CARL VON OSSIETZKY universität OLDENBURG
Institut für PHYSIK

PHYSICAL COLLOQUIUM

INVITATION

Monday, 16.10.2017, 4.15 p.m., W2-1-148

speaks

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about

Plasmonics at the Space – Time Limit

The optical response of metallic nanostructures exhibits fascinating properties: Local field interference effects that lead to strong variations of the near field distribution on a subwavelength scale, and long lasting electronic coherences. To circumvent the experimental limitation of optical diffraction we use a photoemission electron microscope (PEEM) that has been proved to be a versatile tool for the investigation of near field properties of nanostructures with nanometer spatial resolution and subfemtosecond time steps. The potential of this technique will be demonstrated on two recent experiments: In a first work, the long-range energy transfer mechanism between two coupled plasmonic whispering gallery nanoantennas in an elliptical cavity has been investigated. We demonstrate periodic coherent energy transfer back and forth over a distance of twice the excitation wavelength [1]. In a second work we experimentally reveal and measure the spatiotemporal dynamics of the formation of plasmonic vortices and their dressing by optical angular momentum. We have manipulated one of the basic properties of light by converting spin angular momentum into orbital angular momentum in a plasmonic Archimedes spiral [2].

[1] M. Aeschlimann et al, accepted for publication in Light: Science & Applications.

[2] G. Spektor et al, Science, 355, 1187 (2017)

All interested persons are cordially invited.

Sgd. Prof. Christoph Lienau