SEMINARANKÜNDIGUNG

Dienstag, 14. Dezember 2010

17:15 Uhr

ZNN, Seminarraum

„Ultrafast nanoplasmonics: From nanoantennas to microinterferometers”

The first part of my talk deals with plasmonic nanoantennas. These metal systems, which are one million times smaller than their radio antenna counterparts, are designed to increase the interaction of light with single nanoemitters, such as molecules, semiconductor quantum dots, or color centers in diamond. The linear optical properties of nanoantennas are briefly introduced [1], before we turn to their nonlinear optical response [2]. Using few-cycle femtosecond light pulses and sub-wavelength imaging, we demonstrate 4-dimensional light confinement with these metal nanodevices.

In the second part of my talk I will speak about surface plasmon interferometry. We use microinterferometers, which are milled into a thin gold film with a focused ion beam, to detect ultrafast changes in the wave vector of surface plasmons [3]. Finally, I will present our most recent work, which combines magnetics with plasmonics. In metal/ferromagnet/metal hybrid structures the plasmonic wavevector may be externally controlled by a magnetic field of only a few millitesla [4], which is opens the way to new active magneto-plasmonic devices.

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