STATISTICAL MECHANICS AND THE PHYSICS OF MANY-PARTICLE MODEL SYSTEMS

By Alexander Leonidovich Kuzemsky (Joint Institute for Nuclear Research, Russia)

Key Features:
- The book is a self-contained treatise which is useful for a broad audience of students and researchers
- The presentation and material included in the book is unique. It includes a lot of topics and techniques which are difficult to find in other sources
- The book contains both theoretical aspects and concrete application examples

Description:
The book is devoted to the study of the correlation effects in many-particle systems. It presents the advanced methods of quantum statistical mechanics (equilibrium and nonequilibrium), and shows their effectiveness and operational ability in applications to problems of quantum solid-state theory, quantum theory of magnetism and the kinetic theory. The book includes description of the fundamental concepts and techniques of analysis following the approach of N N Bogoliubov’s school, including recent developments. It provides an overview that introduces the main notions of quantum many-particle physics with the emphasis on concepts and models.

This book combines the features of textbook and research monograph. For many topics the aim is to start from the beginning and to guide the reader to the threshold of advanced researches. Many chapters include also additional information and discuss many complex research areas which are not often discussed in other places. The book is useful for established researchers to organize and present the advanced material disseminated in the literature. The book contains also an extensive bibliography.

The book serves undergraduate, graduate and postgraduate students, as well as researchers who have had prior experience with the subject matter at a more elementary level or have used other many-particle techniques.

Author:
A L Kuzemsky is one of the leading researchers at the Bogoliubov Laboratory of Theoretical Physics, Joint Institute for Nuclear Research, Dubna, Russia. He published more than 200 scientific papers, including 20 extended review papers on statistical mechanics and quantum theory of solid state.
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