CT Scanner CAF Central Analytical Facilities STELLENBOSCH UNIVERSITY

# CT NEWS

*The Stellenbosch CT scanner facility newsletter*

**"more than just a scan"**

**October 2014**

## In This Issue



## Recent interesting scans (clickable links)

***Particle size distribution analysis***
http://blogs.sun.ac.za/ctscanner/2014/10/30/particle-size-distribution-analysis/

***Biology – Brittlestars***
http://blogs.sun.ac.za/ctscanner/2014/10/30/biology-looking-inside-brittlestars/

***Fossil brittlestars***
http://www.geology.uct.ac.za/mhairi/reid/research

***Imaging microwave induced cracks***
http://blogs.sun.ac.za/ctscanner/2014/10/30/investigating-microwave-induced-cracks/

# Welcome

Welcome to the October newsletter – in this edition we focus on **students** and their research at our facility. We show some highlights from prize winning student projects and introduce our high performance analysis facility, which is buzzing with student activity.

We're hosting a 3D image analysis training workshop aimed at students on 13th and 14th November. Please join us for this!

# Highlights: Student prize winner projects

We're very happy to announce that three students won prizes at conferences recently. They are:

**Edson Charikinya** won the best young author award at the International Mineral Processing Congress in Chile, for his paper: "Use of X-ray computed tomography to investigate microwave induced cracks in sphalerite ore particles". Edson is a final year PhD student from Stellenbosch University Chemical Engineering.

**Mhairi Reid** won the best poster awards at both the Palaeontological Society of Southern Africa (PSSA) conference, and at the UCT Faculty of Science 7th annual symposium (two prizes). Mhairi is a UCT Honours student in Geology, and she is co-supervised by Dr Wendy Taylor (palaeontology) and Dr Emese Bordy (sedimentology, stratigraphy)

**Jannes Landschoff** won the best poster award for his poster "How many inside? A 3D Micro CT-Scan of Brooding Ophiuroids" at the European Echinoderms Colloquium, Portsmouth, UK in July. Jannes is a MSc student from UCT Biology.


***Figure 1: Student prize winners using CT scans in their projects. Top: Edson is fourth from the right. Bottom: Mhairi won two prizes. There is no photo for Jannes, but a video of his scan is on youtube, click here (well worth it!):***

https://www.youtube.com/watch?v=-d0kHTNmkkk&list=PLTmFrFmYa9Tpj352-bY9Pc8WQ7t7_alFS

# Focus application: Fossil brittlestars from the Devonian of the Western Cape

MicroCT scans allow investigating fossils while they are still embedded in rock. Fossilized brittlestars which are 400 million years old and found 145 km NE of Cape Town are studied by microCT and highlighted quite easily within a rock, identifying the layering and other associated organisms. In this prize winning project, the brittlestars are studied with regards to their orientation with respect to various layers in the rock.

Due to strong density difference, scans are fast and segmentation relatively simple.

***More information:***
http://www.geology.uct.ac.za/mhairi/reid/research

**Special offers**

***3D Analysis Workshops –***

***Beginner course 13th Nov – R1000 pp***

***Advanced course 14th Nov – R4000 pp***

**These training workshops are aimed at students wanting to more easily analyse 3D data sets.**

**VGStudioMax 2.2 and its tutorials are used as basis for practical training with assisted hands-on implementation time.**

**Either or both training days can be attended as they follow on each other.**

**The basic course covers everything to get started.**

**The advanced course covers many additional tricks, problem solving tools and additional modules available.**

**Advanced course participants get access to the analysis facility until 15 December, included in the price.**

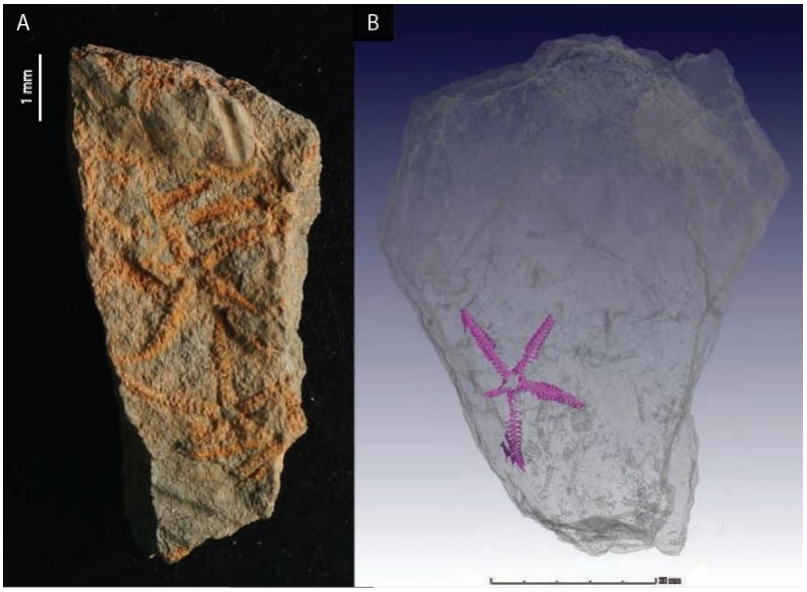


***Figure 2: A typical sample is shown with surface-visible brittlestars, while a different sample in B shows a sub-surface bittlestar highlighted in the CT image.***

# High performance analysis facility

Our high performance analysis facility has been running very efficiently with many students efficiently analyzing their data sets. We have interns on hand to assist with analysis problems and coffee available to assist in motivation.

The facility is running on an access fee basis, with daily, monthly or annual fees.

On offer are the usage of 3 powerful workstations with lots of high specs to best analyze 3D data, of any type. Volume Graphics VGStudioMax 2.2 is used including all add-on modules.

**Figure 3: A buzzing analysis facility**

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## Acknowledgements

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# Introducing CRxVision™ from GE: A High-Resolution CR Scanner for Weld and General Purpose Inspections

Packed with innovative features to increase throughput, extend plate life and provide excellent image quality, the CRxVision is designed specifically for the inspection of welds. The scanner is developed to cover the stringent ISO 17636-2 Class A and B requirements, as well as ASTM, ASME and EN weld standards. Because of its versatility, it can also be used for many other applications across the NDT industry.

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