



Open PhD position:

Electrochemical Liquid Cell Transmission Electron Microscopy

Electron microscopy has traditionally been associated with the study of thin solid samples in vacuum. However, during the last decade, development of special liquid cells, which could be inserted in the vacuum of TEM, has opened new frontiers for studying in-situ reactions in liquids. The broad applicability of liquid phase electron microscopy has driven a wave of interest as it has opened exciting possibilities for solving grand challenges in materials science, chemistry, biology and other fields and has opened the route for operando studies.

This project concentrates on electrochemical nucleation and growth of metals on low-energy surfaces, which is generally encountered in the field of energy conversion and storage, via in-situ electrochemical liquid TEM. In-situ electrochemical TEM is the ideal methodology for a better understanding of the nucleation and growth process, since it allows recording high resolution (S)TEM images during electrodeposition simultaneously with registration of electrochemical signals.

The objective of the Ph.D. training is to develop and apply methods allowing in-depth understanding of electrochemical phase formation on low energy surfaces. The research will involve experimental work on electrodeposition of metals ex-situ and in-situ in a microscope.

The research work will be conducted within the FWO-SLO bilateral project "*Prediction of the Initial stages of electrochemical phase formation by multi-scale modelling and in-situ transmission electron microscopy*" at the [Department for Nanostructured Materials](#), at the Jožef Stefan Institute, Ljubljana, Slovenia and under the supervision of prof. dr. Sašo Šturm and dr. Sorour Semsari Parapari. A three-year PhD position is fully-funded by the [Department for Nanostructured Materials](#), starting in October 2021.

Minimum requirements for application:

- Completed second-cycle study programme or completed single-cycle master degree study programme, if evaluated with 300 ECTS,
- Completed pre-Bologna university study programme
- Fluent in spoken and written English

Criteria for assessment of candidates:

- grade point average in all courses,
- awards or prizes received,
- participation in research work,
- scientific articles published,
- assessment of an interview with the candidate,
- knowledge of electrochemistry and electron microscopy is a plus.

Web page: <https://nano.ijs.si/>

Interested candidates must submit their motivation letter with the detailed CV including grades transcripts by 15th of August to prof. dr. Sašo Šturm (saso.sturm@ijs.si) or to dr. Sorour Semsari Parapari (sorour.semsari.parapari@ijs.si).

Ljubljana, 18th of June 2021