NPTEL Video Course - Mechanical Engineering - NOC:Statistical Thermodynamics for Engineers

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Co-ordinating Institute - IISc - Bangalore

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

Lecture 30 - The Internal Motion for a two particle system
Lecture 31 - The rotational and vibrational energy mode for a diatomic molecule
Lecture 32 - Hermite polynomials as vibrational energy mode solution
Lecture 33 - Equivalent two body model of atomic hydrogen
Lecture 34 - The Electronic Energy Mode for Atomic Hydrogen
Lecture 35 - Problem Solving - 3
Lecture 36 - The four quantum numbers and multielectron systems
Lecture 37 - Spectroscopic term symbols for multielectron atoms
Lecture 38 - Electron energies for multielectron systems
Lecture 39 - Combined energy modes for atoms and diatomic molecules
Lecture 40 - Perturbation analysis of the Schrodinger Wave equation
Lecture 41 - Selection rules
Lecture 42 - The Rotational and vibrational spectroscopy
Lecture 43 - Ro-vibrational spectroscopy (Simplex model)
Lecture 44 - Rotation vibration coupling (Complex model)
Lecture 45 - Ro-vibrational spectroscopy (Complex model)
Lecture 46 - Ro-vibronic spectroscopy
Lecture 47 - Working with Spectroscopic Schemes, Notations and Term Symbols
Lecture 48 - From Particles to assembly - I
Lecture 49 - From Particles to assembly - II
Lecture 50 - Connecting Quantum Mechanics to Classical Mechanics
Lecture 51 - The Equipartition principle and ideal gas
Lecture 52 - Thermodynamic properties of ideal monoatomic and diatomic gas
Lecture 53 - The zero of energy (rotational and vibrational)
Lecture 54 - Specific heats, Internal energy through Vibrational and Ro-vibrational energy modes
Lecture 55 - The Ro-vibrational partition function and Introduction to intersction of Radiationand Matter
Lecture 56 - Absorption and Emission of Radiation
Lecture 57 - The Rabi frequency and Beer's Law
Lecture 58 - Insights into radiative spectral transitions
Lecture 59 - Theory of Absoprtion Spectroscopy