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Unitary Fermi Gas: From Monte Carlo to Density Functionals -- Scaling Flows and Dissipation in the Dilute Fermi Gas at Unitarity -- Thermodynamics of Fermi Gases -- Normal Phase of Polarised Strongly Interacting Fermi Gases -- Thermodynamics of Trapped Imbalanced Fermi Gases at Unitarity -- BCE-BEC Crossover and Unconventional Superfluid Order in one Dimension.

Sommario/riassunto

Triggered by recent experimental and theoretical progress in elucidating the tunable crossover, in ultracold Fermi gases, from BCS-type superconductors to BEC-type superfluids, this volume is a collaborative effort by most leading international experts to provide both a pedagogical and up-to-date introduction and comprehensive overview of this newly emerging field. It is now understood that the unitary regime that lies right in the middle of the crossover has remarkable universal properties, arising from scale invariance, and has connections with fields as diverse as nuclear physics and string theory. This volume will serve as reference for active researchers in the field and equally benefit the many non-specialists and graduate students looking for a selfcontained, approachable exposition of the subject matter.