, and ethical implications

Each Chapter Includes:

- Numerical problems with solutions
- Short questions & Answers

- Multiple choice questions
- Project ideas for deeper exploration

Bridging physics and information science, this book equips you with the knowledge to understand and participate in the communication revolution of tomorrow.

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Author

A. B. Bhattacharya

Prof. A. B. Bhattacharya did his MSc and PhD degree from the University of Calcutta in Physics and Post-doc from the Massachusetts Institute of Technology (MIT), Cambridge, USA. He worked in close collaboration with the leading laboratories like Lincoln Laboratory; Milestone Hill Observatory; Earth, Atmospheric and Planetary Sciences division of MIT and many other well recognized laboratories in India and abroad. He served as Professor & Head of the Department of Physics, University of Kalyani; Dean of Research and Head of the ECE Department, Techno India University; Pro Vice Chancellor of JIS University and Director of Brainware University. He has published 32 text books for

Science and Engineering students, two popular books for general readers and over 400 research articles in reputed International Journals. Under his supervision 24 scholars received their doctoral degree. He is a fellow of the Institute of Electronics and Telecommunication Engineers and member of many scientific organizations. India International Friendship Society awarded him the prestigious "Shiksha Ratna Award" and Certificate of Excellence for meritorious services, outstanding performance and significant contribution to education. The International Institute of Success Awareness honored him with their globally recognized "Glory of India Gold Medal" for his outstanding contribution to the national stature of India. A few words from the certificate issued by Prof. Williams of MIT may be quoted "Our collaborative effort was directed at the wavelength dependence of radar echoes observations with the Millstone Hill UHF radar in Westford. He made use of the Charles River Data System computer in the Weather Radar Laboratory for these calculations. His results help to make a convincing case that the volume reflectivity associated with lighting is a diminishing function of radar wavelength, contrary to contemporary thinking". Dr.