

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

NPTEL Video Course - Physics - NOC:Solar Photovoltaics Fundamentals, Technology and Applications

Subject Co-ordinator - Prof. Soumitra SataPathi

Co-ordinating Institute - IIT - Roorkee

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

- Lecture 1 - Energy and its Sources
- Lecture 2 - Introduction to Solar Energy
- Lecture 3 - Introduction of Quantum Mechanics in Solar Photovoltaics - I
- Lecture 4 - Introduction of Quantum Mechanics in Solar Photovoltaics - II
- Lecture 5 - Introduction of Quantum Mechanics in Solar Photovoltaics - III
- Lecture 6 - Band Theory
- Lecture 7 - Energy Band Diagram
- Lecture 8 - Charge Carrier Dynamics in Semiconductor
- Lecture 9 - P-N junction model and Diode working principle
- Lecture 10 - Current-Voltage Characteristics of Solar Cell
- Lecture 11 - Equivalent Circuits of Solar Cells, Fill Factor
- Lecture 12 - Fabrication Process of Semiconductor Grade Silicon
- Lecture 13 - Fabrication Process of Single crystalline Silicon
- Lecture 14 - Thin Film deposition Techniques
- Lecture 15 - Thin Film Solar Cells
- Lecture 16 - Photo Physics of Dye Sensitized Solar Cells
- Lecture 17 - Fabrication of Dye Sensitized Solar Cells
- Lecture 18 - Design of Novel dyes
- Lecture 19 - Design of Electrolytes
- Lecture 20 - Quantum Dot Solar Cells
- Lecture 21 - Fabrication of Organic Solar Cells
- Lecture 22 - Physics of Bulk Hetero Junction (BHJ) Solar Cells
- Lecture 23 - Photo Physics of Organic Solar Cells
- Lecture 24 - Morphology Optimization of Organic Solar Cells
- Lecture 25 - Perovskite Solar Cells
- Lecture 26 - Fabrication of Perovskite Solar Cells
- Lecture 27 - Photo Physics of Perovskite Solar Cells
- Lecture 28 - Stability in Perovskite Solar Cells
- Lecture 29 - Morphology Optimization of Perovskite Solar Cells

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- Lecture 30 - Perovskite Single Crystal Solar Cells
- Lecture 31 - Photophysics in Perovskite Single Crystal Solar Cells
- Lecture 32 - Applicationss of Perovskite Single Crystal Solar Cells
- Lecture 33 - Organic Nano Particles Based Solar Cells
- Lecture 34 - Morphology Optimization in Organic Nanoparticle Based Solar Cells
- Lecture 35 - Multijunction Tandem Solar Cells
- Lecture 36 - Introduction to Characterization Techniques
- Lecture 37 - Vacuum Technology in Solar Photovoltaics
- Lecture 38 - Introduction of Pressure Gauges
- Lecture 39 - Electron Microscopy in Solar Photovoltaics
- Lecture 40 - Impedance Spectroscopy