

EINLADUNG

zum Vortrag von

Mag. Dr. Barbara Kraus

Trägerin des START-Preises 2010
Institut für Theoretische Physik, Universität Innsbruck

Multipartite quantum systems

am

Dienstag, 5. April 2011, um 17.30 Uhr

Ort: Lise-Meitner-Hörsaal, Fakultät für Physik, Universität Wien,
1090 Wien, Strudlhofgasse 4 / Boltzmannngasse 5, 1. Stock

Barrierefreier Zugang: Boltzmannngasse 5, Lift, 1. Stock rechts über den Gang zum Hintereingang des Hörsaals

Abstract:

Many applications of quantum information rely on the possibility of several systems to be entangled. Thus, the qualification and quantification of entanglement is one of the central topics within quantum information. Due to the exponential growths of the dimension of the state-space (as a function of the number of considered systems), however, many very fundamental questions in this context are still unanswered.

In this talk, I will discuss two different approaches to tackle this important problem. In the first approach certain classes of multipartite states are considered and the entanglement properties and the applications of those states are studied. The second approach to gain insight into the entanglement properties of multipartite states is to investigate which states can be transformed into each other by local operations. One particularly interesting case, which I will focus on in this talk, is the local unitary equivalence of multipartite states. I will present necessary and sufficient conditions for local unitary equivalence of arbitrary pure multipartite states. Since two states which are local unitary equivalent are equally useful for any kind of application and they possess precisely the same amount of entanglement, these investigations lead to a new insight into general problem of characterizing the different types of entangled quantum states.

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Vorsitzender 2010/11: Ao.Univ.Prof. Dr. Peter Mohn, Institut für Angewandte Physik, TU Wien