

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 using the **Electronic Report Submission Application:**

<http://193.49.43.2:8080/smis/servlet/UserUtils?start>

Reports supporting requests for additional beam time

Reports can now 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.



	Experiment title: Search for Charge Density Waves in Manganites by Resonant x-ray scattering.	Experiment number:
Beamline: ID20	Date of experiment: from: June 10th 2010 to: June 15th 2010	Date of report: Feb, 28th 2010
Shifts: 15	Local contact(s):	<i>Received at ESRF:</i>
Names and affiliations of applicants (* indicates experimentalists): S. Grenier* M. Elzo*		

Report:

Encouraging results were obtained although the experiment could not be accomplished before the end of the run. A lot of time was used to align both the samples within the cryostat, as well as the optic on the beamline, like the phase plate, with a great involvement of the local contact. A major difficulty that had to be overcome was that most of the reflections of interest were very hard to reach due to the use of the "Orange" cryostat. First the reciprocal space accessible was reduced because of the relatively short wavelength at the Mn K-edge. Second, the sample was a thin film, which required performing diffraction in reflective mode. With such cryostat it was impossible to use the chi rotation, a limitation that was overcome thanks to the beamline scientist suggesting to push beyond the software limit of the detection rotation (2th), at some point during the experiment.

It also appeared that one of the samples appeared to have no Manganite film on the substrate and was removed maybe prematurely. Lot of time was used to align it and characterized it until the absence of Mn fluorescence convinced everybody to pass to another sample. However, the absence of the manganite film has then been checked again after the experiment with a contradicting result, because its actual presence was confirmed by crystallography and micro analysis FESEM. There is no explanation as to why the Mn fluorescence was not detected.

Nevertheless, one sample was eventually perfectly aligned under the beam, and the application of the current could be performed. We found very small superstructure reflections that were incommensurate with the lattice. This was the first success of the experiment. The spectral signature was recorded. Unfortunately the use of the Orange cryostat could not allowed azimuthal scans which precluded the enhancement of the resonant signal. The transport properties has been measured, unfortunately a contact has been lost at some point of the experiment precluding to follow the structural properties of the film under applied field.

In conclusion, the beamline ID20 was perfect to perform the experiment except that the cryostat needed for this experiment was not available, and the experiment ended up being very challenging, although possible, with the orange cryostat.

We will request further beamtime, deeply regretting with its staff that ID20 and its activity has to be shut down.

We thank the remarkable assistance of the ID20 staff.