

Contents

An Introduction to the Hubbard Model <i>E. Ercolessi, G. Morandi, and P. Pieri</i>	1
A Quantum Critical Trio: Solvable Models of Finite Temperature Crossovers Near Quantum Phase Transitions <i>S. Sachdev</i>	33
Notes on the Density Matrix Renormalization Group. Applications to Ladder Systems <i>S.R. White</i>	88
An Introduction to Quantum Monte Carlo Methods <i>A.W. Sandvik</i>	109
Coupled Luttinger Liquids <i>H.J. Schulz</i>	136
On the Application of the Non-linear Sigma Model to Spin Chains and Spin Ladders <i>G. Sierra</i>	137
Density Matrix and Renormalization for Classical Lattice Models <i>T. Nishino and K. Okunishi</i>	167
Real-Space Renormalization Group Methods Applied to Quantum Lattice Hamiltonians <i>M.A. Martín-Delgado</i>	184

A Critical View of the Real-Space Renormalization Group Method Applied to the Hubbard Model <i>J. Pérez-Conde</i>	232
Quantum Dissipative Systems <i>F. Guinea</i>	249
Impurity Effects in Quantum Wires <i>G. Gómez-Santos</i>	261
Skyrmions in the Quantum Hall Effect <i>L. Brey, H.A. Fertig, R. Côté, and A.H. MacDonald</i>	275
Photoemission Bands in Systems of Strongly Correlated Electrons <i>S. Haas</i>	284
Van Hove Scenario of High- T_c Superconductivity <i>J. González</i>	305