



SFB 631

Festkörperbasierte Quanteninformationsverarbeitung

Seminar Announcement

Condensed Matter Theory

- Location** University of Regensburg, Dept. of Physics
Room PHY 5.0.21
- Time** Thursday, 27th April 2006
3:15 p.m.
- Speaker** **Dr. Frank Göhmann**
University of Wuppertal
- Title** Density matrix and correlation functions of the Heisenberg spin chain
- Abstract** This talk presents a review of novel exact and partially explicit results on the density matrix of a finite sub-chain of the infinitely long Heisenberg spin chain. The results were obtained over the last decade first for the ground state and most recently also for finite temperature and external magnetic field. They seem to be the first example ever that such type of quantity could be exactly calculated for an interacting quantum system. As a physical application exact formulae for short-range correlation functions of the Heisenberg chain in the thermodynamic limit were obtained. In the groundstate they complement the large-distance asymptotic formulae from the field-theoretical analysis.

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