



Seminarankündigung

**Dienstag, 19. November 2013
15:00 Uhr**

WSI, Seminarraum S 101

“Manipulation of photon fields at atomic length- and ultrafast time scales using plasmonic nanoantennas and nanocircuitry”

In presence of suitably nanostructured polarizable matter, preferably exhibiting plasmonic resonant response, visible and near-infrared photon fields can be manipulated at will down to atomic length scales and at ultrafast timescales. Spatially and temporally localized photon fields created this way can be used to largely increase and manipulate light-matter interaction. This applies to photon creation and annihilation processes as well as to nonlinear light-matter interaction by means of which photon-photon interaction can be induced.

Clearly, such enhancement and tuning of light matter interaction is of great practical interest for e.g. light emitting devices, photovoltaic processes, atomic-resolution optical microscopy as well as for ultrafast highly integrated optical signal processing operating down to the single-photon level.

To realize some of these opportunities we create high-quality plasmonic nanostructures from single-crystalline gold substrates by top-down and bottom-up nano fabrication. In particular, we will discuss the recent experimental demonstration of atomicscale confinement of photon fields, coherent control in plasmonic nanocircuits as well as the realization of electrically connected plasmonic nanoantennas for antenna-enhanced optoelectronics.

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