



Quantum Optics Seminar

Title: Entanglement generation and Hamiltonian simulation in Continuous-Variable Systems.

Speaker: Geza Giedke, Max-Planck-Institut für Quantenoptik

Time: Friday, November 8th, 10:00-11.00

Place: 520-732

Abstract:

We investigate the potential of the X_1X_2 interaction between two continuous variable (cv) systems for quantum information processing. We show how to use this interaction optimally to simulate other cv Hamiltonians and for the creation of squeezing and entanglement when fast rotations can be applied to each subsystem. We discuss the use of ancillary systems and homodyne measurements the creation of entanglement and squeezing. We show constructively that all Gaussian unitary transformations can be realized with this interaction, in particular memory write-in and read-out.

Eugene Polzik