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Research Interests

- Environmental analysis
- Innovative gas sensors for biogenic gas sensing
- Combination of Raman and GC-MS gas analysis

Current Project

PhD thesis, working title: "Raman gas spectroscopy for environmental monitoring" as part of the project CRC AquaDiva.

This study aims to develop innovative cavity-enhanced Raman gas sensors and apply them for biogenic gas sensing. We want to establish new *in situ* optical sensors capable of continuous and simultaneous measurements of a suite of gases over a wide range of concentrations. A further goal is to combine the Raman spectroscopy with other analytical techniques to enhance the capabilities for monitoring of microbiological metabolism. In such way we can contribute to establish models of gas transport for the interpretation of gas profiles.

Curriculum Vitae

Since 01/2014	PhD student at IPHT under the supervision of Dr. Frosch, Department of Spectroscopic Sensors
10/2008-12/2013	Diploma in Environmental Chemistry, Friedrich-Schiller-University Jena, Thesis: „Investigations of heavy metal contaminated soils by sequential extraction“
02 – 03/2012	Internships at the IFU GmbH Saalfeld, Institute of Environmental analysis, and münster analytical solutions gmbh (mas), Dioxin and organic trace analysis.

Publications

Non-first author publication

T. Jochum, B. Michalzik, A. Bachmann, J. Popp, T. Frosch: “Microbial respiration and natural attenuation of benzene contaminated soils investigated by cavity enhanced Raman multi-gas spectroscopy” in: Analyst 140, 3143 (2015)

Conference contributions

Posters

A. Bachmann, R. Keiner, J. Popp, T. Frosch: “Raman multigas spectrometry as versatile technique to follow metabolic activities in environmental research.” International Conference on Raman Spectroscopy, 2014, Jena, Germany

A. Bachmann, T. Jochum, J. Popp, T. Frosch: “Cavity-Enhanced Raman Spectroscopy for the Investigation of Dynamical Gas Fluxes in Environmental Research.” EuroAnalysis, 2015, Bordeaux, France

A. Bachmann, T. Jochum, J. Popp, T. Frosch: “Überwachung dynamischer Prozesse in biogenen Gasgemischen durch Resonator-verstärkte Raman-Spektroskopie.” Anakon 2015, Graz, Austria