

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

NPTEL Video Course - Metallurgy and Material Science - NOC:Texture in Materials

Subject Co-ordinator - Prof. Somjeet Biswas

Co-ordinating Institute - IIT - Kharagpur

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

Lecture 1 - Introduction
Lecture 2 - Texture and Anisotropy
Lecture 3 - Processing - Texture - Anisotropic Properties
Lecture 4 - Crystal Structure and Stereographic Projections
Lecture 5 - Utilization of Stereographic Projections
Lecture 6 - Diffraction and Bragg's Law
Lecture 7 - Structure Factor and Diffraction Extinction Criteria
Lecture 8 - Structure factor and diffraction extinction criteria (Continued...)
Lecture 9 - Pole figures
Lecture 10 - Pole figures (Continued...)
Lecture 11 - Inverse Pole Figures
Lecture 12 - Three Dimensional Texture Analysis
Lecture 13 - Euler Angles and ODFs
Lecture 14 - Euler Angles and ODFs (Continued...)
Lecture 15 - Euler Angles and ODFs (Continued...)
Lecture 16 - Euler Angles and ODFs (Continued...)
Lecture 17 - Symmetry Effects on Orientation Matrix
Lecture 18 - Euler Space and Orientation Matrices
Lecture 19 - Texture Fibre, Periodicity in Euler Space, Incomplete Pole Figures
Lecture 20 - Crystal Structures and Symmetry
Lecture 21 - Size of Euler Space in Relation to Crystal and Sample Symmetry
Lecture 22 - Macrotexture and Microtexture Measurements
Lecture 23 - Penetration Depth of X-ray, Neutron, e-1 and Basics of X-ray Generation
Lecture 24 - Characteristic X-ray, Absorption and Filters
Lecture 25 - Principles of pole figure measurements by X-ray diffraction
Lecture 26 - Texture Goniometer Components
Lecture 27 - Limitations and Errors in X-ray Texture Measurement and Corrections
Lecture 28 - Basics of Electron Microscopy - I
Lecture 29 - Basics of Electron Microscopy - II

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- Lecture 30 - Kikuchi Diffraction Pattern - I
- Lecture 31 - Kikuchi Diffraction Pattern - II
- Lecture 32 - Quantitative Evaluation of Kikuchi Diffraction Pattern - I
- Lecture 33 - Quantitative evaluation of Kikuchi Diffraction Pattern - II
- Lecture 34 - Quantitative evaluation of Kikuchi Diffraction Pattern - III
- Lecture 35 - Analysis using the TSL-OIM software
- Lecture 36 - Analysis using the AZtec Crystal software
- Lecture 37 - Analysis using the ATEX software
- Lecture 38 - Introduction to solidification texture
- Lecture 39 - Solidification texture in Alloys
- Lecture 40 - Solidification texture in FCC, BCC, and HCP structures
- Lecture 41 - Phase Transformation Texture and Bain Strain
- Lecture 42 - Orientation Relationships between FCC and BCC / BCT
- Lecture 43 - Various Orientation Relationships and Variants
- Lecture 44 - Basic Mechanics of Polycrystal Plasticity
- Lecture 45 - Basic Mechanics of Polycrystal Plasticity (Continued...)
- Lecture 46 - A Metallurgist Point of View
- Lecture 47 - A Metallurgist Point of View (Continued...)
- Lecture 48 - Texture in FCC polycrystals
- Lecture 49 - Texture in BCC polycrystals - I
- Lecture 50 - Texture in BCC polycrystals - II
- Lecture 51 - Texture in HCP polycrystals - I
- Lecture 52 - Texture in HCP polycrystals - II
- Lecture 53 - Texture in HCP polycrystals - III
- Lecture 54 - Static recrystallization
- Lecture 55 - Dynamic recrystallization and recrystallization texture
- Lecture 56 - Dynamic recrystallization and grain refinement during hot large strain shear