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## Recent interesting scans (clickable links)

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<http://blogs.sun.ac.za/ctscanner/2014/07/22/wristwatch/>

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<http://blogs.sun.ac.za/ctscanner/2014/07/22/consumer-product-testing-cookies/>

### Full analysis of investment casting

<http://blogs.sun.ac.za/ctscanner/2014/06/30/titanium-aerospace-investment-casting/>

### Beer mug analysis

<http://blogs.sun.ac.za/ctscanner/2014/06/19/beer-mug-metrology/>

## Application of the month: Wristwatch

A wristwatch is a good everyday example of what can be done with this technology, with good scan quality and enough analysis time. A normal digital X-ray image movie shows the capability of live X-ray imaging, where you can see the watch tick. All the X-ray images in a scan are also made into a movie to see the watch rotate during the scan process. The analysis is done such that each internal component is segmented manually and coloured. All this is non destructive and the watch still works perfectly!

See more images and some impressive videos here:

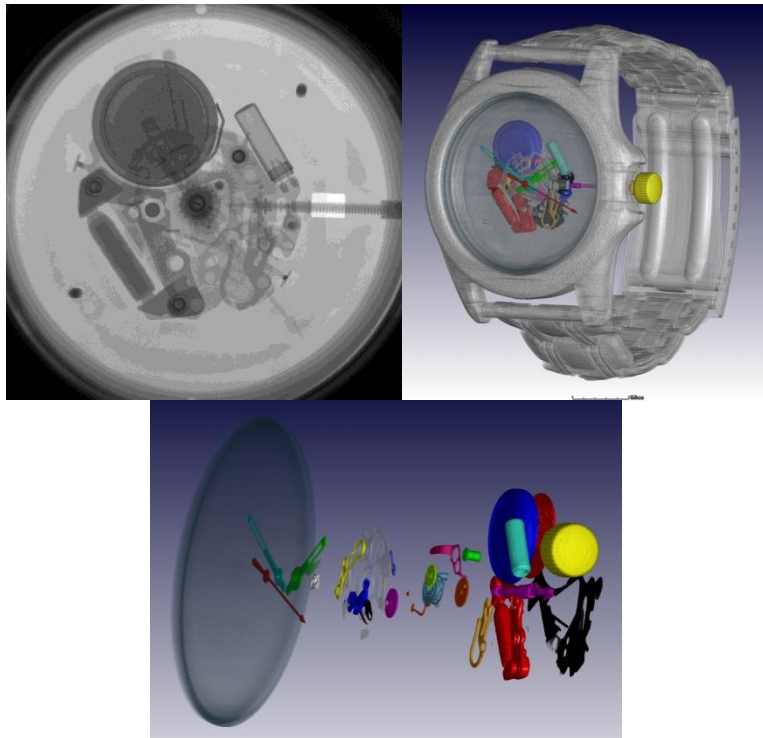
<http://blogs.sun.ac.za/ctscanner/2014/07/22/wristwatch/>

## Welcome

In this newsletter the theme is TIME. As a service facility we always provide on-time and fast results. In line with this theme, we scanned a wristwatch and you can see it ticking in a X-ray movie, and we also show you how we can take it apart virtually in 3D.

We are very happy that our new equipment was also supplied on time, in fact two months ahead of schedule. Read more about it below: this is the first nanoCT in Africa. Besides our X-ray scanning capabilities we also offer advanced analysis facilities of any 3D or 2D data sets, simple and portable spectroscopy instruments and analytical problem solving expertise. Due to all these additional services also within the other labs within CAF we have decided our motto will be "more than just a scan".

Enjoy, and send on to your colleagues!



**Figure 1: Digital X-rays and CT virtual deconstruction of a wristwatch.**

## Consumer product testing: cookies with metal bits

Non-destructive testing of consumer products is not new, with many laws protecting consumers. However, in reality producers and suppliers do not test their products sufficiently. We offer simple analysis and testing for any users.

In this example, we illustrate how a packet of cookies can be quickly inspected by CT scanning and X-ray imaging, with the unexpected result that a metal particle was found. The CT scan of the packet of cookies reveals a dense particle in one cookie, which could only be observed by normal X-ray images of a single sample (the entire packet obscures this detail in a normal X-ray image). The CT image allows isolation and physical removal of the particle (less than 0.5 mm diameter), which allows further spectroscopic analysis by XRF which confirms its metallic nature: Iron.

### More information, images, videos:

<http://blogs.sun.ac.za/ctscanner/2014/07/22/consumer-product-testing-cookies/>

### Special offers

**Advanced 3D image analysis service of any data sets: why spend months analyzing your data sets with limited resources when we can do it for you in a fraction of the time?**

### Contact Us

<http://www.sun.ac.za/ctscanner>

Staff scientist – Anton du Plessis, PhD

[anton2@sun.ac.za](mailto:anton2@sun.ac.za)

Analyst – Stephan le Roux, MSc

[lerouxsg@sun.ac.za](mailto:lerouxsg@sun.ac.za)

**021 808 9389**

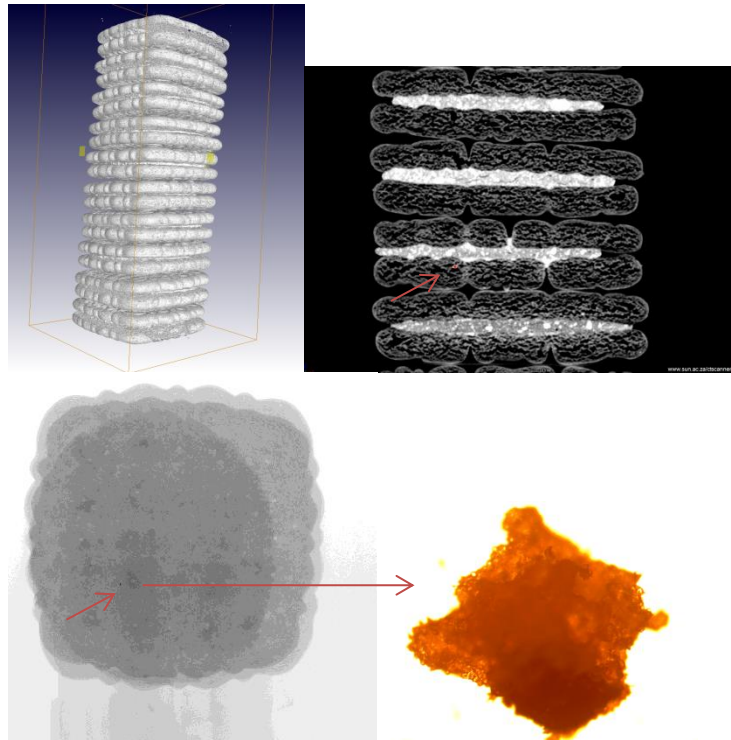
### Physical address for sample deliveries:

CT Scanner Facility, Room 1046

PO Sauer building - Dept Forestry and Wood Science

Bosman Street, Stellenbosch

7602



**Figure 2: A CT Scan of a packet of cookies revealed the presence of a metal particle, also seen in a digital X-ray image under high resolution and under optical microscope. Removal of the particle and subsequent spectroscopic analysis confirms it is Iron.**

## New equipment

The first nanoCT in Africa was delivered this month, two months ahead of schedule, well done to our suppliers! This instrument is able to scan small samples at resolutions down to 500 nm voxel size (per 3d pixel), and includes in-situ cells for sample temperature control and sample compression. The instrument is currently being commissioned and the official launch function will be on 15 September 2014 in combination with academic workshops, more details will follow. All our clients are welcome to attend. All support is gratefully acknowledged.



**The first and only nanoCT in Africa**

## Services & Events

**Nano CT Scanner workshop and launch:  
15 September 2014**

**Coupled NIR training event – 16 – 20  
September 2014**

**Please support our  
advertiser, GE:**

## Acknowledgements

The CT scanner equipment acquisitions were made possible with grants from the National Research Foundation and Stellenbosch University. The Department of Science and Technology Internship program is also acknowledged for its support of this facility. We encourage and welcome any form of sponsorship or support in order to keep delivering the best quality.

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## phoenix v|tome|x c 450

New production oriented, affordable CT solution for 3D failure analysis *and* precision 3D metrology



Automatic NDT pore volume analysis.



CT scan of a cylinder head.



3D analyses of a scanned turbine blade.

## Efficient & reliable one-button|CT

- Compact 320/450 kV Computed Tomography (CT) system for statistical production process control
- Max. 3D scanning area max. 500 mm Ø x 1000 mm;
- Granite based manipulation system for highly repeatable, precise 3D measurements referring to VDI 2630 guideline
- CT performance specified referring to ASTM E 1695 guideline
- Robust, small footprint design for production control with low cost of ownership
- Crane for fast and ergonomic handling of heavy samples up to 50 kg (110 lbs.)



General Electric South Africa Ltd.  
130 Gazelle Avenue Corporate Park South  
Midrand, 1685, ZA  
Tel.: +49 5031 172 0  
E-mail: [amanda.vanderwesthuizen@ge.com](mailto:amanda.vanderwesthuizen@ge.com)

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[www.sun.ac.za/caf](http://www.sun.ac.za/caf)  
Contact: [anton2@sun.ac.za](mailto:anton2@sun.ac.za)

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