

Dr Georg Hähner Reader in Physical Chemistry

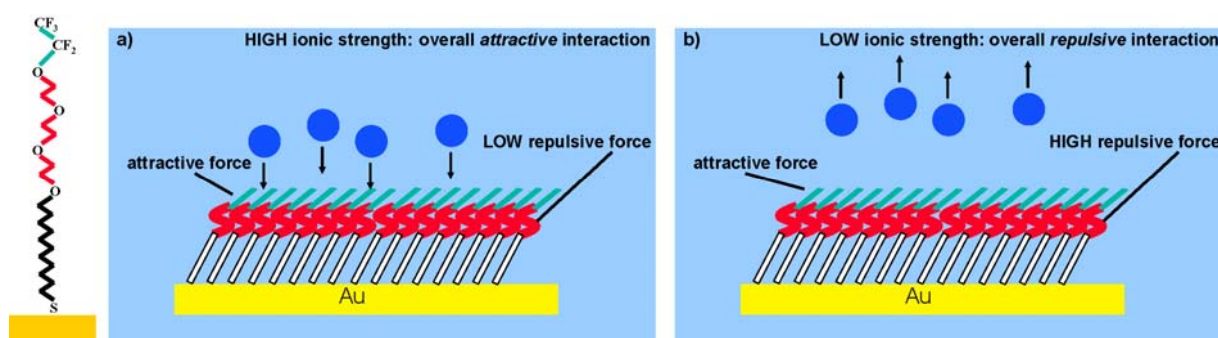
e-mail: gh23@st-andrews.ac.uk

tel: 01334 463889

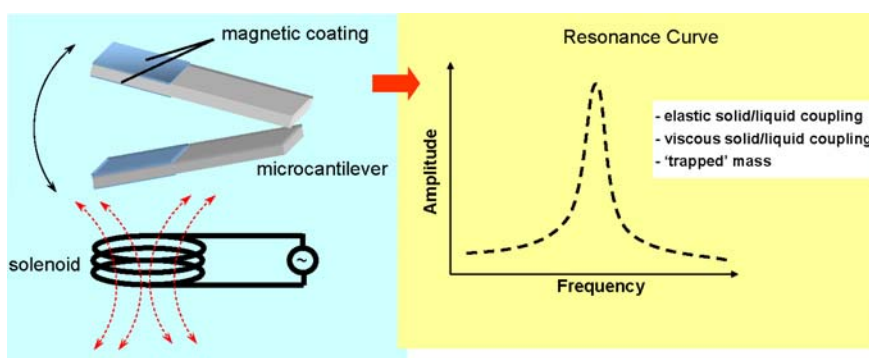


Research Interests: functional organic films, liquid solid interactions, fluid properties, protein adsorption, microcantilever sensors, microfluidic systems, scanning probe techniques, photoelectron spectroscopy

We are interested in both fundamental studies and the engineering of specific surface and fluid properties. One part of our research program is the tailoring of interfacial properties by utilizing specifically synthesized (functionalized) molecules. They allow the preparation of concentrated planes of functionality on inorganic substrates. One goal is to create functional surfaces which are capable of switching between the resistance and the (non-specific) adsorption of proteins depending on external parameters such as ionic strength and pH value [1,2].



Another part of our research program is the development and improvement of surface analytical techniques, which are capable of analyzing interfaces *in situ*, i.e., in the 'natural environment' of the system under investigation and without destroying them. This is most often a liquid in the case of 'biological' systems, for example when studying protein adsorption properties, and exploring the role of the fluid in interfacial processes is one important aspect of our research [3,4].



SELECTED RECENT PUBLICATIONS

1. Ionic strength mediated hydrophobic force switching of CF₃-terminated ethylene glycol self-assembled monolayers (SAMs) on gold. N. Bonnet, D. O'Hagan, G. Hähner *Chem. Commun.* 2007, **47**, 5066.
2. Protein adsorption onto CF₃-terminated oligo(ethylene glycol) containing self-assembled monolayers: The influence of ionic strength and electrostatic forces. N. Bonnet, D. O'Hagan, G. Hähner *Phys. Chem. Chem. Phys.* 2010, **12**, 4367.
3. Simultaneous determination of density and viscosity of liquids based on resonance curves of uncalibrated microcantilevers. N. McLoughlin, S.L. Lee, G. Hähner *Appl. Phys. Lett.* 2006, **89**, 184106.
4. Temperature dependence of viscosity and density of viscous liquids determined from thermal noise spectra of uncalibrated atomic force microscope cantilevers N. McLoughlin, S. L. Lee, G. Hähner *Lab Chip* 2007, **7**, 1057.