



## Agenda EDS User School

Duration: 3 days  
Location: Bruker Nano GmbH, Berlin Headquarter,  
Schwarzschildstr. 12, 12489 Berlin-Adlershof  
Time frame: 9.30 – 16.30 (lunch break 12.30 – 13.30)  
Instructors: Andi Käppel, Dr. Tobias Salge

### First day

- 9.30 Principles of Electron Beam Microanalysis**  
Interaction of particles and matter  
Bremsstrahlung – characteristic radiation  
Moseley's law  
K-, L-, M- and N-series  
Spatial resolution - and excitation range in EDS analysis  
Energy resolution  
Quantification (standardless – standard based)
- 11.00 System parameters**  
EDS and SEM - fundamentals  
Detector and signal processing  
Signal processing unit settings  
Microscope settings (accelerating voltage, tilt, working distance)  
Artifacts (escape, tail, shelf, shift and pileup)
- 13.30 Spectra acquisition (part I)**  
Energy channel calibration (Mn K $\alpha$  resolution)  
Identification (manually, finder, automatically)  
Options (sputtering correction, online quantification)  
Correction possibilities (tilt, Duane/Hunt limit)
- 15.00 Spectra acquisition (part II)**  
Spectra comparison (manually, automatically)  
Spectra arithmetic  
Storage of spectra data (storage of single files, project management)

## Second day

- 9.30 Quantification (theory)**  
Identification  
Bremsstrahlung (calculation)  
Deconvolution models (Bayes – Fit)  
Quantification (P/B-ZAF,  $\Phi(\rho z)$ , HSQuant)
- 11.00 Quantification (practice)**  
Spectra analysis (standardless, standard based, HSQuant)  
Correction methods (ZAF and  $\Phi(\rho z)$ )  
Solid samples – thin layers  
Generation of user specific analysis routines
- 13.30 Object analysis**  
Automatic multi point analysis (regular and statistical)  
Analysis of rectangles, ellipses and polygons
- 15.00 Linescan** (qualitative, quantitative)

## Third day

- 9.30 Mapping, quantitative mapping and HyperMapping**  
Application, differences  
Automatic phase analysis  
Maximum Pixel Spectrum  
Drift correction  
Phase diagram presentation
- 11.00 Data storage and report function**  
Generation of user specific templates
- 13.30 Training exercises with various samples (I)**
- 15.00 Training exercises with various samples (II)**  
Distribution of participation certificates

On request: special functions