

SYKP 1 Symposium Kurzpulslaser I - Einführung

Zeit: Mittwoch 09:30–10:00

Raum: 1001

Hauptvortrag

SYKP 1.1 Mi 09:30 1001

Nanotechnology with fs-laser pulses — •ANDREAS OSTENDORF —
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Due to their high intensities and the nonlinear absorption process femtosecond lasers can be used as a flexible tool for the nanostructuring of metal layers and transparent materials. The aim is to develop a simple laser-based technology for fabricating two- and three-dimensional nanostructures with structure sizes on the order of several hundred nanometers. This is required for many applications in photonics, for the fabrication of photonic crystals and microoptical devices, for data storage, displays, etc. Measurements of thermionic electron emission from metal targets, which provide valuable information on the dynamics of femtosecond laser ablation, are discussed. Sub-wavelength microstructuring of metals is performed and the minimum structure size that can be fabricated in transparent materials with different energy bandgap is identified. Two-photon polymerization of hybrid polymers is demonstrated as a promising femtosecond laser-based 3-d nanofabrication technology. Using this technology opens the horizon for many new applications ranging from nanophotonics to biomedical implants.