

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

NPTEL Video Course - Chemistry and Biochemistry - NOC:Symmetry and Structure in the Solid State

Subject Co-ordinator - Prof. T. N. Guru Row

Co-ordinating Institute - IISc - Bangalore

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

Lecture 1 - Symmetry in 3D World  
Lecture 2 - Two Fold Axis Representation with the Help of Esher Diagrams  
Lecture 3 - Pure Rotation Axes  
Lecture 4 - Properties of Crystal  
Lecture 5 - Point Group Generation  
Lecture 6 - Combination of Symmetry Elements  
Lecture 7 - Arrangement of Symmetry Equivalent Objects  
Lecture 8 - Introduction to Plane Lattices  
Lecture 9 - Bravais Lattices  
Lecture 10 - Details of Stereographic Projections  
Lecture 11 - Stereographic Projections (Continued)  
Lecture 12 - Point Group and Crystal Systems - 1  
Lecture 13 - Point Group and Crystal Systems - 2  
Lecture 14 - Point Groups to Space Groups  
Lecture 15 - Translation components in Monoclinic System  
Lecture 16 - Additional Symmetry Elements  
Lecture 17 - Additional Symmetry Elements (Continued...)  
Lecture 18 - Space Groups - 1  
Lecture 19 - Space Groups - 2  
Lecture 20 - Space Groups - 3  
Lecture 21 - Space Groups - 4  
Lecture 22 - Additional Information on Space Groups  
Lecture 23 - Details of Space Groups - 1  
Lecture 24 - Details of Space Groups - 2  
Lecture 25 - Details of Space Groups - 3  
Lecture 26 - Details of Space Groups - 4  
Lecture 27 - Crystal Structure of Calcium Carbonate  
Lecture 28 - Crystal Structure of Some Minerals  
Lecture 29 - Atoms in the Crystal

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

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- Lecture 30 - Crystallographic Directions and Planes
- Lecture 31 - Interference of Waves
- Lecture 32 - X Ray Scattering ; optical Analogy
- Lecture 33 - X Ray Scattering ; Fourier transforms
- Lecture 34 - X Ray Scattering ; Deriving Laue Conditions from scattering theory
- Lecture 35 - X Ray Scattering ; Laue conditions to Bragg's Law, Introduction to Reciprocal lattice
- Lecture 36 - Bragg's Law in Reciprocal Space - 1
- Lecture 37 - Bragg's Law in Reciprocal Space - 2
- Lecture 38 - Calculation of Intensities - 1
- Lecture 39 - Calculation of Intensities - 2
- Lecture 40 - Conversion from Direct to reciprocal space, the inverse relations
- Lecture 41 - Diffraction and Reciprocal Space (Continued...)
- Lecture 42 - Limits of Resolution
- Lecture 43 - Concept of Structure Factors
- Lecture 44 - Systematic Absences - 1
- Lecture 45 - Systematic Absences - 2
- Lecture 46 - Systematic Absences - 3
- Lecture 47 - Friedel's Law and Laue classes
- Lecture 48 - Experimental Aspects of Data Collection
- Lecture 49 - Structure Determination - 1
- Lecture 50 - Structure Determination - 2
- Lecture 51 - Data Reduction
- Lecture 52 - Fourier Syntheses
- Lecture 53 - Patterson Method - 1
- Lecture 54 - Patterson Method - 2
- Lecture 55 - Direct Method
- Lecture 56 - Powder Diffraction - 1
- Lecture 57 - Powder Diffraction - 2
- Lecture 58 - Powder Diffraction - 3
- Lecture 59 - Quantum Crystallography - 1
- Lecture 60 - Quantum Crystallography - 2
- Lecture 61 - Intermolecular Interactions