



Einladung

- Es spricht: **Prof. Dr. Stefan Maier**
Department of Physics, Imperial College London
- Zeit: **Mittwoch, 19. Oktober 2016, 10:30 Uhr**
- Ort: **Technische Universität Berlin
Institut für Festkörperphysik
Hardenbergstraße 36, 10623 Berlin
Raum EW 561**
- Thema: **„Plasmonic and dielectric nanoantennas:
a versatile platform for interdisciplinary
nanophotonics”**

Abstract:

In this lecture I will discuss the underlying physical principles of the light confinement abilities of both plasmonic and dielectric nanoantennas, with a view to applications in nanoscale chemistry, surface-enhanced sensing, and optoelectronics.

Plasmonic antennas allow the controlled channeling of electromagnetic radiation from the far field to nanoscale “hot spots” well below the diffraction limit. While recent years have mainly focused on this light confinement aspect of plasmonics, the associated significant absorption losses provide unique opportunities for nanoscale surface chemistry via the exploitation of hot electrons generated upon absorptive plasmon decay. I will present first examples of the notion of “reactivity hot spots” of metallic nanoantennas, and discuss inherent opportunities for nanoscale control over both electromagnetic fields and energetic carrier injection.

Dielectric antennas can also sustain strongly confined fields via the excitation of Mie resonances, with compared to metals reduced optical losses. Focusing on silicon, germanium, and gallium phosphide, I will present applications in nonlinear optics and surface-enhanced sensing. Polar dielectrics such as silicon carbide form an interesting hybrid between the plasmonic and the dielectric realms of nanoantennas, due to their ability to sustain surface phonon polaritons in the mid-infrared regime of the spectrum.

The combination of these different materials systems provides us with fascinating opportunities for nanoscale photonics and optoelectronics.

Gäste sind herzlich willkommen!
Prof. Dr. S. Reitzenstein