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Approach to Collective Motions in Many-Body Systems
; 1. Introduction ; 2. The Dynamical Symmetry Approach
; 3. The Fermion Dynamical Symmetry Model
4. The SU(4) Model for High-Tc Superconductivity
5. The Energy Gap and Phase Diagrams in Cuprates
; 6. Summary ; References ; 5 Fermion Dynamical Symmetries and High Temperature Superconductors
; 1. Introduction ; 2. Fermion Dynamical Symmetries
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4. An SU(4) Model of Superconductivity 5. SU(4) Model Hamiltonian ; 6. Dynamical Symmetry Chains ; 7. Coherent State Energy Surfaces
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6 The Nucleon-Pair Shell Model Truncated to the SD Subspace for Even-Even Nuclei

Sommario/riassunto

This book is a tribute to the life and work of J Q Chen. The contributions of Chen to nuclear and molecular physics are discussed vis-a-vis present developments in these fields. Among other subjects, the present status of microscopic theories of the interacting boson model in nuclear physics and the theory of symmetry adaptation of molecular vibrations in molecular physics are reviewed. The latter theory is particularly useful for large molecular species such as fullerenes, where icosahedral symmetry plays a fundamental role.

Contents:
A Conceptual Review of the New Approach