

CCMX Advanced Course
**“Combining Structural & Analytical Investigations of Matter at the Micro-, Nano
and Atomic Scale”**

5.-8. 11. 2018 ETH Zürich

Station 4 ThermoFisher (FEI) Quanta200F (Location: HPT C11)

Analytical SEM demo (60 minutes)

Analytical Scanning Electron Microscopy (SEM) is a versatile tool to investigate and characterize materials at the micro- to nanoscale. A diversity of imaging signals can be acquired by appropriate detectors. They are complemented by analytical tools, specifically for Energy Dispersive X-Ray Spectroscopy (EDX) and Electron Backscatter Diffraction (EBSD). The demo will emphasize the benefits of applying those methods in combination.

Dr. Karsten Kunze

Introduction:

- ✓ Concept of instrument
- ✓ Overview of applications
- ✓ Sample preparation

SEM:

- ✓ Imaging using SE and BSE signals
- ✓ Optimization of imaging conditions
- ✓ Charge compensation

Elemental analysis (EDX):

- ✓ Point analysis, peak ID, spectrum artifacts
- ✓ semi-quantitative analysis

Electron Backscatter Diffraction (EBSD):

- ✓ Point analysis, pattern indexing
- ✓ phase ID

Combined mapping:

- ✓ acquisition considerations
- ✓ Post-processing using raw data (spectra and patterns)
- ✓ Data analysis