

SUMMER SCHOOL

High Resolution & Analytical Microscopy

- Lectures:
 - by Prof. Dr. G. Schmitz and leading scientists in their field
- Laboratory sessions (9:00-13:00 and 14:00-18:00):
 - in groups of 2-3 people
 - including a technique expert
- Literature and computers for open access:
 - available in seminar room 2R04
- Skills to be aquired:
 - theoretical and practical understanding
 - sample preparation for electron microscopy & atom probe tomography
 - performing TEM, SEM & APT research
 - interpretation and evaluation of the results

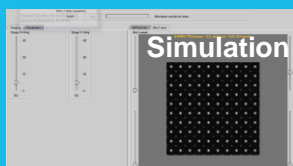
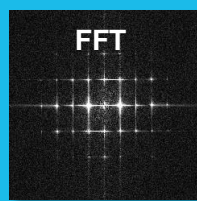
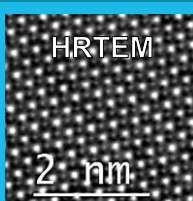
20.09. – 08.10.2021

**Institute for
Materials Science
(Max-Planck-Institute)
Heisenbergstraße 3
70569 Stuttgart**

TEM – Transmission Electron Microscopy

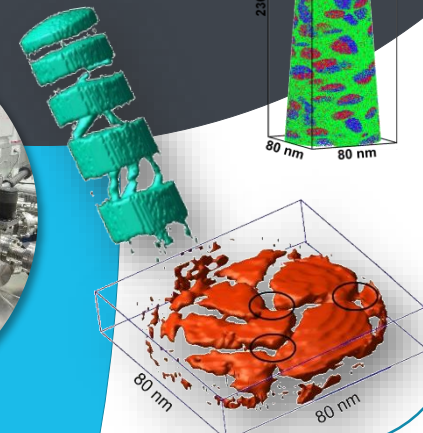


- 1. Part: TEM session**
 - High resolution imaging
 - Diffraction techniques (convergent beam vs. parallel illumination)
 - Contrast mechanisms
- 2. Part: Simulation and Image Analysis**
 - Contrast transfer function
 - Dynamical calculations (Bloch wave method / multislices)
 - Diffraction pattern analysis
 - CBED analysis



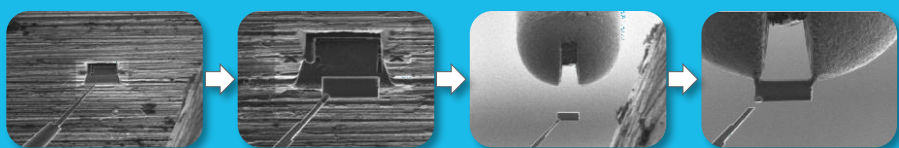
APT – Atom Probe Tomography

- Compositional analysis on smallest length scales
- Three dimensional reconstruction
- Interface & cluster analysis



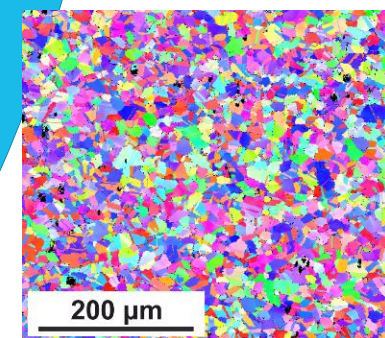
FIB SEM – Focused Ion Beam assisted Scanning Electron Microscopy

- Controlled work on smallest length scales
- Site specific preparation of TEM and APT specimens



EBSD - Electron BackScatter Diffraction

- Visualization of crystal orientations
- Kikuchi Patterns
- Mapping techniques (pole figures, misorientation maps, strain maps, texture analysis)
- Sample preparation for EBSD



Registration

For students: - on **C@MPUS-Management-Portal**
 For externals: - **e-mail** to jacqueline.dunn@imw.uni-stuttgart.de
 - or directly at the chair administration office **2Q09**,
 Max-Planck-Institute, Heisenbergstraße 3, 70569 Stuttgart

