Innovation with Integrity

BRUKER MICRO-CT ACADEMY

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In this issue:

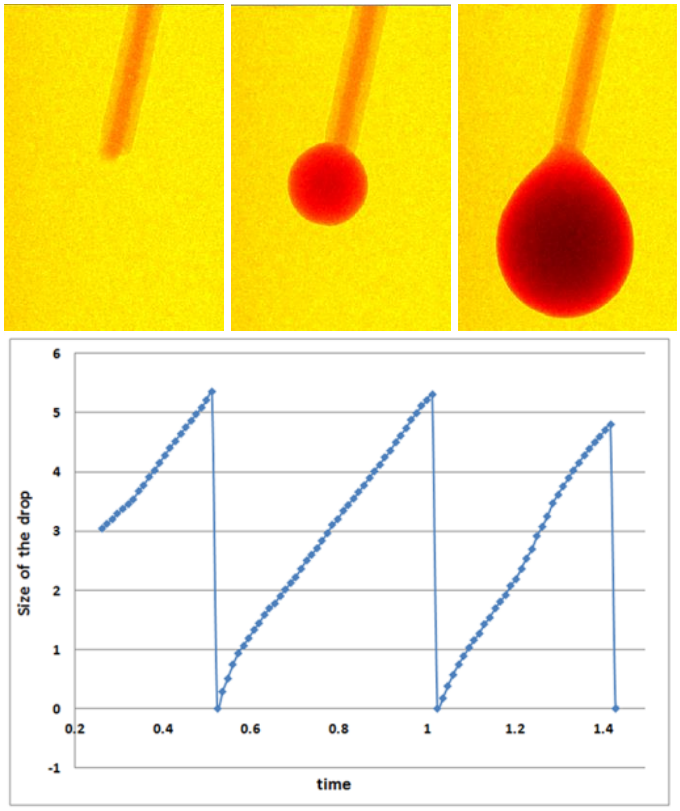
Welcome

This month's issue will focus on how we can visualize and analyze objects which are moving during a scan. Normal scanning procedures are not possible in this scenario, and we will show how to use your microCT system to generate 2D kinetics.

The annual microCT User Meeting is approaching fast! With the current situation in Brussels, we have decided to change this year's microCT User Meeting to Luxembourg. We look forward to another exciting event and to learn from all of you! The final program can be found on our website.

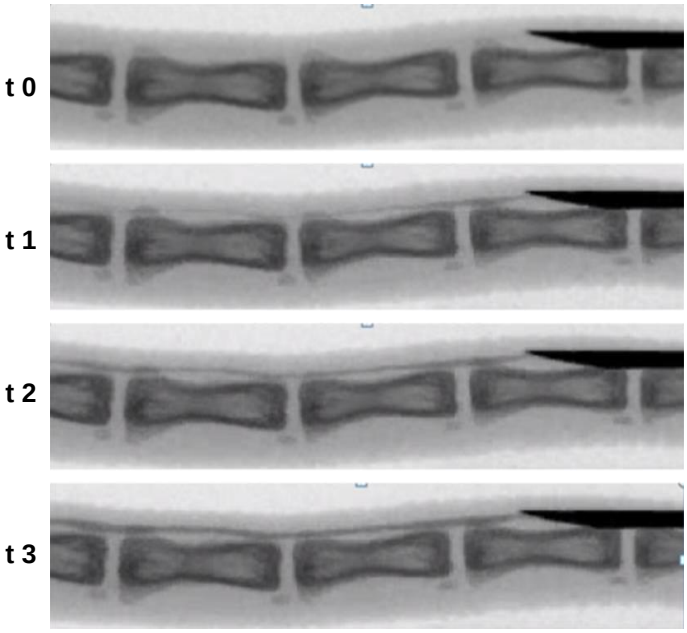
2D Kinetics

The scan time is linked to the required resolution; the higher the resolution, the longer the scan time typically is. When we are thinking of kinetics we assume changes over time; this can be a change in density or a change in morphological shape. Both processes can take a long time (e.g. the formation of bone structure as the bone matures), but can also be very quick (e.g. the melting of ice, the uptake of water in a foam). When kinetics are 'slow' the changes that take place during the scan can be ignored, so a full 3D visualization and analysis can be done. However, when the changes are much faster, in terms of seconds or minutes, they will occur during the scan and as such result in movement artefacts.



The formation of drops vs time shown on multiple projection images (top) and where the size of the drop is plotted in function of time (bottom).

By setting the rotation step to 0°, the projection images will be acquired from the same angle, and by accurately measuring the time at which images are acquired, the change over time can be monitored and analyzed. The set of projection images can be loaded in CTAn, and analyzed like any other datasets. Especially the function where the output is a 2D analysis for every image (representing a different timepoint) proves to be very useful. Several examples of this 2D kinetics are explained in more detail in the method note "*MN085_2D kinetics and analysis*"



In life science applications, 2D kinetics of monitoring the injection of contrast agent into the tail vein of small animals can be visualized in the same way.

Bruker microCT News

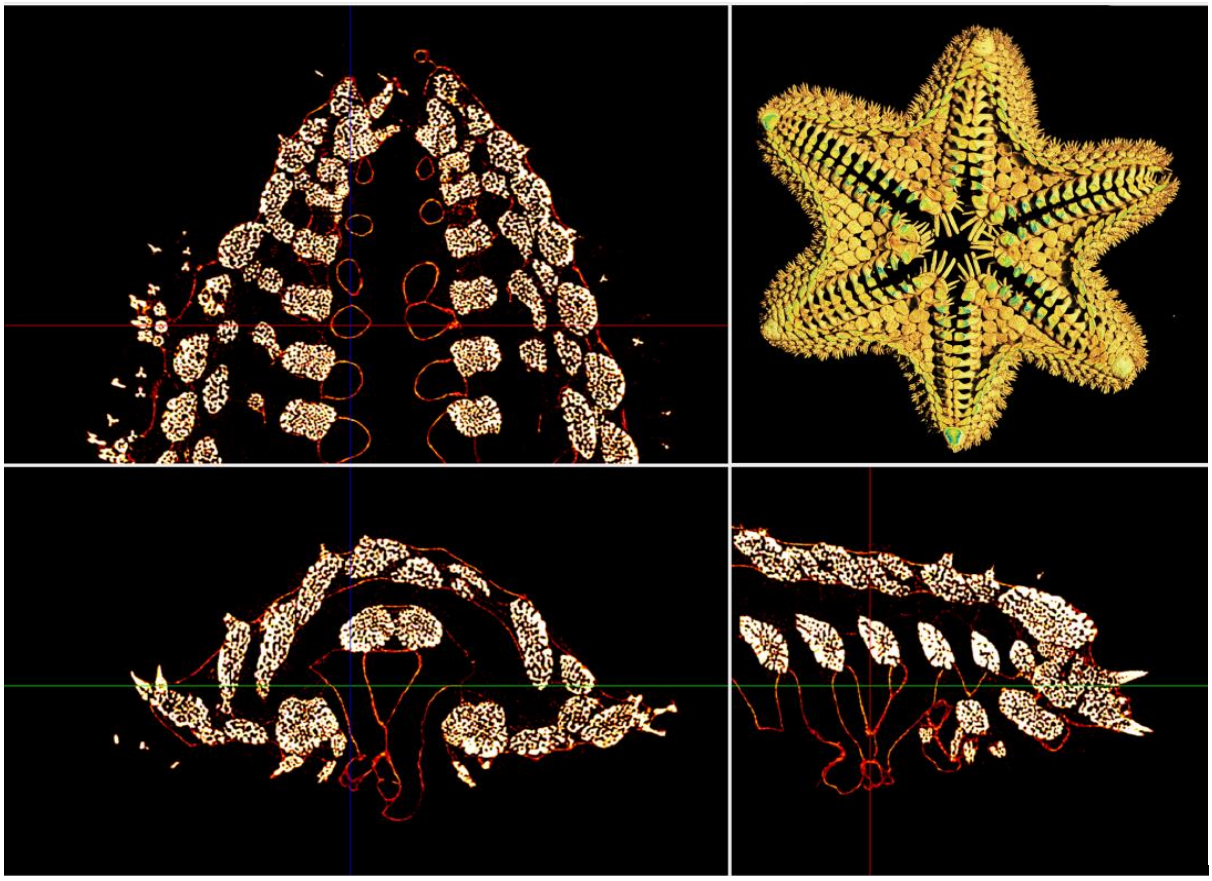
We look forward to welcome you to our annual Bruker microCT User meeting in Luxembourg! All information and a final program can be found on our website.

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!

ATS	May 13 – 18	San Francisco, USA
ECTS	May 14 – 17	Rome, Italy
WBC	May 17 – 22	Montreal, Canada
IADR	Jun. 22 – 25	Seoul, South Korea
SPWLA	Jun. 25 – 29	Reykjavik, Iceland
XRM	Aug. 15 – 19	Oxford, UK
IGC	Aug. 27 – Sep. 04	Cape Town, South Africa
JASIS	Sep. 06 – 09	Chiba, Japan

Image of the Month



The starfish, or sea star, from the Mediterranean sea scanned using the SkyScan 1272 at 8µm pixel size (volume rendering using CTVox with a part virtually cut), and at 1.5µm pixel size (single arm visualized in three orthogonal slices using DataViewer) showing the tube feet, used in locomotion and feeding.