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Titolo	Electronic, Magnetic, and Thermoelectric Properties of Spinel Ferrite Systems : A Monte Carlo Study, Mean-Field Theory, High-Temperature Series Expansions, and Ab-Initio Calculations / / by Rachid Masrour
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Nota di contenuto	Exchange interactions types in magnetic materials -- Computational methods: Ab Initio calculations and Monte Carlo simulations -- Thermoelectric and spin-lattice coupling in a MnCr2S4 ferrimagnetic spinel -- Magnetic properties of LiMn1.5Ni0.5O4 spinel: Ab initio calculations and Monte Carlo simulation.
Sommario/riassunto	This book explores magnetic properties and critical temperatures in inverse ferrite Fe(MFe)O spinels (e.g., Fe, Co, Ni). It calculates transition and Curie Weiss temperatures, providing insights into their thermodynamic behavior. Using the full potential linearized augmented plane wave (FP-LAPW) method, it investigates electrical and magnetic structures of spinel chromite, revealing magnetic moments in MnCrS.

Seebeck coefficient and electrical conductivity are also calculated. Advanced techniques like Monte Carlo, DFT+U, and FLAPW analyze magnetic characteristics of LiMn.Ni.O and electronic/magnetic structures of FeO. High-temperature series expansions calculate Néel temperature and critical exponents, while GFT determines thermal magnetization and susceptibility. The analysis exposes exchange interactions' effects on magnetic order and introduces asymmetric phases in ferrimagnetic spinel systems. This book serves as an invaluable resource for researchers, academics, and enthusiasts seeking a comprehensive understanding of magnetic properties and critical phenomena within diverse spinel materials.