

NEXT LITE-SEMINAR

"Advanced Infrared Sensing Technologies"

Boris Mizaikoff, University of Ulm,
Institute of Analytical and Bioanalytical Chemistry

Date and Time: **Thursday, November 26th, 2015, 16:00 ct**

Location: **TU Wien, Photonics Institute**
Seminar Room E387-CBEG02, ground level,
Gußhausstraße 27-29, 1040 Vienna

Host: G. Strasser

Abstract

State-of-the-art sensing platforms ideally benefit from miniaturized and integrated optical technologies providing direct access to molecule-specific information. With in-situ sensing strategies e.g., in harsh environments or point of-care diagnostics in medicine becoming more prevalent, detection schemes that do not require reagents or labeled constituents facilitate localized on-site analysis close to real-time.

Mid-infrared sensor technology is increasingly adopted in environmental analysis, process monitoring and biodiagnostics. Recently emerging strategies taking advantage of innovative waveguide technologies such as mid-infrared transparent fiberoptics, substrate-integrated hollow waveguides, and planar semiconductor waveguides in combination with highly efficient light sources such as broadly tunable quantum cascade lasers facilitate compact yet robust MIR diagnostic platforms for label-free chem/bio sensing and diagnostics. Next to applications in extreme environments such as the deep sea or for advanced breath diagnostics, these technologies may readily combine with complementary analytical tools towards multifunctional analytical platforms.

Short Biography

Dr. Boris Mizaikoff received his Ph.D. in Analytical Chemistry at the TU Wien in 1996. In 2000 he finalized his Habilitation at the TU Wien. In 2000 he became faculty member at the Georgia Institute of Technology. Since 2004 he was Director of the Focused Ion Beam Center (FIB2 Center) at Georgia Tech. In Fall 2007, he has joined the faculty at the University of Ulm, Germany, as a Chaired Professor and Director of the Institute of Analytical and Bioanalytical Chemistry (IABC). Today, his research interests focus on optical sensors, biosensors, and biomimetic sensors operating in the mid-infrared spectral range, applications of novel IR light sources (e.g., quantum cascade lasers), system miniaturization and integration based on micro- and nanofabrication, multifunctional (nano)analytical platforms (e.g., combination AFM-IR, AFM-SECM-IR, etc.), nano(bio)sensors. Dr. Mizaikoff is author/co-author of over 220 peer-reviewed publications, 16 patents, and numerous invited contributions at scientific conferences; his current h-index is 35 (Web of Science). Since 2010 he is Associate Editor Europe of, and since 2014 Editorial Advisory Board Member of *Analytical Chemistry*. He has received a series of awards including the 2010 *Craver Award*, the 2005 *Pittsburgh Conference Achievement Award*, the 2004 *Fritz Feigl Award*, and the 2004 *Megggers Award*. In 2005, he was elected *Fellow of the American Association for the Advancement of Science (AAAS)*, and in 2013 *Fellow of the Royal Society of Chemistry (RSC)*. In 2014, he has been named *Fresenius-Lecturer 2014* by the German Chemical Society (GDCh).