NPTEL Video Course - Physics - NOC:Bonds and Bands in Solids

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

Lecture 30 - Pseudo potential method
Lecture 31 - Cellular method of energy band calculation
Lecture 32 - Muffin tin potential and APW functions
Lecture 33 - Augmented plane wave method of energy band calculation - 1
Lecture 34 - Augmented plane wave method of energy band calculation - 2
Lecture 35 - Greenâ s function method of energy band calculation - 1
Lecture 36 - Greenâ s function method of energy band calculation - 2
Lecture 37 - Cyclotron resonance technique
Lecture 38 - De Haas-van Alphen effect
Lecture 39 - De Haas-van Alphen effect conclusion.Introduction to point impurity effect on band structure
Lecture 40 - Point impurity in crystal
Lecture 41 - Friedel Oscillations
Lecture 42 - Lindhard dielectric constant
Lecture 43 - Dielectric anomaly. Crystal momentum
Lecture 44 - Spatial and time reversal symmetries in crystals
Lecture 45 - Time reversal symmetry (Continued...)
Lecture 46 - Spin orbit interaction
Lecture 47 - Disordered solids and transport in disordered solids
Lecture 48 - Optical properties of semiconductors
Lecture 49 - Excitonic states in semiconductors
Lecture 50 - Excitonic states in semiconductors (Continued...)
Lecture 51 - Molecular orbital calculation - I
Lecture 52 - Mott-Hubbard transition
Lecture 53 - Hubbard model
Lecture 54 - Electron repulsion and magnetic exchange
Lecture 55 - Beyond on-site electron repulsions;Pariser-Parr-Pople model
Lecture 56 - Electron-hole symmetry and Pairing theorem. Solitons
Lecture 57 - Density waves in 1-d systems and Lattice vibrations - I
Lecture 58 - Lattice vibrations - II
Lecture 59 - Lattice vibrations - III
Lecture 60 - Lattice vibrations - IV