

This volume explains the fundamental concepts and theoretical techniques used to understand the properties of quantum systems having large numbers of degrees of freedom. A number of complementary approaches are developed, including perturbation theory; nonperturbative approximations based on functional integrals; general arguments based on order parameters, symmetry, and Fermi liquid theory; and stochastic methods. Each approach provides its own insights and quantitative capabilities, and in conjunction provide a powerful framework for understanding a wide variety of physical systems. Written at a level for graduate students with no prior background in many-body theory, this classic text is intended for physicists in solid state physics, field theory, atomic physics, condensed matter physics, quantum chemistry, and nuclear physics.

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