

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

NPTEL Video Course - Physics - NOC:Dynamics of Classical and Quantum Fields

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Co-ordinating Institute - IIT - Guwahati

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

- Lecture 1 - Introduction
- Lecture 2 - Lagrangian Formalism
- Lecture 3 - Hamiltonian Mechanics
- Lecture 4 - Flows and Symmetries
- Lecture 5 - Examples of Continuum Systems
- Lecture 6 - Symmetries and Noether's Theorem
- Lecture 7 - Dynamical Symmetries
- Lecture 8 - Symmetries in Field Theories
- Lecture 9 - The Relativistic Electromagnetic Field
- Lecture 10 - Stress-Energy (Energy-Momentum) Tensor
- Lecture 11 - Green's Theorem and Green's Functions
- Lecture 12 - Diffraction Theory
- Lecture 13 - Introduction to Elasticity Theory
- Lecture 14 - Solution of the rubber band problem
- Lecture 15 - The Stress Function Method
- Lecture 16 - Strain Energy
- Lecture 17 - The Euler Equation
- Lecture 18 - Bernoulli's Principle
- Lecture 19 - Matter, Momentum and Energy Transport
- Lecture 20 - Stokes' Drag - I
- Lecture 21 - Stokes' Drag - II
- Lecture 22 - Towards Quantum Fields
- Lecture 23 - Right and Left Movers
- Lecture 24 - Functional Integration - I
- Lecture 25 - Functional Integration - II
- Lecture 26 - Perturbation theory
- Lecture 27 - Quantum Mechanics using Lagrangians
- Lecture 28 - Path Integrals - Formalism
- Lecture 29 - Path Integrals - Free particles

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- Lecture 30 - Path Integrals - Harmonic oscillator
- Lecture 31 - Creation and annihilation operators - Excitations
- Lecture 32 - Creation and annihilation operators - Photons
- Lecture 33 - Creation and annihilation operators - Many-body physics
- Lecture 34 - Particle and Hole Green functions
- Lecture 35 - Current Algebra
- Lecture 36 - Tight Binding Models - I
- Lecture 37 - Tight Binding Models - II
- Lecture 38 - Order Parameters
- Lecture 39 - Schrieffer Wolff Transformation
- Lecture 40 - Matsubara Green functions - I
- Lecture 41 - Matsubara Green functions - II
- Lecture 42 - Self Energy and Spectral Functions
- Lecture 43 - S-Matrix Perturbation Theory
- Lecture 44 - Keldysh Contour
- Lecture 45 - Bosonic Coherent States
- Lecture 46 - Fermionic Coherent States
- Lecture 47 - Nonlocal particle hole operators - Bosons
- Lecture 48 - Nonlocal particle hole operators - Fermions