



Experiment title: In-situ Surface X-ray Scattering Studies of UHV-prepared Pt-Ni Bimetallic Surfaces

Experiment number:
SI-1638

Beamline: ID32	Date of experiment: from: 22/1/08 to: 29/1/08	Date of report: 29/2/2008
Shifts: 21	Local contact(s): Jerome Roy	<i>Received at ESRF:</i>

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Report:

This experiment was our first attempt to use the UHV-electrochemistry transfer system on ID32. The results have been incorporated into an article that has been submitted as a Faraday Discussion paper. The abstract is attached below:

From ultra high vacuum to the electrochemical interface: X-ray scattering studies of model electrocatalysts

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In-situ surface x-ray scattering (SXS) has become a powerful probe of the atomic structure at the metal-electrolyte interface. In this paper we describe an experiment in which a Pt(111) sample is prepared under ultra-high vacuum (UHV) conditions to have a p(2x2) oxygen layer adsorbed on the surface. The

surface is then studied using SXS under UHV conditions before successive transfer to a bulk water environment and then to the electrochemical environment (0.1 M KOH solution) under an applied electrode potential. The Pt surface structure is examined in detail using crystal truncation rod (CTR) measurements under these different conditions. Finally some suggestions for future experiments on alloy materials, using the same methodology, are proposed and discussed in relation to previous results.
