Karlsruher Institut für Technologie

Fakultät für Physik

Physikalisches Kolloquium

Federico Capasso, Harvard University

»From Quantum Cascade Lasers to Flat Optics«

Einführung: M. Wegener

Our research on high performance semiconductor lasers in the mid-infrared and far infrared (Quantum Cascade Lasers) has led us to introduce new methods for beam shaping including multibeaming. These developments have in turn been the springboard for research on a new class of metasurfaces for wavefront engineering. Such metasurfaces, which for constant in plane phase gradients lead to generalized laws of reflection and refraction, consist of arrays of optical antennas that introduce phase discontinuities in the optical path. New lenses free of spherical aberrations, axicons, background free broadband quarter wave plates and spiral phase plates that create optical vortices, polarization controlled surface plasmon couplers, are among the flat components we have demonstrated. The ultimate vision is to develop a new class of fast (nanosecond scale) spatial light wave modulators, phased arrays from the visible to the THz and fast beam steerable semiconductor lasers.

Freitag, 17.05.2013, 17 Uhr c.t.,

KIT, Campus Süd,
Otto-Lehmann-Hörsaal, Physik-Flachbau (Geb. 30.22).
Anschließend Nachsitzung im Gastdozentenhaus „Heinrich Hertz“

Karlsruher Institut für Technologie (KIT)
Universitätsbereich • Campus Süd
Fakultät für Physik
76128 Karlsruhe

Telefon (07 21) 6 08 - 435 18
Telefax (07 21) 6 08 - 435 19
E-Mail: fakultaet@physik.kit.edu
www.physik.kit.edu

Besucheradresse:
Wolfgang-Gaede-Straße 1
Physik-Hochhaus, Geb. 30.23
76131 Karlsruhe