Fritz-Haber-Institut der Max-Planck-Gesellschaft

Physikalische Chemie — Direktor: Prof. Dr. Martin Wolf

MAX-PLANCK-GESELLSCHAFT

Department Seminar:

Monday, May 27, 2019, at **11:00** a.m.;
— all are invited to meet at around 10:40 for a chat with coffee & cookies —

Prof. Richard J. Saykally Experimental and Theoretical Physical Chemistry,
College of Chemistry
University of California, Berkeley.

Probing Complex Interfaces

PC Seminar Room G2.06, Building G, Faradayweg 4 M. Zürch

Abstract:

Many important contemporary problems involve chemical and physical processes occurring at chemically complex interfaces, e.g. developing improved batteries and fuel cells, understanding the role of atmospheric aerosols in terrestrial climate, untangling the details of the global carbon cycle. In order to develop accurate and detailed models for these processes and systems, a new generation of quantitative measurements on the nature of complex interfaces is urgently needed. We have developed and exploited several new such approaches, including Deep-UV Second Harmonic Generation and Electronic Sum Frequency Generation Spectroscopy, Soft X-ray spectroscopy of liquid microjets, and Soft X-ray Second Harmonic Generation Spectroscopy.

[1] H Mizuno, AM Rizzuto, RJ Saykally, "Charge-Transfer-to-Solvent Spectrum of Thiocyanate at the Air/Water Interface Measured by Broadband Deep Ultraviolet Electronic Sum Frequency Generation Spectroscopy", J. Phys. Chem. Lett. 9, 4753 (2018).
[2] RK Lam, SL Raj, TA Pascal, CD Pemmaraju, L Foglia, A Simoncig, ..., "Soft X-ray second harmonic generation as an interfacial probe", Phys. Rev. Lett. 120, 023901 (2018).
[3] DL McCaffrey, SC Nguyen, SJ Cox, H Weller, AP Alivisatos, PL Geissler, ..., "Mechanism of ion adsorption to aqueous interfaces: Graphene/water vs. air/water", PNAS 114 , 13369 (2017)
[4] JW Smith, RJ Saykally, " Soft x-ray absorption spectroscopy of liquids and solutions", Chem. Rev. 117, 13909 (2017).