

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

NPTEL Video Course - Chemistry and Biochemistry - NOC:Basic Statistical Mechanics

Subject Co-ordinator - Prof. Biman Bagchi

Co-ordinating Institute - IIT - Bombay

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

Lecture 1 - Why Study Statistical Mechanics?  
Lecture 2 - Thermodynamics  
Lecture 3 - Probability Theory - Part 1  
Lecture 4 - Probability Theory - Part 2  
Lecture 5 - Fundamental concepts and Postulates of Statistical Mechanics - Part 1  
Lecture 6 - Fundamental concepts and Postulates of Statistical Mechanics - Part 2  
Lecture 7 - From Postulates to Formulation  
Lecture 8 - Microcanonical Ensemble  
Lecture 9 - Relation with Thermodynamics in Microcanonical Ensemble - Part 1  
Lecture 10 - Relation with Thermodynamics in Microcanonical Ensemble - Part 2  
Lecture 11 - Canonical Ensemble - Part 1  
Lecture 12 - Canonical Ensemble - Part 2  
Lecture 13 - Thermodynamic Potential for Canonical ensemble  
Lecture 14 - Grand Canonical Ensemble  
Lecture 15 - Thermodynamic Potentials for Grand Canonical and Isothermal-Isobaric ensembles  
Lecture 16 - Fluctuations and Response Function - Part 1  
Lecture 17 - Fluctuations and Response Function - Part 2  
Lecture 18 - Ideal Monatomic Gas  
Lecture 19 - Ideal Monatomic Gas  
Lecture 20 - Ideal Monatomic Gas  
Lecture 21 - Ideal Monatomic Gas  
Lecture 22 - Ideal Monatomic Gas  
Lecture 23 - Ideal Gas of Diatomic Molecules  
Lecture 24 - Ideal Gas of Diatomic Molecules  
Lecture 25 - Ideal Gas of Diatomic Molecules  
Lecture 26 - Ideal Gas of Diatomic Molecules  
Lecture 27 - Ideal Gas of Polyatomic molecules  
Lecture 28 - Cluster Expansion and Mayer's Theory of Condensation - Part 1  
Lecture 29 - Cluster Expansion and Mayer's Theory of Condensation - Part 2

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- Lecture 30 - Cluster Expansion and Mayer's Theory of Condensation - Part 3
- Lecture 31 - Cluster Expansion and Mayer's Theory of Condensation - Part 4
- Lecture 32 - Cluster Expansion and Mayer's Theory of Condensation - Part 5
- Lecture 33 - Cluster Expansion and Mayer's Theory of Condensation - Part 6
- Lecture 34 - Phase Transition and Landau Theory - Part 1
- Lecture 35 - Phase Transition and Landau Theory - Part 2
- Lecture 36 - Phase Transition and Landau Theory - Part 3
- Lecture 37 - Comments on some important Concepts of Statistical Mechanics
- Lecture 38 - Nucleation Part 1
- Lecture 39 - Nucleation Part 2
- Lecture 40 - Nucleation Part 3
- Lecture 41 - Nucleation Part 4
- Lecture 42 - Spinodal Decomposition and Pattern Formation
- Lecture 43 - Spinodal Decomposition and Pattern Formation
- Lecture 44 - Ising Model and Other Lattice Models - Part 1
- Lecture 45 - Ising Model and Other Lattice Models - Part 2
- Lecture 46 - Ising Model and Other Lattice Models - Part 3
- Lecture 47 - Ising Model and Other Lattice Models - Part 4
- Lecture 48 - Ising Model and Other Lattice Models - Part 5
- Lecture 49 - Binary Mixtures
- Lecture 50 - Binary Mixtures
- Lecture 51 - Theory of Liquids - Part 1
- Lecture 52 - Theory of Liquids - Part 2
- Lecture 53 - Theory of Liquids - Part 3
- Lecture 54 - Theory of Liquids - Part 4
- Lecture 55 - Polymers in Solution and Polymer Collapse - Part 1
- Lecture 56 - Polymers in Solution and Polymer Collapse - Part 2
- Lecture 57 - Polymers in Solution and Polymer Collapse - Part 3
- Lecture 58 - Polymers in Solution and Polymer Collapse - Part 4
- Lecture 59 - Computer Simulation Methods in Statistical Mechanics - Part 1
- Lecture 60 - Computer Simulation Methods in Statistical Mechanics - Part 2
- Lecture 61 - Conclusion