The Institute I of Materials Science & Engineering, FAU, was officially established on Aug 9th 1965 by late Prof. Bernhard Ilschner. The research topics of Institute I deal broadly with the mechanical properties of materials at the micro and nano scales. The institute has a rich research history, with more than 150 PhD graduates in the past 50 years, and has currently more than 30 students working towards their dissertation on various research topics.

http://gmp.ww.fau.de

The Cluster of Excellence Engineering of Advanced Materials (EAM) is the only interdisciplinary research collaboration of its type in Germany focusing on fundamental and applied aspects of designing and creating novel high-performance materials and processes in nanoelectronics, catalysis, optics & photonics and lightweight construction.

www.eam.fau.de

The Center for Nanoanalysis and Electron Microscopy (CENEM) is an Interdisciplinary Center of the Friedrich-Alexander-University Erlangen-Nürnberg established by EAM featuring cutting-edge instrumentation, techniques and expertise in microscopic and analytical characterization of materials and devices down to the atomic scale. CENEM focuses on complementary techniques, which closely work together: electron microscopy, scattering methods, scanning probe microscopies and APT.

www.cenem.fau.de

2nd Erlangen School on Atom Probe Tomography
4 – 8 March 2019 · FAU Erlangen-Nürnberg
Martensstraße 5 · 91058 Erlangen · Germany

VENUES
CIP Pool, Room 0.157
Department Elektrotechnik-Elektronik-Informationstechnik (EEI)
Cauerstraße 9, 91058 Erlangen

WW1 - Institute I of Materials Science & Engineering
Martensstraße 5 · 91058 Erlangen

CONTACT THE ORGANIZERS
Peter Felfer: peter.felfer@fau.de
Chandra Macauley: chandra.macauley@fau.de
This multi-day intensive course provides an introduction to high field physics, atom probe instrumentation, sample preparation and data interpretation to the novice and intermediate level atom prober. As an outcome, the participants will be able to independently perform atom probe experiments, reconstruct their data and carry out in-depth analysis of a variety of different problem sets. Electrochemical- and FIB-sample preparation tutorials are included.

ORGANIZERS

Prof. Peter Felfer
Materials Science and Engineering, Institute I
FAU Erlangen-Nürnberg
Professor for Atom Probe Tomography and 3D Nanoanalytics

Dr. Chandra Macauley
Materials Science and Engineering, Institute I
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Postdoctoral researcher

Program

Monday, 4 March 2019
WW1, Room 3.31
13th – 15th  Atom Probe Tomography (APT) Fundamentals
15th – 15th  Coffee break in the WW1 foyer
15th – 17th  Atom Probe Tomography (APT) Fundamentals

Tuesday, 5 March 2019
WW1, Room 3.31
8th – 10th  APT instrumentation
10th – 10th  Coffee break in the WW1 foyer
10th – 12th  APT instrumentation
12th – 13th  Lunch
13th – 15th  Practical 1/2/3
15th – 15th  Coffee break in the WW1 foyer
15th – 17th  Practical 1/2/3

Wednesday, 6 March 2019
WW1 Microscopes
8th – 10th  Practical 1/2/3
10th – 10th  Coffee break in the WW1 foyer
10th – 12th  Practical 1/2/3
12th – 13th  Lunch
13th – 15th  Practical 1/2/3
15th – 15th  Coffee break in the WW1 foyer
15th – 17th  Practical 1/2/3

Thursday, 7 March 2019
CIP Pool, Room 0.157
8th – 10th  Data analysis basics, data handling and visualization
10th – 10th  Coffee break
10th – 12th  Data analysis basics, data handling and visualization (continued)
12th – 13th  Lunch
13th – 15th  Reconstructions: Isosurfaces and proxigrams
15th – 15th  Coffee break
15th – 17th  Reconstructions: interface modelling

Friday, 8 March 2019
CIP Pool, Room 0.157
8th – 10th  Field evaporation simulation
10th – 10th  Coffee break
10th – 12th  Field evaporation simulation (continued)

Practical sessions
After the APT instrumentation lecture, participants will be split into three smaller groups and experience each of the three practical sessions.

1) Non-site-specific sample preparation (electro-polishing), focused ion microscope and high vacuum equipment demonstration: Jan Josten

2) Site-specific sample preparation (focused ion beam microscope): Chandra Macauley

3) LEAP atom probe measurements: Steffen Lamm