

Pushan Majumdar Memorial Lecture 2025

(July 14 – 17, 2025)



School of Physical Sciences, Indian Association for the Cultivation of Science
Kolkata

Speaker: Professor Debasish Banerjee
University of Southampton, UK

INTRODUCTION TO QUANTUM COMPUTATION ALGORITHMS

LECTURE 1

Date: July 14
Time: 14:00 hrs



Classical and Quantum Information as bits and qubits. Unitary operations on quantum states and projective measurements. Quantum Circuits. No-cloning theorem.

LECTURE 2

Date: July 15
Time: 14:00 hrs



Quantum Queries and the black-box model. Deutsch and Simon's problem. Probabilistic vs Quantum Query Complexity.

LECTURE 3

Date: July 16
Time: 14:00 hrs



Quantum Fourier Transform. Discrete Log Problem and Shor's Algorithm.

LECTURE 4

Date: July 17
Time: 14:00 hrs



Quantum Phase Estimation Algorithm. Spectral Estimations.

VENUE: C V RAMAN HALL, MAIN BUILDING, IACS