SFB/TRR 21 - Kolloquium
11. Januar 2008, Stuttgart

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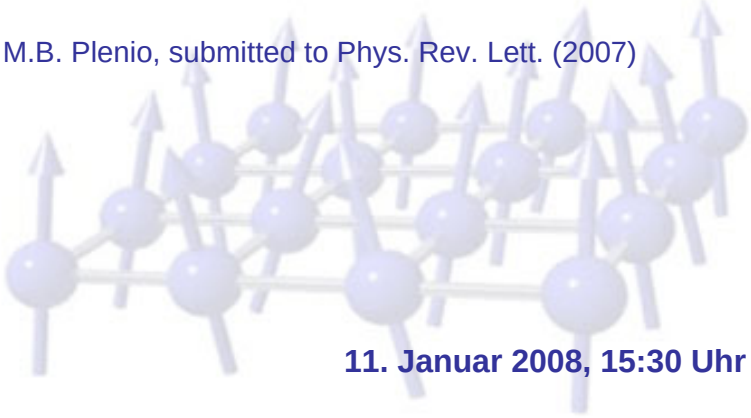
From entangling cavities to complex dynamics in arrays of coupled micro-cavities

Optical cavities allow through their controlled interaction between matter (atoms, ions, NV-centers) and light (photons) for the interconversion of flying and stationary quantum information. In this talk I will present methods for the generation of entanglement between distant cavities [1, 2] but also discuss the possibilities that the dynamics of coupled arrays of micro-cavities offer for the simulation of Hamiltonians [3,4,5] and the study of their dynamics.

[1] S. Bose, P.L. Knight, M.B. Plenio & V. Vedral, Phys. Rev. Lett. 83, 5158 (1999)
[2] D.E. Browne, M.B. Plenio & S.F. Huelga, Phys. Rev. Lett. 91, 067901 (2003)
[3] M. Hartmann, F.G.S.L. Brandao and M.B. Plenio, Nature Phys. 2, 849 (2006)
[4] M. Hartmann, F.G.S.L. Brandao and M.B. Plenio, Phys. Rev. Lett. 99, 160501 (2007)
[5] M. J. Hartmann and M.B. Plenio, submitted to Phys. Rev. Lett. (2007)



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