Q 51 Gruppenberichte Quanteninformation

Zeit: Dienstag 16:30–17:00 Raum: HU Audimax

Gruppenbericht Q 51.1 Di 16:30 HU Audimax

Measures and Dynamics of entangled states — •André Carvalho[1], Florian Mintert[1], Marek Kuś[2], and Andreas Buchleitner[1] — [1]Max Planck Institut für Physik komplexer Systeme, Dresden — [2]Centrum Fizyki Teoretycznej Polskiej Akademii Nauk, Warszawa

We propose generalizations of concurrence for multi-partite quantum systems that can distinguish qualitatively distinct quantum correlations. All introduced quantities can be evaluated efficiently for arbitrary mixed states. In particular, a purely algebraic evaluation is possible for quasi-pure states typically dealt with in state of the art experiments. With these techniques, we investigate the dynamics of entangled states under environment coupling. As particular examples, we discuss the creation of entanglement between trapped ions, and the stability of GHZ- and W-states with locally Markovian Lindblad dynamics.

P. Rungta, V. Buzek, C. M. Caves, M. Hillery, G. J. Milburn and W. K. Wootters, Universal state inversion and concurrence in arbitrary dimensions, Phys. Rev. A, **64**, 042315, (2001)

F. Mintert, M. Kuś and A. Buchleitner, Concurrence of bipartite quantum states in arbitrary dimensions, Phys. Rev. Lett. **92**, 167902, (2004)

A. R. R. Carvalho, F. Mintert and A. Buchleitner, Decoherence and multi-partite entanglement, in press in Phys. Rev. Lett, quant-ph/0410208