Universität Leipzig

Fakultät für Physik und Geowissenschaften Institut für Theoretische Physik



Sonderseminar

Am Freitag, 10.06.2011, um 11.00 Uhr spricht

Dr. Paul Eastham

Trinity College Dublin

über

"Polariton Condensation and Lasing in Semiconductor Microcavities - Coherence and Dynamics"

Abstract: Semiconductor microcavities support quasiparticles, polaritons, which are formed from hybridizing excitons and photons. They thus provide new opportunities for studying many-particle physics, using quasiparticles with are part matter and part light. Polaritons are bosons, and hence a gas of polaritons can undergo a phase transition into a quantum-condensed state, forming a semiconductor analog of established quantum condensates such as superfluids, superconductors, and atomic BECs. I will give an introduction to this phenomenon, which has now been observed in several experiments, before moving on to discuss two areas of recent development. I will first discuss the coherence properties of the condensate, explaining how recent experiments can be understood with a simple theory, and connecting to the destruction of symmetry-breaking by order-parameter fluctuations in finite systems. I will then discuss how microcavities could be used to develop a new approach to quantum condensation, in which condensation occurs as a purely

Ort: SR 225, Linnéstraße 5

Interessenten sind herzlich eingeladen!

dynamical effect, without relaxation or equilibration.