

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

NPTEL Video Course - Physics - Quantum Mechanics I

Subject Co-ordinator - Prof. S. Lakshmi Bala

Co-ordinating Institute - IIT - Madras

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

Lecture 1 - Quantum Mechanics â An Introduction
Lecture 2 - Linear Vector Spaces - I
Lecture 3 - Linear Vector Spaces - II
Lecture 4 - Linear Vector Spaces - III
Lecture 5 - Postulates of Quantum Mechanics - I
Lecture 6 - Postulates of Quantum Mechanics - II
Lecture 7 - The Uncertainty Principle
Lecture 8 - The Linear Harmonic Oscillator
Lecture 9 - Introducing Quantum Optics
Lecture 10 - An Interesting Quantum Superposition
Lecture 11 - The Displacement and Squeezing Operators
Lecture 12 - Exercises in Finite Dimensional Linear Vector Spaces
Lecture 13 - Exercises on Angular Momentum Operators and their algebra
Lecture 14 - Exercises on Quantum Expectation Values
Lecture 15 - Composite Systems
Lecture 16 - The Quantum Beam Splitter
Lecture 17 - Addition of Angular Momenta - I
Lecture 18 - Addition of Angular Momenta - II
Lecture 19 - Addition of Angular Momenta - III
Lecture 20 - Infinite Dimensional Linear Vector Spaces
Lecture 21 - Square-Integrable Functions
Lecture 22 - Ingredients of Wave Mechanics
Lecture 23 - The Schrodinger equation
Lecture 24 - Wave Mechanics of the Simple Harmonic Oscillator
Lecture 25 - One-Dimensional Square Well Potential
Lecture 26 - The Square Well and the Square Potential Barrier
Lecture 27 - The Particle in a one-dimensional Box
Lecture 28 - A Charged Particle in a Uniform Magnetic Field
Lecture 29 - The Wavefunction

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- Lecture 30 - The Central Potential
- Lecture 31 - The Spherical Harmonics
- Lecture 32 - Central Potential
- Lecture 33 - Illustrative Exercises - I
- Lecture 34 - Illustrative Exercises - II
- Lecture 35 - Ehrenfest's Theorem
- Lecture 36 - Perturbation Theory - I
- Lecture 37 - Perturbation Theory - II
- Lecture 38 - Perturbation Theory - III
- Lecture 39 - Perturbation Theory - IV
- Lecture 40 - Time-dependent Hamiltonians
- Lecture 41 - The Jaynes-Cummings model