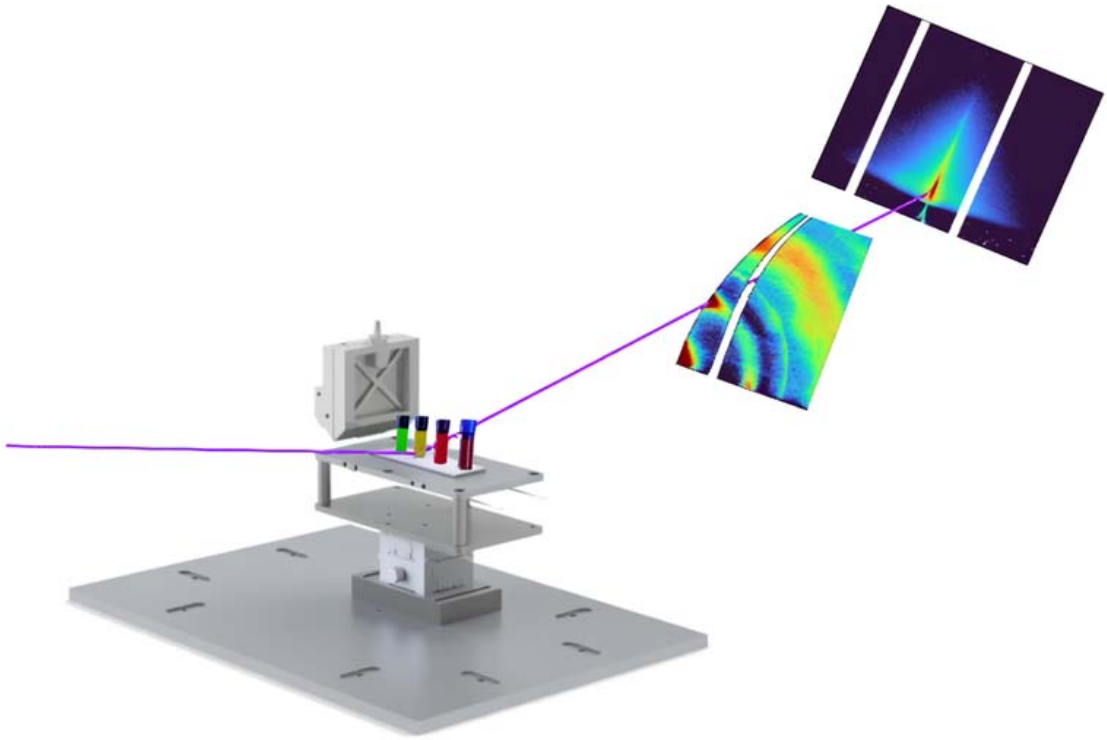
Doktorarbeit / PhD thesis

Machine learning assisted in-situ scattering investigations on film formation



At the Chair for Functional Materials at the Technical University of Munich, we investigate the physical basis of material properties using state-of-the-art scattering methods (neutron, X-ray and light scattering) and spectroscopic techniques. The general goal of our research is to infer functional properties from knowledge of microscopic structure and dynamics.
We are looking for a PhD student to work on the project "Machine learning assisted in-situ scattering investigations on film formation". The salary is 1/2 TVL E13 for 3 years.
Information about the chair can be found at:
https://www.ph.nat.tum.de/en/functmat/about-us/

Topic: The main goal of this project is to use machine learning for the analysis of advanced scattering data as they are typically gained during in-situ studies at large-scale facilities such as synchrotron radiation sources. In more detail, the film formation during the printing of films for use in solar cells will be followed with grazing incidence small- and wide-angle X-ray scattering (GISAXS/GIWAXS) with a high time resolution. The thereby created large data sets will be used partly for training the ML models and then ML will be used to have an automatized data analysis of the scattering data. The structure information about the film formation gained with such an approach will be correlated with solar cell device performance to establish a structure-function relationship.

For further information, please contact Prof. Peter Müller-Buschbaum (muellerb@ph.tum.de). Technical University of Munich, TUM School of Natural Sciences, Department of Physics, Chair for Functional Materials, James-Franck-Str. 1, 85748 Garching, Germany - Tel. 49 89 289 12451