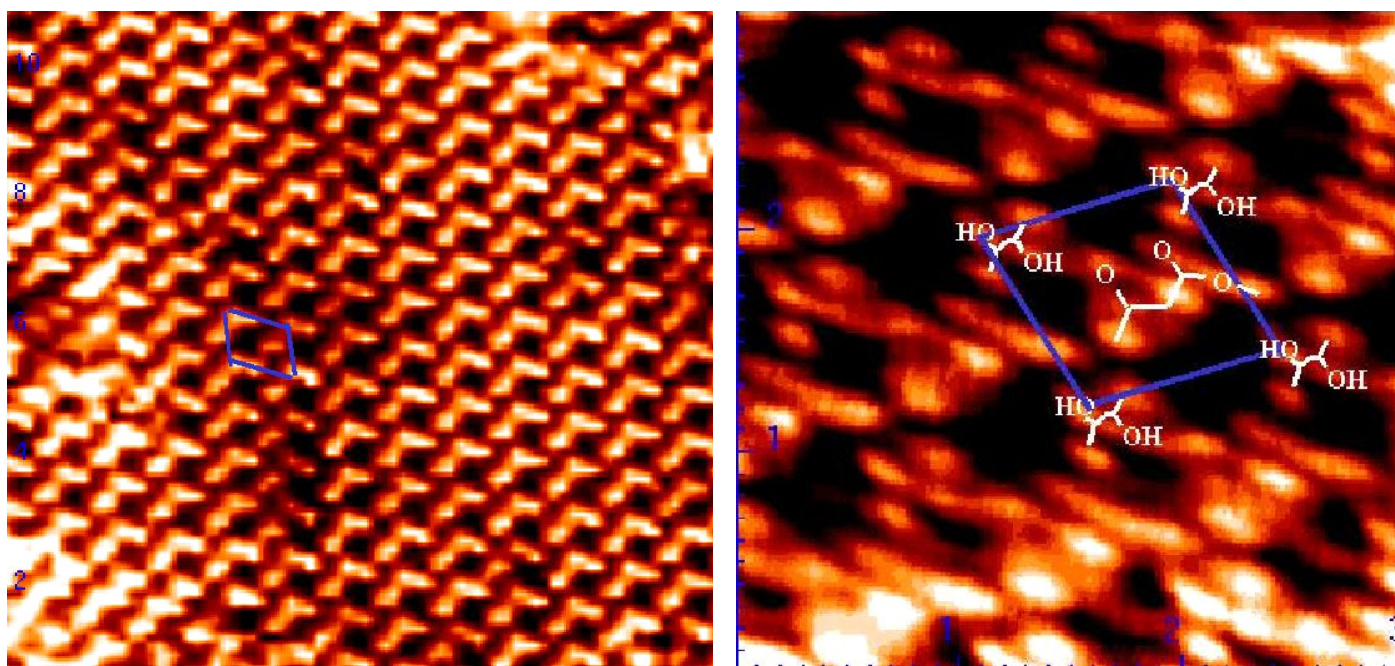




Research Interests: surface science, heterogeneous catalysis, surface chirality, scanning probe microscopy, alloys, nanoparticles, medium energy ion scattering

Our research group is primarily interested in understanding how to control the activity and selectivity of heterogeneous catalysts. Our goal is to characterise the structure, composition and adsorption properties of the surfaces of model metallic and bimetallic catalysts using a range of ultrahigh vacuum (UHV) based surface analytical techniques (e.g. scanning tunneling microscopy (STM); reflection absorption infrared spectroscopy (RAIRS) and medium energy ion scattering (MEIS)). In addition, in order to focus on more catalytically relevant interfaces, we have recently enhanced our equipment base to enable in situ STM and RAIRS measurements at the gas-solid or liquid-solid interface.



One of our major research themes is the development of chiral heterogeneous catalysts via the creation of enantiospecific adsorption sites on metal surfaces either by the adsorption of chiral molecules onto achiral metal surfaces, or by the corrosion of metal surfaces by chiral molecules, or by the nucleation and growth of intrinsically chiral metal nanoparticles.

### SELECTED RECENT PUBLICATIONS

1. Fundamental investigations of enantioselective heterogeneous catalysis. C. J. Baddeley, *Topics in Catalysis* 2003, **25**, 17-28.
2. The influence of Au on the adsorption of methylacetoacetate on Ni - a study with medium energy ion scattering and reflection absorption infrared spectroscopy. T. E. Jones; T. C. Q. Noakes; P. Bailey; C. J. Baddeley, *Surface Science* 2004, **569**, 63-75.
3. Molecular Ordering and Adsorbate Induced Faceting in the Ag{110}-(S)-Glutamic Acid System. T. E. Jones; C. J. Baddeley; A. Gerbi; L. Savio; M. Rocca; L. Vattuone, *Langmuir* 2005, **21**, 9468.
4. Investigating the mechanism of chiral surface reactions: The interaction of methylacetoacetate with (S)-glutamic acid modified Ni{111}. T. E. Jones; C. J. Baddeley, *Langmuir* 2006, **22**, 148-152.
5. The growth of ultrathin Au films on Ni{111}: A study with medium energy ion scattering. T. E. Jones; T. C. Q. Noakes; P. Bailey; C. J. Baddeley, *Surface Science* 2006, **600**, 2129-2137.