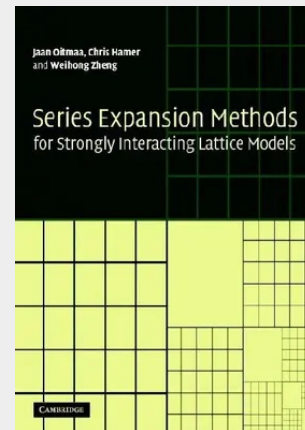


Series Expansion Methods for Strongly Interacting Lattice Models

Perturbation series expansion methods are sophisticated numerical tools used to provide quantitative calculations in many areas of theoretical physics. This book gives a comprehensive guide to the use of series expansion methods for investigating phase transitions and critical phenomena, and lattice models of quantum magnetism, strongly correlated electron systems and elementary particles. Early chapters cover the classical treatment of critical phenomena through high temperature expansions, and introduce graph theoretical and combinatorial algorithms. The book then discusses high-order linked-cluster perturbation expansions for quantum lattice models, finite temperature expansions, and lattice gauge models. Also included are numerous detailed examples and case studies, and an accompanying resources website, www.cambridge.org/9780521842426, contains programs for implementing these powerful numerical techniques. A valuable resource for graduate students and postdoctoral researchers working in condensed matter and particle physics, this book will also be useful as a reference for specialized graduate courses on series expansion methods.

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