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● Welcome to Bruker micro-CT Academy!

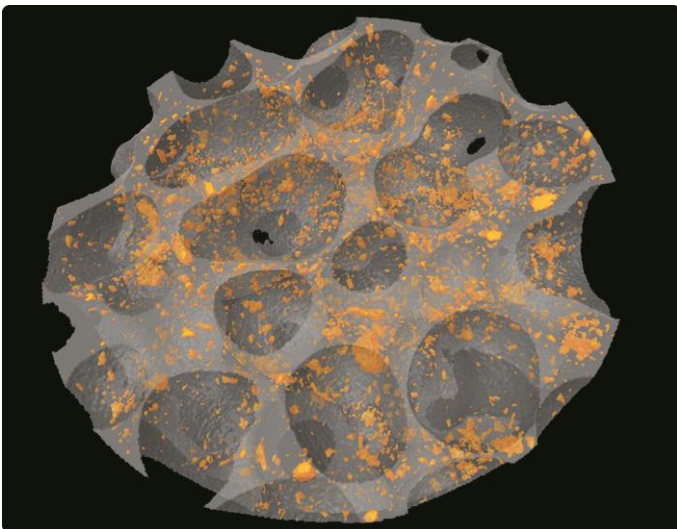
We would like to thank all our readers for the positive feedback we received on our first Bruker micro-CT Academy newsletter. In the second issue we delve deeper into micro-CT technology, this time exploring the generation of surface rendered models using CTAn and we demonstrate how to compensate for the drift of the emission point inside an X-ray source. Also in this issue we are proud to present the SkyScan2211 Multiscale High-Resolution X-Ray Nanotomograph.

To receive your monthly copy of the Bruker micro-CT Academy newsletter subscribe at <http://partners.bruker-microct.com/subscribe>. After registration you will also be able to download the method notes of previous issues.

● How to Make and Open Surface Rendered 3D models

Surface rendered models are the basis for numerous software technologies, including visualization, CAD, rapid prototyping (3D printing) and modeling software. CTAn offers possibilities for the creation of models in terms of meshing algorithms and output format. CTVol allows for realistic 3D visualization of such models, including the generation of movies.

In the method note "[MN017 Basic 3D surface rendering](#)" the essentials of model generation using CTAn are described. By use of the custom processing and batch manager functions this can be done in an efficient manner.

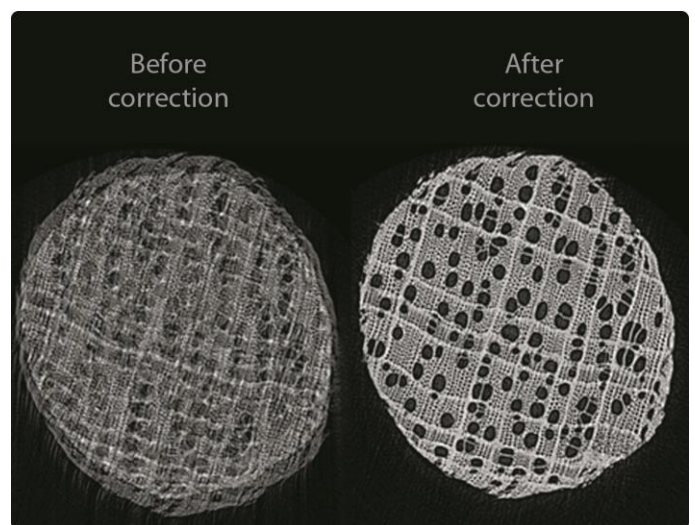


Surface rendered 3D model of a hydroxyapatite scaffold showing high dense particles distributed inside the matrix.

● Drift Compensation

Micro-CT and especially nano-CT scanning require very high stability to reach optimum resolution. Drifting of the emission point inside an X-ray source can contribute to geometrical inaccuracies, effectively reducing the achievable spatial resolution. Aligning projection images with a short post-scan can significantly increase image quality.

NRecon allows for linear distortions to be partially compensated by rigid X/Y shifting of projection images in this manner. In the method note "[MN013 Thermal correction](#)" we show how to perform this operation in detail.

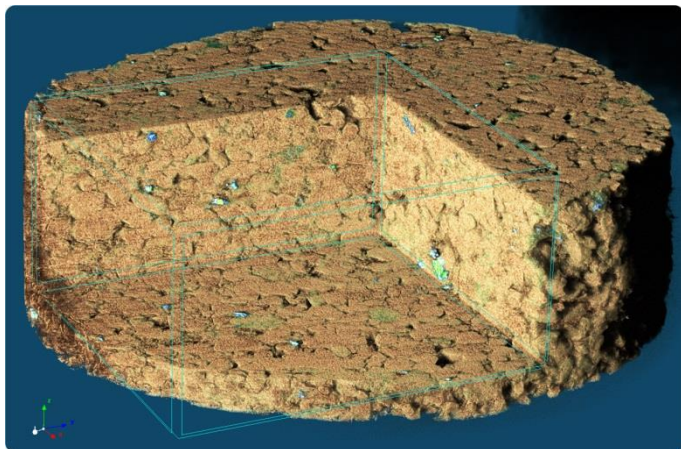


Cross-section through a toothpick showing movement artifacts (left) and the corrected image (right).

- Introduction of SkyScan2211 – Multiscale High-Resolution X-Ray Nanotomograph

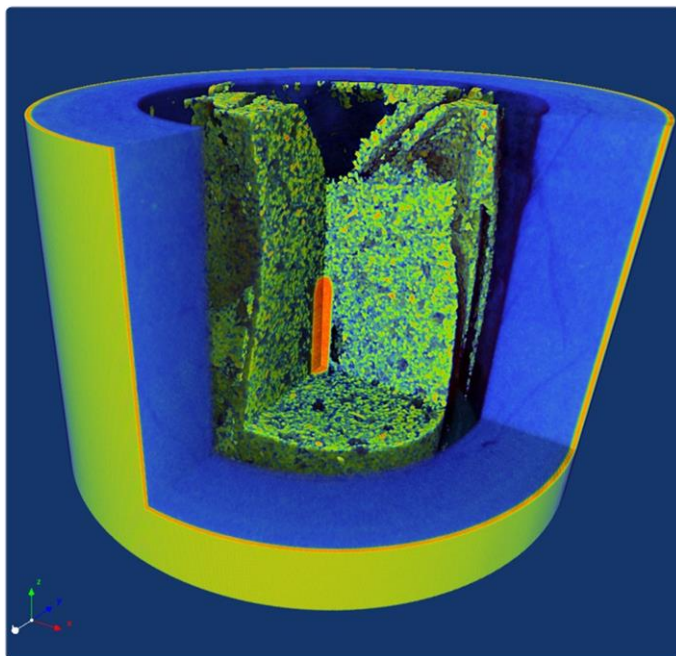


Bruker microCT introduces the new multiscale X-ray nanotomograph SkyScan2211, a new high-resolution X-ray nano-CT system with the widest available range of object sizes and spatial resolutions in one single instrument. It opens unique possibilities for 3D imaging and exact modeling of geological materials in oil and gas exploration, composite materials, fuel cells, electronic assemblies, etc. The system contains an X-ray source with submicron spot size and two X-ray detectors: flat-panel for large objects and 11Mp cooled CCD for scanning at the highest resolution. Up to 8000x8000x2300 pixels can be reconstructed after a single scan. The smallest detectable detail (smallest pixel size) is 100nm.



3D volume rendered image of a sandstone scanned with the SkyScan2211 with 1 micron isotropic voxel size.

- Image of the Month



3D image of a D-size battery scanned with the SkyScan2211. Volume rendering using the CTVox program with virtually removed front part.

- Upcoming Events

Bruker microCT will participate with an exhibit in the forthcoming conferences. You are more than welcome to stop by at our booth to discuss the latest developments with the application scientists. We hope to see you there!

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| ▪ ATS | May 16-21, | San Diego, USA |
| ▪ ECTS | May 17-20, | Prague, Czech Rep. |
| ▪ INTERPORE | May 27-30, | Milwaukee, USA |
| ▪ ESMI conference | June 04-06, | Antwerp, Belgium |
| ▪ TERMIS EU | June 10-13, | Genova, Italy |
| ▪ BRS | June 25-26, | Sheffield, UK |
| ▪ 3D Materials Science | June 29-July 2, | Anancy, France |
| ▪ EORS | July 02-04, | Nantes, France |