



Laser-Laboratorium Göttingen e.V.

# Vortragsankündigung:

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**Herr Prof. Dr. Bernhard Wolfrum**  
Forschungszentrum Jülich

**Titel:**

On-chip techniques for cell recording and stimulation

**Abstract:**

The ability to monitor electrophysiological activity of cells on a chip can be used as a powerful tool for investigating communication in defined cellular networks. Currently, most approaches for such investigations are based on planar bioelectronic interfaces such as metal microelectrode arrays (MEAs). In our group we explore advanced cell-chip communication platforms using state-of-the-art nanofabrication technologies. To this end, we have developed electrochemical sensing units that benefit from fast diffusion processes on the nanometer scale and can be used for the real-time detection of neurotransmitter release. At the same time, we are working on chip-based chemical and optical stimulation techniques that can be integrated with electrical and electrochemical recording to allow for bidirectional cell-chip communication. Nanopatterned surfaces promise to enhance the interface quality of neuronal biohybrid systems regarding cell adhesion and chemical, electrochemical, as well as electronic signal transduction. Here, we demonstrate how nanotechnology approaches can be employed to fabricate 3-D electronic cell-chip coupling interfaces and to develop advanced electrochemical sensing units for the recording of redox-active biomolecules.

**Termin:** 17. Oktober 2011 um 15:00 Uhr s.t. im Seminarraum

**Veranstaltungsort:** Laser-Laboratorium Göttingen e.V., Hans-Adolf-Krebs-Weg 1, 37077 Göttingen

**Gastgeber:** Hainer Wackerbarth  
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