

2nd CIRCULAR



MSSA2015 29 NOV – 4 DEC

Conference Convener:

Andre Botha
Laboratory for Microscopy & Microanalysis
University of Pretoria
Tel: + 27 (0) 12 420 2075
Fax: +27 (0) 12 362 5150
E-mail: ajbotha@scientia.up.ac.za



University of Pretoria



Conference Secretariat:

Carolyn Ackermann Melnick
Scatterlings Conference & Events
Tel: +27 (0) 21 421 0345
Fax: +27(0) 86 620 4535
E-mail: caro@soafrica.com

On behalf of the Microscopy Society of Southern Africa and the Conference organizers, we take pleasure in inviting you to attend the

53rd Annual Conference of MSSA

hosted by the University of Pretoria

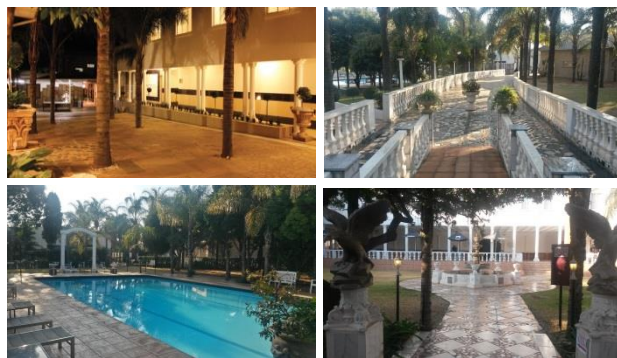
IMPORTANT DATES

MSSA PRE-CONFERENCE WORKSHOPS	28-29 NOVEMBER
MSSA TECHNICAL FORUM	30 NOVEMBER
MSSA2015 CONFERENCE (Scientific)	1-3 DECEMBER
MSSA POST-CONFERENCE WORKSHOPS	4 DECEMBER

WEBSITE LINKS

ON LINE REGISTRATION:
<http://www.mssa2015.co.za/index.php/register/on-line-registration-form>
SCIENTIFIC ABSTRACT SUBMISSION:
<http://www.microscopy.co.za/scientific-abstract-submission>
TECHNICAL FORUM ABSTRACT SUBMISSION:
<http://www.microscopy.co.za/technical-forum-abstract-submission>
STUDENT GRANT APPLICATION:
<http://www.microscopy.co.za/student-grants>
FEI PRIZE SUBMISSION:
<http://www.microscopy.co.za/submission-for-fei-prize>
COVER MICROGRAPH COMPETITION:
<http://www.microscopy.co.za/cover-micrograph-competition>
ACCOMODATION: reservations@stgeorge.co.za cc Jeannie@stgeorge.co.za

SAINT GEORGE CONFERENCE VENUE



Welcome to The Saint George Hotel, your gateway to rest and relaxation in true Mediterranean style. Situated 20min from O.R.Tambo International Airport, the hotel is secluded with its lush green gardens and classical Greek influenced buildings. The St George Hotel has 270 rooms, air-conditioned with full amenities accommodating either single or sharing rooms (up to 520 delegates). The splendor of the hotel gardens is peaceful and is your home away from home. The St George Hotel has 30 multi-functional conference venues that seat 1500 delegates. All venues are equipped with Wi-Fi. The conference packages include three tea and coffee breaks and buffet lunches.

For booking: reservations@stgeorge.co.za copy to Jeannie@stgeorge.co.za



ACCOMMODATION

St George Hotel: -reservations@stgeorge.co.za with a copy to Jeannie@stgeorge.co.za please quote "MSSA2015" to qualify for our negotiated rates. Rates include a full English breakfast.

Room Type	Single	Per Person sharing
Standard	R 810	R 545

REGISTRATION

All delegates are required to register online at <http://www.mssa2015.co.za/index.php/register/on-line-registration-form> before **15 October 2015** to qualify for the "early bird registration" fee. Registrations received after this date will be subject to paying the late registration fee. Visit the society website if you would like to become a member of MSSA

Category Registration	Early Bird Registration	Late Registration
MSSA Technical Forum*	R 850	R 950
MSSA Conference Members (Inc Tech Forum)	R 2600	R 2900
MSSA Conference Non-members (Inc Tech Forum)	R 2900	R 3250
Students*	R 1750	R 1950
Trade Delegates*	R 1750	R 1950
Daily Rate**	R 950	R 1100

*Does not include hard copy of Conference Proceedings

**Does not include hard copy of Conference Proceedings and evening events.

**Includes Tea & Coffee breaks and daily lunches

IMPORTANT DEADLINES

Second Circular	31 July
Submission of abstracts for Proceedings	31 August (New)
FEI prize reprint submission	31 July
Application for student grants	30 August
Cover Micrograph for Proceeding closes	30 August
Submission of abstracts for Technical Forum	27 September
Micrograph competition closes	30 September
Outcome of Abstract Submission	30 September
Early bird deadline	15 October
Final Circular	1 November
Online registration closes	14 November
Technical Forum	30 November
Scientific Conference	1-3 December
Conference Workshops	4 December

SPONSORED EVENING EVENTS

Monday 30th November



Ice Breaker and Cocktail
The German way

Tuesday 1st December



Student Evening
Socializing, food and alcoholic beverages..
The party way as part of the culture of MSSA.

Wednesday 2nd December



Traditional Braai
Braai, music, mampoer
and much more
The South African way

Thursday 3rd December



Formal Greek Gala Dinner
Ancient practice of ritually "killing" plates
The Greek way

NON-SPONSORED EVENING EVENTS

Sunday 29th November



Rovos Rail Steam Trip & Dinner
Sit-down dinner on the Most Luxurious
Train in the world (R2000 p/p)
The Elegant way

INTERNATIONAL INVITED SPEAKERS

30th BORIS BALINSKY lecture

The 30th Boris Balinsky Lecture will be delivered by Dr Brian Metscher from the Department of Theoretical Biology, University of Vienna, Austria. <http://theoretical.univie.ac.at/people/metscher/>

His main research interests are in using morphological and process-based approaches to address problems in evolution and development. In his research, Dr Metscher and his colleagues are applying x-ray micro tomographic imaging (micro CT) to a variety of research problems in development and evolution, including comparative embryology, functional morphology, and morphometric studies.

37th JOHN MATTHEWS Memorial Lecture

The 37th JOHN MATTHEWS Memorial Lecture will be delivered by Prof. L. J. Allen, ARC Australian Professorial Fellow Group Leader, Theoretical Condensed Matter Physics, School of Physics, The University of Melbourne, Australia.

Les Allen is an Australian Research Council (ARC) Australian Professorial Research Fellow and he leads the Theoretical Condensed Matter Physics Group at the University of Melbourne. He obtained a PhD degree in theoretical physics from the University of South Africa. His research interests are in the area of atomic resolution electron microscopy and spectroscopy and his research group is a world leader in these areas. He was awarded the John Sanders Medal of the Australian Microscopy and Microanalysis Society in 2006. He has published over 150 papers in scientific journals. Prof. Allen is a member of the editorial board of the journal Ultramicroscopy.

MSSA2015 Pre- & Post-conference Workshops

The number of participants (first come, first served) will be limited and a small fee will be charged to cover costs. Please contact André Botha for further information.

Workshop 1:

TEM IMAGING

Friday 27th Nov 2015 & Friday 4th Dec 2015

The digital camera is an essential part of any TEM. It acquires the final data and the performance of the camera is critical to the success and productivity of the TEM. World class data can be obtained from older TEMs which have been upgraded with a modern, high specification camera. On Friday 27th November and Friday 4th December Gatan will present a "TEM Imaging" workshop, which is a mix of lectures and hands on experience with the new OneView camera. Participants will learn about the choices in camera hardware, techniques of digital imaging and image processing. For the first time in South Africa, the OneView camera will be shown. This is the only camera which provides 4K x 4K imaging at 25 frames per second, a revolution in usability and power. Sample drift need never be a problem again because real-time correction can be applied whilst imaging. The OneView camera can be fitted to any TEM, new or old; it will be installed on a JEM 2100F at University of Pretoria for this workshop. Pre-registration for the workshop is essential. Other opportunities for demonstrations will be available after the conference.

Please contact **Paul Spellward** - GATAN pspellward@gatan.com

Workshop 2:

CRYO TEM & CRYO SEM

Saturday 28th Nov 2015 Sunday 29th Nov 2015

Recent developments in hardware and accompanying software have greatly contributed to the employment of cryo-techniques for the preservation of cells for electron microscopy.

A TEM- and SEM course in cryo-techniques from sample preparation to microscope images, will be held in parallel on Saturday, 28th November 2015 at the Laboratory for Microscopy and Microanalysis, University of Pretoria. These courses will be repeated on Sunday, 29th November 2015.

Workshop presented by **Dr Roland Fleck** - Kings College London, **Dr Andy Yarwood** - Jeol UK and **Andreas Nowak** - Leica Microsystems, Vienna

Workshop 3:

EBSD & EDS

Saturday 28th Nov 2015 & Sunday 29th Nov 2015

Saturday 28th Nov 2015: Theory and practice of EBSD. Pattern generation and the importance of sample preparation. Kikuchi band detection and indexing. Phase identification. Considerations for angular accuracy. Simultaneous EDS and EBSD. EBSD in transmission - Transmission Kikuchi Diffraction (TKD); spatial resolution ~10x improvement .

Sunday 29th Nov 2015: Theory and practice of EDS. Theory of characteristic x-Ray production. Interaction volume and spatial resolution . Considerations for acquisition conditions. The pulse processor; process time and 'dead time'. Peak Identification, overlap deconvolution. Quantitative analysis. Fast and efficient mapping.

Workshop presented by **Keith Dicks** - Oxford Instruments www.oxford-instruments.com

Workshop 4:

WORKSHOP IN CRYSTALLOGRAPHY

Saturday 28th Nov 2015 & Sunday 29th Nov 2015

The aim of Workshop in crystallography is to bring basic crystallographic knowledge to experts and young researchers working in a field of geosciences and material science. Through the historical development of crystallography and investigating minerals and crystallized materials different methods for investigation crystals, will be presented. Student and fellow participation are strongly encouraged.

Historical view – what is a crystal – definition of mineral and crystal, regularities, optical indices, angles between the crystal faces, crystal zones, macroscopic symmetry, – center, axes, mirrors – 3 hours

Symmetry – crystallographic axes, possible combinations of symmetrical operators, crystal classes, physical properties, projections: stereographic and gnomonic, different optical instruments and possibility for symmetry identification – optical indicatrix: microscope, spindle stage, goniometers - 6 hours

Crystallometry, goniometers, real crystals, choosing the crystals for measurement, crystal size, axial ratio, Miller's indices, indexing of crystal faces, idealized crystals, crystal habit, crystal drawing, mistakes, computer programs for drawing, modern automatic goniometers – 5 hours

Workshop presented by **Prof Vladimer Bermanec** - University of Zagreb, Croatia

Workshop 5: TUTORIAL on Electron Diffraction Applications in TEM

Friday 4th Dec 2015

This workshop/tutorial will be focused on the applications of precession electron diffraction in TEM / from crystal structure determination to orientation imaging and strain mapping at nm scale. TEM orientation imaging, NBD strain mapping and solving ab-initio crystal structures using electron diffraction intensities. There will be also software demonstration for orientation imaging (ASTAR).

Workshop presented by **Dr Thanos Galanis** - NanoMEGAS info@nanomegas.com

Workshop 6: Insight in 3D Non-destructive X-ray Microscopy

Friday 4th Dec 2015

3D X-ray microscopy has emerged as a powerful imaging technique that can obtain information from a variety of materials under a wide range of conditions and environments. Observing the evolution of microstructure in 3D on the identical region of a single sample can rapidly benefit microstructure modeling techniques. This is largely a unique capacity of X-ray tomography and several examples of in situ and '4D' experiments will be presented, including crack propagation in ceramics, porosity and permeability characterization of porous functional materials, deformation of polymer foams under load and the evolution of defects in lithium ion battery materials and fuel cells, and others.

Workshop presented by **Pete Lander** - X-Ray Microscopy, Carl Zeiss Pty Ltd pete.lander@zeiss.com

Workshop 7: "The Geoscientists' Micro-analytical Toolbox"

Friday 4th Dec 2015

A large number of microscopy-based techniques are now available to scientists in the geoscience research and industry fields, and the choice can be overwhelming. These techniques will be discussed and guidelines will be given to participants to make an informed decision on the appropriate technique for a specific sample. Presentations will provide examples of applications in geology and ore processing, and will therefore be of interest to geologists, mineralogists, metallurgists and material scientists, as well as any delegate wishing to learn more about these aspects of microscopy.

Workshop presented by **Lesley Andrews**



MSSA2015 TECHNICAL FORUM

The Technical Forum has been allocated a full day stand alone session which will take place on Monday 30 November. This will allow interested delegates to fully participate (without clashes) in the scientific sessions.

Themed sessions will include commercial / trade applications, and delegates are invited to present a 20 min talk on commercial sales promotions (new equipment) or technical presentations. The application and keynote speakers theme sessions will be announced later.

Delegates interested in presenting talks are requested to submit abstracts **by 27 September 2015** via the website.

Instructions to authors for abstracts can be found on the website.

MSSA2015 SCIENTIFIC PROGRAMME

The scientific programme will take place from 1-3 December 2015.

There will be separate parallel oral sessions for Materials Sciences and Life Sciences. Oral presentations will be 15 minutes plus 5 minutes for discussion. Poster sessions form an integral part of the conference. Presenters are requested to be at their posters during the formal sessions for a 5 min presentation (3 min plus 2 min discussion). Poster size should be 1,2m high by 1m wide (smaller than A0 size) Posters will be displayed prominently for the duration of the meeting.

Delegates interested in presenting posters are requested to submit abstracts by **31 August 2015** via the website.

Instructions to authors for posters can be found on the website.

MSSA2015 PROCEEDINGS

The MSSA2015 Proceeding Editors are: (for information purposes only – not for submitting abstracts)

Editor-in-chief:

Prof Japie Engelbrecht, Department of Physics, Nelson Mandela Metropolitan University.

Editor-Physical Sciences/Materials:

Dr Johan Westraad, Department of Physics, Nelson Mandela Metropolitan University.

Editor-Life Sciences:

Dr Ben Loos, Department of Physiological Sciences, University of Stellenbosch

TRADE SPONSORSHIP AND EXHIBITIONS

Interested companies and /or parties should contact the Conference Secretariat for information on sponsorship opportunities and exhibition space.

Thank you to all the sponsors who are already onboard.

MSSA PRIZES

ALS/JEOL AWARD for the *Most Upcoming Microscopist*. The winner of this award (amounting to an estimated R25,000) will be sponsored to travel abroad and present a paper / poster at an international conference.

CARL ZEISS PRIZE of R1,500 for the paper or poster that uses *microscopy to address an industry related problem*.

FEI PRIZE for each of the *best papers published in a recognised international Journal for Physical Sciences or Life Sciences* during the period **July 2014 to 30 June 2015**. Prize value to be announced. Candidates need not be members of the Society, but must be resident in southern Africa. An electronic copy and letter of application, including permanent home address, should be sent before **31 October** to: alan.hall@up.ac.za

FIONA GRAHAM PRIZE of R1,500 is awarded to the student who submits a *'first- time accepted - no changes-required'* abstract for the conference.

MARY VEENSTRA PRIZE of R1,000 will be awarded for the *best poster presentation* on any form of microscopy presented at the conference.

THE SCIENTIFIC GROUP AWARD of R1,000 for the best paper or poster using *confocal* microscopy .

THE SCIENTIFIC GROUP PRIZE of R1,000 for the most innovative technique in microscopy, and/or on the *novel use in SA of an established technique* .

WIRSAM LIGHT MICROSCOPY PRIZE of an Olympus camera for the *best light microscopy oral or poster presentation* (valued at R5,000).

WIRSAM SCIENTIFIC will award a prize of R1,000 for the *best paper presented by a student author* .

WIRSAM TESCAN PRIZE of R1,500 for the *most exceptional presentation* at the conference .

MICROGRAPH COMPETITION

Select your best digital micrographs and enter this great competition before **30 September**. Super prizes such as **Digital cameras** and **Kindles** are up for grabs in six categories. A nice **dinner for two** in our fun category.

CATEGORIES:

- (1) SEM-material science
- (2) SEM-biological science
- (3) TEM-material science
- (4) TEM-biological science
- (5) Optical/Confocal/AFM-material science
- (6) Optical/Confocal/AFM-biological science
- (7) Fun Category: Selfie ---- Me and my microscope

Submission for micrograph competition:
ajbotha@scientia.up.ac.za

COVER MICROGRAPH

You are invited to submit original aesthetically pleasing micrographs for the cover of the Conference Proceedings by **30 August**. For more information see our website

STUDENT GRANTS

A limited number of student grants are available for students to attend the conference. These grants will be allocated to eligible students on a first-come-first-served basis. The final award will however depend on the acceptance of a submitted abstract.

For more information and closing date, see our website

GAUTENG TOURISM

THE CRADLE OF HUMANKIND.....54km

An unforgettable journey of exploration of the origin of humankind. The cradle of Humankind achieved World Heritage status in 1999. The Taung and Makapan valley were added in 2005. It is the worlds richest source of fossil evidence of the origin and development of early humans.

STERKFRONTEIN CAVES.....50km

Home of the well-preserved fossil skull, "Mrs Ples" aged at 2,3 million years, extracted in 1947 by Dr Robert Broom. In 1997 Dr Ron Clarke discovered "Little Foot", an almost complete skeleton aged at 4,1 million years.

RHINO AND LION NATURE RESERVE...60km

The Rhino & Lion Game Reserve offers a wealth of wildlife to visitors, showing off wild and beautiful animal species. The home of the white lion and is one of only about 40 white lions known to exist. The nearby Wonder Caves are also worth a visit.

TSWAING METEORITE CRATER.....75km

220 000 year old meteorite impact crater (1,4km in diameter and 200m deep).

SAMMY MARKS MUSEUM.....30km

The Sammy Marks Museum is a Victorian mansion called Zwartkoppies Hall, situated about 23 km outside Pretoria. The father of the industrial revolution in South Africa.

CULLINAN MINE.....50km

The Cullinan Diamond, the largest diamond ever found, a staggering 3,106.75 carat. It is also the richest source of rare blue diamonds in the world. Surface, village and underground tours of the Cullinan Diamond Mine are offered.

PRETORIA NATIONAL BOTANICAL GARDEN

A diverse range of plants, animals, 200 bird species and more than 50% of South Africa's tree species are to be found here.

VOORTREKKER MONUMENT.....20km

The majestic Voortrekker monument which commemorates the Pioneer history of Southern Africa and the history of the Afrikaner and in a beautiful setting. It is one of the top ten cultural historical visitor attractions in the country.

GROENKLOOF Nature Reserve.....20km

The first proclaimed game sanctuary on the African continent.

The Most Luxurious Train in the World

Rovos Rail has earned an international reputation for its truly world-class travel experience



Rovos Rail harks back to a simpler, more elegant era encompassing the timeless grace and high romance of African exploration. Hosting, with full bar facilities, a sit-down dinner for 72 guests on the Sunday night before the MSSA2015 conference on a first come, first served basis.

Evening Itinerary

18H00 to 19H00

Champagne, orange juice and canapés will be served on arrival, with musicians playing light classical music in the background. A Rovos Steam Locomotive will be parked on the platform adjoining the station lounge, allowing for numerous photographic opportunities.

19H00 to 22H00

3 Hours on board Rovos Rail on a round trip of Pretoria. A discreet and friendly service, five-star cuisine and a selection of South Africa's finest wines will be provided.

Date: Sunday 29 Nov. 2015 **Time:** 18H00 to 22H00 **Dress Code:** Black Tie /Dark Suit **Cost:** R2000 per person

For queries and booking, please email: ajbotha@scientia.up.ac.za

INTERNATIONAL YEAR OF LIGHT



INTERNATIONAL YEAR OF SOIL

