

## 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.



	<b>Experiment title:</b> In-Situ Study of the Uptake of Dopants in Organic Semiconductors	<b>Experiment number:</b> SC-1079
<b>Beamline:</b> ID10B	<b>Date of experiment:</b> from: 11-Dec-02 to: 17-Dec-02	<b>Date of report:</b> 25-Feb-03
<b>Shifts:</b> 20	<b>Local contact(s):</b> Dr Bernd Struth	<i>Received at ESRF:</i>
<b>Names and affiliations of applicants (* indicates experimentalists):</b> Stefan Sellner* (Stuttgart / Oxford) Alexander Gerlach* (Oxford) Frank Schreiber* (Oxford); main proposer Bernd Struth* (ESRF)		

## Report:

The experiment was performed only two months ago. Since the data analysis for this type of experiment usually takes rather long, we cannot yet make definitive statements. Therefore, this report naturally contains preliminary results and conclusions.

The analysis is still underway. At this point, we can say the following.

- 1) As proposed, we studied crystalline thin films of the organic semiconductor diindenoperylene (DIP), which had recently identified, in collaboration with the ESRF, as a very suitable model system for this class of materials (A. C. Dürr, F. Schreiber, K. A. Ritley, V. Kruppa, J. Krug, H. Dosch, and B. Struth, Phys. Rev. Lett. 90 (2003) 016104).
- 2) The diindenoperylene films proved to be as high-quality as shown in our previous experiments, as demonstrated by very narrow (0.01 deg) rocking widths and a large number (up to 10) Bragg reflections along the specular path.
- 3) The data on the specular path could be taken with very good resolution as a function of time and temperature.
- 4) Data of the diffuse reflectivity (mostly in the longitudinal direction, i.e.  $q_x$ ) could be taken with high quality, again as a function of time and temperature.

- 5) The grazing-incidence data turned out to be less high-quality due to the limited coherence length of the film structure in the plane. This effect was to be expected for the system under study.
- 6) The interdiffusion studies were performed as a function of time and temperature. We are optimistic that the data will yield the desired information about the interdiffusion mechanism.

While we consider the beamtime successful, we wish to point out that experiments on new materials such as in the present case with a certain amount of preparative work on the site are fairly demanding and time-consuming.

We wish to acknowledge the excellent experimental conditions, the stability of the beam and the reliability of the beamline as well as the support by the local contact.

We are presently in the process of analysing the data, which we feel are of sufficient quality to warrant publication.

