

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:**Structural analysis of $\text{LiFe}_{0.5}\text{Mn}_{0.5}\text{SiO}_4$ during charge-discharge experiment**Experiment number:**

MA- 1757

Beamline:	Date of experiment: from: 26 June to: 02 July 2013	Date of report: 30/04/2014
Shifts:	Local contact(s): Dr. Andy Fitch	<i>Received at ESRF:</i>

Names and affiliations of applicants (* indicates experimentalists):

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Report:

The following article has been accepted for publication in Phys. Chem. Chem. Phys. and is now available on line

DOI: 10.1039/c4cp00511b

Electrochemistry of orthosilicate-based lithium battery cathodes: a perspective

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Lithium metal orthosilicates are attracting a lot of attention owing to their promising prospects as potential high capacity cathode materials for Li-ion batteries. Currently, great efforts are being made in order to achieve the full theoretical specific capacity of 330 mA h g^{-1} , but many issues remain unsolved (e.g., poor structural and cycling stability), which limit their practical application. The present perspective highlights the importance of assessing the electrochemical behaviour of $\text{Li}_2(\text{Fe,Mn})\text{SiO}_4$ by combining an arsenal of characterization techniques both spectroscopic and structural, in and ex situ. Here, we review the most recent achievements in the investigation of the electrochemical performance of lithium metal orthosilicate cathodes and, through some of our recent results, we attempt to clarify the relationship between the structure and electrochemistry of these compounds.

Graphical abstract



