

ANU X-Ray Specs Render Your Bones Transparent

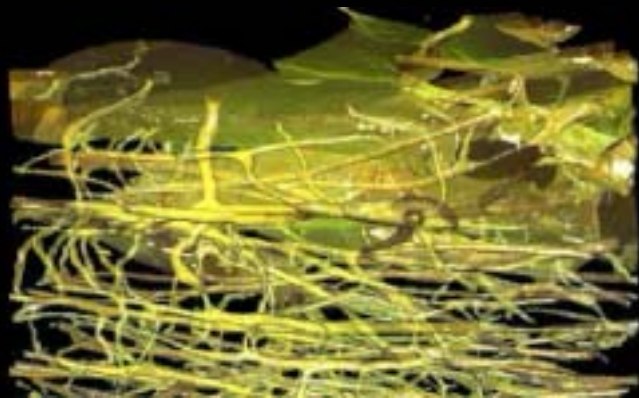
Mark Knackstedt, Tim Senden, Anna Carnerup,
Arthur Davies, Tim Sawkins

Micro computed tomography (μ CT) is a technique that allows non-invasive imaging of systems in 3D.

An example of the technique is radiological imaging in hospitals such as CAT scans.

ANU scientists have built a state-of-the-art facility to image materials at resolutions 1000 times greater than conventional hospital scanners. This facility allows us to image materials at scales down to the cellular level. This technology is being applied to biomedical research.

The image on the bottom right shows a small piece (5mm in diameter) of a human thigh (femoral) bone and the 3D reconstruction of the blood vessels within the bone. The channels of approximately 20 micron diameter, are visible within the bone structure.



The image below shows a visualization of the growth of tissue engineered bone within a plastic scaffold material. There is an urgent need to treat patients suffering from tissue loss and one goal of tissue engineers is to help the body grow and heal tissue without transplantation or grafts. Plastic scaffolds are used to mechanically support bone and to allow bone and blood vessel ingrowth. μ CT allows scientists to visualize the bone growth into the scaffold non-destructively. This enables them to compare different techniques for promoting tissue growth and will help doctors develop optimal conditions to promote rapid healing within the body.

