Innovation with Integrity

BRUKER MICRO-CT ACADEMY

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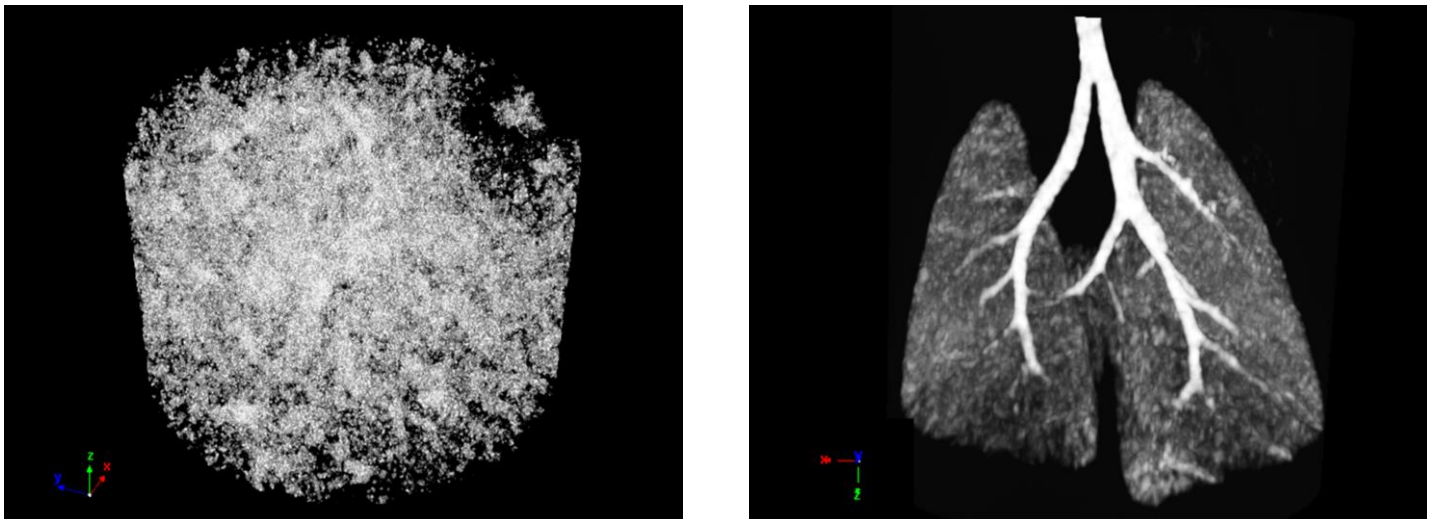
In this issue:

Welcome

Thank you for joining us again in this ninth issue of the Bruker microCT Academy newsletter. This edition will illustrate a technique to improve visualization of low density phases. Also in this issue you will discover more on the latest update of CTVox v3.0 where multiple volume renderings are now possible. Using this new 3D visualization features we look forward to your contributions for the picture contest at the Bruker microCT User Meeting 2015, which will be held in Bruges!

Minimal Intensity Projection in CTVox

For visualization purposes, the technique of Maximum Intensity Projection (MIP) is becoming increasingly more popular. The MIP projects the highest intensity along the path of projection (which is perpendicular to the screen) and is used to highlight high dense structures. CTVox allows applying this in a straight forward user-friendly way. CTAn requires some intuitive interaction and 3D geometrical thinking while allowing more features, such as generating a stack of MIPs. Several applications are focusing on the lowest density phase, rather than the highest density, for example for the visualization of pore networks in reservoir rocks and food products, or the airways in lung tissue , micro-cracks in geothermal reservoirs, defects in car parts, ... It is desirable to have a similar visualization method to achieve the results as displayed below. To this end, one can generate a Minimal Intensity Projection (MinIP), which projects the lowest intensity along the path of projection. This technique is not widely used. In this method note, we will introduce a way to generate minimal intensity projections in CTVox. Depending on the dataset, this can be achieved in CTVox by well-considered manipulation of the transfer function. For other datasets some processing steps should first be applied in CTAn to allow the use of the MIP option in CTVox as a MinIP. In the method note '*MN034 Minimal Intensity Projection in CTVox*' you will find a step by step procedure describing the different plugins that are used to generate the MinIP images.



Minimal Intensity Projection Image (MinIP) of the pore microstructure in a sandstone (left) and a mouse lung visualizing the major airways (right).

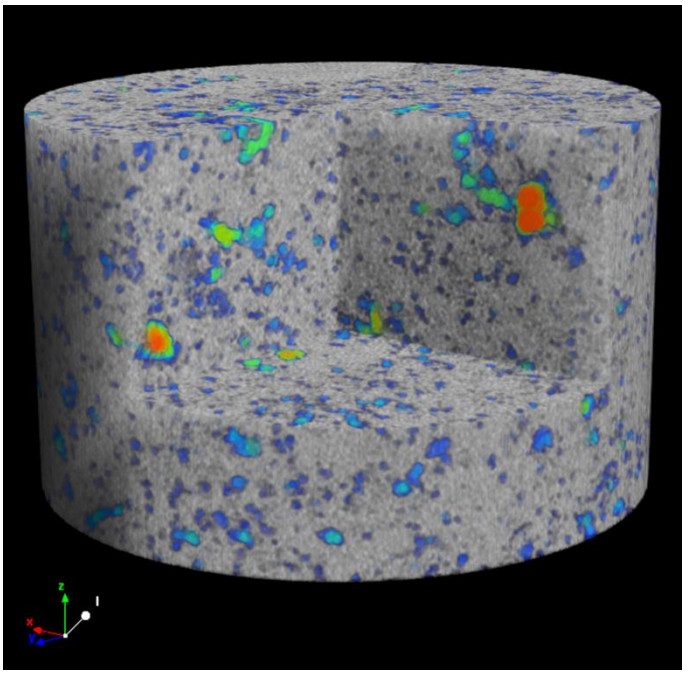
Bruker microCT News

We are proud to announce that the **Bruker microCT User Meeting in 2015** will take place in the historical site of Bruges on May 5, 6 and 7, 2015. More information will be announced soon, reserve the dates!

A new release of CTVox 3.0 is now downloadable from our website. The most important novelty from this version onwards is the capability to work with multiple volume renderings simultaneously. Each volume retains its own transfer function; different weights can be assigned to the volumes to produce a combined emission color and opacity. The newly implemented Volume Manager allows for convenient navigation between the different volumes. Taking into account the capacity of the graphical card, multi-volume rendering easily allows overlying your grey scale images with binarized data without exploiting the GPU memory use too drastically. In addition to the methods described in previous section, this combination of a volume with a binarized dataset in CTVox 3.0 allows for an alternative approach to enhance visibility of airways, pores and other low dense phases. Two datasets can also be displayed, providing a wide range of new opportunities; an example can be found in this Image of the Month.

Image of the Month:

3D volume rendering of a sandstone, showing density information (in grey scale) as well as color-coded morphometric structure thickness information of the pores simultaneously in a single image (image created with CTVox 3.0).



Upcoming Events

Bruker microCT will participate with an exhibit in the forthcoming conferences. Please click the links for more information. We hope to see you there!

2014:

- Process Mineralogy — Nov 17-19, — Cape Town, South Africa
- MRS Fall — Nov 30-Dec 5, — Boston, USA

2015:

- AADR — Mar. 11-14, — Boston, USA
- EMIM — Mar. 18-20, — Tübingen, Germany
- ORS — Mar. 28-31, — Las Vegas, USA
- AACR — Apr. 18-22, — Philadelphia, USA
- ECTS + IBMS — Apr. 25-28, — Rotterdam, the Netherlands
- ISBM — Apr. 27-29, — Tokyo, Japan