



CT Scanner

CAF



Central
Analytical
Facilities

STELLENBOSCH UNIVERSITY

FEI IMGRAD 2015

National Conference on Imaging with Radiation
Official CONFERENCE Program

10-11 September 2015

Important notes

Morning coffee is from 8:00

Mid-morning break is 10:30-11:00

Lunch is 12:30 – 14:00

Mid-afternoon break is 15:30-16:00

The conference dinner is at De Oude Werf restaurant on 10 September at 18:00.

Wifi is available for free, enquire at registration desk

Lab tours (micro and nano CT scan or 3D print labs) are possible at any time during the conference, just ask one of the Stellenbosch CT facility staff members.

Our Sponsors

We are very thankful to our sponsors. The Gold sponsor is FEI (Avizo software) as you may have seen in the conference name. The conference is called the FEI IMGRAD 2015 conference and our colleagues from FEI will provide training prior to the conference, a special talk during the conference opening and an exhibition during the conference, they will be available to provide hands-on 3D data analysis assistance and advice.

Silver sponsor Bruker will be present and give a presentation on their CT product line. Bronze sponsor Nikon will also give a presentation of their product line. Additionally, Volume Graphics has provided sponsorship. We thank all our sponsors and hope you support them.

Welcome to the FEI IMGRAD 2015 conference

The Stellenbosch CT Facility is very happy to welcome you to Stellenbosch for the FEI IMGRAD 2015 conference. The IMGRAD "Imaging with Radiation" conference is the second in a series of national conferences.

The IMGRAD conference is devoted to promote a broad exchange of information on research and industrial applications in the area of 3D imaging with radiation, i.e. mainly industrial X-ray computed tomography (micro- and nano-CT) but other imaging technologies are also welcome to contribute.

As a national facility, the Stellenbosch CT facility is proud and excited to host you for this conference in 2015. We feel strongly that by sharing experiences, we can all learn from each other in many different ways. We thank everyone for their participation and it is our hope that every single participant will find the conference stimulating; and walk away with a renewed energy, new networks and a realization that this technology is set to grow in usage and applications in South Africa very soon. It is clear that we will all facilitate great improvements either in industrial processes or assist in making many more great scientific discoveries using this technology. Now it is our job to go out and make those discoveries happen!

SPONSORS

	
	

FEI IMGRAD 2015 Program

Hosted by CT Facility Stellenbosch

www.sun.ac.za/ctscanner

Venue: STIAS

Date: 10-11 September 2015

Program is supplemented by Book of Abstracts (which is not published but made available in print form to delegates)

Thursday 10 September

08:00 Coffee

Session 1: Welcome and facilities overview; Chair - Mr Stephan le Roux

08:30 Welcome and conference opening

08:40 Gold sponsor talk FEI

09:00 Stellenbosch CT Facility - Dr Anton du Plessis

High resolution micro and nano X-ray computed tomography – an overview of capabilities and selected examples

09:30 NECSA facility - Mr Frikkie de Beer

Neutron Radiography/Tomography – A Unique and Powerful Analytical Tool, Available in South Africa

10:00 Wits facility - Dr Kristian Carlson

Internal structure of hominin hallucal metatarsals and using imaging to identify the emergence of modern human loading patterns

10:30 Coffee

Session 2: Invited speakers; Chair - Dr Anton du Plessis

11:00 Prof M Manley, Stellenbosch University

X-ray CT in Food Science research

11:20 Dr R Slabbert, Kapa Biosystems

X-ray CT in Ancient Studies

11:40 Mr G Booysen, Central University of Technology

X-ray CT and Laser Additive Manufacturing

12:00 Dr W Fourie, EnviroEng

X-ray CT and FEA analysis

12:20 Dr A van Heerden & Mr G Kaschula, RBI Asset Management

X-ray CT for Industrial NDT

12:40 LUNCH

13:50 CONFERENCE PHOTO AT STIAS ENTRANCE

Session 3: Diverse applications; Chair - Dr Mojgan Vaziri

14:00 Dr C Broekhoven

Small animal micro-CT in ecological research: a case study using girdled lizards

14:20 Ms I Kritzinger

The use of computed tomography scans to evaluate broken stones in three cultivars of Japanese plums (*Prunus salicina* Lindl.)

14:40 Dr C Swart

Investigating brain autophagic flux alterations in BALB/C mice using micro-computed tomography

15:00 Ms Y Montgomery

X-ray CT of coal – initial results from modeling and simulation

15:20 Prof Owe Lindgren, LTU Sweden

The use of X-ray CT in wood science & technology

15:40 Coffee

16:00 Poster session

16:20 Poster session

16:40 Poster session

STIAS CLOSES AT 17:00

18:00 Gather for conference dinner at local restaurant: De Oude Werf

Friday 11 September

08:00 Coffee

Session 1: Fossils; Chair - Dr Kris Carlson

08:30 Silver sponsor talk Bruker

09:00 Ms M Reid

The 3D reconstruction of a 400 million year old fossil-rich obrution layer with CT scanning

09:20 Dr T Jashashvili

Trabecular properties - loading history of the hallux at toe-off

09:40 Ms K Mahabeer

Functional morphology of endocarp from Southern African Celtidaceae

10:00 Mr L Norton

Tooth replacement in Galesaurus planiceps (Therapsida, Cynodontia)

10:20 Dr M Frelat

3D imaging in computer-assisted palaeoanthropology: a multidisciplinary approach to study the functional morphology of the human tibia

10:40 Coffee

Session 2: Food science & CT technology; Chair - Mr Frikkie de Beer

11:00 Dr A Guelpa

A high throughput X-ray micro-computed tomography approach for maize (Zea mays L.) milling quality classification

11:20 Ms L Schoeman

X-ray micro-computed tomography (μ CT) to non-destructively determine the effect of oven and forced convection roasting on the microstructure of cereal grains

11:40 Ms I Orina

Monitoring Fusarium verticillioides contamination in Kenyan maize with X-ray nanocomputed tomography and associated multivariate data analysis.

12:00 Mr R Nshimirimana

Modelling of an X-ray radiograph

12:20 Mr J Radebe

Spatial resolution evaluation of digital neutron radiography and tomography facilities

12:40 LUNCH

Session 3: Concrete, Rocks and Meat; Chair - Dr Anina Guelpa

14:00 Bronze sponsor talk Nikon

14:20 Mr S Asante

Non-destructive testing of residual granites using X-ray Computed Tomography

14:40 Mr M Jardine

Using XCT and GLCM for the 3D textural analysis of Nkomati MMZ drill core

15:00 Mr E Charikinya

Microwave assisted preparation of bio-heap leaching feed ore: modelling and experimental studies

15:20 Mr M Mahlangu

Meat Science from a X-ray CT tomography point of view

Closing remarks

15:40 Coffee break and departure

Poster presentations

(Poster session 10 September 15:40 – 16:40)

Mr M Abdurahman

3D printed prototypes of low cost water filter devices

Mr L Bam

2D AND 3D shape comparison of the Witwatersrand basin using micro-focus x-ray tomography

Ms W Clark

3D XCT Characterisation of alloy content and size in a silico-manganese slag

Ms L Cornelius

Grade determination of mineral sands: proof of concept

Mr J Hoffmann

Contrast enhancement and correction in micro-focus X-ray tomography data of geological samples affected by severe metal-streak artifacts.

Mr P Keanly

Introduction to High Resolution Region of Interest CT

Ms L Louw

Case study using CT on copper mine soil samples

Mr F Steyn

3D print filament characterization by nano computed tomography scanning

Dr A du Plessis

Non-destructive testing of an additive manufactured titanium component

Mr S le Roux

Ore grading of Tungsten drill cores using X-ray CT