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Integrable isotropic chains with arbitrary spin; Part IV. Strongly Correlated Electrons. 18. Hubbard model; 19. Kondo effect; 20. Luttinger many-fermion model; 21. Integrable BCS superconductors; Part V. Sine-Gordon Model. 22. Classical sine-Gordon theory; 23. Conformal quantization; 24. Lagrangian quantization; 25. Bootstrap quantization; 26. UV-IR relation; 27. Exact finite volume description from XXZ; 28. Two-dimensional Coulomb gas.

Sommario/riassunto

Including topics not traditionally covered in literature, such as (1+1)-dimensional QFT and classical 2D Coulomb gases, this book considers a wide range of models and demonstrates a number of situations to which they can be applied. Beginning with a treatise of nonrelativistic 1D continuum Fermi and Bose quantum gases of identical spinless particles, the book describes the quantum inverse scattering method and the analysis of the related Yang-Baxter equation and integrable quantum Heisenberg models. It also discusses systems within condensed matter physics, the complete solution of the sine-Gordon model and modern trends in the thermodynamic Bethe ansatz. Each chapter concludes with problems and solutions to help consolidate the reader's understanding of the theory and its applications. Basic knowledge of quantum mechanics and equilibrium statistical physics is assumed, making this book suitable for graduate students and researchers in statistical physics, quantum mechanics and mathematical and theoretical physics.