DynXLab

CENTER FOR 4D QUANTITATIVE X-RAY IMAGING AND ANALYSIS

University of Antwerp

▶ The possible applications of X-ray imaging are virtually endless.

UAntwerp core facility
Active in Hightech / Digital, Health & Environment

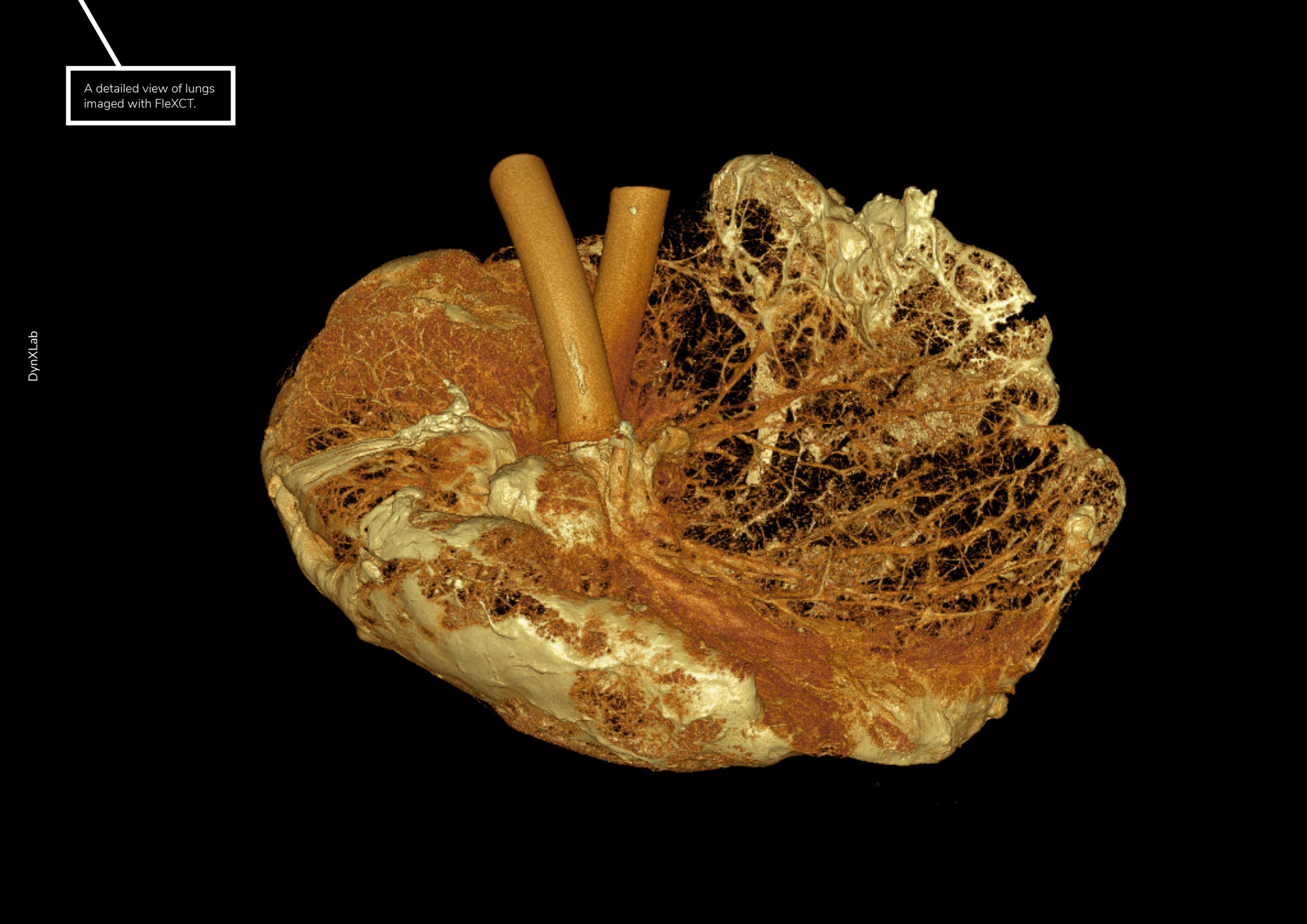
DynXLab specializes in customized 3D and 4D X-ray imaging. The core facility offers both standard and customized solutions for industrial applications and for academic research. The possible applications of X-ray imaging are virtually endless. Prof. Dr. Jan Sijbers, coordinator of DynXLab, explains.

“Our core facility is a conglomeration of research groups that combine their expertise in X-ray imaging, which is used, on the one hand, for research, and on the other, for industrial processes. Because X-rays enable you to look inside an object, they can be used for inspection and quality control. But we can also scan biological objects, e.g. to examine the structure of alveoli or check the inside of an apple for brown spots.

We have specialized and advanced imaging techniques and use complementary X-ray imaging platforms, including an ultra-flexible and versatile X-ray scanner (FleXCT) and a stereoscopic high-speed X-ray videography system (DYNAM3X). With these techniques we can generate 3D and 4D images of almost any conceivable object and we are able to simulate many types of industrial X-ray settings. Countless applications are therefore possible: health sciences, environment, biomechanics, quality control and inspection, security, additive manufacturing, etc.

Companies, research institutions and other partners can contact us for a tailor-made solution for their needs in the field of image acquisition, reconstruction and analysis. Our offer is very broad: from workshops and demo days, tailor-made advice, access to a unique scanner and reconstruction software, analysis and interpretation of generated data to additional guidance and advice on further development.”

Would you like to call on DynXLab’s expertise? Please contact Prof. Dr. Jan Sijbers.


A detailed view of lungs
imaged with FleXCT.
DynXLab

DynXLab is ...

Dynamic 3D and 4D X-ray imaging · Customization · Quality control · Process optimization · Security · Inline quality inspection · Data analysis · Advice

FleXCT gives us deeper insight into the 3D structure of our materials at the micrometer scale, which perfectly complements our in-house capabilities around HighRes SEM. The DynXLab team has performed numerous CT scans for us in a wide range of materials, and always with an industrial mindset in terms of efficient selection of scanning parameters, excellent response time and clear communication. This makes DynXLab an important partner in our external analysis network.

Quote from Agfa-Gevaert NV

Research groups and expertise

DynXLab combines the expertise and high-tech infrastructure and facilities of these research groups:

Imec-Vision Lab
The researchers at Imec-Vision Lab develop new image reconstruction, processing and analysis methods for tomography, magnetic resonance imaging, multispectral imaging. The techniques can be used for highly diverse purposes, such as industrial inspection, quality control, process optimization, safety and healthcare. Imec-Vision Lab's X-ray Imaging Research Center offers a range of services to industrial companies, other research groups and institutions (scanning, data reconstruction, data analysis, quality control, defect detection).

Since Imec-Vision Lab's creation in 1992, seven spin-off companies have been founded, including Icometrix.

Icometrix specializes in brain imaging for clinical practice and research.

FunMorph (Functional Morphology research group)
FunMorph investigates how complex organisms function and evolve. They study functions such as locomotion, food intake, communication and thermoregulation from a mechanistic or evolutionary perspective.
The mechanistic projects take place in the laboratory, the evolutionary projects combine laboratory research with field work.

BIMEF (Laboratory for Biophysics and Biomedical Physics)
BIMEF has two main research areas: mechanical modelling and optical metrology, and molecular biophysics and spectroscopy.

Collaboration is possible through ...

Co-development · Contract research · European projects · Doctorates/postdoctorates · Use of equipment and facilities · Master's theses · Customized training · Service contracts

Unique features of our equipment

The DynXLab X-ray scanners are unique in several ways:

- Customization.
- High degree of flexibility and versatility.
- Phase contrast imaging. The X-rays can create three different images, each with different information about the object, providing additional opportunities for quality control.
- 4D imaging: very fast radiography that can capture movements, up to thousands of images per second.
- They can scan the most diverse objects, even moving objects or dynamic processes. This is possible for both small (< 5 mm) and large (> 110 cm) objects.

Contact DynXLab

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