

The Micro- and Nanoanalytics Core Facility MNaF of the University of Siegen provides modern instrumentation and methodical expertise for advanced micro- and nanoanalytics across the length scales and makes them available to a wide range of internal as well as external users.

In addition, the core facility is home to extensive materials science expertise on a wide range of material classes.

MNaF facilitates both, fundamental materials research as well as the application-driven development of novel materials and devices.



New INCYTE research building – the prospective home to the MNaF

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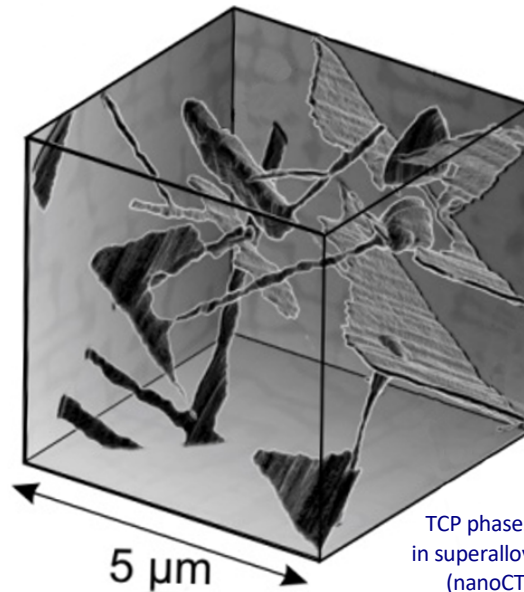
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TCP phases
in superalloy
(nanoCT)

Workshop on scale-bridging 3D-characterization

July 20th, 2021

Universität Siegen



Workshop on *Scale-bridging 3D-characterization*

Thorough research on complex materials and devices occasionally necessitates characterization in 3D at the different length scales. Materials examples include complex composites and alloys, advanced core-shell/hybrid particles and even individual lattice defects (e.g., dislocations) or interfaces at the atomic level. Moreover, structure formation during device fabrication, degradation (e.g., crack propagation) or even failure are typical applications.

Therefore, the MNaF provides comprehensive methodology and equipment with a DFG-/NRW-funded μ CT to be obtained in the near future.

Together with international experts, the MNaF offers a one-day workshop on scale-bridging tomographic characterization to educate our MNaF users, to initiate new collaborations and to facilitate cutting-edge research.

The workshop will cover the theoretical background of the different techniques, their capabilities and limitations as well as application examples and practical aspects. Moreover, data handling and quantitative evaluation of such 3D-data will be addressed.

Preliminary lecture program

Morning sessions

- Introduction to scale-bridging 3D-characterization
- X-ray microscopy, μ CT, nanoCT
- (Scanning)TEM tomography
- 3D-reconstruction of projection tomograms

Afternoon sessions

- Focussed ion-beam (FIB) tomography
- 3D-SIMS
- Atom-probe tomography
- Quantitative analysis of 3D-data

Note: The detailed program will be provided as soon as possible. Please check the official webpage by following this QR code/link.



With contributions by external experts (tentative):

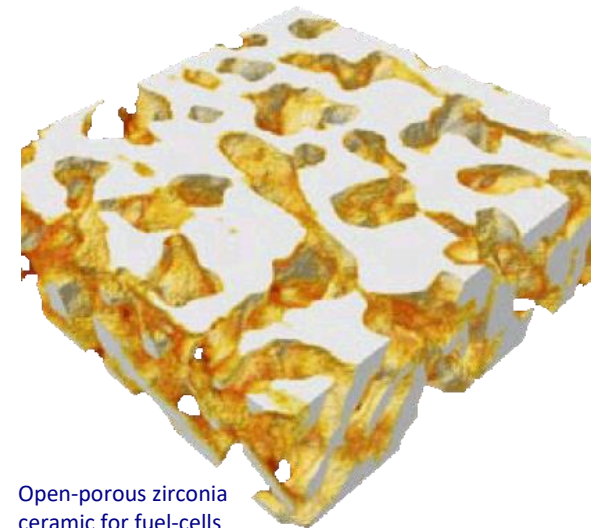
- Dr.-Ing. **Benjamin Apeleo Zubiri** (FAU Erlangen)
- **Xiaohui Huang**, Prof. Dr. **Christian Kübel** (KIT)
- **Marco Cantoni**, PhD (EPFL Lausanne)
- Prof. Dr. **Peter Felfer** (FAU Erlangen)
- **Volume Graphics** (Heidelberg)

Registration

The workshop is dedicated to PhD students, PostDocs, technical staff as well as interested students. There will be no limit to the number of participants of this online format.

However, we kindly ask you to register by sending an informal email (subject **3D-MNaF-Workshop**) to [Dr. Yilmaz Sakalli](mailto:Dr.Yilmaz.Sakalli@uni-stg.de) until 13th of July 2021.

Please note that the lectures will be recorded for prospective internal use.



Open-porous zirconia ceramic for fuel-cells (STEM tomography)