Otfried Guehne

Quantum correlations and the marginal problem

The question which properties of a global quantum state can be inferred from restricted information is central for many problems in quantum information processing. Especially the case that only the reduced quantum states (or marginals) are known is of relevance. In my talk, I will present several results on the relation between the marginals and the global quantum state.

First, I will discuss for which cases the marginals determine the global state uniquely, either among all pure states or among all mixed states. Second, I present results on the question whether pure states with maximally mixed marginals exists for a given particle number, in case of existence these states are maximally entangled. Finally, I will discuss cases, where global entanglement can be proved by considering the marginals only.