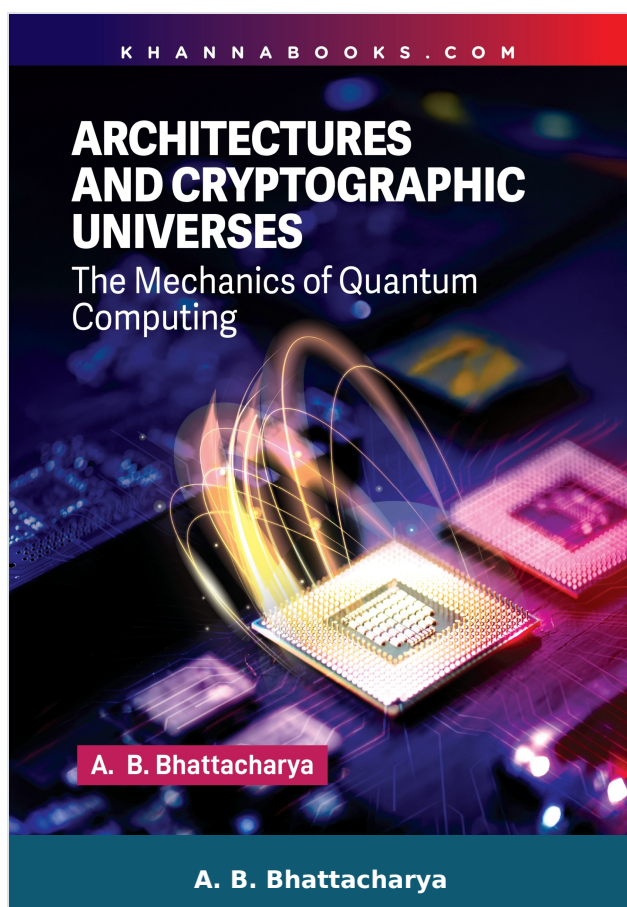




Architectures And Cryptographic Universes (The Mechanics of Quantum Computing)

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Product Description

Architectures And Cryptographic Universes (The Mechanics of Quantum Computing)

From the basic designs of quantum computers to the latest advances in quantum security. "Architectures and Cryptographic Universes: The Mechanics of Quantum Computing" takes you on a complete journey through the world of quantum technology.

Whether you are a student, researcher, or professional in computing or physics, this book will help you understand and make the most of the exciting quantum revolution.

Salient Features:

Learn Ahead to the Future – Quantum Computing Survey

- **Learn the Hardware:** Discover how quantum computers actually work – from superconducting qubits and trapped ions to quantum dots and light-based systems – and understand the big challenges of stability and scalability.
- **Learn the Security revolution:** Step into Quantum Cryptography – explore real protocols like BB84, understand the No-Cloning Theorem, and see how quantum tech will change data protection forever.
- **Learn the Science in Action:** Experience how Quantum Simulation helps, design new materials and chemicals, and explore the future of Quantum Machine Learning, adiabatic, and topological computing.
- **Learn by Doing:** Get practical with tools like Google cirq, Microsoft QDK, and open-source simulators. Build your own circuits, run guided exercises, and even test on real quantum devices.
- **Learn the Challenges:** Understand the ongoing research in quantum error correction, cryogenic cooling, and scalable architectures – key steps toward powerful

quantum machines.

- **Learn the future:** Imagine what's next – Quantum Networks, the Quantum Internet, and hybrid systems where classical and quantum computing work hand in hand.

Each chapter Includes:

- Conceptual Breakdown
- Short Questions and MCQs
- Numerical Problems with Solutions
- Project Ideas with Guidance

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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.