

Physikalisches Kolloquium



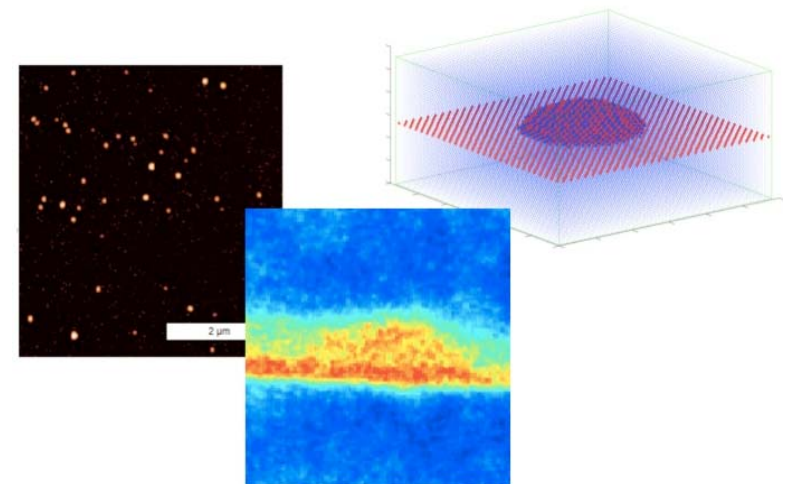
Thursday, 04.12.14, 17:15, HS 100
Reception with coffee & cookies 16:45

Prof. Frank Jahnke, Universität Bremen

Superradiance and non-classical light emission with Quantum-dot microcavity lasers

Abstract

Quantum dots are often considered as the active material for the next generation of semiconductor lasers. By placing the quantum dots in optical microcavities with three-dimensional mode confinement, the emission properties of the active material can be tailored. With a single quantum dot emitter in a high-quality cavity, the ultimate limit of miniaturization is reached. The system shows interesting similarities but also important differences in comparison to current experiments on quantum optics with trapped atoms. We review the emission properties of quantum-dot based micro- and nanolasers and discuss the possibility of thresholdless laser operation and non-classical light emission. Furthermore, novel results for the superradiant emission of an ensemble of quantum-dot emitters in a nanolaser are presented.



All of you interested in physics are cordially invited!