



DUBBLE – EXPERIMENT REPORT

We kindly request you to answer the questions (max 2 pages) and return the **DUBBLE – Experiment Report form** within 2 months of the completion of the experiment to dubble@nwo.nl. Also include a hard copy of this report in the documents you send out for claiming your costs of travel ./ subsistence from FWO-Vlaanderen via Prof. Bart Goderis. Do **not** send any **DUBBLE - claim form for costs of travel/subsistence** by e-mail to dubble@nwo.nl.

For information please contact Bart Goderis, tel.: +32-16-327806, e-mail: bart.goderis@chem.kuleuven.be

Beam time number: 26-01-1030		
Beamline: BM01B	Date(s) of experiment: 10-16th June 2015	Date of report: 23rd June 2015
Number of Shifts: 25	Local contact(s): Michela Brunelli	

1. Who took part in the experiments? (Please indicate names and affiliations)

Dr Victoria Flexer- Gent University
Dr Rosie Grayburn- Gent University
Michel de Keersmaecker- Gent University
Pieter-Jan Sabbe- Gent University
Florencia Marchini-Universidad de Buenos Aires-Argentina
Prof Mark Dowsett-University of Warwick -UK

2. Were you able to execute the planned experiments?

YES

3. Did you encounter experimental problems?

YES

We had 3 different types of problems:

-BEAMLINE: the beamline energy was inadequate, too high, it was penetrating too far away in our sample, and therefore the signal of the underlying substrate was much stronger than the signal of the layers we were trying to grow and study. Moreover, the detector had quite a poor resolution, that made it necessary for us to acquire data for in between 100-200 seconds for a single diffractogram, which way too long for studying a real-time electrochemical process.

-EXPERIMENTAL SYSTEM: we were working with organic solvents, and after long-term exposure, these attacked the O-rings of our electrochemical cell, producing small leakages that had to be cared for

-OUR CONTROL SYSTEM: our control system (controlling motor moving our electrode and sending pulses to the potentiostat) was controlled by a new software, and this new software was producing some problems in controlling the system in automatic mode.

4. Was the local support adequate?

YES

5. Are the obtained results at this stage in line with the expected results as mentioned on the project proposal?

YES/NO (If NO, please specify)

We could not follow in real time the growth of Li₂O₂ or of decomposition products since the signal of



these was barely distinguishable from the underlying substrate, as specified above in the experimental problems associated to the beamline.

6. Are you planning follow-up experiments at DUBBLE for this project?

NO

7. Are you planning experiments at other synchrotrons in the near future?

YES

8. Do you expect any scientific output from this experimental session (publication, patent, ...)

NO (most probably, results will be further analysed, but highly unlikely)

9. Additional remarks

We had originally requested beamtime in BM01A, which we thought was more adequate for the experiments we were planning (right beamline energy, better resolution and faster detector), but we were instead given beamtime in BM01B.