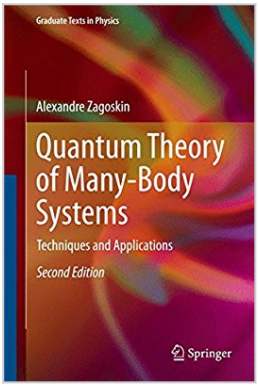

Quantum Theory of Many-Body Systems: Techniques and Applications (Graduate Texts in Physics)

By Alexandre Zagoskin

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This text presents a self-contained treatment of the physics of many-body systems from the point of view of condensed matter. The approach, quite traditionally, uses the mathematical formalism of quasiparticles and Green's functions. In particular, it covers all the important diagram techniques for normal and superconducting systems, including the zero-temperature perturbation theory and the Matsubara, Keldysh and Nambu-Gor'kov formalism, as well as an introduction to Feynman path integrals.

This new edition contains an introduction to the methods of theory of one-dimensional systems (bosonization and conformal field theory) and their applications to many-body problems.

Intended for graduate students in physics and related fields, the aim is not to be exhaustive, but to present enough detail to enable the student to follow the current research literature, or to apply the techniques to new problems. Many of the examples are drawn from mesoscopic physics, which deals with systems small enough that quantum coherence is maintained throughout their volume and which therefore provides an ideal testing ground for many-body theories.

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Editorial Review

From the Back Cover

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About the Author

Alexandre Zagoskin is Reader in Quantum Physics in the Department of Physics at Loughborough University. In his career, he has published over 90 articles in refereed journals, 2 books (including the first edition of Quantum Theory of Many-Body Systems [Springer, 978-0-387-98384-4, 1998]), and 23 patents. He is Fellow of the Institute of Physics (FInstP) UK.

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