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Nota di contenuto	Introduction -- Bose Einstein condensation -- Knowns and unknowns of the interacting Bose gas -- Definition of the Simplified approach -- Existence and uniqueness of solutions of the Simple Equation -- Predictions of the Simple Equation -- Numerical computation of the solution to the Big and Medium equations -- Open problems.
Sommario/riassunto	This book explores Lieb's Simplified approach to the ground state of systems of interacting bosons. While extensive research has delved into the behavior of interacting bosons, persistent challenges, such as proving Bose-Einstein condensation, remain. Introduced by Lieb in 1963, the Simplified approach has been the object of renewed attention in recent years, revealing surprising and promising results. Notably, this approach provides ground state energy predictions that agree with many-body systems asymptotically at both low and high densities. It further predicts a condensate fraction and correlation function that agree with Bogolyubov theory at low densities, and numerical

predictions match quantum Monte Carlo simulations across all densities. This suggests that Lieb's Simplified approach could serve as a potent tool for reimagining the study of interacting bosons. The book defines Lieb's Simplified approach, discusses its predictions, and presents known analytical and numerical results. It is designed for advanced students and young researchers working in the fields of mathematical physics, quantum many-body physics and Bose-Einstein condensates.