

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

NPTEL Video Course - Electrical Engineering - NOC:Fundamentals of Nano and Quantum Photonics

Subject Co-ordinator - Prof. Naresh Kumar Emani

Co-ordinating Institute - IIT - Madras

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

- Lecture 1 - Review of Maxwell's Equations
- Lecture 2 - Wave Equation
- Lecture 3 - Dispersion Relation
- Lecture 4 - Propagating and Evanescent Waves
- Lecture 5 - Diffraction Limit and Spatial Frequencies
- Lecture 6 - Plane Waves
- Lecture 7 - Optical Response of Materials
- Lecture 8 - Lorentz Model
- Lecture 9 - Properties of Lorentz Oscillator Model
- Lecture 10 - Drude-Lorentz Model for Metals
- Lecture 11 - Kramers-Kronig Relation
- Lecture 12 - Engineering Optical Response of Materials
- Lecture 13 - Low dimensional systems
- Lecture 14 - Absorption in Semiconductors
- Lecture 15 - Optical gain in semiconductors
- Lecture 16 - Absorption in low-dimensional semiconductors
- Lecture 17 - Selection rules for optical processes
- Lecture 18 - Scattering of EM radiation
- Lecture 19 - LSPR: Quasi-static approximation
- Lecture 20 - Size dependence of Plasmon Resonance
- Lecture 21 - Tuning Plasmonic Resonances
- Lecture 22 - Surface Plasmon Polariton(SPP)
- Lecture 23 - Understanding SPP Dispersion Diagram
- Lecture 24 - Exciting Surface Plasmon Polaritons
- Lecture 25 - Analytical Calculation of Scattering Coefficients - IPython code overview
- Lecture 26 - EM Waves in Multilayer Stack - T Matrix formulation
- Lecture 27 - Photonic Bandgap in 1D
- Lecture 28 - EM Waves in 1D Photonic Crystal
- Lecture 29 - Diffracton Grating

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 - Applications of Photonic Crystals
- Lecture 31 - PhC in 1D - T-matrix examples
- Lecture 32 - Introduction to Metamaterials
- Lecture 33 - Metamaterials at GHz and THz frequencies
- Lecture 34 - Negative index materials at optical frequencies
- Lecture 35 - Plasmonic Metasurfaces
- Lecture 36 - Dielectric Metasurfaces
- Lecture 37 - Tunable and Active Metamaterials
- Lecture 38 - Radiative Absorption and Emission
- Lecture 39 - Miniaturization of Integrated Photonic Devices
- Lecture 40 - Recent trends in nanoscale lasers
- Lecture 41 - Non-Hermitian Systems
- Lecture 42 - Resonant light-atom interactions
- Lecture 43 - Experimental observation of Rabi oscillations
- Lecture 44 - Atom-Cavity Interaction - Weak and strong coupling regimes
- Lecture 45 - Experimental observation of weak and strong coupling
- Lecture 46 - Fabrication of nanophotonic structures - 1
- Lecture 47 - Fabrication of nanophotonic structures - 2
- Lecture 48 - Measuring light quanta
- Lecture 49 - Photon Statistics
- Lecture 50 - Photodetection and shot noise limit
- Lecture 51 - Second order correlation function
- Lecture 52 - Hanbury Brown-Twiss Experiment with Photons
- Lecture 53 - EM Waves as harmonic oscillator
- Lecture 54 - Vacuum fluctuations
- Lecture 55 - Coherent and squeezed states
- Lecture 56 - Squeezed and photon number states
- Lecture 57 - Application of squeezed states
- Lecture 58 - Preliminaries for quantum theory of light
- Lecture 59 - Quantum theory of light
- Lecture 60 - Operator solution of quantum harmonic oscillator
- Lecture 61 - Photon number states
- Lecture 62 - Field quadratures and operators
- Lecture 63 - Uncertainty relations for quantum light
- Lecture 64 - Applications of quantum light - Quantum Key Distribution