



## Spin-Fermion Models For Magnetic Semiconductors and High-Tc Cuprates

By Yücel Yildirim

LAP Lambert Academic Publishing Aug 2013, 2013. Taschenbuch. Book Condition: Neu. 220x150x8 mm. This item is printed on demand - Print on Demand Neuware - In this book unbiased numerical techniques are applied to the study of two of the most important current problems in condensed matter physics: magnetically doped III-V semiconductors and high-temperature superconductors. The first part of the book mainly focus on the first full-scale study of a realistic model for the III-V Mn-doped semiconductors using state-of-the-art numerical techniques. More specifically, a real-space Hamiltonian with the fcc lattice structure that reproduces the valence bands of undoped GaAs are constructed. In addition, two-band model and a new phenomenological eight-band model that takes into account the Mn d-levels are also developed. In the second part of the book, the effects of adiabatic phonons on a spin-fermion model for high Tc cuprates are studied using Monte Carlo simulations. 132 pp. Englisch.



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