

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: Tilt angle and anchoring site of dye molecules on AgBr/Ag(111) surfaces

Experiment number:
SI615

| | | |
|---------------------------|---|--|
| Beamline: ID10B | Date of experiment: from: 22 november 2000 to: 28 november 2000 | Date of report: 5 october 2001 |
| Shifts: 18 | Local contact(s): Dr. Oleg Kononov | <i>Received at ESRF:</i> |

Names and affiliations of applicants (* indicates experimentalists):

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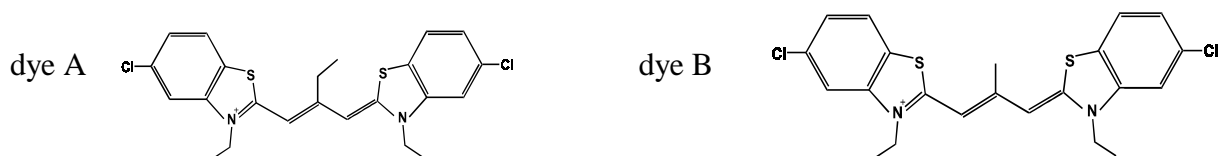
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Report:

Experimental method: we used single crystalline Ag(111) films (240nm or 500nm thick) deposited on mica which were modified to imitate chemically and optically the surface of AgBr microcrystals, as an AgBr layer is formed on them by bathing in a KBr solution. The molecular layers are formed by dipping the films in a solution containing the dye powder for 45 minutes. 2 cyanine dyes were studied:



Measurements: we measured the reflectivity for the 2 sorts of substrates we had (AgBr/Ag(111)240 or 500nm thickness) and for the dye covered substrates. In plane data were also collected, as well as rods (11), (-12), (30).

Results : the analysis of the data is not yet ready, but some comments can be done. First of all, the films with 500nm thick present stacking faults which give a strong background between peaks on a (11) rod, disturbing the observation of molecular signal. Using the 240nm thick films resolved partially that problem. Differences could be seen on reflectivity spectra between bare substrates and samples covered by a molecular layer, as shown on figure 1. This effect can be associated to the presence of water on the AgBr/Ag(111) surface as the molecular layers are hydrophobic. The rods (11) and (30) have been measured and show also some differences between dye covered and bare AgBr substrate. Further analysis is necessary, with in particular the development of a model allowing to calculate the rods when molecules are adsorbed. Therefore the ROD program will be used, as it allows to solve problems such as : on what side is the molecule adsorbed, by which group etc.

Figure 1

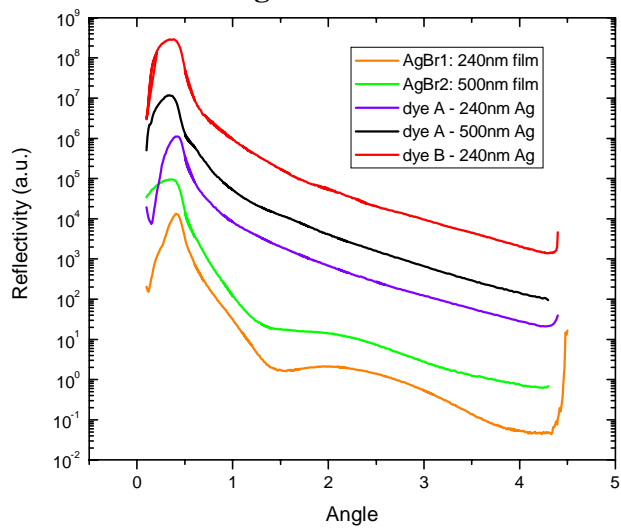
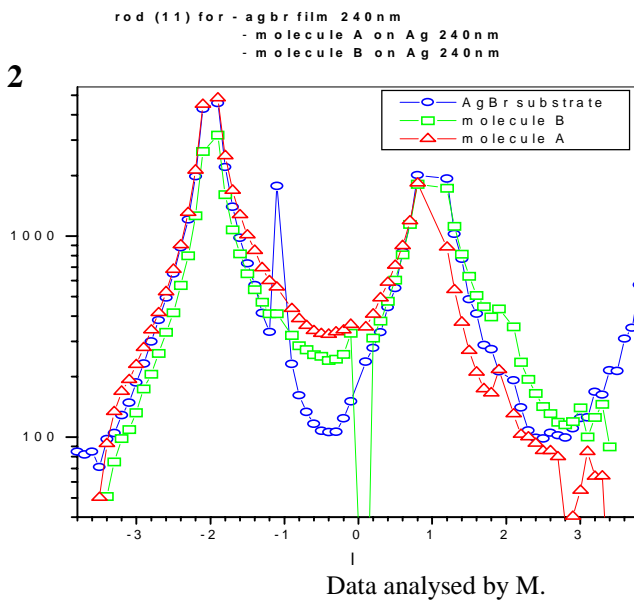


Figure 2



Data analysed by D. Smilgies