



The **Liquid Interfaces group** is a work group within the Laboratory for Surface Science and Technology (LSST) in the Department of Materials at ETH. We are currently five team members and seek a highly motivated research candidate as we expand our interests in colloidal nanoscience.

## Master student in surface and interface science: Influence of ions of hydrogen bonding network

The **work group** is principally concerned with fundamental properties such as geometric and electronic structures at vapor-liquid and liquid-nanoparticle interfaces using modern surface science instrumentation that operate in liquid environments. A large portion of our research is conducted using an Agilent FTIR spectrometer and microscope that allows for vibrational spectroscopy measurements at liquid-colloid nanoparticle interfaces.

**We are looking for** a new member Master student (project or thesis) to study the hydrogen bonding network of the electrolyte-silica nanoparticle interface with Fourier transform infrared (FTIR) spectroscopy. The project goal is to provide a microscopic description of the hydrogen bonding network between surface bound silanol groups (Si-OH) of the nanoparticles and water molecules inside the outer Helmholtz plane. The effect of different ions (cations and anions) will be determined. The position requires a Bachelor degree or equivalent in physics, chemistry, materials science, chemical engineering, or a related field, and a keen interest in nanoscience using state-of-the-art instrumentation. The successful candidate must be willing and able to work effectively in a dynamic team environment, have interest in developing advanced instrumentation and methodology, and have proficiency in english. The start date is flexible based on the candidates academic schedule, but is anticipated to be spring 2015.

**For further information** please visit our website at [www.surface-science.ethz.ch](http://www.surface-science.ethz.ch) or e-mail the work group leader, Dr. Matthew Brown, at [matthew.brown@mat.ethz.ch](mailto:matthew.brown@mat.ethz.ch)

**Applications** should be submitted electronically at [matthew.brown@mat.ethz.ch](mailto:matthew.brown@mat.ethz.ch).

