

## **EINLADUNG**

zum Vortrag von

**Univ. Prof. Dipl.-Ing. Dr. Bernhard Lendl**

Institut für Chemische Technologien und Analytik, Technische Universität Wien

### **Mid-IR Quantum Cascade Lasers as an Enabling Technology for the Realization of New Sensing Strategies for Gases, Liquids and Solids**

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**Dienstag, 13. Dezember, um 17:30 Uhr**

Ort: Lise-Meitner-Hörsaal, Fakultät für Physik, Universität Wien,  
1090 Wien, Strudlhofgasse 4 / Boltzmannngasse 5, 1. Stock

*Barrierefreier Zugang: Boltzmannngasse 5, Lift, 1. Stock rechts über den Gang zum Hintereingang des Hörsaals*

#### **Abstract:**

The advent of miniaturized and room temperature operated Quantum Cascade Lasers (QCL) has triggered the development of new sensing schemes for the measurement of trace gases, liquids as well as solids. This presentation will firstly report on the working principles and the current state-of-the-art of QCLs and secondly cover recently developed sensing strategies which take advantage of the unique properties of this new mid-IR light source. In this context, new strategies for gas sensing based on i) quartz enhanced photo-acoustic spectroscopy, ii) photo-thermal spectroscopy as well as iii) dispersion spectroscopy will be introduced and according applications shown. Concerning liquids a measurement set-up for recording the real as well as the imaginary part of the complex refractive index of solutes in solution will be presented. Finally, a strategy for near-field IR imaging of solid samples based on a pulsed, broadly tunable external cavity QCL and an atomic force microscope will be shown.

Im Anschluss an die Vortragsveranstaltung findet die Jahreshauptversammlung der Chemisch-Physikalischen Gesellschaft statt.

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#### **CHEMISCH-PHYSIKALISCHE GESELLSCHAFT**

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