



CO.CO.MAT

CONTROL OF QUANTUM CORRELATIONS IN TAILORED MATTER
SFB/TR 21 – STUTTGART, ULM, TÜBINGEN

Seminar

Dr. Juan José Garcia-Ripoll
(MPI Garching)

Numerical studies of strongly correlated bosonic systems

This talk is divided into two parts which describe work in progress. In the first one I will review the variational ansatz of Matrix Product States (MPS), and introduced new algorithms which can be used to simulate 1D discrete quantum systems with long-range interactions. In the second part I will describe applications of MPS to the study of bosonic atoms in 1D lattices with frustrated hopping. After explaining how to physically induced frustration, I will introduce the effective Hubbard models that rule the atom dynamics, their relation to frustrated XY spin ladders and the new quantum phases that could be easily realized in current experiments.

Wann? Freitag, 17.02.2006, 14:00 Uhr

Wo? Universität Stuttgart, Raum 2.136