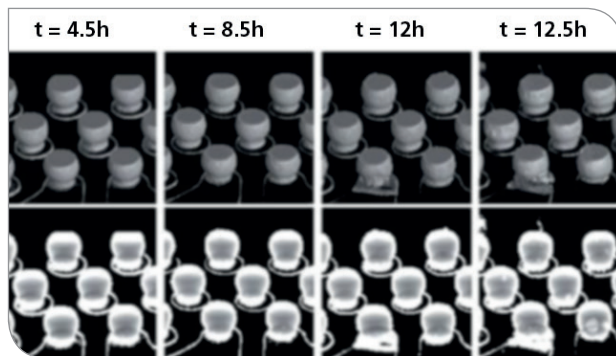


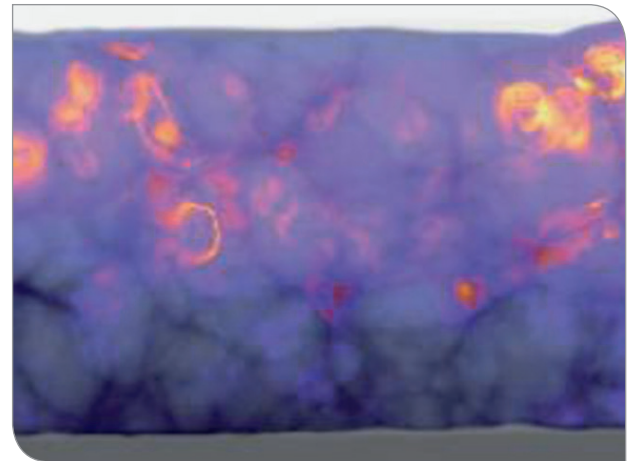
X-ray Computed Tomography

The creation of 3D data sets by computer tomography and especially by X-ray beams is an established technique in science and industry. With spatial resolutions in the micrometer and nanometer range, these methods are increasingly relevant to materials research and diagnostics in engineering sciences, microsystem technologies and nanotechnologies, non-destructive testing, and other applications.



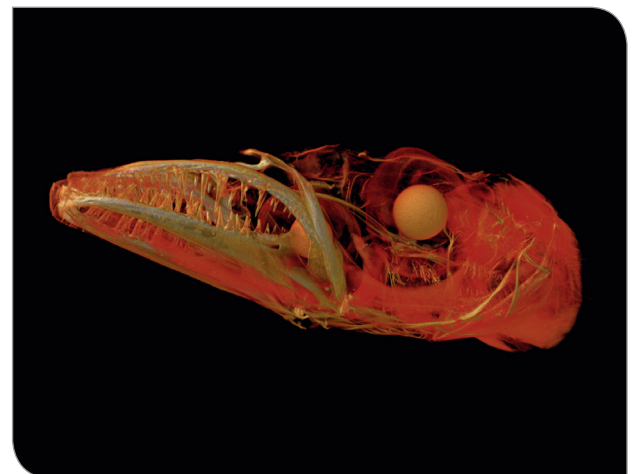
Synchrotron-based X-ray imaging closes the gap between conventional 2D and 3D imaging and electron microscopy methods, i.e. the gap in spatial resolution between about 10 μm and several ten nanometers. X-ray imaging techniques are largely non-destructive and allow using and combining various contrast mechanisms (absorption, X-ray fluorescence, Fresnel and Bragg diffraction, dichroism, etc.) to image geometrical, chemical, and crystallographic structures of samples. Measuring times are shortened by high photon counts. Thus, even dynamic tomography is possible, producing high-resolution X-ray movies.

ANKA holds two specialized beamlines for X-ray imaging with a team of experts working on a high level. Via ANKA-CoS, infrastructure facilities and expertise are offered to industrial customers together with our professional project management. Fast access under non-disclosure conditions can be guaranteed and is certified according to ISO 9001.



3D Printing at ANKA

With the new 3D printer at ANKA, we can transfer your 3D data directly to the real world. The printer (3D Systems ProJet HD 3500Plus) produces high-resolution plastic models from durable UV curing photopolymer using the multi-jet modeling technology. Wax is used as supporting material, since the model is printed similar to multi-layer ink jet printing. Three different resolution modes (HD, UHD, & XHD) are available.

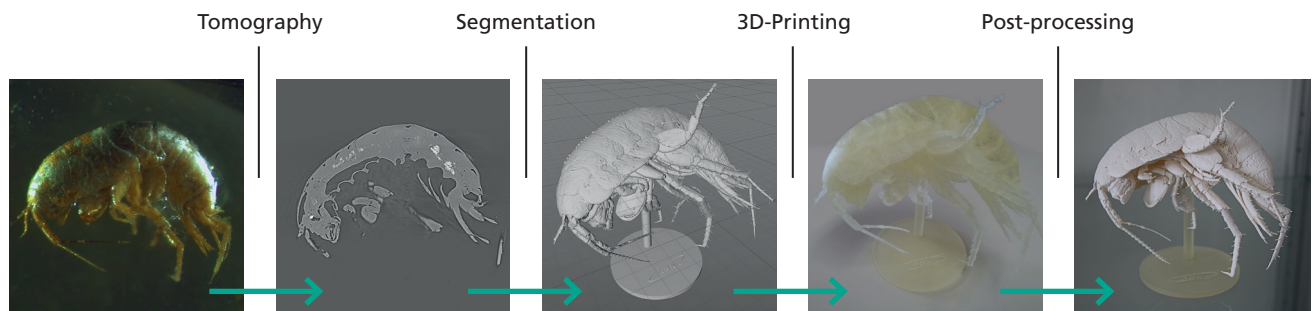


The printer is primarily employed to create solid models from microtomography volumes acquired at the ANKA beamlines TOPO-TOMO and IMAGE, but any 3D data set can be used. After the reconstruction of tomographic image stacks, segmented data from the volumes are converted into polygon surface meshes. Before printing, these digital models may be further manipulated by using specialized software packages. The final print can be colored easily in a post-processing step with standard acrylic paint.

Another application is the production of specialized sample holders for experiments at the different ANKA beamlines.

Further information can be found at:

www.anka-cos.kit.edu



Undescribed amphipod from the Chiapas amber (23 million years old, Mexico) provided by Peter Vrsansky and Francisco Vega supported by SRDA APVV-0436-12.

Resolution

HD: 375 x 375 x 790 DPI; 32 μm layers
 UHD: 750 x 750 x 890 DPI; 29 μm layers
 XHD: 750 x 750 x 1600 DPI; 16 μm layers

Max. Printing Volume

HD: 298 x 185 x 203 mm
 UHD: 203 x 178 x 152 mm
 XHD: 203 x 178 x 152 mm

Karlsruhe Institute of Technology
 Hermann-von-Helmholtz-Platz 1
 76344 Eggenstein-Leopoldshafen, Germany

Michael Drees
 ANKA Commercial Services
 Phone: +49 721 608-26866
 E-mail: info@anka-cos.kit.edu