



First Combined Scattering and Fluorescence Scanning Transmission Microscopy at the NanoMAX Beam Line at MAX IV

Fevola, Giovanni; Ramos, T.; Lucas, M. M.; Rein, C.; Andreasen, J. W.

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First Combined Scattering and Fluorescence Scanning Transmission Microscopy at the NanoMAX Beam Line at MAX IV

Fevola, G., Ramos, T., Lucas, M. M., Rein, C., Andreasen, J. W.

Corresponding Author(s): gfev@dtu.dk

Materials with the approximate stoichiometry $\text{Cu}_2\text{ZnSnS}_4$ with the crystal structure of the mineral kesterite are currently being investigated as promising materials for thin film solar cell fabrication. Direct imaging, along with chemical analysis, can crucially contribute to assess the quality of the process. A pulsed layer deposited (PLD) sample of kesterite precursors was previously imaged with a scanning electron microscope (SEM) and electron dispersive spectroscopy (EDS), revealing in particular the presence of surface irregularities. In order to possibly observe finer details and analyze the chemical composition, we acquired fluorescence and scattering maps of such sample at the NanoMAX beam line at MAX-IV, currently in commissioning. This experiment was part of the beam line development. In this talk we report the outcome of this experiment. We show both fluorescence and scattering maps from features that were highlighted. We present an analysis of the acquired data and a comparison with the previously obtained results from SEM and EDS. Perspectives for cheap, third generation solar cells will also be presented.