

Investigating the Molecular Structure of Liquid Surfaces

Dr. Gunther Andersson
Flinders University
School of Chemistry, Physics & Earth Science

We experience liquid surfaces in daily life but they play also an important role in many industrial processes. Liquid surfaces as one type of soft matter surfaces are very different to solid surfaces: the surface energy of soft matter surfaces is lower than that of a solid surface and the diffusion constants of species in soft matter are in most cases much larger than of those species forming solids to name only two examples of the differences. As a consequence the concepts to describe liquid surfaces and solid surfaces are different.

Ion scattering and electron spectroscopy are well known tools in the research of solid surfaces. But they are also very useful tools for investigating liquid surfaces. However, in applying these methods to liquid surfaces one has to take the different nature of solid and liquid surfaces into account. The information that can be gained with these methods at soft matter surfaces are amongst others concentration depth profiles, the composition of the outermost layer and the local topography around atoms in the outermost layer. I will cover in the presentation also ionic liquids and aqueous solutions.