EUROPEAN SYNCHROTRON RADIATION FACILITY

INSTALLATION EUROPEENNE DE RAYONNEMENT SYNCHROTRON

Experiment Report Form

The double page inside this form is to be filled in by all users or groups of users who have had access to beam time for measurements at the ESRF.

Once completed, the report should be submitted electronically to the User Office via the User Portal:

https://wwws.esrf.fr/misapps/SMISWebClient/protected/welcome.do

Reports supporting requests for additional beam time

Reports can be submitted independently of new proposals – it is necessary simply to indicate the number of the report(s) supporting a new proposal on the proposal form.

The Review Committees reserve the right to reject new proposals from groups who have not reported on the use of beam time allocated previously.

Reports on experiments relating to long term projects

Proposers awarded beam time for a long term project are required to submit an interim report at the end of each year, irrespective of the number of shifts of beam time they have used.

Published papers

All users must give proper credit to ESRF staff members and proper mention to ESRF facilities which were essential for the results described in any ensuing publication. Further, they are obliged to send to the Joint ESRF/ ILL library the complete reference and the abstract of all papers appearing in print, and resulting from the use of the ESRF.

Should you wish to make more general comments on the experiment, please note them on the User Evaluation Form, and send both the Report and the Evaluation Form to the User Office.

Deadlines for submission of Experimental Reports

- 1st March for experiments carried out up until June of the previous year;
- 1st September for experiments carried out up until January of the same year.

Instructions for preparing your Report

- fill in a separate form for each project or series of measurements.
- type your report, in English.
- include the reference number of the proposal to which the report refers.
- make sure that the text, tables and figures fit into the space available.
- if your work is published or is in press, you may prefer to paste in the abstract, and add full reference details. If the abstract is in a language other than English, please include an English translation.

ESRF	**Experiment title:** Growth, Structure and Magnetism of Electrodeposited Co/Au(111) Films	**Experiment number**: SI-2279
Beamline: ID32	**Date of experiment**: from: 7/6/11 to: 14/6/11	**Date of report**: 22/10/13
Shifts: 18	**Local contact(s)**: Parasmani Rajput	*Received at ESRF:*

Names and affiliations of applicants (* indicates experimentalists):

Christopher Lucas* University of Liverpool

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Report:

This project has now been successfully completed. The results have been analyzed and a paper is shortly to be submitted to the Journal of Physical Chemistry. The abstract from the paper is below:

Growth and Atomic Structure of Thin Cobalt Films Electrodeposited onto Au(111)

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Abstract

The growth and atomic structure of thin Co films electrodeposited onto Au(111) has been studied using *in-situ* surface x-ray diffraction and scanning tunneling microscopy. The growth of the Co films is monitored in real time with the thickness of the Co film being correlated to the strain. Surface relaxation and the Co-Au interface structure is probed in detail for a two monolayer thick (2 ML) Co film. Saturation of the electrolyte with carbon monoxide shows that there are no substantial structural changes in the Co film. The results are discussed in relation to the magnetic properties, in particular the change in the spin reorientation transition caused by CO adsorption. It appears that the structure of the electrochemical double layer plays a crucial role.