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Halogen-Bridged Mixed-Valence Transition Metal Complexes""; ""2.10 Miscellaneous""; ""2.10.1 Poly-deckers""; ""2.10.2 Polycarbenes""; ""2.11 Isolated Nanowires""
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 ""3.2.2 Constructing the Reciprocal Lattice""""3.2.3 Applying This to One Dimension""; ""3.3 The Dynamic Crystal and Dispersion Relations""; ""3.3.1 Crystal Vibrations and Phonons""; ""3.3.2 Quantum Considerations with Phonons""; ""3.3.3 Counting Phonons""; ""3.4 Phonons and Electrons Are Different""; ""3.4.1 Electron Waves""; ""3.4.2 Electron Statistics""; ""3.4.3 The Fermi Surface""; ""3.4.4 The Free Electron Model""; ""3.4.5 Nearly Free Electron Model; Energy Bands, Energy Gap, and Density of States""; ""3.4.6 The Molecular Orbital Approach""; ""3.4.7 Returning to Carbon Nanotubes""
 ""3.5 Summary""""References""; ""Chapter 4 Electron-Phonon Coupling and the Peierls Transition""; ""4.1 The Peierls Distortion""; ""4.2 Phonon Softening and the Kohn Anomaly""; ""4.3 Fermi Surface Warping""; ""4.4 Beyond Electron-Phonon Coupling""; ""References""; ""Chapter 5 Conducting Polymers: Solitons and Polarons""; ""5.1 General Remarks""; ""5.2 Conjugated Double Bonds""; ""5.3 A Molecular Picture""; ""5.3.1 Bonding and Antibonding States""; ""5.3.2 The Polyenes""; ""5.3.3 Translating to Bloch's Theorem""; ""5.4 Conjugational Defects""; ""5.5 Solitons""; ""5.6 Generation of Solitons""
 ""5.7 Nondegenerate Ground-State Polymers: Polarons""

Sommario/riassunto

Low-dimensional solids are of fundamental interest in materials science due to their anisotropic properties. Written not only for experts in the field, this book explains the important concepts behind their physics and surveys the most interesting one-dimensional systems and discusses their present and emerging applications in molecular scale electronics. Chemists, polymer and materials scientists as well as students will find this book a very readable introduction to the solid-state physics of electronic materials. In this completely revised and expanded third edition the authors also cover