

## Master's project/thesis call:

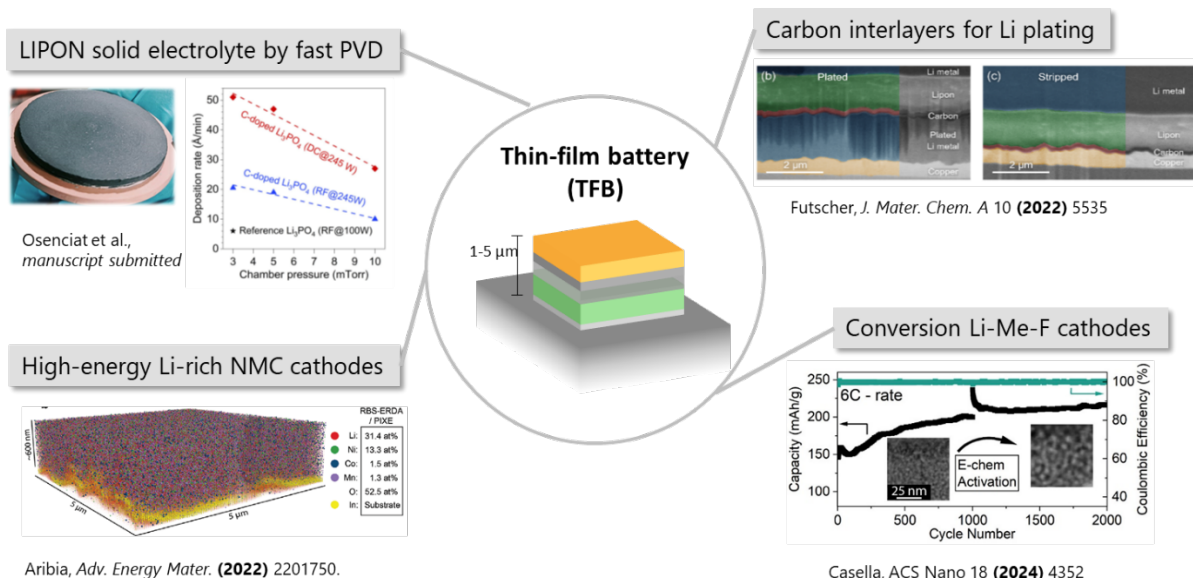
### Thin film solid-state microbatteries

#### at the Laboratory for Thin Films and Photovoltaics, Empa (Dübendorf, Switzerland)

One of the main research topics in the Laboratory for Thin Films and Photovoltaics is solid-state thin-film batteries. We use the advantages of thin-film manufacturing processes to create micro- or nano-scale batteries that can find applications in wireless sensors and consumer electronics, but more importantly, serve as model systems to study the fundamental properties and phenomena governing the performance of specific battery materials and their interfaces.

This project aims to investigate new materials for the development of next-generation solid-state batteries. You will learn how to fabricate thin films using physical vapour deposition (magnetron sputtering, evaporation). Using these methods, you will screen the potential candidates for new cathode or electrolyte materials. You will further learn the characterisation techniques required to study morphology, atomic structure, chemistry, and electronic and ionic properties of these materials.

This project requires multidisciplinary interests and will help you gather experience in many domains (physical vapour deposition, electrochemistry, materials science, data processing). Therefore we invite students with strong background in materials science, chemistry, and/or electrical engineering to apply. It is possible to tailor the project to your specific area of interest and to current developments in the Laboratory. Feel free to contact us for further information.



**Duration:** 6 months

**Starting date:** Anytime

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**Website:** <https://www.empa.ch/web/s207/thin-film-batteries>