



Kolloquium

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Correlations following a sudden connection of interactions in quantum many-body systems

The recent availability of cold atomic gases, where quantum coherence can be maintained for very long times and many of the system parameters can be easily tuned, has motivated research into a wealth of new (and old) problems. Some of the most interesting are related to the non-equilibrium dynamics of the quantum gases and, in particular, to the description of a quantum many-body system following a sudden change (i.e. a quench) in the system parameters.

Fundamental questions such as whether the system will reach a steady state after the quench, and what will be the properties of such a state (if it exists), have been put forward in this context.

In this seminar, we shall briefly review recent theoretical and experimental progress in the field, and illustrate some of the ideas that have arisen in this lively research topic using an exactly solvable model, known as the Luttinger model, which describes fermions interacting in one dimension. If time permits, we shall also discuss application of some of these ideas to other systems that can be realized in the experiments, such like one-dimensional dipolar gases of fermionic atoms or Bose-Einstein condensates.

Wann? Freitag 09.02.2007, 14:00 Uhr

Wo? Universität Stuttgart, NWZ II, Raum 2.136