

Chemistry in-vacuo: Suck it and see!

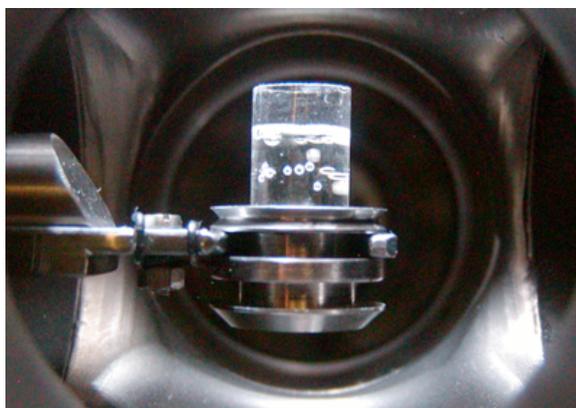
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X-ray photoelectron spectroscopy (XPS) is an established and commonly applied surface analysis technique that provides structural and chemical information for non-volatile materials.

Surface chemistry and interfacial investigations of solid samples have long dominated the field of XPS, however with its growing popularity, XPS is now being applied to a wide range of softer samples with increasing structural complexity. Our group has utilised XPS and related photoemission based experiments to investigate Ionic liquids (ILs) and IL based systems on an atomistic level. These techniques yield detailed information that can aid in the design of more efficient catalysts and processes, particularly those that occur at interfaces or discontinuities. XPS can give a unique insight into basic processes within liquid samples including inter-ion interaction and solvent-solute interactions that can tune processes in a very subtle way.



This lecture will give an overview of the basics that underpin our work and will give details of how the technique can yield fundamental information about ionic liquids and solutions thereof. Simple XP spectra will be described as worked examples, which will lead on to more complex systems and examples of homogeneous catalysis. I will explore the role of both anion and cation in optimising process efficiency realising the aim to generate more tuneable catalyst systems.

Background References

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