

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://www.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.



Experiment title: Anomalous X-ray scattering on a novel amorphous organotinorganic hybrid tin cluster exhibiting nonlinear optical effects

Experiment number:
HC-3146

Beamline: BM02	Date of experiment: from: 16.06.2017 to: 20.06.2017 and 26.06.2017 to: 30.06.2017	Date of report: 10.09.2017
Shifts: 30	Local contact(s): Nathalie Boudet	<i>Received at ESRF:</i>

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Report:

The experiment was all in all very successful, with minor setbacks. Differential structure factors could be obtained with good statistical quality. One of the obtained $\Delta S(q)$ is shown exemplarily in figure 1. The setup available at BM02 includes a 2-dimensional detector, which enables us to identify small errors in the measurement, such as a shift of the signal due to minor misalignments and counter them. This is extremely helpful for data analysis, since AXS is very sensitive. An example image from the 2-D detector (experiment HC-2213) showing the Compton signal can be seen in figure 2. For this experiment the 2D detector could not be used, because the efficiency of the detector was too low at the tin edge energy.

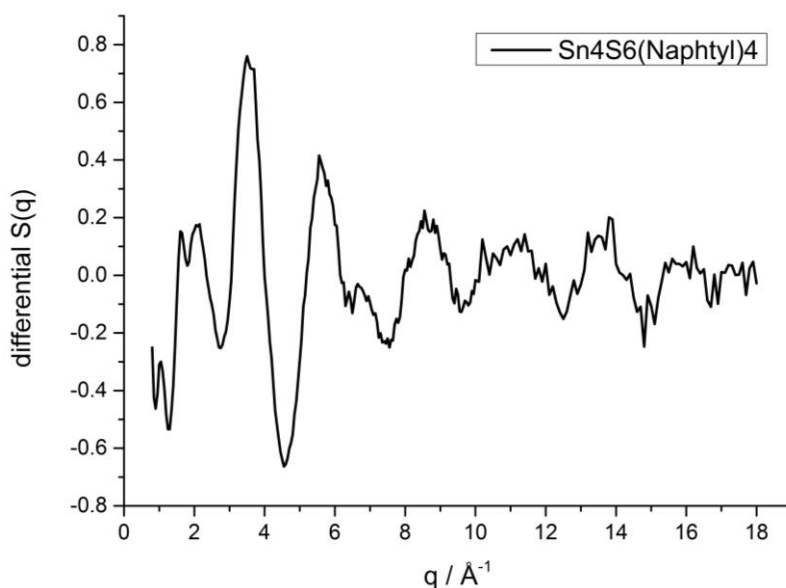


Figure 1: Differential structure factor of $\text{Sn}_4\text{S}_6(\text{Naphtyl})_4$ at the tin K alpha absorption edge.

During the measurements a change in the color of the samples could be observed after prolonged exposure to the beam. Since we were granted extra time for the measurement due to organizational reasons, we had the chance to adjust our strategy and change the sample position regularly to avoid damaging the sample too much. After the experiment we verified that the color change is not temperature induced. Finding out more about the changes in the material including a possible beam energy dependence might lead to the discovery of new properties and uses for the materials and might be subject of further investigation later on.

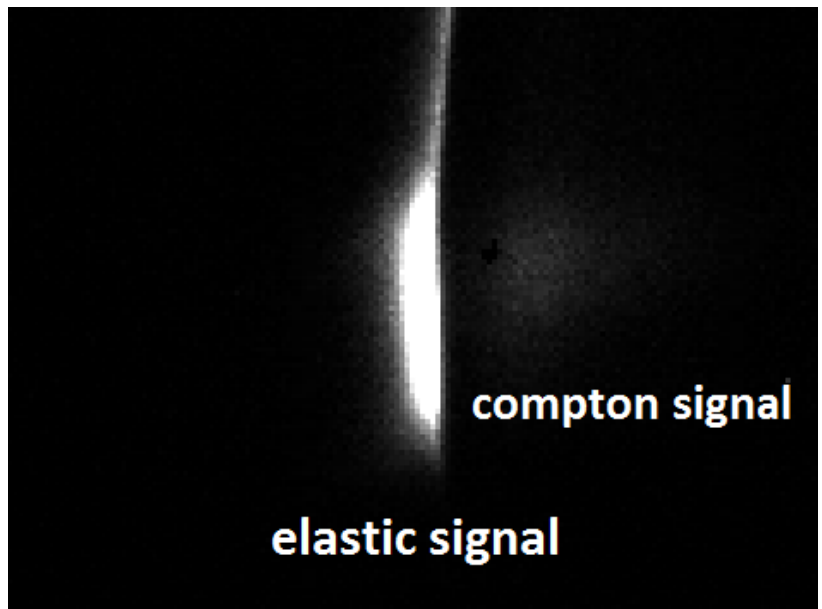


Figure 2: Image of the 2D detector during a measurement in experiment HC-2213. The compton signal can be separated from the elastic peak.

