



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: Structural characterization of oxide dispersion strengthened (ODS) Fe-(12, 14) Cr alloys	Experiment number: 25-01-818
Beamline: BM25A	Date of experiment: from: 23 October 2011 to: 25 October 2011	Date of report: 20/01/2012
Shifts: 6	Local contact(s): Miquel Lluís Corro Moya, Jon Ander Gallastegui	<i>Received at ESRF:</i>

Names and affiliations of applicants (* indicates experimentalists):

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Report:

Fe, Cr and Y K-edge X-ray absorption measurements have been carried out on 18 samples of Fe-(12-14) wt.% Cr-ODS and non-ODS alloys produced by planetary ball milling, HIP (hot isostatic pressing) and subsequent either forging and annealing or just annealing processes. Additional measurements were carried out on Fe, Cr and Y_2O_3 (nanometric and micrometric powders) reference materials. 4 to 7 spectra were collected on each sample, using 12-15 min per scan in order to obtain agreeable statistics. The measurements were extended to photon energies above the absorption edge in the EXAFS region to cover the range $(0-12 \text{ \AA}^{-1})$ of the photoelectron wave vector, k . As an example, the results for the Cr- K edge on irradiated and non-irradiated Fe12 Cr- ODS alloys are presented in Figure 1. Some difference near the absorption edge may be related to the influence of irradiation process. Although, further analysis and corrections for self absorption necessary. On the other hand, Figure 2 shows the results for the Y K-edge on the as-forged Fe-14Cr-ODS sample compared to the reference Y_2O_3 materials. In this case, the alteration of the structure in the ODS material is clearly observed.

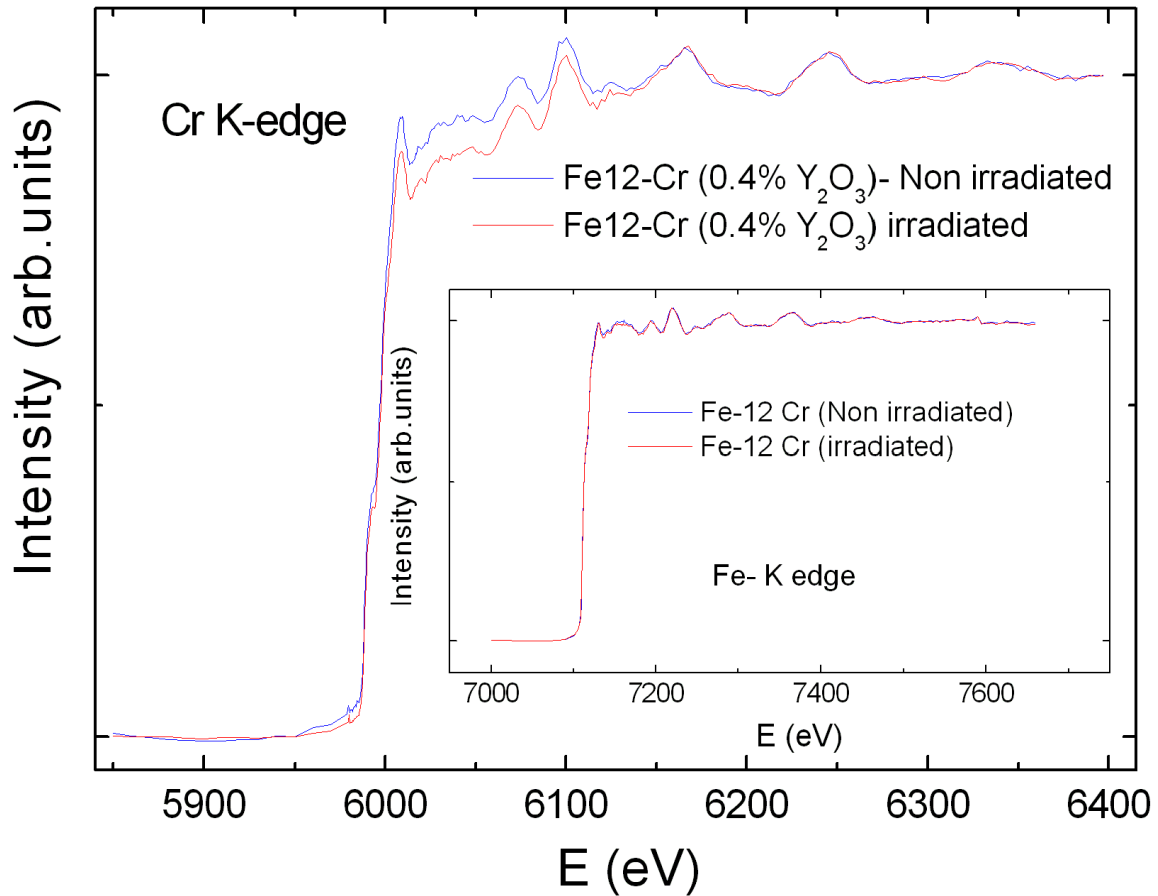


Figure 1- X-ray absorption measurements at Cr-K edge for the irradiated and non-irradiated ODS Fe-12 Cr alloys. The inset shows the behaviour of the non-ODS Fe-12Cr reference alloys at Fe-K edge.

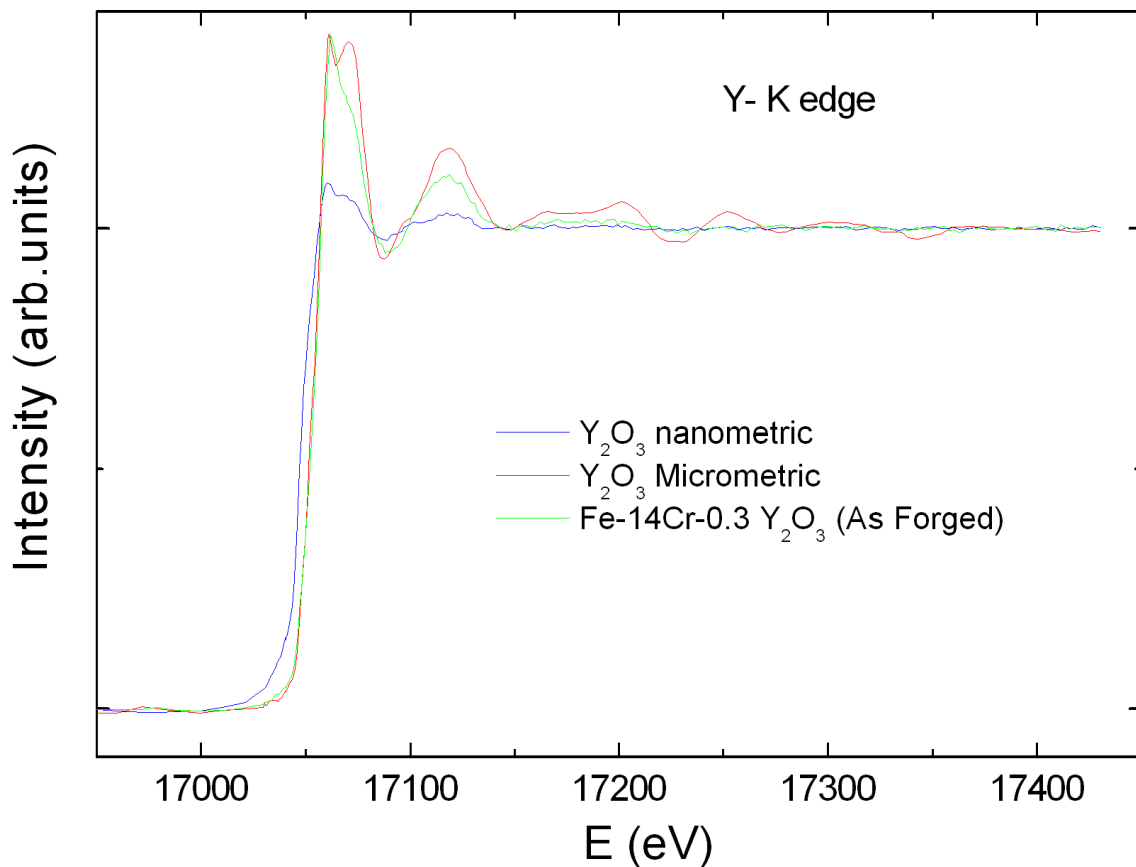


Figure 2- X-ray absorption measurements at Y- K edge for the as-forged Fe-14Cr-ODS alloy compared to the Y_2O_3 reference materials