

School of Analytical Sciences Adlershof Lecture

# Label-free electronic (bio)sensing using carbon nanotubes and graphene

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Nano electronic devices are highly promising as sensitive on-chip (bio)sensors that motivate the vision of portable and compact analysis systems for the direct detection of trace amounts of analytes and biomarkers at the point-of-use or point-of-care. In order that such sensors find an application, a number of challenges need to be overcome. In this context, we explore strategies to engineer the surface chemistry of individual carbon nanotubes and graphene sheets and to obtain a better understanding and control of the physico-chemical properties of the nanostructure-liquid-interface. We have designed an electrochemical route for controlled surface functionalization of nano objects and analytical protocols that allow a stable and reliable electronic readout of the various phenomena occurring at the solid-liquid-interface. The designed sensors not only allow the detection of trace quantities of biomolecules (DNA and peptides) in steady state, but also enable the real-time measurement of the kinetics of biomolecular interactions, specifically the interaction of immobilized enzymes with their substrate molecules.

Date: 3:00 p.m., Wednesday 8th February 2017  
*Starting 2:30 p.m., there will be a small get-together before the lecture in Room O'138 („Teerunde“).*

Location: Lecture Hall (Hörsaal) O'07,  
Walter-Nernst-Haus, Newtonstr. 14, 12489 Berlin

*All guests are warmly invited to attend!*