



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: X-ray tomography and microdiffraction of diamond and lonsdaleite bearing microinclusions in natural ultrahigh pressure metamorphic rocks	Experiment number: ME-778
Beamline: ID13	Date of experiment: from: 12.6.04 to: 13.6.04	Date of report: 12.4.05
Shifts: 6	Local contact(s): C. Riekkel	<i>Received at ESRF:</i>
Names and affiliations of applicants (* indicates experimentalists): Dr. G. Godard*: Institute de Physique du Globe de Paris, CNRS UMR Dr. P. Philippot: Geosciences Marines, CNRS-IPGP, Universite Paris-Jussieu Prof. D. Smith Museum National d'Histoire naturelle, 61, rue Buffon; 75005		

Report:

Sample

The sample chosen for test was a lonsdaleite+diamond standard coming from the collections of the Muséum National d'Histoire Naturelle in Paris (Fig. 1). The unusual lonsdaleite and diamond association, typical of ultrahigh stress and pressure conditions, was produced during a meteorite impact, in southern Urals..

Experiments

Experiments were performed using the ID13 microgoniometer at 100 K with a 5 micron beam at $\lambda=0.095$ nm. An image of the sample-flake glued to a glass capillary is shown in Fig.1 A $10 \times 10 \mu\text{m}^2$ mesh-scan was performed with an angular rotation of 1° at every mesh-point. 2D-patterns of 1 sec each were collected with a MARCCD. A sample area of $0.5 \times 0.6 \text{ mm}^2$ was scanned.

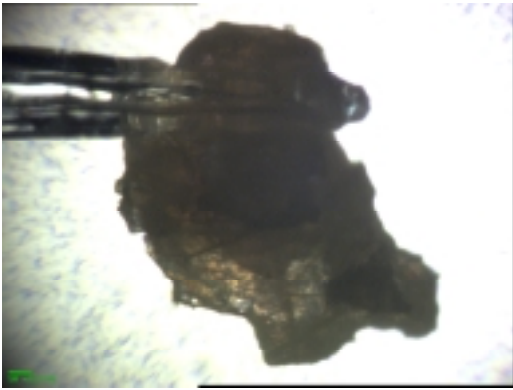


Fig.1 Microscopy image of sample recorded with the on-axis microscope of the microgoniometer. The green bar corresponds to 50 μm .

Results

Fig.2 shows a composite "image" of the scanned zone. The image-pixels correspond to high resolution patterns. Selected patterns shown to the right reveal the presence of various phases. Detailed analysis of the phases is in progress. We shall present the preliminary results at the 7th International Eclogite Conference of Seggau, in July 2005 (G. Godard, D. Smith, L. Dobrzhinetskaya, C. Riekkel, & M. Belleil [2005].- *Why is diamond from UHPM rocks disordered? Investigation by raman spectroscopy and synchrotron X-ray microdiffraction*. IEC-7, 2005 Seggau, Austria).

As the test provided promising results, even with the small size of the sample, we will request to be able to continue, by performing the same procedure on Norway and Kazakhstan samples.

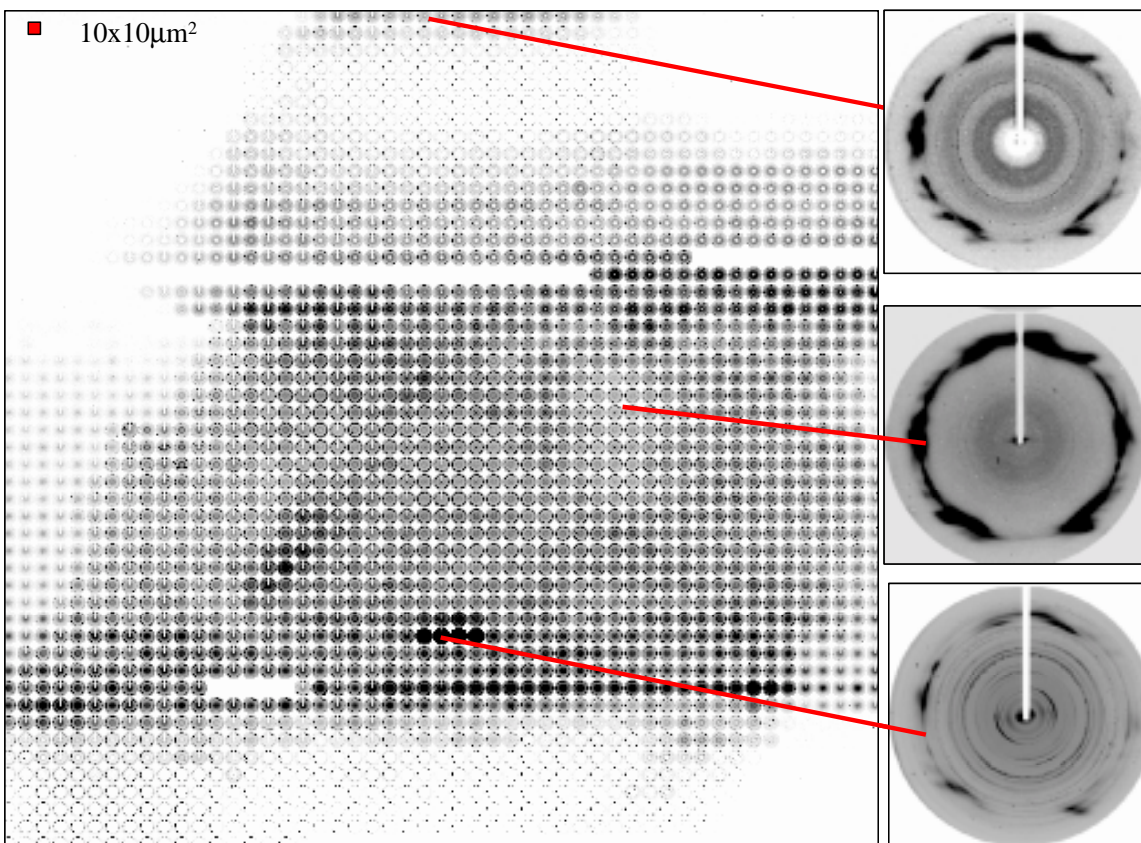


Fig.2 Composite image of mesh-scan. Selected patterns are shown enlarged to the right.