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● Welcome

In this issue we highlight multi-scale analysis of samples with an emphasis on geological examples. This will logically lead us to a discussion on selection of sample size and influences on the attainable image quality. We are proud to introduce the latest addition to our portfolio: the SkyScan 1275 – fast automated, desk-top X-ray microtomograph.

Finally we are glad to announce that the international Bruker microCT User Meeting 2016 will be held in Brussels from 9th to 12th of May. We hope to welcome you all! More details to follow.

● Multi-scale analysis

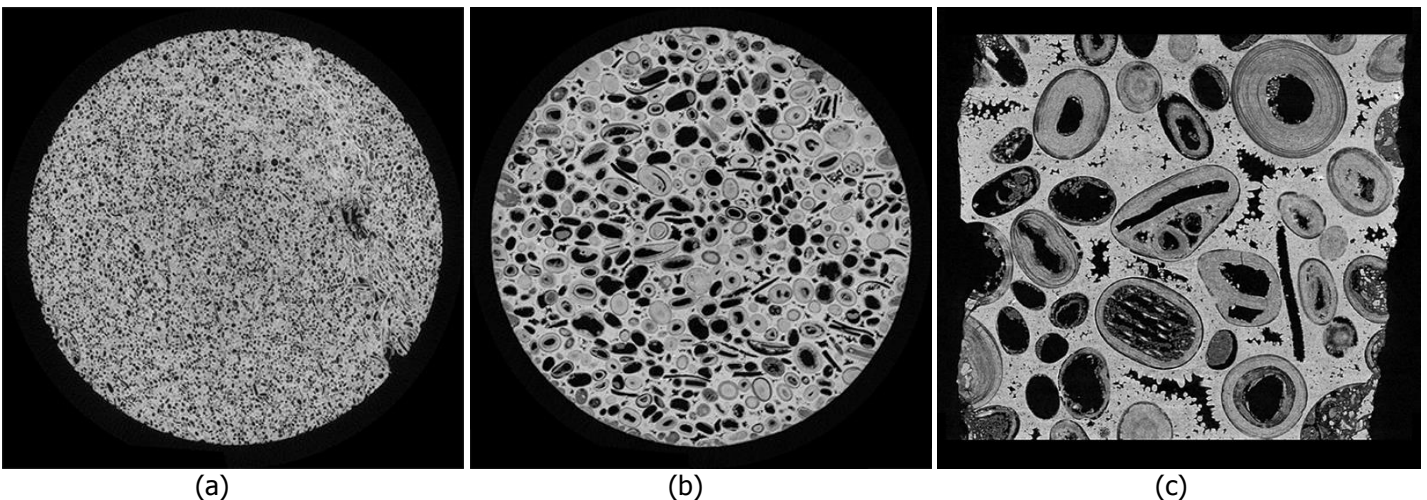
For X-ray tomography the image quality that can be achieved is strongly correlated to the size of a sample. In some cases the required image quality and sample volume are not compatible. Combining scan data acquired at different resolutions for different sample sizes can bring a solution to this.

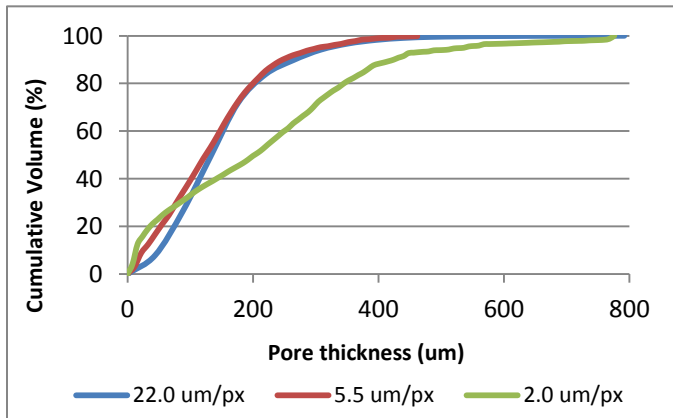
What image pixel can be achieved was covered in the [newsletter of February](#). This already gives a first indication of resolution can be achieved. Additionally the attenuation of the sample needs to be taken into account. In principle if the sample composition (physical and chemical) and the system characteristics (X-ray beam energy profile, detector sensitivity etc.) are known, the resultant image resolution can be simulated. In practice however, in the majority of cases, this is

determined empirically or estimated on the basis of operator experience.

Frequently in core analysis CT scans from two and more length scales are combined. In the figures a sample of Savonniere limestone is shown, scanned at three resolutions. The (a) is a plug ~38mm in diameter, (b) a plug ~9.5mm in diameter and (c) a cuboid with a ~2.5mm side. The respective image pixel sizes are 22.0 μm , 5.5 μm and 2.0 μm . As a manner of illustration a graph of the cumulative volume of the pore thickness is depicted in (d) shown in the next page.

The information extracted from the various length scales can then be combined to quantify and model the sample behavior overall. More information on this topic can be found in the "[MN082 - Multiscale analysis](#)"





(d)

- Introduction of SkyScan 1275 – Fast Automated, Desk-Top X-Ray Microtomograph



The new SkyScan1275 desk-top microtomograph is specially designed for fast scanning using new advances in the technology of X-ray sources and efficient flat-panel detectors. It opens the possibility for reducing scan time down to a few minutes without compromising image quality. The SkyScan1275 provides a high level of automation. Simple push of a button on the front of the system starts an auto-sequence of a fast scan followed by reconstruction and volume rendering executed during scanning of the next sample. For more information we kindly refer to the [website](#), where the product [brochure](#) can also be downloaded.

- Upcoming events

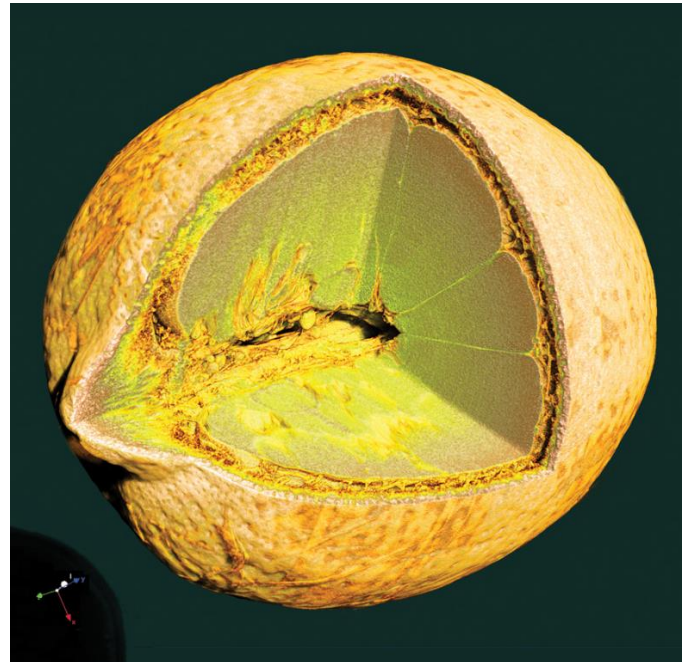
Bruker microCT will participate with an exhibit in the forthcoming conferences. Please click the link below for more information. We hope to see you there!

2015:

- [MRS](#) Nov.29 – Dec.04 Boston, USA

- Image of the Month

Volume rendering of the interior structure of a lemon scanned using the SkyScan 1275. The image pixel is 29µm, the data volume 1944x1944x2650 pixels.



- Bruker microCT News

- Updates for SkyScan 1272, 1173 and 1278 control software and volume rendering program CTVox are available from the [website](#).
- A new brochure covering the SkyScan range of instruments was published; it is available from the [website](#).
- Save the date! The 2016 annual **Bruker microCT User Meeting** will take place in Brussels from 9th to 12th of May. More details to follow.

2016:

- [iCT](#) Feb. 09 – 12 Wels, Austria
- [IBMS](#) Feb. 28 – Mar. 01 Bruges, Belgium
- [EMIM](#) Mar. 08 – 10 Utrecht, the Netherlands
- [AACR](#) Apr. 16 – 20 New Orleans, USA