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● Welcome

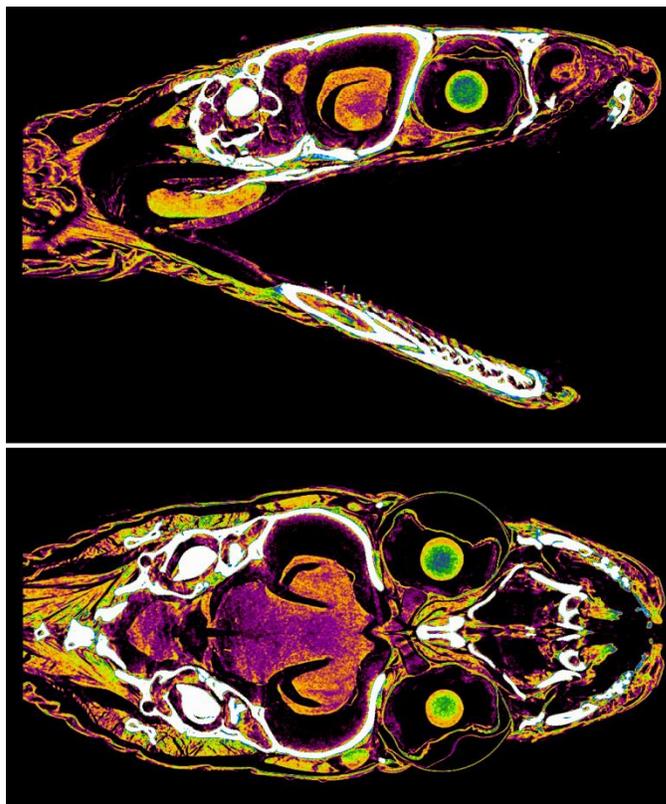
Welcome back to the last issue of the Bruker microCT academy Newsletter for 2014! This edition will focus on the preparation of samples, and discuss in detail a drying technique which can be applied to a variety of samples, resulting in a better overall image quality. We would like to thank all the users who participated in the first Asian Pacific User Meeting for their contributions! The next international Bruker microCT User Meeting will be held in May in the historical city of Bruges, also known as the Venice of the North. More information can be found on our [website](#). We hope to welcome you all!

● Sample preparation

Often overlooked, but of great importance is the sample preparation. Not only the positioning of the sample in the microCT scanner, which will allow you to obtain the desired pixel size, but also the stability of the sample throughout the scan is crucial. Samples such as fibers or micro-spheres can be stably mounted on the provided metal sample holders by using a small drop of glue. After the glue is dry, this easy and straightforward technique will enable long scans without sample movement. If the samples are preserved in ethanol or formaldehyde, placing them directly on a stage will allow the liquid to evaporate during the scan, resulting in artefacts in the reconstructed images. Leaving the sample surrounded by liquid will increase the noise in the image and will impact the beam hardening. By wrapping the samples in parafilm or low dense wax, thereby creating a 'cocoon', will prevent this.

However, for a wide range of samples the density difference between internal structures is sometimes not enough. For these samples a chemical drying procedure can be useful. In the method note "[MN070 chemical drying of specimens to enhance contrast](#)" you can find more information on how this simple technique works. This drying process has been successfully used in a range of biological samples. A nice example of this technique is lungs scanned ex vivo, where without this drying the fixative would limit the contrast. After chemical drying the contrast between the tissue and the air is

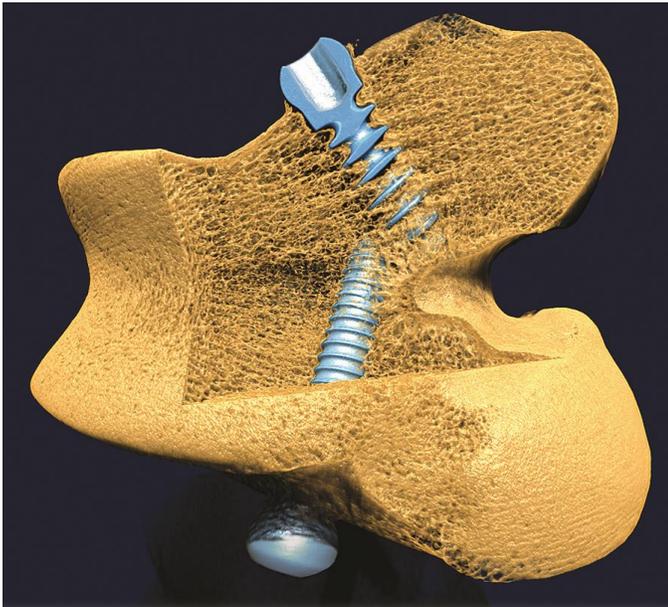
maximized, resulting in much nicer images. Although maybe not considered straightforward, this procedure can also be applied to soft tissues. The image below shows the result of the chemical drying of a snake, where there is a differential uptake of the chemical allowing visualization of the different soft tissues.



Sagittal (upper) and coronal (lower) virtual slices through the head of a snake scanned at 8 μ m pixel size

● Image of the Month

MicroCT reconstruction of a sheep proximal femur containing two titanium screw implants. The scan was with the SkyScan2211 nanoCT employing 170kV and a molybdenum filter to eliminate metal artefacts allowing detailed imaging of bone in direct contact with the metal implant surface, 71x71 mm cross-section size. The volume rendered visual 3D model was created in CTvox version 3.



● 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!

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

● Bruker microCT News

- The first Asia Pacific User Meeting was held in Taipei, Taiwan and was great success thanks to the contributions of the users!
- We are proud to announce that the international Bruker microCT User Meeting in 2015 will take place in the historical site of Bruges from May 4 till 7, 2015. A first glance at the program can be found on our [website](#).

