



2025

Master thesis proposal – up to 5 months

Hosting laboratory:

ICube <https://icube.unistra.fr/>

23 rue du Loess BP 20 CR - 67037 Strasbourg Cedex 2 - France

<p>Exploration oxide and oxysulfide thin films for photovoltaic applications</p>

Inorganic thin film photovoltaic technologies are mainly based on CdTe, amorphous silicon or CIGS. Recently, Pb-based perovskite materials have emerged as a promising alternative but suffer from toxicity and stability. Nowadays materials requirements for energy and photovoltaic applications include abundance of the chemical elements, low toxicity, stability, ease of fabrication, and potential high energy conversion efficiency. In ICube and together with the ANR REACTIVE consortium (LMGP, GREMI, Bochum, ICube) we investigate several materials in the form of thin films for energy and photovoltaic applications. In particular, some oxides and oxysulfide materials are very promising for such applications.

The internship involves fabrication of thin films and their structural, optical, surface, electrical, and optoelectronic characterizations. The C3Fab platform of ICube provides cutting edge equipment and advanced techniques to fabricate, pattern and characterize thin films and solar cell devices. Training on techniques such as thin film growth, electron microscopy and analysis, Raman spectroscopy, spectroscopic ellipsometry, atomic force microscopy, Hall effect, Kelvin probe, Surface Photovoltage and PV measurements will be provided.

Supervisor: T. Fix

Email: tfix@unistra.fr

<https://thomasfix.fr>

Tel.: +33 (0)388106334