

## How to Improve the Model-Based Quantification of EDX Elemental Mapping in TEM

The FELMI-ZFE is a leading institution in the field of high-resolution analytical electron microscopy.

We offer a master thesis in order to improve **analytical investigations of interfaces in electronic devices using high resolution scanning transmission electron microscopy (HR STEM)**. The main aim is to determine intensities of energy-dispersive X-ray (EDX) spectra in big datasets reliably and with minimum user input.

### Are you interested in

- Quantification of elemental components at atomic resolution
- Optimising the results of the quantitative interpretation of EDX data
- Refinement of methods for modelling peak intensities within an EDX spectrum
- Enhancement of evaluation methods based on simulated and real datasets
- Implementation of models in the evaluation software packages
- Playing an active part within the FFG research project "Quantitative Analyse innerer Grenzflächen" which is dealing with interfaces in electronic devices and semiconductors

### Your skills

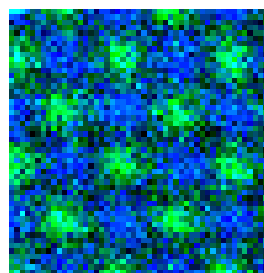
- Interest in transmission electron microscopy (TEM)
- Experience in MATLAB and/or Python
- Strong analytical skills
- Good writing skills

### Your background

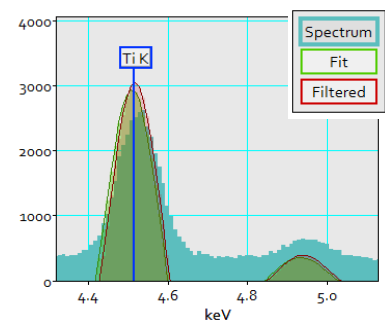
- Technical Physics
- Technical Chemistry
- Advanced Materials Science

**Start: March 2017/as soon as possible**

Compensation: 440 €/month



Atomic resolution EDX map of Sr (blue) and Ti (green) in SrTiO<sub>3</sub>



Single EDX Spectrum: Ti-K line

Let's create a reliable procedure for quantitative analyses of EDX data together!

Dr. Evelin Fisslthaler  
Senior Scientist | TEM

FELMI-ZFE [www.felmi-zfe.at](http://www.felmi-zfe.at)  
Steyrergasse 17, 8010 Graz  
Tel: +43 (0)316 873 8834  
email: [evelin.fisslthaler@felmi-zfe.at](mailto:evelin.fisslthaler@felmi-zfe.at)