Applied Physics & OSA

Optics Seminar

Optics and Quantum-Optics in Semiconductor Nanostructures

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Abstract:

This talk gives an overview of the broad spectrum of optical effects in semiconductors. Semiconductor nanostructures are introduced as genuine designer materials with unique absorption, gain, luminescence and exciton properties. The novel technique of Terahertz spectroscopy is discussed as a direct way to measure and identify many-body quasi-particle configurations. We then turn to quantum optical aspects and present examples for correlation and entanglement effects in semiconductor quantum wells.

Brief Biography:

Stephan Koch has been a professor of Physics at Philipps-University Marburg (Germany), and a research professor at the Optical Sciences Center, University of Arizona, since 1993. Prof. Dr. Koch received his MS and PhD in Physics from the Goethe-University Frankurt (Germany) in 1977 and 1979, respectively. His fields of major current interests include condensed matter theory, optical and electronic properties of semiconductors, many-body interactions, disorder effects, quantum confinement in solids, coherent and ultrafast phenomena, semiconductor laser theory, microcavity effects, and optical instabilities and nonlinearities.

Friday, January 26, 2007.
4:00pm-5:00pm.
Watson 104

Refreshments will be available in the Watson Lobby at 3:45pm.

Host: Prof. Kerry Vahala