Introduction to quantum many-body systems

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During the 20 hours of these lectures, some concepts in interacting quantum many-body systems will be discussed. The main topics will be

1. Interacting fermionic systems in d=2,3: Landau theory of the Fermi gas, magnetic instabilities, Wigner crystals.
2. Interacting fermionic systems in d=1: Luttinger liquid theory and the bosonization formalism.
3. Interacting bosonic systems in d=1: the exact solution of the Lieb-Liniger model via Bethe Ansatz.