



TECHNISCHE  
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# IAP-SEMINAR

## EINLADUNG

Termin: **Dienstag, 14.5.2013 um 16:00 Uhr**  
Ort: **Technische Universität Wien,  
Institut für Angewandte Physik,  
Seminarraum 134A, Turm B (gelbe Leitfarbe), 5. OG  
1040 Wien, Wiedner Hauptstraße 8-10**

Vortragender: **Prof. Dr. Peter Zeppenfeld**  
Institute for Experimental Physics, Johannes Kepler University Linz

Thema: **Optical Methods for Surface Investigations**

### Kurzfassung

We will discuss optical techniques, mainly reflectance and ellipsometry based methods, and their potential as analytical tools in surface science. The principles of optics governing the reflectance from surfaces and interfaces will be introduced and the advantage of exploiting the polarization state of light and its change upon reflection are presented. The relation between macroscopic optical quantities (reflection coefficients, dielectric functions) and microscopic electronic and structural properties of surfaces and adlayers will be explained. I will demonstrate that rather simple experimental designs, namely, differential reflectance spectroscopy (DRS) and reflectance difference spectroscopy (RDS), can achieve a surprisingly high surface sensitivity and are well suited for quantitative surface science investigations. This will be illustrated with selected examples, including the characterization of surfaces and (adsorbate induced) surface reconstructions, the in-situ monitoring of adsorption and growth processes, and the concomitant evolution of the physical or chemical properties.

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*Alle interessierten Kolleginnen und Kollegen sind zu diesem Seminar  
(45 min mit anschließender gemeinsamer Diskussion) herzlich eingeladen.*

*U. Diebold e.h.  
(Seminar-Chairperson)*

*H. Störi e.h.  
(LVA-Leiter)*