



Seminar

“IRTG: Soft Matter Science “

**Ion distribution, foam stability, surface tension -
Classical problems seen with new eyes**

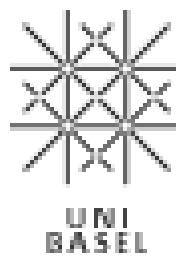
Prof. Dr. Hubert Motschmann

Universität Regensburg, Institut für Physikalische und Theoretische Chemie
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Wednesday, January 12, 14h15

“Hörsaal Makromolekulare Chemie”,
Stefan-Meier-Str. 31, Freiburg

You are welcome to meet Pr. Hubert Motschmann after the seminar. Do not hesitate to contact Christelle Vergnat (softmattergraduate@physik.uni-freiburg.de) to organize a meeting.



Ion distribution, foam stability, surface tension – Classical problems seen with new eyes

Classical topics of Colloids and Interface science have recently received a renaissance driven by the advent of powerful surface analytical tools such as grazing incidence X-ray fluorescence or Infrared-VISIBLE Sum Frequency Spectroscopy. The application of these techniques to seemingly simple systems such as aqueous salt solutions reveals striking contradictions to the established textbook picture. These puzzles are discussed and resolved.

This talk reviews our findings that have increased the understanding of the static and dynamic properties of amphiphiles and ions at interfaces on a molecular scale.

The focus is on the following items:

- Relating the surface tension to the molecular conformation of the adsorbed amphiphiles.
 - The self organization of electrolytes at the liquid-air interface
 - The organization of interfacial water
 - Determination of the ion distribution at a charged interface by optical means.
 - Surface dilational rheology
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Hubert Motschmann studied Chemistry at the Friedrich Alexander University in Erlangen-Nürnberg. After his diploma thesis entitled “Numerical and analytical studies of the quantum dynamical equation of Davidov solitons” at the chair of Theoretical Chemistry, he moved to the Max-Planck-Institute of Polymer Research in Mainz in the experimental group of Prof. Dr. E.W. Fischer. His PhD thesis discusses scaling laws of end-adsorbed polymers in good solvent conditions. He spent then two years as a post-doc in the Corporate Research Laboratories at Eastman Kodak company in Rochester, New York. Aim of his project was the design of a frequency double for low power laser diodes. In 1994 he became a staff scientist at the Max-Planck-Institute of Colloids and Interfaces in Potsdam where he established the research group “Molecular Organization in Soluble Monolayers and Functional Films”. In parallel, he taught for many years Physical Chemistry at the University of Potsdam. Hubert Motschmann also established the company Optrel which is located and registered in the Greater Berlin area, and focuses on the design of instrumentation for the investigation of interfaces and thin films. In October 2008 he accepted an offer for a professorship at the University Regensburg.