

## Q 78 Hauptvortrag IV

Zeit: Freitag 10:30–11:00

Raum: HVI

**Hauptvortrag**

Q 78.1 Fr 10:30 HVI

**Entanglement in complex many-particle systems: condensed matter meets quantum information and quantum optics** —  
•ANDREAS OSTERLOH — Institut für Theoretische Physik, Universität Hannover, Appelstr. 2, 30167 Hannover

The recent interest in aspects common to quantum information and condensed matter has prompted a boom of activity at the border of these disciplines that were well separated until few years ago. Numerous interesting questions have been addressed so far. In particular, understanding the properties of entanglement in many-body systems has attracted a lot of attention. It is important to know what type of entanglement is naturally present in condensed matter systems, how can it be transported, extracted and finally utilized for quantum information processing. Moreover there is the question whether the understanding of entanglement provides qualitatively new insight into complex phenomena in strongly correlated systems. Finally, these studies also demand a better understanding of the classification and quantification of multipartite systems. An overview on an important part of this interdisciplinary field will be given.