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