

NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - NOC:Quantum Transport

Subject Co-ordinator - Prof. Madhu Thalakulam

Co-ordinating Institute - IISER - Thiruvananthapuram

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction
Lecture 2 - Classical and Semi-classical Transport: Overview
Lecture 3 - Quantum Transport Regimes
Lecture 4 - Band-bending and Metal semiconductor Interfaces
Lecture 5 - Semiconductor Heterostructures
Lecture 6 - 2DEG and Electrostatic Gating
Lecture 7 - Device Fabrication - Photolithography
Lecture 8 - Device Fabrication - Electron-beam Lithography
Lecture 9 - Quantum hall Effect - Overview
Lecture 10 - Quantum Hall Effect: Quantization of electron orbitals, Landau levels and Flux quantization
Lecture 11 - Quantum Hall Effect: Landau level, filling factor and Shubnikov-de-Haas effect
Lecture 12 - Quantum Hall Effect: Edge states and Resistance Quantization
Lecture 13 - Weak Localization
Lecture 14 - Aharonov-Bohm Effect
Lecture 15 - Ballistic 1D transport-Quantum Point contacts
Lecture 16 - Ballistic 1D transport-Current from transmission
Lecture 17 - Ballistic 1D transport-Where is the power dissipation?
Lecture 18 - 0D Transport - Single Electron Tunneling
Lecture 19 - Single Electron Transistors, Coulomb Blockade
Lecture 20 - Quantum Dots, Shell filling, Artificial Atoms
Lecture 21 - Transport on Double Quantum Dots - I
Lecture 22 - Transport on Double Quantum Dots - II
Lecture 23 - Superconductivity-Introduction
Lecture 24 - Superconducting tunnel junctions-Josephson effect - 1
Lecture 25 - Superconducting tunnel junctions-Josephson effect - 2
Lecture 26 - Charge sensing with quantum point contacts
Lecture 27 - Charge sensing with single electron transistors
Lecture 28 - Real-time charge sensing
Lecture 29 - Quantum Electrical Metrology - I

Get DIGIMAT For High-Speed Video Streaming of NPTEL and Educational Video Courses in LAN

<http://www.digimat.in>

NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

Lecture 30 - Quantum Electrical Metrology - II
Lecture 31 - Qubits - Overview
Lecture 32 - Superconducting qubits
Lecture 33 - Quantum dot qubits