

2014 Faculty of Science Annual Report

The Faculty of Science is respected within South Africa, Africa and the international academic arena as an important knowledge-partner that plays an active role in the development of South African society.

The 2014 annual report provides an overview of the Faculty's activities in the fields of research and innovation, teaching and learning and community outreach, followed by research highlights from each of our eight academic departments. Read about our footprint when it comes to collaborating with institutions in Africa and the rest of the world, international recognition for our top researchers and postgraduate students, as well as the eight research chairs and two Centres of Excellence within the Faculty.

- Biochemistry
- Botany and Zoology
- Chemistry and Polymer Science
- Earth Sciences
- Mathematical Sciences (Mathematics, Applied Mathematics, Computer Science)
- Microbiology
- Physics
- Physiological Sciences

Photo: Justin Alberts



[www.facebook.com/
StellenboschUniversityScience](http://www.facebook.com/StellenboschUniversityScience)



[www.twitter.com/
sciencesun](http://www.twitter.com/sciencesun)



[www.sun.ac.za/
english/faculty/science](http://www.sun.ac.za/english/faculty/science)



WORD FROM THE DEAN

Welcome to our new look annual report for 2014. We hope this interactive format provides an interesting overview of the activities that took place in the Faculty of Science during 2014.

On the following pages Prof. Terry Robinson, Vice-dean: Research, provides an overview of the Faculty's research achievements for 2014, with a special focus on the quality of our research outputs and the fact that our researchers published a record number of articles during 2014.

The success of our students is a major priority for the Faculty. Prof. Ingrid Rewitzky, Vice-dean: Teaching and Learning, presents the many new approaches and initiatives in this very important activity of the Faculty.

The Faculty's societal impact is reflected in the overview of our outreach activities during 2014. This is followed by the departmental reports with detailed information about the departments' research activities and outputs.

As always, we take great pride in the excellence of our staff and students. Prof. Doug Rawlings, former Acting Dean of the Faculty, and Prof. Terry Robinson, Vice-dean: Research, both received Chancellor's Medals in recognition of their continued contributions to excellence in research. Prof. Robinson was also the recipient of the Havenga Prize for Life Sciences from the *Suid-Afrikaanse Akademie vir Wetenskap en Kuns* (South African Academy for Science and Art).

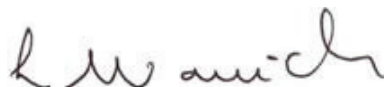
Two staff members, Prof. Dave Richardson and Prof. Guy Midgley, were named by Thomas Reuters as among the most highly cited and influential in their respective fields. Prof. Marina Rautenbach won the Women in Science award, and Prof. Len Barbour received the gold medal for outstanding research from the South African Chemical Institute. Prof. André de Villiers was selected by *The Analytical Scientist* as one of the 'top 40 under 40s' analytical scientists worldwide.

It was certainly an exceptional year for our Computer Science postgraduate students: Mr Rijnard van Tonder was a runner-up in the 'IBM Beat the Mainframe competition' in New York. With Mr Jacques Marais they developed an app which won the student category of the Ericsson Mobile App competition.

Mr Thomas Weighill, a postgraduate student in Mathematics, received the Chancellor's medal from Stellenbosch University for the best final year or postgraduate student at SU in 2014, as well as the S₂A₃ medal for the most outstanding thesis at Masters level.

This is only a glimpse into an annual report packed with information. Enjoy the rest of the report!

Prof. Louise Warnich
Dean: Faculty of Science



[www.facebook.com/
StellenboschUniversityScience](http://www.facebook.com/StellenboschUniversityScience)



[www.twitter.com/
sciencesun](http://www.twitter.com/sciencesun)



[www.sun.ac.za/
english/faculty/science](http://www.sun.ac.za/english/faculty/science)



RESEARCH AND INNOVATION

PROF TERRY ROBINSON, Vice-dean:
RESEARCH



The Faculty of Science has a strong research ethos and has been successful in creating highly relevant multidisciplinary research and postgraduate programmes.

Our programmes are supported by two Centres of Excellence and eight research chairs. Nearly 95% of our academic staff hold a PhD and we have partnerships and collaborations with over 700 institutions worldwide.

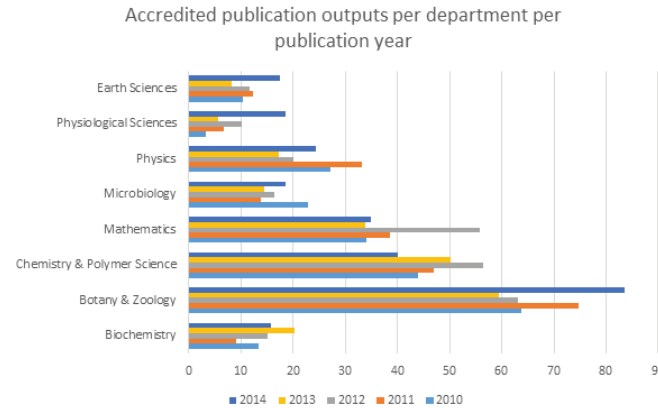
Research outputs

During 2014 researchers, students and other affiliates of the Faculty of Science published a record number of research papers - the accredited publication units for 2014 being 253,35. This is excellent compared with the previous high of 248,81 in 2012. An analysis of the data revealed, among others:

Faculty of Science authors published/co-published most frequently with authors from Germany, the United States, the United Kingdom, Australia, the People's Republic of China and France;

On a national level, the University of Cape Town features as the most frequent collaborating institution, followed by the University of Pretoria and the University of KwaZulu-Natal.

The quality of our publications is a major focus area. A review of publications that appeared in 2013 in the top 20% (or higher) in terms of impact factor within specific subcategories of research as defined in the Web of Science, showed that the Departments of Botany and Zoology and Chemistry and Polymer Science topped the list.



The graph is based on the audited units for the Faculty of Science's research output for publication years 2010-2014, as prescribed by the Policy and Procedures for the Measurement of Research Output of Public Higher Education Institutions (2003) in SA. Only journal articles in accredited journals, peer reviewed books and published conference proceedings are recognised. Source: Division for Research Development (2015) Stellenbosch University

National and international networks

The Faculty continuously seeks to strengthen and renew strategic alliances with entities such as the Council for Scientific and Industrial Research, iThemba LABS and first-rate international universities and institutions to build capacity and provide development opportunities for postgraduate students.



Research and innovation

The Faculty places a high premium on creating a culture of innovation among staff and students. During 2014 the departments of Microbiology, Biochemistry, Botany and Zoology, Physiological Sciences and Chemistry and Polymer Science registered nine declarations with Innovus, Stellenbosch University's technology transfer partner. Of these nine, five progressed to provisional patent applications and three to international (PCT) applications.

Patents	2011	2012	2013	2014
Declarations	14	4	5	9
Provisional patent application	9	2	3	5
International patent application (PCT)	5	2	2	3
Final Patent Application (FP)	14	5	0	0

Centres of excellence and research chairs

The Faculty hosts two Centres of Excellence, supported by the Department of Science and Technology and the National Research Foundation. They are the DST/NRF Centre of Excellence for Invasion Biology and the South African Centre for Epidemiological Modelling and Analysis. Seven of our departments host a research chair and/or national centre of excellence (see table on the right).

Botany & Zoology

- DST/NRF Centre for Invasion Biology (C-I-B)

Earth Sciences

- SARCHI Chair in Experimental Petrology

Biochemistry

- SARCHI Chair in Mechanistic Modelling of Health and Epidemiology

Chemistry & Polymer Science

- SARCHI Chair in Advanced Macromolecular Architectures
- SARCHI Chair in Nano-structured Functional Materials

Physics

- SARCHI Chair in Photonics-Ultrafast & Ultra-intense Laser Science
- National Institute for Theoretical Physics (NITHeP)

Microbiology

- SARCHI Chair in Energy Research
- ERWAT Research Chair in Wastewater Management
- Stellenbosch University Water Institute

Mathematical Sciences

- SARCHI Chair in Mathematical & Theoretical Physical Biosciences
- DST/NRF Centre of Epidemiological Modelling & Analysis (SACEMA)

Funding

An analysis of the major funding agencies during 2013 showed that the National Research Foundation (38.4%) and statutory councils (51%) are the main funders of research in the Faculty. In order to ensure the ongoing financial viability of the Faculty's research activities, an immediate priority will be to secure funding from non-governmental and international funding institutions. This includes seeking out funding opportunities to ensure that we are equipped with state-of-the-art equipment.

Did you know?

- Stellenbosch University has the 2nd highest number of rated researchers in South Africa
- Of the 342 rated researchers at SU, 106 are in the Faculty of Science
- 95% of our academic staff hold a PhD



FOCUS ON POSTGRADUATE STUDIES

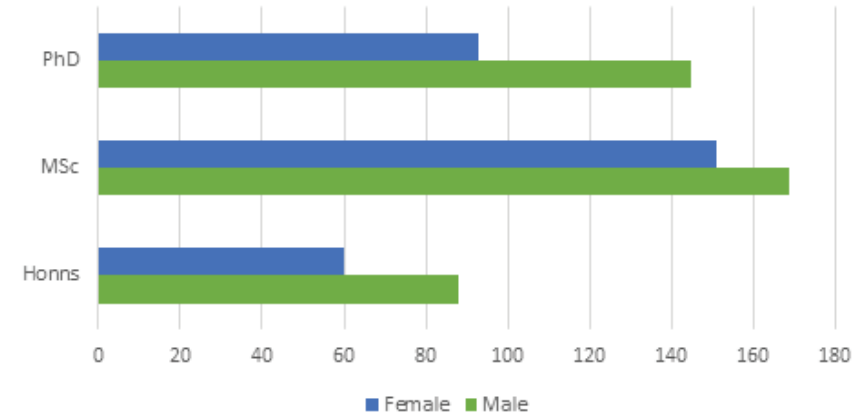
The Faculty offers high-quality training to nearly 700 primarily full-time on-campus postgraduate students. The students are supported by research specialists, extensive infrastructure and state-of-the-art technical facilities.

In 2014, a total of 282 postgraduate students graduated – 128 honours-, 112 MSc- and 42 PhD-students. Nearly 50% of our PhD graduates completed their degree within three years.

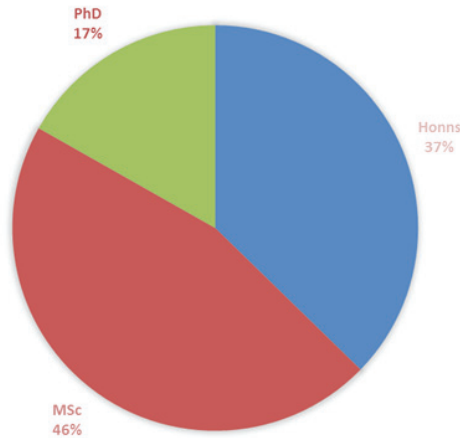
We have been particularly successful in attracting postgraduate students and postdoctoral fellows from other African countries and abroad. The Faculty of Science is currently host to 91 postdoctoral fellows from South Africa (38), Africa (13) and the rest of the world (32).

The total number of postgraduate students has increased by 4% from 618 in 2013 to 678 in 2014. The ratio of white to BCI approximates 60% white to 40% BCI.

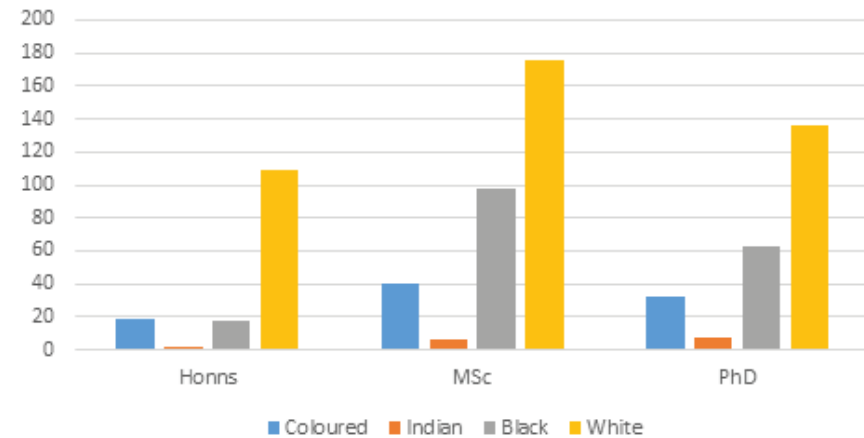
2014 Gender profile of postgraduate students



POSTGRADS GRADUATING IN 2014



2014 Postgraduate students per race



NATIONAL AND INTERNATIONAL RECOGNITION

SEVERAL OF OUR RESEARCHERS AND POSTGRADUATE STUDENTS WERE RECOGNISED FOR THEIR HIGH-QUALITY RESEARCH IN 2014 AT BOTH NATIONAL AND INTERNATIONAL LEVEL.



Prof. Dave Richardson, director of the DST/NRF Centre of Excellence for Invasion Biology (C-IB), and **Prof. Guy Midgley** from the Department of Botany and Zoology were included in the 2014 Thomson Reuters Highly Cited Researchers list of most influential contemporary researchers in their fields of expertise.

[Read more](#)



Prof. André deVilliers from the Department of Chemistry and Polymer Science received the 2014 LCGC Emerging Leader in Chromatography Award for pushing the boundaries in the chemical characterisation of complex mixtures.

[Read more](#)



Prof. Len Barbour, an experimental chemist, received the esteemed Gold Medal award from the South African Chemical Institute (SACI) in recognition of his outstanding contribution to the field. Prof. Barbour also received a DSc degree for twenty years of research focused on unravelling unusual phenomena in crystals.

[Read more](#)



Prof. Marina Rautenbach from the Department of Biochemistry was honoured as an outstanding female scientist in the Natural Sciences and Engineering category of the 2014 South African Woman in Science Awards (WISA).

[Read more](#)



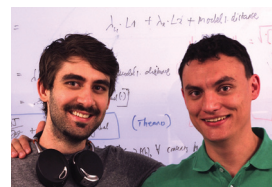
Prof. Terry Robinson from the Department of Botany and Zoology was the recipient of the Havenga Prize for Life Sciences from the *Suid-Afrikaanse Akademie vir Wetenskap en Kuns* (South African Academy for Science and Art). Both Prof. Robinson and **Prof. Doug Rawlings** (left) were awarded the Chancellor's award for sustained research excellence at Stellenbosch University.

[Read more](#)



Dr Sophie von der Heyden from the Department of Botany and Zoology was elected as a Young Affiliate of The World Academy of Sciences (TWAS). The honour is given to developing-nation researchers who are likely to become future leaders in their research field.

[Read more](#)



MSc Computer Science student **Rijnard van Tonder** (right) was a runner-up in the 'IBM Beat the Mainframe' competition in New York. Together with **Jacques Marais** he also developed an app called WorkMode which won the student category of the Ericsson Mobile App competition.

[Read more](#)



Thomas Weighill (right), an MSc Mathematics student, received both the coveted Chancellor's medal and the S_2A_3 medal for the most outstanding research thesis at MSc level in the natural, engineering and medical sciences. Weighill sustained an average of 91.1% during six years of study. His MSc thesis, with a final mark of 97%, was accepted without any revisions by three external international examiners. His study leader was **Prof Zurab Janelidze** (left).

[Read more](#)

TEACHING AND LEARNING

PROF. INGRID REWITZKY, Vicedean:
TEACHING AND LEARNING



The Faculty of Science is committed to the education of young scientists in support of the South African Government's initiative to increase the knowledge base of our community, specifically in the fields of science and technology.

Our programmes are designed not only to prepare graduates for the job market as scientific professionals, but also to equip students with the knowledge and skills required to enter postgraduate study programmes. In this regard we have initiated various strategies and plans to improve student success on undergraduate and postgraduate level, to increase student diversity in terms of race and gender, and to employ the latest information technologies to enhance teaching and learning and student engagement.

Thanks to these initiatives, we have experienced a steady upward trend in student diversity and undergraduate student success and retention over the last decade. However, many transformation challenges still remain.

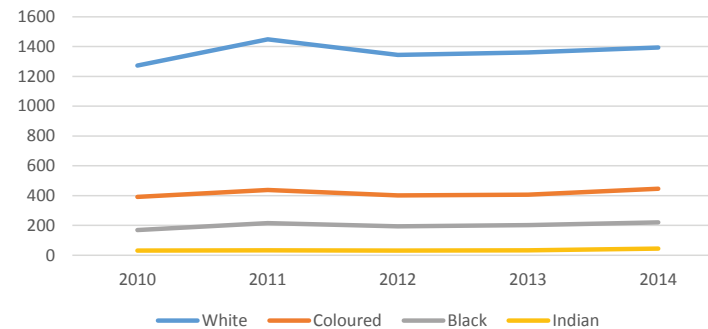
Student diversity

Looking back at 2014, we enrolled the highest percentage ever (34.8%) of first-time entering Black, Coloured and Indian students. This is the result of an initiative, started in 2013, to improve diversity by increasing the number of recruitment bursaries from 41 in 2012 to 181 in 2014. This resulted in 107 recruited diversity students registering in 2014 (compared to 34 in 2012). In 2015 the Faculty will offer 190 recruitment bursaries.

In order to reach our target of 40% diversity students at undergraduate level by 2019, we are exploiting recruitment opportunities in collaboration with the Centre for Student Recruitment and through activities such as the annual Maties Science Winter Week and other departmental outreach activities. On postgraduate level, the percentage diversity students increased from 35.8% in 2010 to 38.7% in 2014.

On gender level we are also showing progress. The total number of female students, undergraduate and postgraduate, has increased from 49.8% in 2009 to 51.7% in 2014.

Undergraduate students demographic profile
2010-2014



Since 2010, the Faculty of Science has experienced a steady upward trend in student diversity.

Student success

An ongoing challenge is ensuring the success of undergraduate students. The average pass rate in the Faculty of Science has improved from 76.6% in 2008 to 82.33% (2013) and 80.67% in 2014. However, we are concerned about the low percentage of students who complete their degree in three years. Significant efforts have been made to improve student success in critical courses, including the appointment of tutors and teaching assistants, and differentiated tutorial support to cater for the varying levels of preparedness of first-year students. The aim is to develop the necessary study and learning skills during the first year to enable students to become independent learners.

Reading skills and comprehension are essential for academic success. In 2013 strategic funding was obtained to investigate the use of a web-based reading programme to improve students' reading, comprehension and writing skills. The reading programme will be implemented in the Scientific Communication Skills course over the next three years, starting in 2015.

The Faculty is working towards implementing the SU's language strategy whereby all our programmes can be taken in English while keeping the percentage of a programme that can be taken in Afrikaans above 60%.

Teaching and learning

The Faculty's Science Teaching and Learning Discussion Forum meets monthly, with an annual workshop to explore a more student-centred learning approach as well as the incorporation of IT and other social media platforms to enhance teaching, learning and assessment activities. Since 2013 the Faculty has obtained a teaching development grant from the Department of Higher Education for identifying potential future academics from the postgraduate cohort and involving them in assessment methodology, blended learning, the use of ICTs, the re-design of modules and the development of new approaches for improving student engagement. [Read more](#)



Group work during Physics tutorials has suddenly become a lot more fun after physics lecturers Profs Brandon van der Ventel and Richard Newman introduced iPads into the equation. Core Group, authorised distributor of Apple products in South Africa, and DigiCape, a local reseller of Apple products, supported the project by making 17 iPads available for the duration of the project. Photo: Wiida Fourie-Basson

Teaching excellence

Several of our lecturers were recognised by top-performing first years for their contribution to their academic success in 2013. The lecturers were then invited to attend the Rector's Dinner for Top-Performing Students, hosted by the First-Year Academy of Stellenbosch University.



Dr Marietjie Lutz (middle) from the Department of Chemistry and Polymer Science were recognised by two students, Ms Maryke Botha (BAgric) (left) and Ms Jana Botha (BSc).

"For the first time I can recall, chemistry has been presented to me in a way that I could understand." – Maryke Botha

"You have an extraordinarily way of explaining and your ability to summarise the text book in solid comprehensive notes, are, in a nutshell, commendable." – Jana Botha



Prof. Ed Jacobs (Department of Chemistry and Polymer Science) with first year engineering student Mr Kwazi Frank Dlamini.

"The humility and the patience you have with a student is all that I needed to be confident in what I do and made me want to do better." – Kwazi F Dlamini

Dr Maritha le Roux
(Department of Chemistry and Polymer Science)

"I believe that the bond between lecturer and student is essential and mutually beneficial...Thanks to your teaching methods, patience, friendliness and approachability, I was able to achieve my objectives and success." – Celeste de Kock

Dr Karin-Therese Howell
(Mathematics Division)

"In our mathematics classes we not only interpreted mathematical limits – you also motivated us to rise above our circumstances and achieve our personal success limit in life." – Aldu Duminy

Prof. Lynette van Zijl
(Computer Sciences Division)

"Your enthusiasm and passion for computer science shown during lectures is contagious and had a big influence on my feelings towards the subject." – Elrich Groenewald

Prof. Alex Valentine
(Department of Botany and Zoology)

"You made me realise that complicated work or terms didn't have to be feared but should rather be seen as an opportunity to challenge yourself and learn something new about the world around us." – Alistair Galloway

Prof. Florian Breuer
(Mathematics Division)

"I think the reason why you stand out above other lecturers is because you very effectively incorporate humour, examples and their relationship with the real world in your lectures." – Chris van der Westhuizen

Dr Gareth Arnott
(Department of Chemistry and Polymer Science)

"In all the lectures presented by Dr Arnott he was always intellectually stimulating and always kept the class involved which I feel is an invaluable quality for a lecturer to have." - Justin Hurst

COMMUNITY OUTREACH



Chemistry outreach initiative

The Stellenbosch University Chemistry Outreach Initiative (SUNCOI) hosted two workshops – the “Practical with Purpose” workshop for Grade 10 to 12 learners and “Teaching the teacher the nuts and bolts of chemistry” workshop for Grade 10 teachers. SUNCOI was initiated in 2013 by Dr Rehana Malgas-Enus and Prof. Klaus Koch to enhance the teaching and learning of chemical practicals at historically disadvantaged schools.

[Read more](#)



Physics annual outreach road trip

Postgraduate students in Theoretical and Nuclear Physics undertook the sixth annual outreach road trip along the Garden Route. The students demonstrated basic principles in physics such as fluorescence and phosphorescence, optical communications and non-Newtonian fluids to nearly 400 children at nine schools. This initiative is sponsored by the Optical Society of America (OSA) Student Chapter. On the photo, from left to right, Ruan Viljoen, Zina Ndlovu, Kevin Li, Erasmus du Toit, Paul Williams, Janusz Meylahn, Vernon Chisapi, Hein Fourie, Catherine Pfukwa, Bart Smit and Rikus Groenewald.



Teaching biodiversity to teachers and high school learners

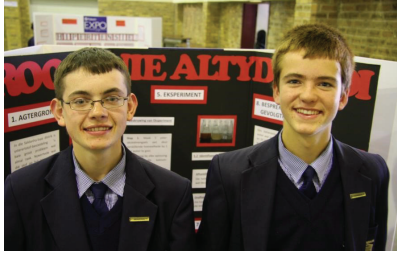
The limbivane project participated in the Western Cape Education Department’s Careers Expo at Overberg Primary School in Caledon on 1 August 2014. A competition to identify different ant species under a microscope promoted learner interaction and increased curiosity in insect morphology. limbovane is a long term monitoring project which focuses on ant diversity in different natural and modified landscapes and involves educators and learners from secondary schools. Photo: Dorette du Plessis

[Read more](#)



Getting ready for the Mathematics Olympiads

Delegations from South Africa, Botswana and Zimbabwe participated in the annual Mathematics Olympiad Camp and Training, hosted by the Mathematics Division in December 2014. It is the first part of the training and selection procedure for South Africa’s teams in the Pan-African and International Mathematical Olympiads. Prof. Stephan Wagner and postgraduate student Ms Desislava Nikolov also offered biweekly classes for interested learners in Stellenbosch, while the Mathematics Division offered training sessions for the Boland teams participating in the South African Mathematics Team Competition on 13 September 2014.



Eskom Expo for Young Scientists

Every year staff and postgraduate students from the Faculty of Science volunteer as judges at the Stellenbosch regionals of the Eskom Expo for Young Scientists. The Centre for Invasion Biology's (C•I•B) book prize for the best junior research project in the environmental sciences at the 2014 Eskom Expo for Young Scientists was awarded to Charl-Henri Schoeman and Henko van Wyk, Grade 9 learners from Curro Private School in Langebaan. Photo: Wiida Fourie-Basson

[Read more](#)



Maties Science Winter Week

The Maties Science Winter Week provides learners who are interested in a career in the natural sciences the opportunity to find out more about the study programmes offered in the Faculty of Science and the various disciplines and career opportunities available in these fields. Several of the Faculty's researchers participated in the popular "Date with a scientist" event, where learners meet professional scientists from industry and academia.

Other outreach activities

- The Computer Science Division co-ordinated a one-day Python introduction course for learners from Stellenbosch High School.
- Dr Rehana Malgas-Enus addressed 125 high school learners from 25 previously disadvantaged schools during the Women in Mathematics convention hosted by the Science Learning Centre at the University of the Western Cape.
- Dr Katherine de Villiers and Ms Varia Nikolayenko presented talks on the application of crystallography and synchrotrons in today's science to learners and teachers from the West Coast Education Division during National Science Week.
- Prof. Nox Makunga presented a lecture at the Stellenbosch Forum and a talk on communicating science at Science Fridays @Stellenbosch.
- Prof. Guy Midgley was chair of the session on community interaction during the 2nd Global Change Conference in December, hosted at the Nelson Mandela Metropolitan University. He also gave several media interviews on World Environment Day.
- Mathematics students competed against 200 students from 10 universities in the third South African Tertiary Mathematics Olympiad on 23 August 2014. While the competition was dominated by UCT, SU students Petri-Johan Last (Engineering) came fourth and three Mathematics students were among the top 20.
- The Mathematics Division was closely involved with the International Mathematics Olympiad which, for the first time, took place in South Africa. They are Prof. Florian Breuer (coordinator), Prof. Stephan Wagner (problem selection committee and problem captain) and Prof. Dirk Laurie (head coordinator), as well as several postgraduate students.

DEPARTMENT OF BOTANY AND ZOOLOGY

THE DEPARTMENT OF BOTANY AND ZOOLOGY IS A LEADER IN THE FIELD OF EVOLUTIONARY BIOLOGY, WITH A SPECIFIC FOCUS ON THE UNIQUE OPPORTUNITIES OFFERED BY AFRICA'S BIODIVERSITY.

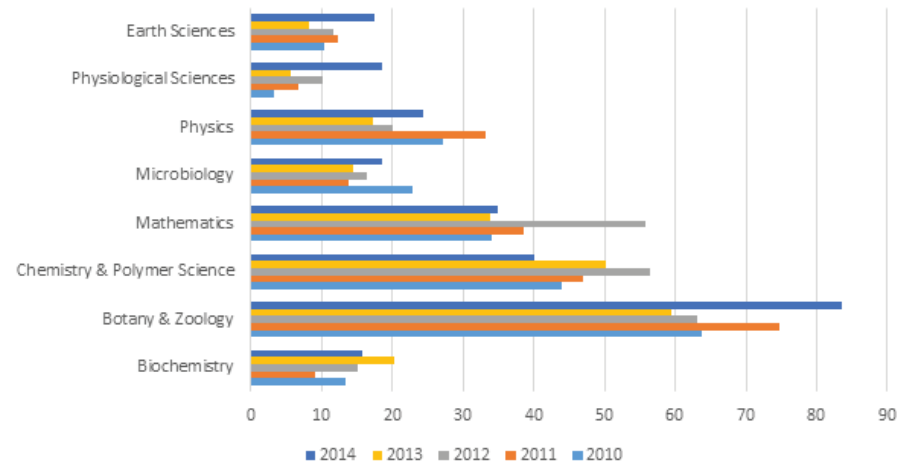
Research interests

Animal evolutionary ecology & physiology	Evolutionary ecology	Animal plant interactions
Behavioural ecology	Cape Flora	Invasion biology
Ecophysiology	Evolutionary genomics	Marine research
Nutritional plant physiology	Vertebrate functional biology & herpetology	Global change ecology
	Medicinal Plant Biotechnology	

Research outputs

The Department significantly increased its research output to 176 articles in accredited journals in 2014, compared to 140 articles in 2013 and 133 in 2012. The Faculty of Science's audited research output for publication years 2010-2014 clearly shows that the Department of Botany and Zoology consistently topped the list.

Accredited publication outputs per department per publication year



[Publication list](#)

[NRF-rated researchers](#)

[Staff list](#)

[Contact us](#)

DEPARTMENTS:

[Botany and Zoology](#)

[Earth Sciences](#)

[Chemistry and Polymer Science](#)

[Biochemistry](#)

[Mathematical Sciences](#)

[Microbiology](#)

[Physics](#)

[Physiological Sciences](#)

[HOME PAGE](#)

NRF-rated researchers

More than 70% of our academic staff has been rated by the National Research Foundation – three of them as leading international researchers and five as internationally acclaimed researchers. We have a large group of established researchers and promising young researchers, among them six female researchers. This number includes our research associates, research chairs and retired academics.



National and international collaboration

Collaborating and participating in national and international scientific programmes are one of the Department's priority objectives. During 2014 we collaborated with over 330 institutions from more than 40 countries – this included co-authorship on journal articles, research projects and student and staff exchange.



The Department worked with 52 different institutions in South Africa. Our most significant international collaborators are institutions in the United States (54) and the United Kingdom (37), followed by France (21), Australia (18) and Germany (15).

Bilateral funding

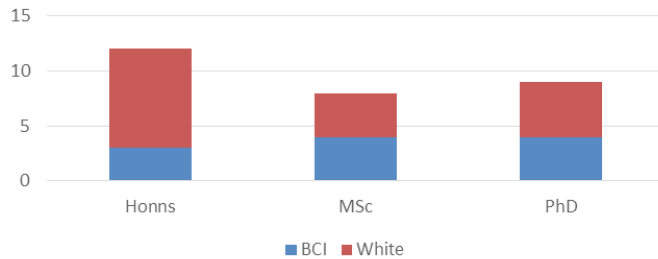
Prof. Conrad Mathee received funding as part of the bilateral agreement between South Africa and France for the Biodiversity and Global Change in Southern Africa project (2013-2015). Dr Tammy Robinson obtained funding through the SA-Angola bilateral agreement for the investigation of coastal sedimentation by means of radioisotope mapping (2013-2015).

Focus on postgraduate students

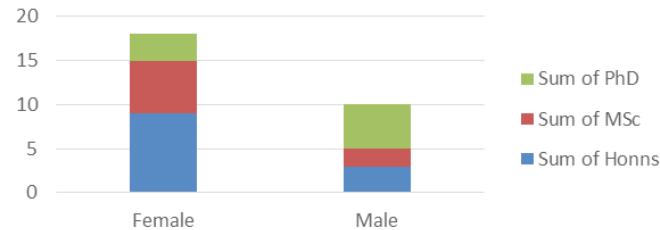
In 2014 we had a cohort of 85 postgraduate students – 18 Hons, 39 MSc and 28 PhD students. By the end of the academic year 12 Honours, eight MSc and eight PhD students graduated. Postgraduate students presented papers and posters at conferences in Uganda, South Africa and Namibia. Three of them walked away with awards:

Mr Chris Broeckhoven	Best PhD presentation, 12 th Conference of the Herpetological Association of Africa
Dr Romina Henriques	Best presentation, SU annual postdoctoral research conference
Ms Sara Andreotti	First prize for the best talk, best written article and best photograph at SU's 'New Voices in Science' competition

Diversity profile of postgraduate students who graduated in 2014



Gender profile of postgraduate students who graduated in 2014



Postdoctoral fellows

The Department hosted 16 postdoctoral fellows from South Africa and Africa, Europe and the USA.

Service to the scientific community

Our staff regularly serve as external examiners or supervisors to students from other universities and on the advisory panels to various conservation and government bodies and on the editorial boards of several prestigious journals.

Several staff acted as moderators, external examiners for courses or as supervisors and co-supervisors for MSc and PhD students at the Universities of Cape Town (UCT), the Western Cape (UWC), KwaZulu-Natal (UKZN), Pretoria (UP), Rhodes (RU), Free State (UFS), North West (NWU), the Cape Peninsula University of Technology (CPUT) and the University of Zimbabwe.

During 2014 the Department's staff were invited by the National Research Foundation (NRF) to act as reviewers or as panel members of special committees: they were Dr Savel Daniels, Dr Jaco le Roux, Prof Anton Pauw, Dr Rambau Victor, Prof Terry Robinson, Dr Tammy Robinson, Dr Simon Carol, Prof Alex Valentine, Prof Hannes van Wyk and Dr Sophie von der Heyden. Prof Leanne Dreyer is a core member of the DST-NRF Centre of Excellence in Tree Health Biotechnology.

Editorial activities

Prof. Michael Cherry	<i>Emu</i> (associate editor); <i>Folia Zoologica</i> (editorial board member)
Dr Susanne Clusella-Trullas	Editorial boards of <i>Journal of Thermal Biology</i> , <i>Frontiers in Insect Physiology & Austral Ecology</i>
Prof. Allan Ellis	<i>Botanical Journal of the Linnean Society</i> (associate editor)
Dr Jaco le Roux	<i>Conservation Genetics & Biological Invasions</i> (associate editor)
Prof. Guy Midgley	<i>Diversity and Distributions</i> (editorial board)
Prof. Conrad Matthee	Associate editor of <i>Integrative and Comparative Biology</i> , <i>African Journal of Marine Science</i> , <i>Integrative and Comparative Biology & Molecular Phylogenetics and Evolution</i>
Prof. LeFras Mouton	<i>African Journal of Herpetology</i> (editorial board)
Prof. Anton Pauw	<i>South African Journal of Botany</i> (subject editor)
Dr Rambau Victor	<i>African Zoology</i> (section editor)
Prof. Dave Richardson	<i>Diversity and Distributions</i> (editor-in-chief); editorial board member of <i>Conservation Biology</i> , <i>AOB Plants</i> , <i>Florist Ecosystems</i> and a book series on biological invasions, published by Cambridge University Press
Prof. Terry Robinson	Editorial board of <i>Chromosome Research & Cytogenetics and Genome Research</i>
Dr Simon Carol	<i>African Zoology</i> (editor-in-chief)
Prof. Valdon Smith	<i>Polar Record</i> (editorial advisor)
Prof. Alex Valentine	<i>Fungal Ecology</i> (subject editor)
Dr Theresa Wossler	<i>African Zoology</i> (editor); <i>African Entomology</i> (associate editor)

Conferences and workshops

Staff members delivered oral and poster presentations at international conferences in Germany, the United States, Canada, Japan, Vietnam, Chile, Namibia, China, Saudi Arabia and Oman.

The Department was also well represented at local conferences such as the 15th Southern African Marine Sciences Symposium and the annual conference of the Southern African Society of Aquatic Scientists. Staff members participated in two international conferences that took place in South Africa: the XXth conference of the Association pour l'Etude de la Taxonomie de la Flore D'Afrique Tropicale (Aetfat) and the XIVth International Symposium on Biological Control of Weeds.

Service to the community

Prof. Michael Cherry	Kalahari Research Trust (trustee) & the Percy Fitzpatrick Institute of African Ornithology (steering committee)
Dr Nox Makunga	SA Association of Botanists (vice-president) & the SA PhD Project (member)
Prof. Guy Midgley	SA National Global Change Research Committee (chairperson); IUCN Scientific Steering Committee Climate Change Specialist group (board member); ICSU SA National Board (board member); National Global Change NRF/DST Conference (co-organiser); IPCC (coordinating lead author); ASSAF (member); Royal Society of South Africa (Fellow); public presentations for the Department of Environmental Affairs on national long term climate change adaptation strategy
Prof. Conrad Matthee	Endangered Wildlife Trust Riverine Rabbit (steering committee)
Prof. LaFras Mouton	International Society of Vertebrate Morphologists (member); Zoological Society of Southern Africa (member); Rooi Cederberg Karoo Park (advisory board); Herpetological Association of Africa (chairperson); 12th Herpetological Association of Africa Conference (chair: organising committee)
Prof. Anton Pauw	Wildflower Conservation Trust (trustee) & Red Hill Conservation Group (member)
Dr Rambau Victor	Zoological Society of Southern Africa (committee member)
Dr Simon Carol	15 th South African Marine Science Symposium (organising committee)
Prof. Alex Valentine	JS Marais Park's management committee (advisory board)
Prof. Hannes van Wyk	Water Research Commission (steering committee); Junior Captain Scott Medal (evaluation panel); 1st African Conference on Health Effects of Endocrine Disruptors (organising committee)
Dr Sophie von der Heyden	15th South African Marine Science Symposium (chair: organising committee)
Dr Theresa Wossler	Helderberg Advisory Committee (member)
Dr Susanna Clusella-Trullas	Insect Invasion Workshop (organising committee)
Prof. Allan Ellis	South African Association of Botanists (board secretary)

National and international recognition

Prof. Dave Richardson & Prof. Guy Midgley	2014 Thomson Reuters Highly Cited Researchers list of most influential contemporary researchers in their fields of expertise
Prof. Terry Robinson	Chancellor's award for sustained research excellence at SU; Havenga Prize for Life Sciences from the <i>Suid-Afrikaanse Akademie vir Wetenskap en Kuns</i> (South African Academy for Science and Art)
Prof. Conrad Matthee & Prof. Guy Midgley	Elected Fellows of the Royal Society of South Africa
Prof. Michael Cherry	Elected Fellow of the African Academy of Sciences
Dr Sophie von der Heyden	Elected Young Affiliate of The World Academy of Sciences (TWAS) & awarded the CV Raman Senior Fellowship for African Scientists to conduct research in India
Dr Marnel Mouton	Lecturer who contributed the most to academic success of top first year student

DEPARTMENT OF EARTH SCIENCES

THE DEPARTMENT OF EARTH SCIENCES IS ONE OF THE OLDEST ACADEMIC DEPARTMENTS AT STELLENBOSCH UNIVERSITY, WITH A HISTORY THAT GOES BACK TO THE TEACHING OF 'ELEMENTARY GEOLOGY' AT THE STELLENBOSCH SCHOOL FROM 1840 TO 1865. TODAY THE DEPARTMENT IS HOME TO 15 RESEARCHERS AND OVER 30 POSTGRADUATE STUDENTS.

Research interests

Environmental geochemistry

- Trace-element and isotope geochemistry
- Marine geochemistry
- Hydro-geochemistry
- Pollution

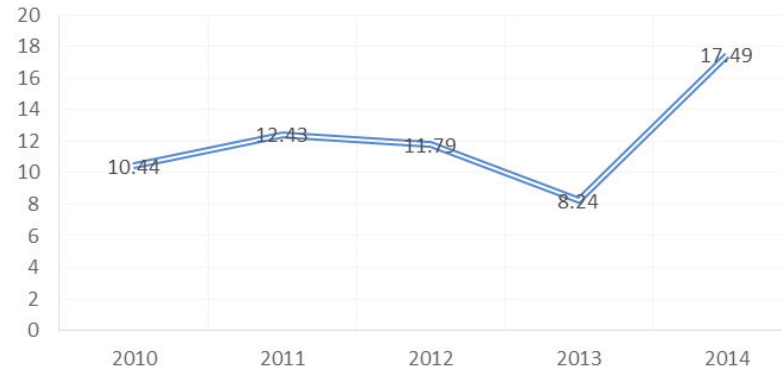
Applied Geology

- Tectonics and orogenic processes
- Sedimentology and palaeontology
- Petrogenesis of granite rocks
- Metamorphic petrology
- Experimental petrology
- Shear-zone hosted gold deposits
- Massive sulphide deposits
- Heavy mineral placer deposits
- Metallogensis of mobile belts

Research highlights

The Department significantly increased its research outputs in 2014, while Dr Susanne Fietz became the sixth staff member to be rated by the National Research Foundation:

Accredited publication outputs 2010-2014



[Publication list](#)

[NRF-rated researchers](#)

[Staff list](#)

[Contact us](#)

DEPARTMENTS:

[Botany and Zoology](#)

[Earth Sciences](#)

[Chemistry and Polymer Science](#)

[Biochemistry](#)

[Mathematical Sciences](#)

[Microbiology](#)

[Physics](#)

[Physiological Sciences](#)

 [HOME PAGE](#)

Internationally acclaimed researcher	
Prof. JS Buick	metamorphic petrology, geochronology & isotope geochemistry
Prof. JD Clemens	granite petrogenesis
Prof. A Kisters	structural geology
Prof. G Stevens	experimental petrology
Established researcher	
Dr S Fietz	marine biogeochemistry
Prof. A Roychoudhury	environmental geochemistry & hydrology

National and international collaboration

During 2014 we collaborated with 103 institutions from 27 countries. Our most significant international collaborators are institutions from Germany (16), the United States (10) and France (9), while closer to home we worked with institutions from Cameroon, Namibia and Uganda.



Focus on postgraduate studies

We have a large cohort of Honours students (22), with eight MSc and three PhD students. Nearly a third of our postgraduate students are from the designated BCI groups and the ratio male to female on postgraduate level is about 2:1. During 2014 we hosted two postdoctoral fellows, Dr M. Garcia Arias (Spain) and Dr V van Schijndel (Netherlands).

Science on board the SA Agulhas II

Eight of our postgraduate students were on board the SA Agulhas II's for its roundtrip to Antarctica in December 2014. They tackled research problems such as the link between the growth of algae in the Southern Ocean, the cycling of essential chemical elements and how that impacts on the levels of CO₂ in the ocean and the atmosphere. [Read more](#)



Greenlandic expedition

MSc-student Mr Riaan Bothma and Dr Martin Klausen went on a geological expedition to Southeast Greenland, organised by the Royal Geological Survey of Denmark and Greenland (GEUS). This was the last in a series of six expeditions to remap and investigate the North Atlantic Craton. [Read more](#)



Service to the scientific community

Prof. JD Clemens	Igneous and Metamorphic Studies Group, affiliated with the Geological Society of South Africa (founder member); Earth Sciences Ratings Panel for the National Research Foundation (chair)
Prof. Dirk Frei	European Science Foundation review panel (permanent member)
Prof. Alex Kisters	South African Committee for Stratigraphy – Archaean sequences (member); South African Committee for Stratigraphy – Pan-African sequences (chair)
Dr Jodie Miller	International Mineralogical Association International Convention (organising committee); Geological Society of South Africa (regional council); Western Cape branch of the Geological Society of South Africa (chair); external moderator for the University of Cape Town (UCT) & Nelson Mandela Metropolitan University (NMMU)
Prof. A Roychoudhury	GEOTRACES programme (South African representative & steering committee member); Council for the International Association of GeoChemistry (member); Africa Earth Observatory Network (AEON) (founder member); Marine Research Institute, University of Cape Town (member); Applied Centre for Climate and Earth Systems Science (ACCESS) (steering committee); National Oceanographic Equipment and Planning Committee
Prof. Gary Stevens	Western Cape Expensive Equipment Programme (REEP) (member); Central Analytical Facility (CAF), Stellenbosch University (director); SARCHi chair for Experimental Petrology

Editorial activities

Prof. Alex Kisters	<i>South African Journal of Geology</i> (editorial board)
Prof. A Roychoudhury	<i>Frontiers in Environmental Sciences: Groundwater Resources and Management</i> (associate editor); <i>Frontiers in Marine Science: Ocean Observation</i> (review editor)
Prof. Gary Stevens	Editorial board member of <i>Lithos, Terra Nova & Metamorphic Geology</i>

Research and conferences

Dr Martin Klausen attended the Nordic Geological Winter meeting in Sweden and the Geological Society of America's meeting in Canada. Prof Roychoudhury was host to the ninth meeting of the **GEOTRACES** Scientific Steering Committee; he also did field and experimental work on nanoparticles, funded by the South African National Antarctic Programme (SANAP). Prof Alex Kisters was involved with projects in Namibia which involved field work, structural mapping, sampling and student supervision (NRF-funded Donkerhuk project, Omitiomire Cu project for Craton Mining and Holland's Dome U project for Swakop Uranium). Prof Gary Stevens is the grant-holder for the bilateral SA-France CNRS project on the origin and recycling of the Kaapvaal craton felsic crust (2013-2015).

Awards to staff and students

Dr M Klausen, Dr Jodie Miller and Prof. A Roychoudhury received the SU's Rector's award for general performance. Ms Swana Kelley was awarded the Best Student Poster at the congress of the International Association of Hydrogeologists in Morocco.

Staff matters

The Department welcomes Dr R Tucker as the new lecturer in sedimentology and takes leave of Prof. Abraham Rozendaal who retired after nearly 25 years at SU.

DEPARTMENT OF CHEMISTRY AND POLYMER SCIENCE

THE DEPARTMENT OF CHEMISTRY AND POLYMER SCIENCE IS ONE OF THE PRE-EMINENT RESEARCH DEPARTMENTS IN CHEMISTRY IN SOUTH AFRICA. WE ARE ENGAGED IN A WIDE RANGE OF RESEARCH AREAS, INCLUDING THE LARGEST RESEARCH EFFORT IN POLYMER SCIENCE IN THE COUNTRY.

Research interests

Organic chemistry & medicinal chemistry

Inorganic chemistry & organometallic chemistry

Analytical chemistry

Polymer science

Physical & computational chemistry

Supramolecular chemistry & materials

Research outputs

During 2014 we continued to publish research articles in high-impact journals, some of them among the top 1% of the world's leading scientific journals such as *Chemical Communications*, *Analytical Chemistry*, *Angewandte Chemie International Edition* and *Inorganic Chemistry*. Seven primary research papers from our Department were included in Nature Index 2015 – a unique database that tracks down which institutions made the biggest absolute contribution to high-quality scientific research in a field, region or globally. In Africa, Stellenbosch University leads the chemistry field in terms of outputs per institution:

Institution	AC	FC	WFC
1. Stellenbosch University (SU)	7	6.27	6.27
2. University of Cape Town (UCT)	5	1.50	1.50
3. University of the Free State (UFS)	4	1.39	1.39
4. Cape Peninsula University of Technology (CPUT)	2	1.27	1.27
5. University of KwaZulu-Natal (UKZN)	5	1.01	1.01
6. University of the Western Cape (UWC)	2	0.90	0.90
7. University of Johannesburg (UJ)	1	0.88	0.88
8. Nelson Mandela Metropolitan University (NMMU)	1	0.80	0.80
9. Université Constantine 1	2	0.57	0.57
10. University of Carthage (UCAR)	2	0.44	0.44

[Publication list](#)

[NRF-rated researchers](#)

[Staff list](#)

[Contact us](#)

DEPARTMENTS:

[Botany and Zoology](#)

[Earth Sciences](#)

[Chemistry and Polymer Science](#)

[Biochemistry](#)

[Mathematical Sciences](#)

[Microbiology](#)

[Physics](#)

[Physiological Sciences](#)

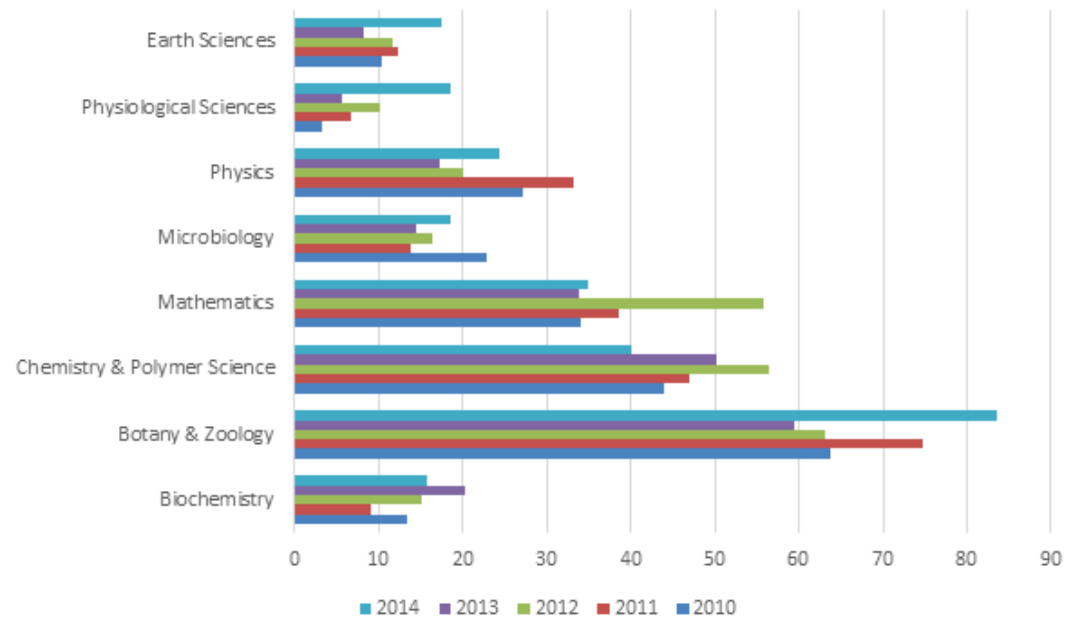
 [HOME PAGE](#)

Research profile

The Faculty of Science's audited research output for publication years 2011 to 2014 shows that we are among the top three departments in the Faculty in terms of audited research outputs. A review of publications that appeared in 2013 and which qualified as being in the top 20% (or higher) in terms of impact factor within specific subcategories of research as defined in the Web of Science, also shows our Department among the top two.

Currently 18 (60%) of our academic staff members hold NRF-ratings and we are home to two of the four A-rated scientists in chemistry in South Africa – Prof. Bert Klumpermann and Prof. Len Barbour. Prof. Klumpermann and Prof. Barbour also hold two of the eight research chairs in the Faculty – the South African research chairs (SARChI) in Advanced Macromolecular Architectures and in Nano-structured Functional Materials.

Accredited publication outputs per department per publication year



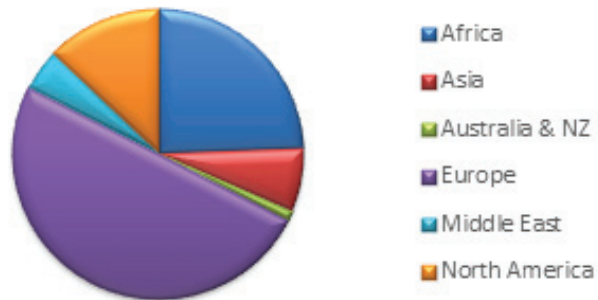
The average age of our academic staff is only 46 years, which indicates that we are a relatively “young” department. All but one of our academic staff members hold a PhD degree.

Age profile of academic staff

Post level	Average age
Professor	55.8
Associate Professor	45.6
Senior Lecturer	43.2
Lecturer	41.1
Departmental average	46

During 2014, the Department hosted 17 postdoctoral fellows from South Africa (5), India (7), Libya (2), Lesotho (1), Poland (1) and China (1).

Proportion of collaborators per region 2014



Collaboration

During 2014 we collaborated with 87 institutions from 25 countries – this includes co-authorship on research papers, research visits, staff and postgraduate student exchanges and other projects resulting from several bilateral agreements. While our footprint in South Africa (16) is large, we most often collaborated with institutions in Germany (14) and the United States of America (9). Click on the map below for a comprehensive list of all our collaborators.



Editorial activities

Prof. Len Barbour	<i>Comprehensive Supramolecular Chemistry, a proposed nine volume reference work (Elsevier) (Co-editor in chief); New Journal of Chemistry (editorial board)</i>
Prof. Willem van Otterlo	<i>South African Journal of Chemistry (editor)</i>
Prof. Bert Klumperman	<i>European Polymer Journal (editor); Transactions of the Royal Society of South Africa (editor-in-chief & editorial advisory board)</i>
Prof. Harald Pasch	<i>International Journal of Polymer Analysis and Characterization (IJPAC) (editorial board); Polymer International (PI) (editorial board); Springer Laboratory book series (editor)</i>

Conferences and workshops

Our researchers presented at 23 national and international conferences during 2014 and we were well-represented at African and international activities to celebrate the International Year of Crystallography. Most notable are the number of plenaries, keynote lectures and invited lectures presented by our researchers: Prof. Harald Pasch delivered four invited and two keynote lectures, while Prof. Bert Klumpermann delivered two invited and two plenary lectures. Other staff members who were invited as keynote speakers or guest lecturers are Prof. Len Barbour, Prof. André de Villiers, Prof. Catharine Esterhuysen and Prof. Peter Mallon.

During 2014 the Department hosted two international conferences:

- South African Chemistry Institute and American Chemical Society Bi-National Organic Chemistry Conference (BOCC 2014) and
- 22nd World Forum on Advanced Materials (POLYCHAR22)



Prof. Selwyn Mapolie delivered the prestigious P.D. Hahn Memorial Lecture at the University of Cape Town.

Service to the scientific community

Dr GE Arnott	Western Cape Branch of the South African Chemical Institute (committee member); National Research Foundation Thuthuka and Blue Skies panel member; NRF Competitive Programme for Rated Researchers panel; NRF Competitive Support for Unrated Researchers panel; 2014 Frank Warren Conference (vice-chair)
Prof. AJ de Villiers	Western Cape Board of the Chromatographic Society of South Africa (ChromSA) (chair)
Prof. C Esterhuysen	South African Crystallography Society (SACrS) (president); International Union of Crystallography Congress (South African representative)
Prof. KR Koch	International Conference on Coordination Chemistry (SA representative on executive planning committee)
Prof. L Klumperman	Royal Dutch Chemical Society (member); American Chemical Society (member); South African Chemical Institute (member); International Society for Biomedical Polymers and Polymeric Biomaterials (member); Council of the Royal Society of South Africa (member); Nanotechnology/drug and vaccine development at the African Cancer Institute (focus area champion)

Dr R Malgas-Enus	National Research Foundation Innovation and Free-standing PhD and Postdoc applications (panel)
Prof. PE Mallon	Western Cape Section of the South African Chemical Institute (chair); 22nd World Forum on Advanced Materials POLYCHAR 22 (chair of the organising committee); National Council of the South African Chemical Institute (SACI) (member); International Scientific Committee of the World Forum on Advanced Materials (POLYCHAR) (member); NRF Blue Skies review panel (member)
Prof. SF Mapolie	Catalysis Society of South Africa (executive committee)
Prof. H Pasch	International Symposium on Polymer Analysis and Characterization (governing board)
Dr R Pfkwa	National Research Foundation Doctoral Scholarship Program (panel); National Research Foundation SA-Romania Research Cooperative (panel); South Africa-United Kingdom Scientific Seminar (organiser)
Prof. AJ van Reenen	World Forum on Advanced Materials Conference POLYCHAR 22 (local organiser)

National and international recognition

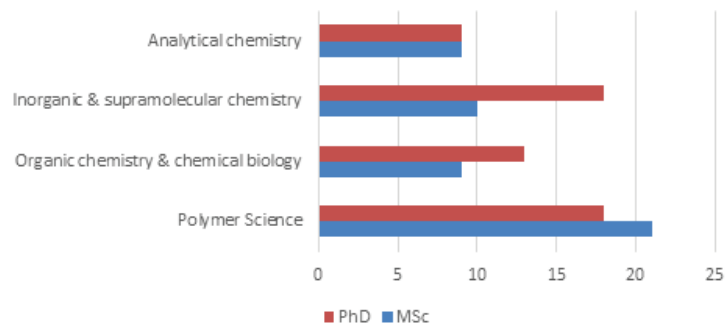
Stellenbosch University recognised two of our researchers for research excellence: Prof. Harald Pasch and Prof. Bert Klumperman were honoured with the title Distinguished Professor, and Prof. Pasch and Prof. Klaus Koch received the Vice-Rector's award for research excellence. On a national and international level we also performed well:

Prof. Len Barbour	2014 South African Chemical Institute's Gold Medal for outstanding research
Prof. André de Villiers	LCGC Emerging Leader in Chromatography Award; One of the 'Top 40 under 40' analytical scientists worldwide, selected by <i>The Analytical Scientist</i>
Prof. Harald Pasch	Elected Fellow of the Royal Society of South Africa
Dr Pfkwa Rueben	Jürgen Springer Prize for a Young Scientist, POLYCHAR-22 World Forum on Advanced Materials
Prof. Klaus Koch	Fellowship & Life Member of the South African Chemical Institute
Dr Rehana Malgas-Enus	Higher Education Consortium/Western Cape Government Special University Fund awarded in support of community interaction projects
Prof. Delia Haynes	Royal Society of Chemistry Journals international authors travel grant

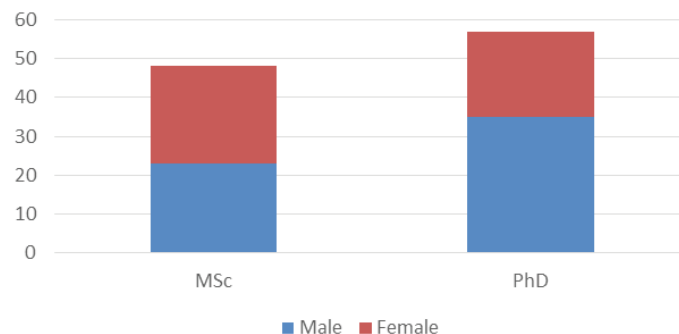
Focus on postgraduate students

THE DEPARTMENT HAS A LARGE COHORT OF 107 FULL-TIME POSTGRADUATE STUDENTS – 49 MSc AND 58 PHD STUDENTS. DURING 2014 WE DELIVERED 15 MSc AND SEVEN PHD GRADUATES.

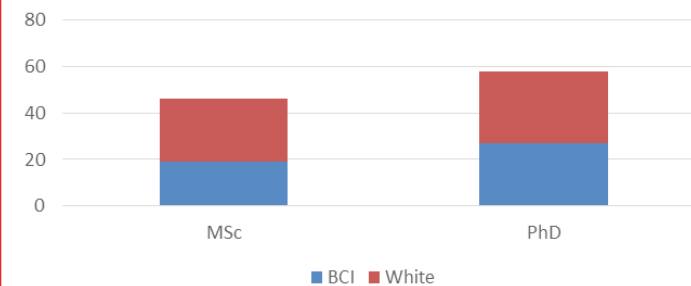
Distribution of postgraduate students per main supervisors



Gender profile of postgraduate students



Diversity profile of postgraduate students 2014



The AlchemUS society, established in 2011, again presented their annual magic show to much amusement

[View here](#)

Our postgraduate students did exceptionally well at several national and international conferences:

Ms Chandré Willemse	Best Oral presentation: Chromatography, Analytika 2014
Ms Shani Barkhuysen	Royal Society of Chemistry Best Student Poster Prize (spectroscopy), Analytika 2014
Ms Varia Nikolayenko	Best oral presentation, SACI/RSC Western Cape Student Symposium 2014
Ms Leandi van der Westhuizen	Wilhelm Frank PhD Scholarship

Staff matters

Three Research Career Advancement Fellows (RCA) joined the Department in 2014 – they are Dr Nonjabulo Gule, Dr Vincent Smith and Dr Andreas Tredoux. Mr EJ Lukhele and Ms C Hendrickse joined our technical staff.

DEPARTMENT OF BIOCHEMISTRY

OUR RESEARCH IS POSITIONED AT THE INTERSECTION OF CHEMISTRY AND BIOLOGY, MOVING FROM MOLECULAR STRUCTURES VIA MACROMOLECULAR ACTIVITY TO BIOLOGICAL FUNCTION. RESEARCH TOPICS RANGE FROM APPLIED STUDIES IN WASTE WATER TREATMENT, POTATO VIRUS SPREAD, CONTRACEPTIVES, DRUG DISCOVERY AND MALARIA TO FUNDAMENTAL WORK IN SYSTEMS BIOLOGY AND P450 FUNCTION.

Research interests

Systems biology

Steroids research

Drug & biocide discovery

Plant bioinformatics & molecular systematics

Immunology, pathology & pathogen detection

Research profile

Prof. Marina Rautenbach registered a new patent via Innovus, Stellenbosch University's technology partner. The patent, Antimicrobial cyclic peptide compositions for plants, aims to reduce the microbial infection of fresh produce and is now available for licensing. This is a novel technology to meet the growing demand for natural biocontrol agents as the world moves to more natural and organic farming practices.

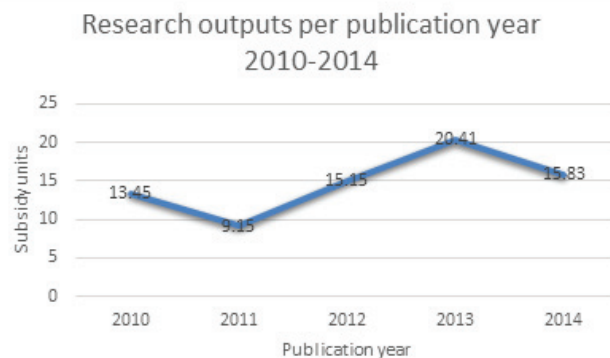


Figure 1 The graph above is based on the audited units for the Department of Biochemistry's research output for publication years 2010-2014.

NRF-rated researchers

Eight of our 14 staff members are rated by the National Research Foundation. The Department is also home to the South African Research Chair (SARChI) in Mechanistic Modelling of Health and Epidemiology, held by Prof. Jackie Snoep.



[Publication list](#)

[NRF-rated researchers](#)

[Staff list](#)

[Contact us](#)

DEPARTMENTS:

[Botany and Zoology](#)

[Earth Sciences](#)

[Chemistry and Polymer Science](#)

[Biochemistry](#)

[Mathematical Sciences](#)

[Microbiology](#)

[Physics](#)

[Physiological Sciences](#)

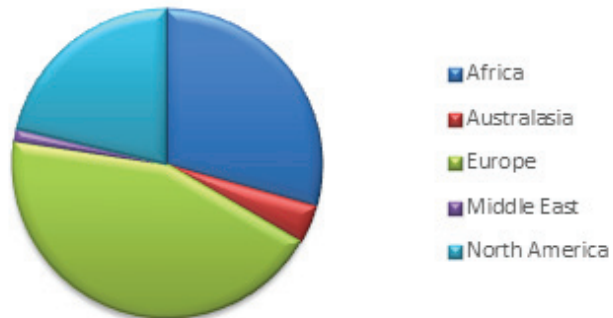
[HOME PAGE](#)

National and international collaboration

The Department has a large footprint in South Africa, specifically working with agricultural research institutes and food companies such as:

- Elsenburg Agricultural College
- Grootfontein Agricultural Development Institute
- Human Sciences Research Council (HSRC)
- Karl Bremer Hospital
- Klein Karoo Group: Research and Development
- Medical Research Council (MRC)
- Mohair South Africa: Research and Development
- Potatoes South Africa: Research and Development
- Rhodes Food Group: Research and Development
- SABMiller: Research and Development
- South African Rooibos Council: Research and Development

Geographic distribution of collaborators in 2014



On an international level, the Department collaborated with 75 institutions from 14 countries, but most often with institutions from the United States (13) and Germany (11). Click on the map below for a comprehensive list of all our collaborators.



Focus on postgraduate students

The Department has 80 full-time postgraduate students – 20 Honours-, 37 MSc- and 23 PhD-students – and we hosted 13 postdoctoral fellows from South Africa (12) and the United Kingdom (1).

Three of the four Phd-students who graduated in 2014 came from Prof. Marina Rautenbach's research group. During 2014 our postgraduate students and postdocs presented at 16 local and nine international conferences.

Conferences and workshops

The Department hosted two major international conferences in 2014. Prof. Erich Straus delivered a plenary address at the South African Chemical Institute (SACI) and the American Chemical Society (ACS) Bi-national Organic Chemistry Conference (BOCC 2014), held at the Stellenbosch Institute for Advanced Studies (STIAS).

Prof. Dirk Bellstedt was secretary general and chair of the conference organising secretariat for the annual conference of the Association pour l'Etude Taxonomique de la Flore d'Afrique Tropicale (AETFAT). This was the largest botanical conference ever held in South Africa with a total of 270 oral and 205 poster presentations.



The Department had a busy year, with staff presenting at nine local and 17 international conferences. Several of our staff members were invited to present their research at workshops or international universities. Prof. Pieter Swart and Dr Donita Africander were invited speakers at the Toxicology Society of South Africa (TOXSA) Workshop. Dr Karl Storbeck was invited to present lectures at the Department of Molecular and Integrative Physiology and Medicine, University of Michigan, and at the Centre for Endocrinology, Diabetes and Metabolism, University of Birmingham. Prof. Johann Rohwer was an invited speaker at the 24th Congress of the South African Society of Biochemistry and Molecular Biology (SASBMB).

Other national and international conferences where our staff members presented their research include:

5th Cold Spring Harbor Laboratory Meeting on Nuclear Receptors and Disease, United States

Potatoes South Africa Annual Research Conference

20th Congress of the International Organization for Mycoplasma, Brazil

Biochemical Society Focused meeting: Coenzyme A and its Derivatives in Cellular Metabolism and Disease, London

4th International Symposium on Antimicrobial Peptides, France

International Study Group for Systems Biology (ISGSB) 16th Meeting, United Kingdom

ERASysApp and Infrastructure for Systems Biology Europe data management meeting, Germany

Computational Modelling in Biology Network's Harmony meeting, United Kingdom

15th International Conference on Systems Biology (ICSB), Australia

The World Academy of Sciences (TWAS) food biotechnology course, China

XVIth Congress on the Adrenal Cortex (ADRENAL 2014), United States

Gordon Research Conference on Bioorganic Chemistry, United States

19th World Congress on Advances in Oncology and 17th International Symposium on Molecular Medicine, Greece

Editorial activities

Prof. DU Bellstedt

Phytotaxa (associate editor)

Prof. Ann Louw

Steroids (editorial board)

Prof. M Rautenbach

Journal of Microbiological Methods (editorial board)

Prof. JM Rohwer

BioMedCentral Systems Biology (associate editor); *Frontiers in Plant Systems Biology* (review editor)

Prof. JL Snoep

Federation of European Biochemical Society Journal (editor); *Microbiology* (editor); *IET Systems Biology* (editor); *Metabolomics* (editor)

Prof. Amanda Swart

Scientific Reports (editorial board)

Service to the scientific community

Dr D Africander

South African Society of Biochemistry and Molecular Biology (treasurer)

Prof. DU Bellstedt

Technology and Human Resources in Industry Programme (THRIP), Animal Sciences (evaluation panel)

Prof. M Rautenbach

Biochemistry Department, Nelson Mandela Metropolitan University (external examiner)

Prof. JM Rohwer

International Standards for Reporting Enzymology Data Commission (STRENDA) (member)

Dr Karl Storbeck

South African Society of Biochemistry and Molecular Biology (council member)

Prof. E Strauss

National Research Foundation (evaluation panel)

Prof. Amanda Swart

1st International Rooibos Conference (organising and scientific committee member)

Awards

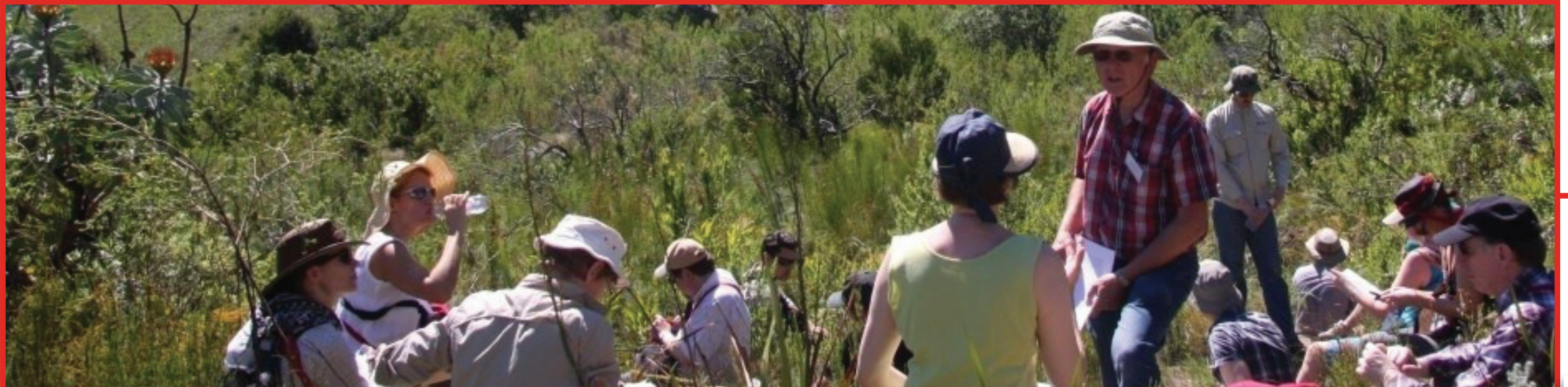
This was an exceptional year for Prof Marina Rautenbach. She was the recipient of the [South African Distinguished Woman Scientist Award](#) (winner in the engineering and physical sciences category) and the Vice-Rector's award for research excellence. Prof. Rautenbach and Prof. Ann Louw were also promoted to full professors.

Staff matters

The Department welcomes Dr M de Villiers, who has been appointed as part of the Research Career Advancement Fellowship Programme (RCA) at Stellenbosch University. The RCA programme provides opportunities for postdoctoral fellows to pursue a career in research and to be mentored for research leadership and academic positions. Our former Departmental Head, Prof. Pieter Swart, was appointed as Vicedean: Research in the Faculty of Science.

Science communication and media

Prof. Dirk Bellstedt (below right) hosted a group of 23 German science journalists, all members of the Wissenschaftspressekonferenz (WPK). He introduced them to the evolution and diversity of African flora during a guided walk in Jonkershoek Nature Reserve. [Read more](#)



DEPARTMENT OF MATHEMATICAL SCIENCES

(Mathematics, Applied Mathematics, Computer Science)

TOGETHER THE DIVISIONS OF MATHEMATICS, APPLIED MATHEMATICS AND COMPUTER SCIENCE FORM THE DEPARTMENT OF MATHEMATICAL SCIENCES AT STELLENBOSCH UNIVERSITY. THE DEPARTMENT HAS 48 ACADEMIC STAFF MEMBERS AND SIX EXTRAORDINARY PROFESSORS AND ASSOCIATE PROFESSORS, A RESEARCH CHAIR AND ONE DST/NRF CENTRE OF EXCELLENCE.

Research interests

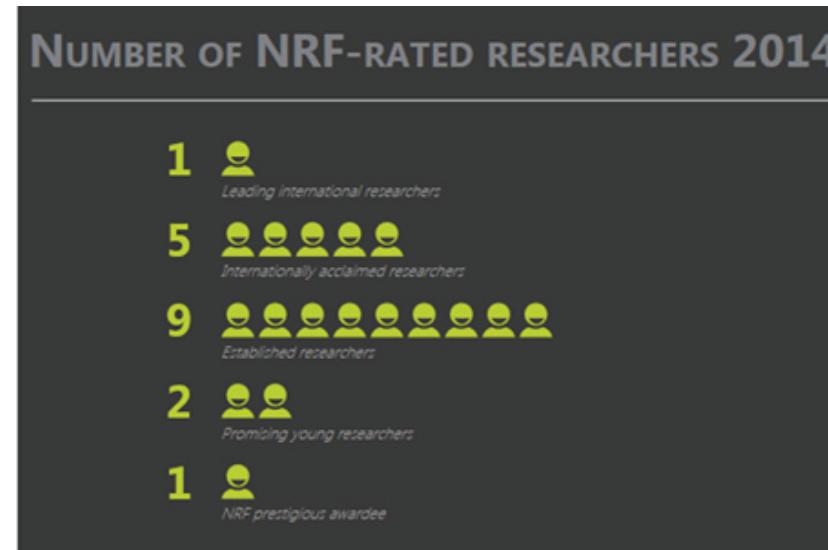
Mathematics	Applied Mathematics	Computer Science
<ul style="list-style-type: none">•Algebra & number theory•Analysis & topology•Foundations of mathematics•Discrete mathematics•Mathematics & computational biology	<ul style="list-style-type: none">•Computer vision, pattern recognition, machine learning•Fluid dynamics & modelling•Numerical analysis & scientific computing•Applied Discrete Mathematics	<ul style="list-style-type: none">•Program verification•Software engineering•Machine learning & computer vision•IP networks•Automata theory & formal languages

Research highlights

Research outputs in Mathematics, Applied Mathematics and Computer Science have been strengthened over the past year. This is reflected by the increased number of publications in journals of high standing, research presentations at national and international conferences, and particularly the strengthening of collaborations with internationally recognised researchers at leading research institutions and industry.

Research profile

The Department has 18 staff members, including three female scientists, who have been rated by the National Research Foundation. We are home to the DST/NRF Centre of Excellence – the South African Centre for Epidemiological Modelling and Analysis (SACEMA). Together with the African Institute for Mathematical Sciences (AIMS), we co-host the South African research chair (SARChI) in Mathematical and Theoretical Physical Biosciences, currently held by Prof. Cang Hui.



[Publication list](#)

[NRF-rated researchers](#)

[Staff list](#)

[Contact us](#)

DEPARTMENTS:

[Botany and Zoology](#)

[Earth Sciences](#)

[Chemistry and Polymer Science](#)

[Biochemistry](#)

[Mathematical Sciences](#)

[Microbiology](#)

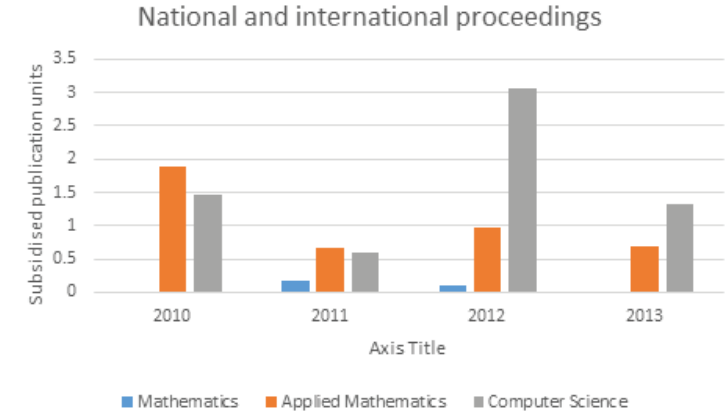
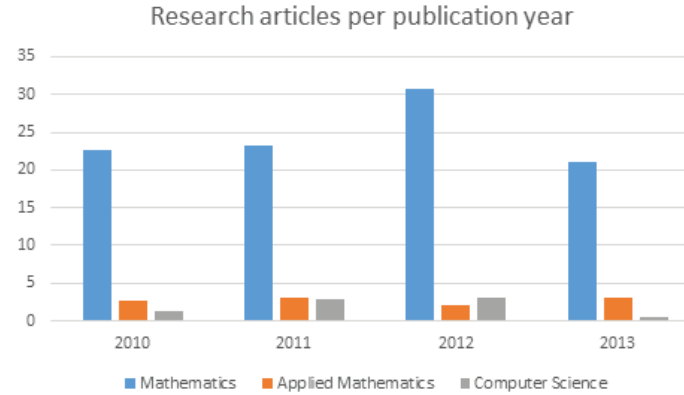
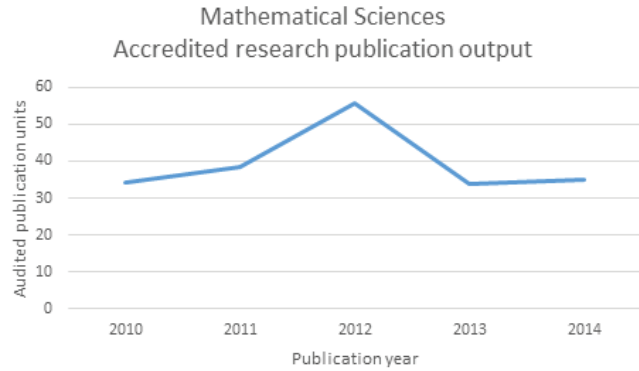
[Physics](#)

[Physiological Sciences](#)

 [HOME PAGE](#)



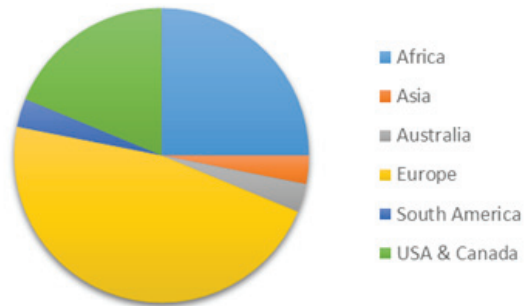
Research outputs



National and international collaboration

Collaboration with top international universities and institutions significantly enhances our international visibility and the quality of our research. During 2014 we collaborated with over 30 institutions from 19 countries, most notably with institutions from Europe (15), the United States and Canada (6) and South Africa and Africa (8). These collaborations include research visits, co-authoring of research papers, student and staff exchange programmes and co-presenting of workshops and seminars. Click on the map for a comprehensive list of all our collaborators

Geographic distribution of collaborators



Local and international recognition for research excellence

Three of our staff members were recognised by top performing first years at Stellenbosch University for their contribution to their academic success in 2013 – they are Dr Karin-Therese Howell, Prof. Lynette van Zijl and Prof. Florian Breuer. Other awards are:

Prof. Stephan Wagner	Stellenbosch University Vice-Rector: Research and Innovation award (research) for staff member with highest number of publications in 2014
Prof. Willem Visser	Most Influential Paper in 2014 award, International Conference on Automated Software Engineering. See Visser et al. Model Checking Programs. Automated Software Engineering, April 2003 Vol 10 (2):203-23
Prof. Bernd Fischer	Gold Medals for Csqe (Certified Software Quality Engineering) and ESBMC (Efficient SMT-Based Context-Bounded Model Checker) in the 3rd International Competition on Software Verification (SV-COMP14), 20th International Conference on Tools and Algorithms for the Construction and Analysis of Systems (TACAS 2014)

Editorial activities

Prof. Ingrid Rewitzky	<i>Quaestiones Mathematicae</i> (associate editor)
Dr Hennie de Villiers	<i>IET Computer Vision</i> (reviewer); <i>Journal of Universal Computer Science</i> (reviewer, machine learning)
Prof. Helmut Prodingner	<i>Theoretical Computer Science</i> (editorial board)
Prof. Brink van der Merwe	<i>Journal of Universal Computer Science</i> (editorial board)
Prof. Lynette van Zijl	<i>Journal of Universal Computer Science</i> (editorial board)
Prof. Willem Visser	<i>Association for Computing (ACM) Transactions on Software Engineering and Methodology (TOSEM)</i> (associate editor)



Service to the scientific community

Prof. Ingrid Rewitzky	African Institute for Mathematical Sciences (AIMS) (executive team member)
Dr Willie Brink	Consortium for Mathematics and Its Applications: Mathematical Contest in Modelling (team advisor)
Prof. Sonja Mouton	Workshop on ordered Banach algebras, Lorentz International Center for Workshops in the Sciences, Leiden (scientific organising committee)
Prof. Bernd Fischer	13th International Conference on Generative Programming: Concepts & Experiences & Automated Software Engineering (steering committee); International Federation for Information Processing Working Group 2.1 Algorithmic Languages and Calculi (member)
Dr Hennie de Villiers	National Research Foundation rating panel for machine learning (reviewer)
Dr Karin Howell	American Mathematical Society (reviewer)
Dr Jaco Geldenhuys	2014 Annual Conference of the South African Institute of Computer Scientists and Information Technologists (programme committee); International Symposium on Software Testing and Analysis (ISSTA 2014) (programme committee); 19th International Symposium on Formal Methods (programme committee); FormaliSE 2014 2nd FME Workshop on Formal Methods in Software Engineering (programme committee)
Prof. Ben Herbst	European Union Framework 7 Program: computer vision (coordinator); EDH-CERN (consultant)
Dr Steve Kroon	1st International Conference on the Use of Mobile ICT in Africa (programme committee)
Dr Milton Maritz	Bureau for Industrial Mathematics (BIMUS), Stellenbosch University (director)
Prof. Farai Nyabadza	Southern Africa Mathematical Sciences Association (SAMSA) (vice-president); Africa Society for Biomathematicians (ASB) (secretary general); Canon Collins Trust (board member)
Prof. Brink van der Merwe	1st International Conference on the Use of Mobile Information and Communications Technology in Africa (UMICTA 2014) (conference organiser); 19th International Conference Implementation and Application of Automata (CIAA) (programme committee member)
Prof. Lynette van Zijl	25th International Workshop on Combinatorial Algorithm (IWOCA) (IWOCA) (programme committee)
Prof. Willem Visser	Association for Computing (ACM) Special Interest Group on Software Engineering (SIGSOFT) (executive team member)

Conferences and seminars

During 2014 staff presented at more than 25 national and international conferences. This included a plenary address by Prof. Ingrid Rewitzky at the Workshop on Information and Uncertainty in the Czech Republic. Prof. Sonja Mouton also delivered a plenary address at the Workshop on Ordered Banach Algebras in The Netherlands. Two staff members were invited to present lectures: Prof. Leon van Wyk at the University of Louisiana at Lafayette in the USA and Prof. Stephan Wagner at Graz University of Technology in Austria. Prof. Wagner also hosted the 3rd Stellenbosch Workshop on Discrete Mathematics, dedicated to Prof. Helmut Prodinger on the occasion of his 60th birthday.

Staff members also presented at the following national and international conferences:

Computer Science Division

Prof. Bernd Fischer	Delivered papers at the 7th International Symposium on High-Level Parallel Programming and Application; the International Conference on Computer-Aided Verification; and the Research Tool Demonstrations Track of the 22nd ACM SIGSOFT International Symposium of the Foundations of Software Engineering
Prof. Brink van der Merwe	Conference presentation at the 14th International Conference on Automata and Formal Languages
Prof. Willem Visser	Conference presentations at the 22nd ACM SIGSOFT International Symposium on Foundations of Software Engineering and the 29th IEEE/ACM International Conference on Automated Software Engineering

Mathematics Division

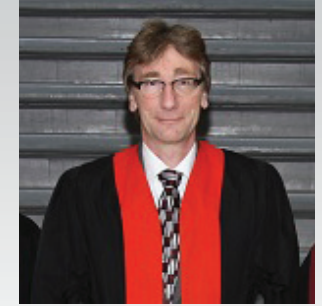
Dr Bruce Bartlett	Sabbatical at the University of Oxford, United Kingdom
Prof. Zurab Janelidze	Contributed talk at Category Theory Conference 2014
Prof. Farai Nyabadza	Sabbatical at the University of Zimbabwe and the Mathematical Biosciences Institute, Ohio State University
Dr Naina Ralaivaosaona	Contribution at the 25th International Conference on Probabilistic, Combinatorial and Asymptotic Methods for the Analysis of Algorithms (AofA'14); Talk entitled 'The order distribution of subtrees of a tree' at a seminar series in the Department of Mathematics, Heriot-Watt University, Edinburgh; Talk on 'Les représentations en base multiple des nombres entiers' at the Université de Lorraine, Nancy
Prof. Leon van Wyk	Poster presentation, International Congress of Mathematicians (ICM 2014)
Prof. Stephan Wagner	Conference presentation at the 57 th annual conference of the South African Mathematics Society

Three of our staff members delivered their inaugural lectures:

Prof. Stephan Wagner – on "Advanced bean counting - the many facts of enumerative combinatorics"

Prof. Lynette van Zijl – "Computer Science is more than just programming".

Prof. Bernd Fischer – "Seeing Things in the Clouds: Browsing Semi-Structured Data with Tag Clouds over Concept Lattices"



Focus on postgraduate students

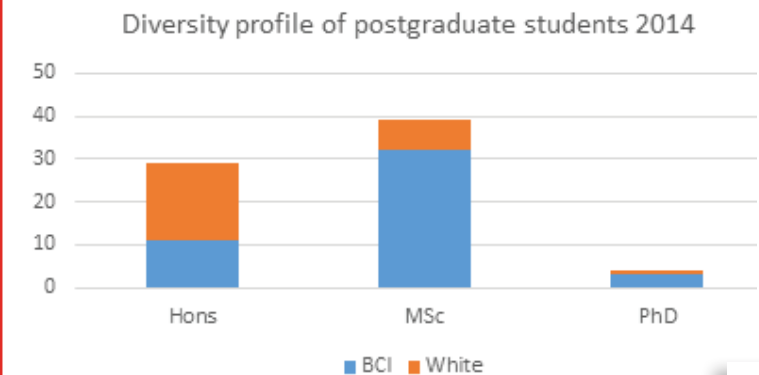
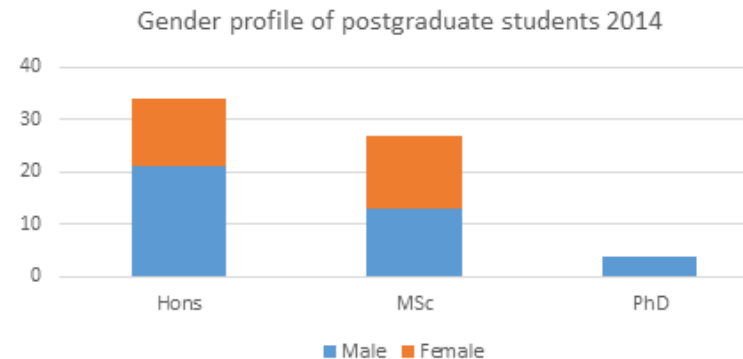
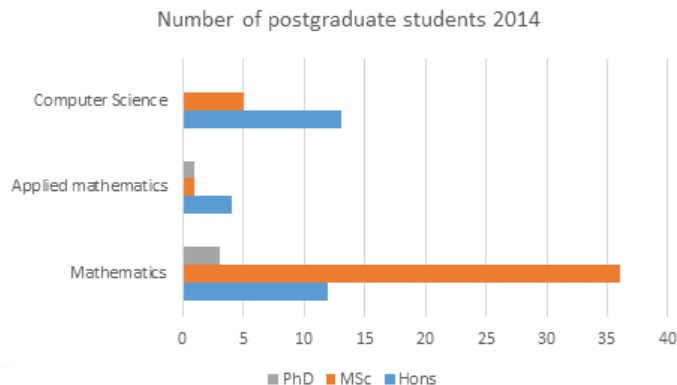
During 2014 the Department had a cohort of over 50 postgraduate students, with another 21 students enrolled at Stellenbosch University through the African Institute for Mathematical Studies (AIMS). Of these, 18 were in the Computer Science Division, six in the Applied Mathematics Division and 51 in the Mathematics Division.

While the gender profile of our postgraduate students remain a challenge, we are confident about their diversity and thereby continue to support institutes such as AIMS. This is evident from the number of our staff members who lectured or acted as supervisors for MSc and PhD students at the institute:

Lecturers: Prof. Stephan Wagner and Dr Dimbinaina Ralaivaosaona (mathematical problem solving); Dr Gareth Boxall (model theory) and Prof. Johan de Villiers (wavelets and subdivision).

Supervisors: Prof. Florian Breuer, Prof. Zurab Janelidze, Prof. Stephan Wagner, Prof. Arnold Keet, Prof. Francois Smit, Dr Hardus Diedericks and Prof. Mapundi Banda.

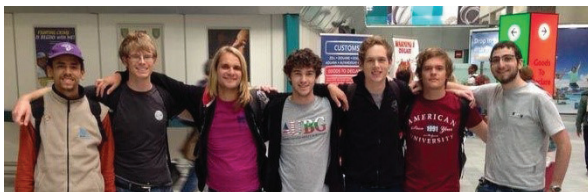
We also hosted five postdoctoral fellows from South Africa (3), Madagascar (1) and the United Kingdom (1).



National and international recognition

Participation of undergraduate and postgraduate students in national and international contests were encouraged by Prof. Stephan Wagner, Dr Steve Kroon and Dr Willie Brink. Two MSc computer science students performed particularly well: Mr Rijnard van Tonder was the runner-up in the 'IBM Beat the Mainframe' competition in New York. Together with Mr **Jacques Marais** he also developed an app called WorkMode which won the student category of the Ericsson Mobile App competition. [Read more](#)

Our Mathematics students performed well at the International Mathematics Competition (IMC) which took place in Bulgaria, as well as the third South African Tertiary Mathematics Olympiad. The Mathematics Division was closely involved with the International Mathematics Olympiad which, for the first time, took place in South Africa. They are Prof. Florian Breuer (coordinator), Prof. Stephan Wagner (problem selection committee and problem captain) and Prof. Dirk Laurie (head coordinator), as well as several postgraduate students.



Taking part in the International Mathematics Competition in Bulgaria From the left, the team members were Liam Baker (Team Leader), Mark Chimes (US), Dylan Nelson (UCT), Petri-Johan Last (US), Elrich Groenewald (US), Michael Hoefnagel (US) and Robert Spencer (UCT).

Students from the Mathematics Division participated in the International Mathematics Competition (IMC) which took place in Blagoevgrad (Bulgaria) from 29 July to 4 August 2014. Mark Chimes, Elrich Groenewald, Michael Hoefnagel and Petri-Johan Last, accompanied by Liam Baker (MSc student and former IMC gold medallist), competed against 324 students from 73 universities. The team almost tripled last year's score (from 28 to 77) and earned three honourable mentions.

Mathematics student Mr Thomas Weighill was the recipient of the prestigious Chancellor's Medal awarded to the most deserving student to obtain a degree at Stellenbosch University, as well as the S2A3 Medal, awarded by the Southern Africa Association for the Advancement of Science to commend outstanding South African science research students graduating at the Masters level.

Dr Dirk Basson received a postdoctoral fellowship from Leiden University.

Staff matters

During 2014 Dr MA Muller retired and Prof M Banda and Dr Stefan van der Walt resigned. We welcome two new appointments, Dr J Brink and Dr R Roux.



DEPARTMENT OF MICROBIOLOGY

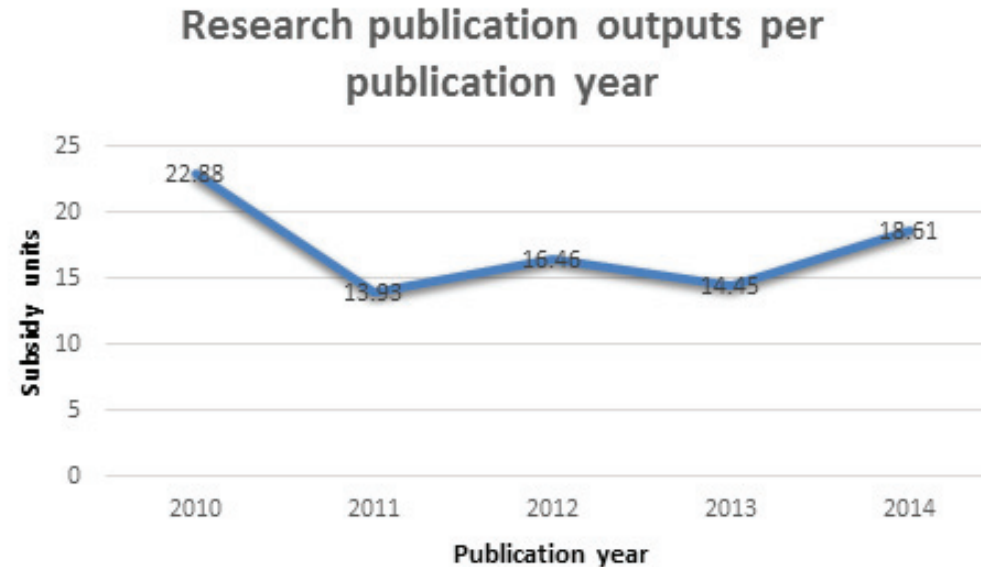
THE DEPARTMENT OF MICROBIOLOGY'S HISTORICAL ROOTS CAN BE TRACED BACK TO 1918 WHEN PLANT PATHOLOGY WAS RECOGNISED AS A FIELD OF EXPERTISE IN THE THEN FACULTY OF AGRISCIENCES. TODAY, THE DEPARTMENT HAS AN ACADEMIC STAFF COMPLEMENT OF 16 FULL-TIME RESEARCHERS, EXTRAORDINARY PROFESSORS AND RESEARCH ASSOCIATES, WORKING IN NINE RESEARCH GROUPS WITH THEIR OWN STATE-OF-THE-ART LABORATORIES.

Research interests

Biological processing of plant material	Taxonomy of lactic acid bacteria
Taxonomy of ascomycetes fungi	Environmental microbiology
Bioprospecting	Microbial ecology
Waste water treatment technologies	Energy research: biofuels

Research outputs

The Department increased the number of research articles published in accredited journals from 30 in 2013 to 34 in 2014 with an average JCR impact factor of 2.9.



[Publication list](#)

[NRF-rated researchers](#)

[Staff list](#)

[Contact us](#)

DEPARTMENTS:

[Botany and Zoology](#)

[Earth Sciences](#)

[Chemistry and Polymer Science](#)

[Biochemistry](#)

[Mathematical Sciences](#)

[Microbiology](#)

[Physics](#)

[Physiological Sciences](#)

[HOME PAGE](#)

New research chair

Prof. Gideon Wolfaardt, a recognised expert and leading researcher in the biological and engineering aspects of water research, is the first research professor to hold the new Research Chair in Wastewater Management, hosted at the Stellenbosch University Water Institute (SUWI). The focus of the chair will be on scientific and technical advances in wastewater management, water quality, water use and demand, and fostering partnerships to improve the water research and management skills of scientists, engineers and technical personnel. Photo: Anton Jordaan

[Read more](#)

Research and innovation

Two projects originating from the research by postgraduate students in the labs of Prof. Heinrich Volschenk and Prof. Leon Dicks were registered with Innovus, Stellenbosch University's technology partner:

- Improved beta-fructofuranosidase enzyme variant for short-chain fructooligosaccharide (sFOS) production
- A nanowire-array biosensor for the detection and quantification of antigens from pathogenic microorganisms and antibodies directed towards specific antigens – [read more](#)

Collaboration

Nationally, the Department collaborated with Rhodes University, the Cape Peninsula University of Technology and the Universities of KwaZulu-Natal and the Western Cape, as well as industry partners such as the East Rand Water Care Company (ERWAT) and Eskom. On an international level, research groups collaborated mostly with institutions from North America and Europe.



NRF-rated researchers

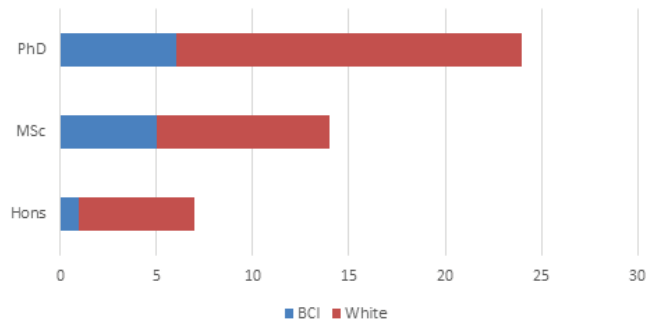
Most of our academic staff have been rated by the National Research Foundation as internationally acclaimed (4) or established researchers (3).



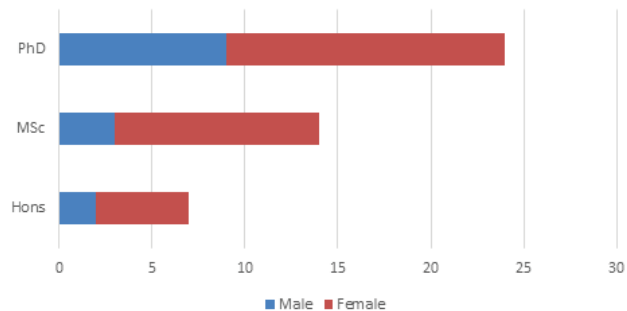
Focus on postgraduate students

During 2014 the Department had a cohort of 45 postgraduate students – seven Honours, 14 MSc and 24 PhD students. Of this group, three MSc and two PhD students graduated, while our former head of department and acting dean, Prof. Douglas Rawlings, earned the much coveted Doctor of Science degree. The Department also hosted six postdoctoral fellows from South Africa (5) and India (1).

Diversity profile of postgraduate students



Gender profile of postgraduate students



Conferences and workshops

Staff and postgraduate students presented at a number of conferences, such as the:

- First Global Soil Biodiversity Conference, France
- Bioenergy Workshop, South Africa
- 4th International Conference on Novel Enzymes, Belgium

PhD student Mr Ferdinand Postma attended an Advanced Course on Environmental Biotechnology at Delft University of Technology in The Netherlands.

Editorial activities

Prof. A Botha	<i>Canadian Journal of Microbiology</i> (editorial board); <i>FEMS Yeast Research</i> (editorial board);
Prof. LMT Dicks	<i>Probiotics and Antimicrobial Proteins</i> (editorial board); <i>Beneficial Microbes</i> (editorial board); <i>Annals of Microbiology</i> (editorial board); <i>Bioscience of Microbiota, Food and Health</i> (editorial board); <i>South African Journal of Enology and Viticulture</i> (editor-in-chief)
Prof. K Jacobs	<i>Mycology</i> (editorial board)
Prof. GM Wolfaardt	<i>Canadian Journal of Microbiology</i> (assistant-editor); <i>Applied and Environmental Microbiology</i> (editorial board)

Service to the scientific community

Prof. A Botha	Water Research Commission projects (reference group member); Materials Research Group (MRG) Users Advisory Board of the BioImprove Programme in Sweden (member); South African Academy of Science (member)
Prof. TE Cloete	Water Research Commission (member); Council for Scientific and Industrial Research (board member)
Prof. LMT Dicks	South African Academy of Science (member)
Dr W Kahn	Royal society of Chemistry (member)
Prof. B Prior	South African Academy of Science (member)
Prof. DE Rawlings	South African Academy of Science (member)
Prof. WH van Zyl	20th International Symposium on Alcohol Fuels (ISAF) (chair); BioImprove Programme Sweden (advisory board); South African Academy of Science (member)
Dr H Volschenk	South African Society for Microbiology (SASM) (member & publications secretary)
Prof. G Wolfaardt	Stellenbosch University Water Institute (director)

Funding

The Department secured international funding from the University of Antwerpen (Belgium), the British Council (United Kingdom), Nuclear Waste Management Organization (Canada) and the Natural Sciences and Engineering Research Council of Canada. On a national level, major new funders from the private sector includes Eskom, Exxaro, FlowCentric and the East Rand Water Care Company (ERWAT).

DEPARTMENT OF PHYSICS

THE DEPARTMENT OF PHYSICS AT STELLENBOSCH UNIVERSITY HAS A PROUD HISTORY IN PHYSICS, PRODUCING OUTSTANDING RESEARCH AND MANY EXCELLENT GRADUATES SINCE 1903. WE OFFER FOCUSED STUDY PROGRAMMES IN NUCLEAR, RADIATION AND HEALTH PHYSICS, THEORETICAL PHYSICS AND LASER PHYSICS ON UNDERGRADUATE AND POSTGRADUATE LEVEL.

Research interests

Theoretical physics

- Condensed matter
- Complexity

Nuclear physics

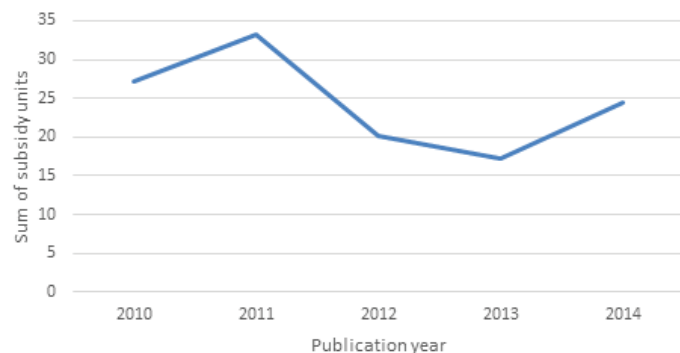
- Nuclear structure
- Nuclear reaction mechanisms
- Radiation and health physics
- Applied nuclear physics
- Physics education

Laser physics

- Spectroscopy
- Ultrafast science

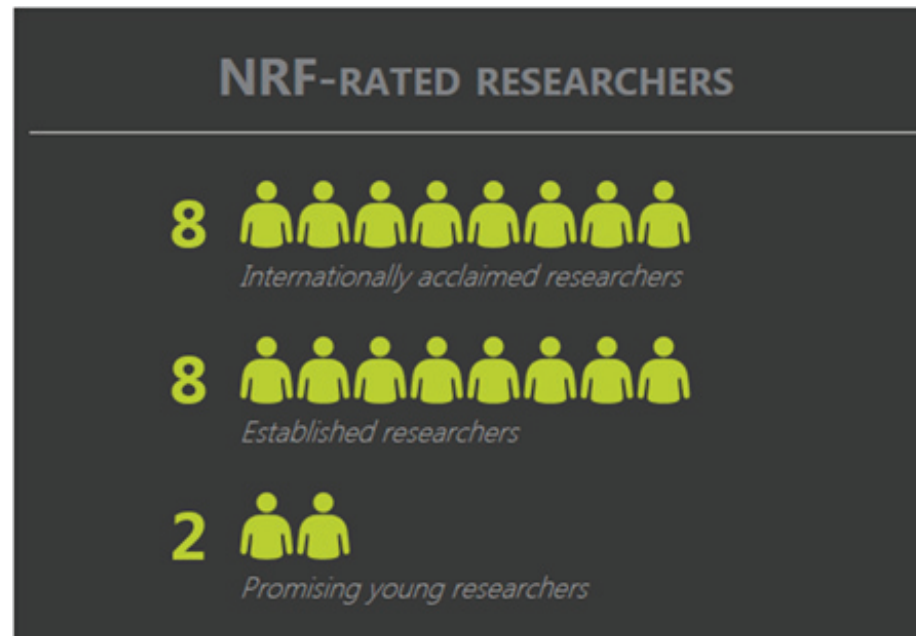
Research activities

Accredited publication outputs



NRF-rated researchers

In 2014 four staff members were newly rated by the National Research Foundation – they are Prof. H Touchette, Dr F Cinti, Dr JJ van Zyl and Dr Pieter Neethling.



[Publication list](#)

[NRF-rated researchers](#)

[Staff list](#)

[Contact us](#)

DEPARTMENTS:

[Botany and Zoology](#)

[Earth Sciences](#)

[Chemistry and Polymer Science](#)

[Biochemistry](#)

[Mathematical Sciences](#)

[Microbiology](#)

[Physics](#)

[Physiological Sciences](#)

[HOME PAGE](#)

Collaboration

On a national level the Department collaborated with the universities of the Free State, Cape Town, Western Cape and Zululand. Further in Africa we have ties with the University of Science and Technology in Zimbabwe, the Centre for Advanced Technology Development in Algeria, and the National Institute of Laser Enhanced Sciences in Egypt. Click on the map below for a comprehensive list of all our collaborators.



Service to the scientific community

Staff members were closely involved with several national councils, organisations and schools, as well as with the organising or local and international conferences.

Prof. EG Rohwer	South African Institute of Physics (SAIP) Photonics Division (chair); Photonics Initiative of South Africa (PISA) (steering committee)
Prof. HB Geyer	Stellenbosch Institute for Advanced Studies (STIAS) (director)
Dr H Kriel	African Institute for Mathematical Sciences (executive team)
Prof. KK Müller-Nedebock	South African Institute of Physics (SAIP) (board member); SAIP Computational and Theoretical Physics Division (chair); School on Geometry and Topology in Soft Matter, Optics and Biological Systems, South Africa (local organiser)
Prof. RT Newman	Physics Advisory Committee for the Separated Sector Cyclotron Facility at iThemba LABS (member); Workshop: Towards a South African Underground Laboratory, hosted by Stellenbosch University and iThemba LABS (co-organiser)
Prof. FG Scholtz	National Institute for Theoretical Physics (NITheP) (director); South African Institute of Physics (SAIP) (board member); SAIP Theoretical Physics Division (chair)
Prof. HPH Schwoerer	Laser Research Institute SU (director); Workshop on New Trends and Phases II: Spectroscopy of Organic Matter, South Africa (chair); Lecture series at Femtosecond Laser Spectroscopy workshop, African Laser Centre (program chair)
Prof. Hubertus von Bergmann	African Laser Centre (director)
Prof. BIS van der Ventel	Workshop: Relativistic description of scattering reactions from stable and unstable nuclei, South Africa (organiser)
Prof. H Weigel	Chris Engelbrecht Summer School, South Africa (principal organiser)
Prof. SM Wyngaardt	Towards a South African Underground Laboratory Workshop, South Africa (co-organiser)



Dr Christine Steenkamp was the principle organiser for the Women in Physics in South Africa (WiPiSA) 'Women in Physics Lunch' held at Stellenbosch University in September 2014. Photo: Wiida Fourie-Basson



Prof. Erich Rohwer was chair of the African Laser Centre's workshop on femtosecond laser spectroscopy, hosted at the Department of Physics at SU.

Conferences and other research activities

Prof. HC Eggers	Received research visits from Prof. Thomas Trainor, Center for Experimental Nuclear Physics and Astrophysics, University of Washington (USA) and Dr P Lipa from Nielsen Consulting
Prof. KK Müller-Nedebock	Invited speaker at the 14th Dresden Polymer Discussion: Understanding of Reinforcement in Polymer Networks and Melts, Leibniz-Institut für Polymerforschung, Dresden (Germany); attended the Physics of Soft and Biological Matter Conference, European Physical Society (United Kingdom)
Dr Pieter Neethling	Presented at the South African Institute of Physics Annual Conference (South Africa)
Prof. RT Newman	Journal of Environmental Radioactivity (Elsevier) (editorial board)
Prof. HPH Schwoerer	Presented at Physikalische Chemie, Fritz-Haber Institut der Max-Planck Gesellschaft (Germany); Physikalisches Institut, University of Würzburg (Germany); L'Institut de Physique, Université de Rennes (France); Gordon Research Conference on Ultrafast Dynamics in Cooperative Systems (USA); Department of Chemistry, McGill University (Canada)
Prof. H Weigel	Presented paper at the annual conference of the South African Institute of Physics

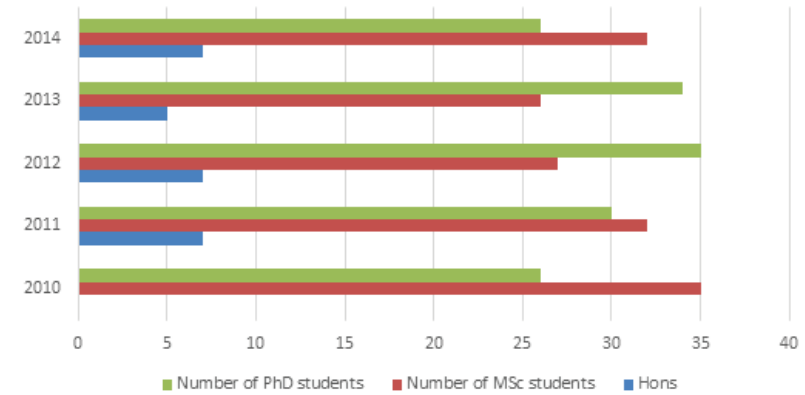
Focus on postgraduate students

During 2014 the Department produced 12 MSc and eight PhD graduates from a large cohort of 65 postgraduate students registered (seven Honours, 32 MSc and 26 Phd students). In a first for South Africa, Dr Melanie McLaren (29) produced the first quantum entanglement experiment in Africa as part of her research into quantum optics.

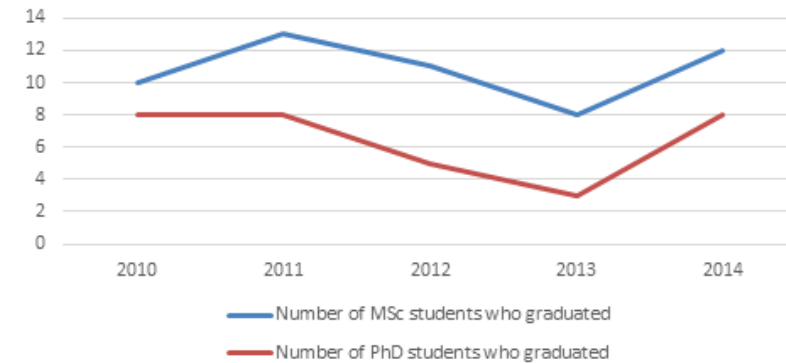
[Read more](#)



Number of postgraduate students 2010-2014



Number of PhD & MSc students who graduated 2010-2014



Our postgraduate students had a particularly good year, with 17 presentations and posters at three international and four local conferences. PhD student Ms Ntombizikhona B Ndlovu also visited the Frank Laboratory for Neutron Physics at the Joint Institute for Nuclear Research in Russia for her research on using nuclear physics techniques to provide data on air pollution levels.

Awards

Twelve staff members received recognition from Stellenbosch University for excellent performance when they were awarded the SU Rector's Performance Award for 2014. They are C April, SH February, JN Kriel, GJ Louwrens, Prof. KK Müller-Nedebock, Dr PH Neethling, Prof. P Papka, H Randall, Prof. EG Rohwer, Dr CM Steenkamp, JJ van Zyl en Prof. H Weigel.

Our postgraduate students walked away with nearly all the major awards in photonics at the annual conference of the South African Institute for Physics:



Mr L Makathini	Best oral presentation by a PhD student in Nuclear Physics
Mr L Maweza	Best technology development by PhD student
Ms M McLaren	Best poster & publication by PhD student in Photonics
Ms I Minda	Best oral presentation by a MSc student in Photonics
Mr D Naidoo	Best oral presentation by a PhD student in Photonics
Mr D Spangenberg	Best oral presentation & publication by PhD student in Photonics
Mr J van Zyl	Best oral presentation by a doctoral student in theoretical and computational physics

Other awards

Mr H Fourie	Most outstanding research in the radiation dosimetry field for his oral presentation, 52nd SA Association for Physicists in Medicine (SAAPMB) congress, South Africa
Ms A Suleiman	First Prize, SPIE Winter College on Optics at the International Centre for Theoretical Physics (ICTP), Italy

Meiring Naudé medal

The Meiring Naudé medal for the top student in physics was awarded to Mr Zander Lee. The medal is awarded annually to the top student who obtained at least 80% in his or her BSc Honours programme as well as an average of at least 60% for each module in the programme. Mr Lee was also the recipient of the Dean's award for 2014 for continuous excellent performance. The solid silver medal is awarded annually to a BSc Honours student who scores the highest average percentage throughout both the BSc and the BSc Honours programmes.



DEPARTMENT OF PHYSIOLOGICAL SCIENCES

AT THE DEPARTMENT OF PHYSIOLOGICAL SCIENCES WE INVESTIGATE AND DEVELOP INNOVATIVE SOLUTIONS TO HEALTH ISSUES THAT POSE A SERIOUS CHALLENGE TO SOCIETY. WE FOLLOW AN INTEGRATIVE APPROACH THAT SPANS ALL LEVELS OF ORGANISATION, FROM THE MOLECULE TO THE WHOLE ORGANISM.

Research interests

Multidisciplinary
stress biology

Neurodisease
signalling

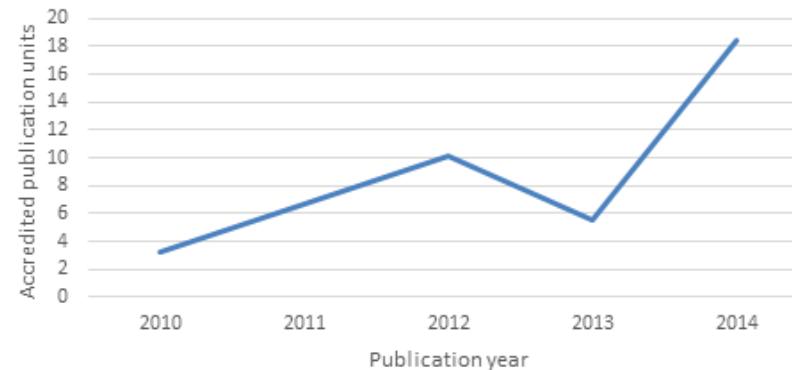
Metabolic
syndrome

Cardio-vascular
diseases

Cancer signalling
mechanisms &
pathways

Muscle biology

Accredited publication units per publication year
2010-2014



Research output

During 2014 the Department reached an all-time high with 27 research articles published in accredited journals. This is nearly double our research output from 2012 and is the result of a strategic realignment of research activities and groupings.

[Publication list](#)

[NRF-rated researchers](#)

[Staff list](#)

[Contact us](#)

DEPARTMENTS:

[Botany and Zoology](#)

[Earth Sciences](#)

[Chemistry and Polymer Science](#)

[Biochemistry](#)

[Mathematical Sciences](#)

[Microbiology](#)

[Physics](#)

[Physiological Sciences](#)

 [HOME PAGE](#)

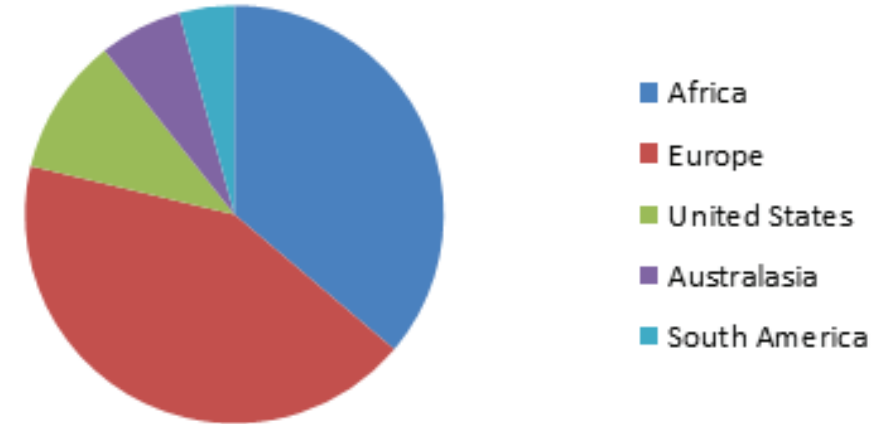


NRF-rated researchers

Five of our eight academic staff members are rated by the National Research Foundation:

Internationally acclaimed researcher	
Prof. Kathy Myburgh	skeletal muscle biology
Established researcher	
Prof. Faadiel Essop	cardiac metabolism
Prof. Carine Smith	stress biology
Prof. Anna-Mart Engelbrecht	cell-death and signalling
Promising young researcher	
Dr Ben Loos	neuro-disease signalling

Geographic distribution of collaborators 2014



Collaboration

Researchers collaborated with 47 institutions from 21 different countries. Our strongest international collaborations are with researchers and institutions in the United Kingdom and the United States and with multinational companies such as Janssen Research and Development and Pfizer. We also increased our footprint in Africa, working with institutions in Zimbabwe, Botswana and Nigeria.

Other significant collaborations include Prof. Faadiel Essop's appointment as a visiting professor at the University of La Réunion (France) and his election as a member of the Council of the South African Society for Cardiovascular Research. Dr Ben Loos visited Prof. Hiromi Imamura at the Hakubi Center for Advanced Research and Graduate School of Biostudies at Kyoto University (Japan) and Prof Esther Wong at Nanyang Technological University (Singapore).

Click on the map for a comprehensive list of our collaborators worldwide.



Service to the scientific community

Prof. Faadiel Essop	Physiological Society of Southern Africa (president); Cardiovascular Section of the American Physiological Society (fellow); International Committee of the American Physiological Society (elected member); African Association of Physiological Sciences (elected council member)
Prof. A-M Engelbrecht	South African Society for Cardiovascular Research (executive committee); Muscle Biology Center, Kentucky University, USA (associate member)
Prof. KH Myburgh	Euro-Mediterranean Institute for Science and Technology (associate and division leader); Institute of Human Performance, Rehabilitation and Technology at the Centre for Research and Technology (CERETETH), Greece (external mentor)
Dr Ben Loos	South African National Committee of the International Union of Physiological Sciences - SANC-IUPS (capacity building delegate); Physiology Society of Southern Africa (treasurer and secretary); Microscopy Society of Southern Africa annual conference proceedings 2014 (conference convenor and co-editor)
Dr Theo Nell	NRF DAAD/PhD/MSc Panels Member; SU Research Ethics Board Member

Conferences and workshops

Prof. Faadiel Essop	Experimental Biology 2014, Symposium on cardiac diseases (chair); South African Hearth Association annual congress (plenary speaker)
Prof. Anna-Mart Engelbrecht	20 th International congress on Cell Death in Diseases (organiser)
Dr Ben Loos	Microscopy techniques: Cell and Developmental Biology Symposium (presenter); 20 th International Congress on Cell Death in Diseases (keynote speaker); Key Stone Symposia – Autophagy: Fundamentals to Disease (presenter)
Prof. KH Myburgh	Hellenic Society for Biochemistry and Exercise Physiology (keynote speaker); Cell and Developmental Biology Symposium (presenter); South African Society for Biochemistry and Molecular Biology Conference (invited speaker); American College of Sports Medicine (poster); Advances in Skeletal Muscle Biology in Health and Disease Conference (poster)
Dr Theo Nell	2014 Experimental Biology Conference (poster presentation)
Dr Bali Sishi	20th annual ICDS conference on Cell Death and Diseases (invited speaker); 42nd Physiological Society of Southern Africa; 22nd European Cell Death Organisation (ECDO) Euroconference on Apoptosis (poster presentation)

Editorial activities

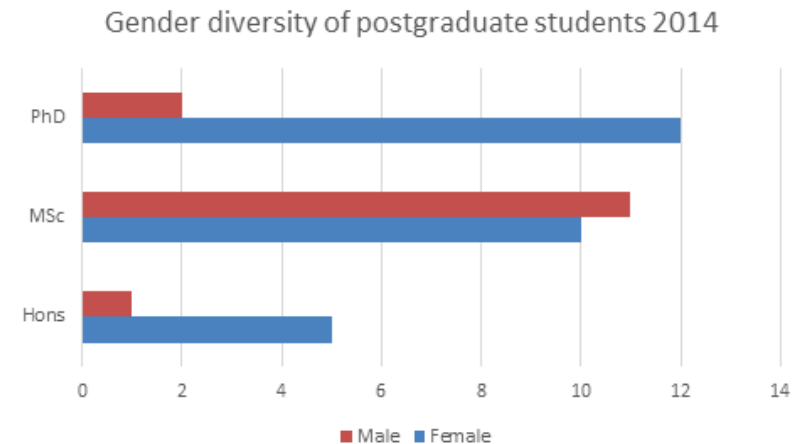
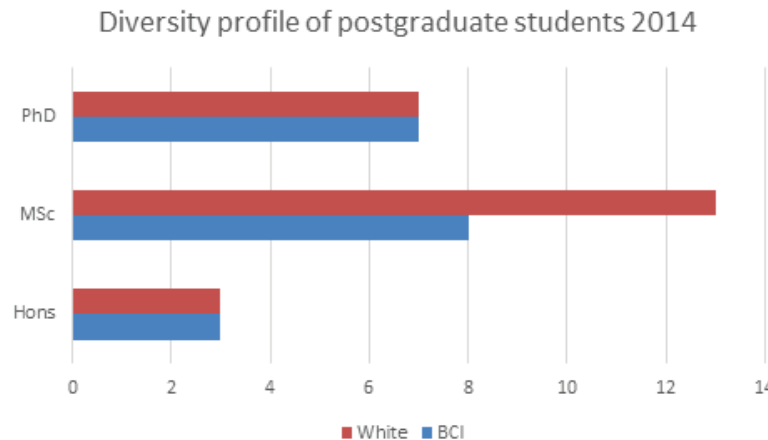
Prof. Faadiel Essop	<i>Journal of African Association of Physiological Sciences</i> (editorial board); <i>International Journal of Clinical and Experimental Physiology</i> (editorial board); <i>PLoS One</i> journal (academic editor); <i>American Journal of Physiology Heart and Circulatory Physiology</i> (editorial board); <i>Advanced Biomedical Research</i> (editorial board)
Prof. A-M Engelbrecht	<i>International Journal of Biomedical Sciences</i> (editorial board)
Prof. KH Myburgh	<i>Biomed Central Physiology</i> (section editor); <i>Medicine and Science in Sports and Exercise</i> (editorial board); <i>Inflammopharmacology</i> (editorial board)
Prof. Carine Smith	<i>Inflammopharmacology</i> (editorial board)

Awards

Prof. Kathy Myburgh was one of seven researchers in the Faculty of Science who has been honoured with the title Distinguished Professor by Stellenbosch University.

Focus on postgraduate students and postdocs

The Department has 41 full-time postgraduate students on Honours (6), MSc (21) and PhD (14) level and we are doing well in terms of our diversity profile – 40% of our postgraduate students are from designated groups (Black, Coloured and Indian) and 55% are female. During 2014 we hosted three postdoctoral students from South Africa, Zimbabwe and Ireland.



Our postgraduate students also performed well at several national and international conferences:

Ms Liz Louw	Best Microscopy Images award, annual congress of the Microscopy Society of South Africa
Mr Yigael Powrie	Award for most promising upcoming microscopist, annual congress of the Microscopy Society of South Africa
Ms Toni Goldswain	Second place for best oral presentation, 20th annual ICDS conference on Cell Death and Diseases
Ms Natasha Driescher	Best poster, annual congress of the Physiology Society of Southern Africa
Ms Caleigh Opperman	Second place for best oral presentation, annual congress of the Physiology Society of Southern Africa
Ms Megan Mitchell	Third place for best oral presentation, annual congress of the Physiology Society of Southern Africa



UNIVERSITEIT
STELLENBOSCH
UNIVERSITY

Faculty of Science

Fakulteit Natuurwetenskappe

Thank you / Dankie / Enkosi

© 2014 Stellenbosch University / Universiteit Stellenbosch

Electronic copy / Elektroniese weergawe

ISBN ISBN: 978-0-7972-1596-2

Editorial Team / Redaksionele span

Wiida Fourie-Basson, Comari Schoeman, Departmental representatives, Faculty of Science, SU

Layout and Design / Uitleg en Ontwerp

Lindie Nel, SUN MeDIA

Electronic editing / Elektroniese versorging

Ruan Pieters, SUN MeDIA

Index	Indeks
Biochemistry	Aardwetenskappe
Botany & Zoology	Biochemie
Chemistry & Polymer Science	Chemie & Polimeerwetenskap
Earth Sciences	Fisika
Mathematical Sciences (Mathematics, Applied Mathematics, Computer Science)	Fisiologiese Wetenskappe
Microbiology	Mikrobiologie
Physics	Plant- en Dierkunde
Physiological Sciences	Wiskundige Wetenskappe (Wiskunde, Toegepaste Wiskunde, Rekenaarwetenskap)
Central Analytical Facility (CAF)	Sentrale Analitiese Fasiliteit (SAF)

BIOCHEMISTRY / BIOCHEMIE

Journal articles (subsidised) / Tydskrifartikels (gesubsidieer)

AFRICANDER D, STORBECK K-H, HAPGOOD JP. A comparative study of the androgenic properties of progesterone and the progestins, medroxyprogesterone acetate (MPA) and norethisterone acetate (NET-A). *Journal of Steroid Biochemistry and Molecular Biology* 2014; **143** : 404-415.

BURGER H-M, LOMBARD MJ, SHEPHARD GS, DANSTER-CHRISTIANS N, GELDERBLOM WCA. Development and Evaluation of a Sensitive Mycotoxin Risk Assessment Model (MYCORAM). *Toxicological Sciences* 2014; **141** (2) : 387-397.

CILLIERS FP, GOUWS PA, KOUTCHMA T, ENGELBRECHT Y, ADRIAANSE C, SWART P. A microbiological, biochemical and sensory characterisation of bovine milk treated by heat and ultraviolet (UV) light for manufacturing Cheddar cheese. *Innovative Food Science & Emerging Technologies* 2014; **23** : 94-106.

DE VILLIERS M, BARNARD L, KOEKEMOER L, SNOEP JL, STRAUSS E. Variation in pantothenate kinase type determines the pantothenamide mode of action and impacts on coenzyme A salvage biosynthesis. *FEBS Journal* 2014; **281** : 4731-4753.

GOVENDERY, AVENANT C, VERHOOG N, RAY RM, GRANTHAM NJ, AFRICANDER D, HAPGOOD JP. The Injectable-Only Contraceptive Medroxyprogesterone Acetate, Unlike Norethisterone Acetate and Progesterone, Regulates Inflammatory Genes in Endocervical Cells via the Glucocorticoid Receptor. *PLoS ONE* 2014; **9**(5) : e96497.

GROBBELAAR MC, MAKUNGA NP, STANDER MA, KOSSMANN J, HILLS PN. Effect of strigolactones and auxins on growth and metabolite content of *Sutherlandia frutescens* (L.) R. Br. microplants in vitro. *Plant Cell Tissue and Organ Culture* 2014; **117** : 401-409.

GUSTAVSSON A-K, VAN NIEKERK DD, ADIELS CB, GOKSÖR M, SNOEP JL.

Heterogeneity of glycolytic oscillatory behaviour in individual yeast cells. *FEBS Letters* 2014; **588** : 3-7.

GUSTAVSSON A-K, VAN NIEKERK DD, ADIELS CB, KOOI BW, GOKSÖR M, SNOEP JL.

Allosteric regulation of phosphofructokinase controls the emergence of glycolytic oscillations in isolated yeast cells. *FEBS Journal* 2014; **281** : 2784-2793.

HAPGOOD JP, AFRICANDER D, LOUW R, RAY RM, ROHWER JM. Potency of progestogens used in hormonal therapy: Toward understanding differential actions. *Journal of Steroid Biochemistry and Molecular Biology* 2014; **142** : 39-47.

KÜHN S, HOFMEYR J-HS. Is the “Histone Code” an Organic Code? *Biosemitotics* 2014; **7(2)** : 203- 222.

LEADLEY P, PROENÇA V, FERNÁNDEZ-MANJARRÉS J, PEREIRA HM, ALKEMADE R, BIGGS R, BRULEY E, CHEUNG W, COOPER D, FIGUEIREDO J, GILMAN E, GUÉNETTE S, HURTT G, MBOW C, OBERDORFF T, REVENGA C, SCHARLEMANN JPW, SCHOLES RJ, SMITH MS, SUMAILA RU, WALPOLE M. Interacting Regional-Scale Regime Shifts for Biodiversity and Ecosystem Services. *Bioscience* 2014; **64(8)** : 665-679.

LEUSSA AN-N, RAUTENBACH M. Detailed SAR and PCA of the Tyrocidines and Analogues Towards Leucocin A-Sensitive and Leucocin A-Resistant *Listeria monocytogenes*. *Chemical Biology & Drug Design* 2014; **84** : 543-557.

LOOS B, DU TOIT A, HOFMEYR J-HS. Defining and measuring autophagosome flux – concept and reality. *Autophagy* 2014; **10(11)** : 2087-2096.

LOUW-DU TOIT R, HAPGOOD JP, AFRICANDER D. Medroxyprogesterone Acetate Differentially Regulates Interleukin (IL)-12 and IL-10 in a Human Ectocervical Epithelial Cell Line in a Glucocorticoid Receptor (GR)-dependent Manner. *Journal of Biological Chemistry* 2014; **289(45)** : 31136-31149.

MACE GM, REYERS B, ALKEMADE R, BIGGS R, CHAPIN FS, CORNELL SE, DÍAZ S, JENNINGS S, LEADLEY P, MUMBY PJ, PURVIS A, SCHOLES RJ, SEDDON AWR, SOLAN M, STEFFEN W, WOODWARD G. Approaches to defining a planetary boundary for biodiversity. *Global Environmental Change-Human and Policy Dimensions* 2014; **28** : 289-297.

MOOLMAN WJA, DE VILLIERS M, STRAUSS E. Recent advances in targeting coenzyme A biosynthesis and utilization for antimicrobial drug development. *Biochemical Society Transactions* 2014; **42(4)** : 1080-1086.

MPHAHLELE RR, FAWOLE OA, STANDER MA, OPARA UL. Preharvest and postharvest factors influencing bioactive compounds in pomegranate (*Punica granatum* L.) – A review. *Scientia Horticulturae* 2014; **178** : 114-123.

MPHAHLELE RR, STANDER MA, FAWOLE OA, OPARA UL. Effect of fruit maturity and growing location on the postharvest contents of flavonoids, phenolic acids, vitamin C and antioxidant activity of pomegranate juice (cv. Wonderful). *Scientia Horticulturae* 2014; **179** : 36-45.

NIEUWOUTD M, LOMBARD N, RAUTENBACH M. Optimised purification and characterisation of lipid transfer protein I (LTP1) and its lipid-bound isoform LTP1b from barley malt. *Food Chemistry* 2014; **157** : 559-567.

PALM DC, ROHWER JM, HOFMEYR J-HS. Incorporating covalent and allosteric effects into rate equations: the case of muscle glycogen synthase. *Biochemical Journal* 2014; **462** : 525-537.

SCHLOMS L, SMITH C, STORBECK K-H, MARNEWICK JL, SWART P, SWART AC. Rooibos influences glucocorticoid levels and steroid ratios in vivo and in vitro: A natural approach in the management of stress and metabolic disorders?. *Molecular Nutrition & Food Research* 2014; **58** : 537-549.

SCHLOMS L, SWART AC. Rooibos Flavonoids Inhibit the Activity of Key Adrenal Steroidogenic Enzymes, Modulating Steroid Hormone Levels in H295R Cells. *Molecules* 2014; **19** : 3681-3695.

SHEPHARD GS, GELDERBLOM WCA. Rapid testing and regulating for mycotoxin concerns: a perspective from developing countries. *World Mycotoxin Journal* 2014; **7(4)** : 431-437.

SPRY C, SALIBA KJ, STRAUSS E. A miniaturized assay for measuring small molecule phosphorylation in the presence of complex matrices. *Analytical Biochemistry* 2014; **451** : 76-78.

TROSKIE AM, DE BEER A, VOSLOO JA, JACOBS K, RAUTENBACH M. Inhibition of agronomically relevant fungal phytopathogens by tyrocidines, cyclic antimicrobial peptides isolated from *Bacillus aneurinolyticus*. *Microbiology* 2014; **160** : 2089-2101.

TROSKIE AM, RAUTENBACH M, DELATTIN N, VOSLOO JA, DATHE M, CAMMUE BPA, THEVISSSEN K. Synergistic Activity of the Tyrocidines, Antimicrobial Cyclodecapeptides from *Bacillus aneurinolyticus*, with Amphotericin B and Caspofungin against *Candida albicans* Biofilms. *Antimicrobial Agents and Chemotherapy* 2014; **58(7)** : 3697-3707.

VAN WYK P, VAN DYK JB, GERBER WJ, STANDER MA, DE VILLIERS AJ, KOCH KR. Speciation of $[\text{Pt}^{\text{IV}}\text{Cl}_{6-n}\text{Br}_n]^{2-}$ ($n = 0-6$) and some of their mono-aquated $[\text{Pt}^{\text{IV}}\text{Cl}_{5-n}\text{Br}_n(\text{H}_2\text{O})]^-$ ($n = 0-5$) anions in solution at low concentrations by means of ion-pairing reversed-phase ultra-high-performance liquid chromatography coupled to electrospray ionization quadrupole time-of-flight mass spectrometry. *Rapid Communications in Mass Spectrometry* 2014; **28** : 505-519.

VERHOOG N, ALLIE-REID F, VAN DEN BERGHE W, SMITH C, HAEGEMAN G, HAPGOOD JP, LOUW A. Inhibition of Corticosteroid-Binding Globulin Gene Expression by Glucocorticoids Involves C/EBPB. *PLoS ONE* 2014; **9(10)** : e110702.

WILLEMSE CM, STANDER MA, TREDOUX AGJ, DE VILLIERS AJ. Comprehensive two-dimensional liquid chromatographic analysis of anthocyanins. *Journal of Chromatography A* 2014; **1359** : 189-201.

WRIGHT LP, ROHWER JM, GHIRARDO A, HAMMERBACHER A, ORTIZ-ALCAIDE M, RAGUSCHKE B, SCHNITZLER J-P, GERSHENZON J, PHILLIPS MA. Deoxyxylulose 5-Phosphate Synthase Controls Flux through the Methylerythritol 4-Phosphate Pathway in *Arabidopsis*¹. *Plant Physiology* 2014; **165** : 1488-1504.

Journal articles (non-subsidised) / Tydskrifartikels (ongesubsidieer)

PAUL S, MÜLLER HP, PREISER R, DE LIMA NETO FB, MARWALA T, DE WILDE P. Developing a management decision-making model based upon a complexity perspective with reference to the Bee Algorithm. *Emergence: complexity and organization* 2014; **16(1)** : 1-12.

PREISER R, STRUTHERS P, MOHAMED S, CAMERON NA, LAWRENCE E. External stakeholders and health promoting schools: complexity and practice in South Africa. *Health Education* 2014; **114(4)** : 260-270.

TIPTON K, ARMSTRONG R, BAKKER BM, BAIROCH A, CORNISH-BOWDEN A, HALLING PJ, HOFMEYR J-HS, LEYH TS, KETTNER C, RAUSHEL FM, ROHWER JM, SCHOMBURG D, STEINBECK C. Standards for Reporting Enzyme Data: The STRENDA Consortium: What it aims to do and why it should be helpful. *Perspectives in Science* 2014; **1** : 131-137.

Chapters in books / Hoofstukke in boeke

LOOS B, HOFMEYR JS, MÜLLER-NEDEBOCK KK, BOONZAAIER L, KINNEAR CJ. Autophagic Flux, Fusion Dynamics and Cell Death. In *Autophagy: Cancer, Other Pathologies, Inflammation, Immunity, Infection and Aging, Volume 3*, Elsevier, USA, 2014: 39-56.

ROHWER JM, UYS L. Systems Biology and Metabolic Modeling. In *SUGERCANE Physiology, Biochemistry and Functional Biology*, John Wiley & Sons, Inc. 2014: 601-622.

ROHWER JM. Applications of Kinetic Modeling to Plant Metabolism. In *Plant Metabolism Methods and protocols*, Springer Science+Business Media, New York, 2014: 275-286.

Patents / Patente

RAUTENBACH M, DE BEER A, TROSKIE AM, VOSLOO JA. Antimicrobial cyclic peptide compositions for plants. Patent No. WO 2013/150394 A1, 2014.

Doctoral completed / Doktoraal afgehandel

LEUSSA AN-N. Characterisation of small cyclic peptides with antilisterial and antimalarial activity. PhD(Bioch), 2014. 295 pp. Promotor: Rautenbach M.

MACUAMULE C. Coenzyme A biosynthesis and utilization in *Plasmodium falciparum*: drug targets for antimalarial chemotherapy. PhD(Bioch), 2014. 178 pp. Promotor: Strauss E. Co-promoter: Saliba KJ.

TROSKIE AM. Tyrocidines, cyclic decapeptides produced by soil bacilli, as potent inhibitors of fungal pathogens. PhD(Bioch), 2014. 215 pp. Promotor: Rautenbach M.

VISSER JAK. Phytoestrogenic extracts of *Cyclopia* modulate molecular targets involved in the prevention and treatment of breast cancer. PhD(Bioch), 2014. 253 pp. Promotor: Louw A.

Masters completed / Magister afgehandel

FOX C-L. An investigation into the catalytic activity of porcine cytochrome P450 17 α -hydroxylase/17,20-lyase. MSc Biochemistry, 2014. 126 pp. Study leader: Swart AC. Co-study leader: Swart P, Storbeck K-H.

HAYWARD S. Partial characterization of a bacterial acyl-transferase enzyme for potential application in dairy processing. MSc Biochemistry, 2014. 129 pp. Study leader: Swart P.

KÜHN S. Organic codes and their identification: Is the histone code a true organic code?. MSc Biochemistry, 2014. 97 pp. Study leader: Hofmeyr J-HS.

MORTIMER M. Isolation and identification of compounds conferring phytoestrogenic activity to *Cyclopia* extracts. MSc Biochemistry, 2014. 310 pp. Study leader: Louw A. Co-study leader: Joubert E.

VAN NIEKERK C. Investigating self-fabrication in the context of artificial chemistries. MSc Biochemistry, 2014. 160 pp. Study leader: Hofmeyr J-HS.

VAN STADEN CT. Towards a kinetic model of the Entner-Doudoroff Pathway in *Zymomonas mobilis*. MSc Biochemistry, 2014. 84 pp. Study leader: Rohwer JM. Co-study leader: Snoep JL.

BOTANY AND ZOOLOGY / PLANT- EN DIERKUNDE

Journal articles (subsidised) / Tydskrifartikels (gesubsidieer)

ASTON PHILANDER LE, MAKUNGA NP, ESLER KJ. The Informal Trade of Medicinal Plants by Rastafari Bush Doctors in the Western Cape of South Africa. *Economic Botany* 2014; **68**(3) : 303- 315.

ALEXANDER ME, DICK JT, WEYL OLF, ROBINSON TB, RICHARDSON DM. Existing and emerging high impact invasive species are characterized by higher functional responses than natives. *Biology Letters* 2014; **10** : 20130946.

ALLEN JL, CLUSELLA-TRULLAS S, CHOWN SL. Thermal tolerance of *Cyrtobagous salviniae*: a biocontrol agent in a changing world. *Biocontrol* 2014; **59**(3) : 357-366.

ANDERSON BC, ROS P, WIESE TJ, ELLIS AG. Intraspecific divergence and convergence of floral tube length in specialized pollination interactions. *Proceedings of the Royal Society B-Biological Sciences* 2014; **281** : 20141420.

ANDREOTTI S, RUTZEN M, WESCHE PL, O'CONNELL CP, MEYER MA, OOSTHUIZEN H, MATTHEE CA. A novel categorisation system to organise a large photo identification database for white sharks *Carcharodon carcharias*. *African Journal of Marine Science* 2014; **36**(1) : 59-67.

APINDA-LEGNUOU E, SAMWAYS MJ, SIMAIKA JP. Value of artificial ponds for aquatic beetle and bug conservation in the Cape Floristic Region biodiversity hotspot. *Aquatic Conservation-Marine and Freshwater Ecosystems* 2014; **24** : 522-535.

AYLWARD J, DREYER LL, STEENKAMP ET, WINGFIELD MJ, ROETS F. Development of polymorphic microsatellite markers for the genetic characterisation of *Knoxdaviesia proteae* (Ascomycota: Microascales) using ISSR-PCR and pyrosequencing. *Mycological Progress* 2014; **13** : 439-444.

AYLWARD J, DREYER LL, STEENKAMP ET, WINGFIELD MJ, ROETS F. Panmixia defines the genetic diversity of a unique arthropod-dispersed fungus specific to *Protea* flowers. *Ecology and Evolution* 2014; **4**(17) : 3444-3454.

BARRIOS-O'NEILL D, DICK JT, EMMERSON MC, RICCIARDI A, MACISAAC HJ, ALEXANDER ME, BOVY HC. Fortune favours the bold: a higher predator reduces the impact of a native but not an invasive intermediate predator. *Journal of Animal Ecology* 2014; **83**(3) : 693-701.

BEDNAREK-OCHYRA H, GREMMEN NJM, SMITH VR. New national and regional bryophyte records, 39. *Journal of Bryology* 2014; **36**(2) : 134-151.

BEGER M, SELKOE KA, TREML E, BARBER PH, VON DER HEYDEN S, CRANDALL E, TOONEN RJ, RIGINOS C. Evolving coral reef conservation with genetic information. *Bulletin of Marine Science* 2014; **90**(1) : 159-185.

BEST PB, SMALE M, GLASS J, HERIAN K, VON DER HEYDEN S. Identification of stomach contents from a Shepherd's beaked whale *Tasmacetus shepherdi* stranded on Tristan da Cunha, South Atlantic. *Journal of the Marine Biological Association of the United Kingdom* 2014; **94**(6) : 1093-1097.

BLACKBURN TM, ESSL F, EVANS THOMAS, HULME PE, JESCHKE JM, KÜHN I, KUMSCHICK S, MARKOVÁ S, MRUGAIA A, NENTWIG W, PERGL J, PYŠEK P, RABITSCH W, RICCIARDI A, RICHARDSON DM, SENDEK A, VILÀ M, WILSON JRU, WINTER M, GENOVESI P, BACHER C. A Unified Classification of Alien Species Based on the Magnitude of their Environmental Impacts. *PLoS Biology* 2014; **12**(5) : e1001850.

BLACKBURN TM, SU S, CASSEY P. A Potential Metric of the Attractiveness of Bird Song to Humans. *Ethology* 2014; **120** : 305-312.

BLOMEFIELD TL, GILIOME E JH. Validation of the phenology model for the codling moth, *Cydia pomonella* (Lepidoptera: Tortricidae), in South African pome fruit orchards. *African Entomology*, 2014; **22**(1) : 30-48.

BOONZAAIER MK, NEETHLING S, MOUTON A, SIMON CA. Polydorid polychaetes (Spionidae) on farmed and wild abalone (*Haliotis midae*) in South Africa: an epidemiological survey. *African Journal of Marine Science* 2014; **36**(3) : 369-376.

- BOWEN BW, SHANKER K, YASUDA N, MACHEL MC, VON DER HEYDEN S, PAULAY G, ROCHA LA, SELKOE KA, BARBER PH, WILLIAMS ST, LESSIOS HA, CRANDALL E, BERNARDI G, MEYER CP, CARPENTER KE, TOONEN RJ.** Phylogeography unplugged: comparative surveys in the genomic era. *Bulletin of Marine Science* 2014; **90**(1) : 13-46.
- BRANCH WR, BAYLISS J, TOLLEY KA.** Pygmy chameleons of the *Rhampholeon platyceps* complex (Squamata: Chamaeleonidae): Description of four new species from isolated 'sky islands' of northern Mozambique. *Zootaxa* 2014; **3814**(1) : 001-036.
- BROECKHOVEN C, MOUTON PLN.** Under pressure: morphological and ecological correlates of bite force in the rock-dwelling lizards *Ouroborus cataphractus* and *Karusasaurus polyzonus* (Squamata: Cordylidae). *Biological Journal of the Linnean Society* 2014; **111**(4) : 823-833.
- BUCZKOWSKI G, ROPER E, CHIN D, MOTHAPO NP, WOSSLER TC.** Hydrogel baits with low-dose thiamethoxam for sustainable Argentine ant management in commercial orchards. *Entomologia Experimentalis et Applicata* 2014; **153** : 183-190.
- CAPLAT P, HUI C, MAXWELL BD, PELTZER DA.** Cross-scale management strategies for optimal control of trees invading from source plantations. *Biological Invasions* 2014; **16**(3) : 677-690.
- CECCARELLI FS, MENEGON M, TOLLEY KA, TILBURY CR, GOWER DJ, LASERNA MH, KASAHUN R, RODRIGUEZ-PRIETO A, HAGMANN R, LOADER SP.** Evolutionary relationships, species delimitation and biogeography of Eastern Afromontane horned chameleons (Chamaeleonidae: *Trioceros*). *Molecular Phylogenetics and Evolution* 2014; **80**(1) : 125-136.
- CHAPMAN DS, HAYNES T, BEAL S, ESSL F, BULLOCK JM.** Phenology predicts the native and invasive range limits of common ragweed. *Global Change Biology* 2014; **20**(1) : 192-202.
- CHEVRET P, ROBINSON TJ, PEREZ J, VEYRUNES F, BRITTON-DAVIDIAN J.** A Phylogeographic Survey of the Pygmy Mouse *Mus minutoides* in South Africa: Taxonomic and Karyotypic Inference from Cytochrome *b* Sequences of Museum Specimens. *PLoS ONE* 2014; **9**(6) : e98499.
- CLUSELLA-TRULLAS S, BOARDMAN L, FAULKNER KT, PECK LS, CHOWN SL.** Effects of temperature on heat-shock responses and survival of two species of marine invertebrates from sub-Antarctic Marion Island. *Antarctic Science* 2014; **26**(2) : 145-152.
- CLUSELLA-TRULLAS S, CHOWN SL.** Lizard thermal trait variation at multiple scales: a review. *Journal of Comparative Physiology B-Biochemical Systemic and Environmental Physiology* 2014; **184**(1) : 5-21.
- CORNELIS G, VERNOCHE C, MALICORNE S, SOUQUERE S, TZIKA AC, GOODMAN SN, CATZEFLIS F, ROBINSON TJ, MILINKOVITCH MC, PIERRON G, HEIDMANN O, DUPRESSOIRA, HEIDMANN T.** Retroviral envelope syncytin capture in an ancestrally diverged mammalian clade for placentation in the primitive Afrotherian tenrecs. *Proceedings of the National Academy of Sciences of the United States of America* 2014; **111**(41) : E4332-E4341.
- COTTERILL FPD, TAYLOR PJ, GIPPOLITI S, BISHOP JM, GROVES CP.** Why One Century of Phenetics is Enough: Response to "Are There Really Twice As Many Bovid Species As We Thought?". *Systematic Biology* 2014; **63**(5) : 819-832.
- CUMBERLIDGE N, DANIELS SR.** Recognition of two new species of freshwater crabs from the Seychelles based on molecular evidence (Potamoidea: Potamonautidae). *Invertebrate Systematics* 2014; **28**(1) : 17-31.
- DA SILVA JM, HERREL A, MEASEY GJ, TOLLEY KA.** Sexual Dimorphism in Bite Performance Drives Morphological Variation in Chameleons. *PLoS ONE* 2014; **9**(1) : e86846, 12 pages.

- DA SILVA JM, HERREL A, MEASEY GJ, VANHOODYDONCK B, TOLLEY KA.** Linking microhabitat structure, morphology and locomotor performance traits in a recent radiation of dwarf chameleons. *Functional Ecology* 2014; **28** : 702-713.
- DALTON DL, TORDIFFE A, LUTHER I, DURAN A, VAN WYK AM, BRETTSCHEIDER H, OOSTHUIZEN A, MODIBA C, KOTZÉ A.** Interspecific hybridization between greater kudu and nyala. *Genetica* 2014; **142**(3) : 265-271.
- DANIELS SR, PHIRI EE, BAYLISS J.** Renewed sampling of inland aquatic habitats in southern Africa yields two novel freshwater crab species (Decapoda: Potamonautidae: *Potamonautes*). *Zoological Journal of the Linnean Society* 2014; **171**(2) : 356-369.
- DAVID A, MATTHEE CA, SIMON CA.** Poecilogony in *Polydora hoplura* (Polychaeta: Spionidae) from commercially important molluscs in South Africa. *Marine Biology* 2014; **161**(4) : 887-898.
- DAVID A, SIMON CA.** The effect of temperature on larval development of two non-indigenous poecilogonous polychaetes (Annelida: Spionidae) with implications for life history theory, establishment and range expansion. *Journal of Experimental Marine Biology and Ecology* 2014; **461** : 20-30.
- DE JAGER ML, ELLIS AG.** Costs of deception and learned resistance in deceptive interactions. *Proceedings of the Royal Society B-Biological Sciences* 2014; **281**(1779) : 20132861.
- DE JAGER ML, ELLIS AG.** Floral polymorphism and the fitness implications of attracting pollinating and florivorous insects. *Annals of Botany* 2014; **113**(2) : 213-222.
- DE WAAL C, RODGER JG, ANDERSON BC, ELLIS AG.** Selfing ability and dispersal are positively related, but not affected by range position: a multispecies study on southern African Asteraceae. *Journal of Evolutionary Biology* 2014; **27** : 950-959.
- DICK JT, ALEXANDER ME, JESCHKE JM, RICCIARDI A, MACISAAC HJ, ROBINSON TB, KUMSCHICK S, WEYL OLF, DUNN A, HATCHER M, PATERSON RA, FARNSWORTH KD, RICHARDSON DM.** Advancing impact prediction and hypothesis testing in invasion ecology using a comparative functional response approach. *Biological Invasions* 2014; **16**(4) : 735-753.
- DICKIE IA, BENNETT BM, BURROWS LE, NUÑEZ MA, PELTZER DA, PORTE A, RICHARDSON DM, REJMÁNEK M, RUNDEL PW, VAN WILGEN BW.** Conflicting values: ecosystem services and invasive tree management. *Biological Invasions* 2014; **16** : 705-719.
- DIEDERICKS G, DANIELS SR.** Ain't no mountain high enough, ain't no valley low enough? Phylogeography of the rupicolous Cape girdled lizard (*Cordylus cordylus*) reveals a generalist pattern. *Molecular Phylogenetics and Evolution* 2014; **71** : 234-248.
- DODD JA, DICK JT, ALEXANDER ME, MACNEIL C, DUNN A, ALDRIGDE DC.** Predicting the ecological impacts of a new freshwater invader: functional responses and prey selectivity of the 'killer shrimp', *Dikerogammarus villosus*, compared to the native *Gammarus pulex*. *Freshwater Biology* 2014; **59**(2) : 337-352.
- DONALDSON J, HUI C, RICHARDSON DM, ROBERTSON MP, WEBBER BL, WILSON JRU.** Invasion trajectory of alien trees: the role of introduction pathway and planting history. *Global Change Biology* 2014; **20**(5) : 1527-1537.
- DONALDSON J, RICHARDSON DM, WILSON JRU.** Scale-area curves: a tool for understanding the ecology and distribution of invasive tree species. *Biological Invasions* 2014; **16**(3) : 553-563.
- DONALDSON J, RICHARDSON DM, WILSON JRU.** The seed ecology of an ornamental wattle in South Africa – Why has *Acacia elata* not invaded a greater area?. *South African Journal of Botany* 2014; **94** : 40-45.

- DREYER LL, MACFARLANE RM, ROETS F, OBERLANDER KC.** An unusual night-flowering *Oxalis* from South Africa (Oxalidaceae). *Systematic Botany* 2014; **39**(4) : 1154-1160.
- DRISCOLL DA, CATFORD JA, BARNEY JN, HULME PE, INDERJIT MARTIN TG, PAUCHARD A, PYŠEK P, RICHARDSON DM, RILEY S, VISSER V.** New pasture plants intensify invasive species risk. *Proceedings of the National Academy of Sciences of the United States of America* 2014; **111**(46) : 16622-16627.
- ELLIS AG, BROCKINGTON SF, DE JAGER ML, MELLERS G, WALKER RH, GLOVER BJ.** Floral trait variation and integration as a function of sexual deception in *Gorteria diffusa*. *Philosophical Transactions of the Royal Society B-Biological Sciences* 2014; **369**(1649) : 20130563.
- ENGELBRECHT A, MATTHEE CA, UECKERMANN EA, MATTHEE S.** Evidence of cryptic speciation in mesostigmatid mites from South Africa. *Parasitology* 2014; **141** : 1322-1332.
- ESTERHUIZEN N, CLUSELLA-TRULLAS S, VAN DAALEN CE, SCHOOMBIE RE, BOARDMAN L, TERBLANCHE JS.** Effects of within-generation thermal history on the flight performance of *Ceratitis capitata*: colder is better. *Journal of Experimental Biology* 2014; **217** : 3545-3556.
- EVANS THOMAS, KUMSCHICK S, DYER E, BLACKBURN TM.** Comparing determinants of alien bird impacts across two continents: implications for risk assessment and management. *Ecology and Evolution* 2014; **4**(14) : 2957- 2967.
- FAULKNER KT, CLUSELLA-TRULLAS S, PECK LS, CHOWN SL.** Lack of coherence in the warming responses of marine crustaceans. *Functional Ecology* 2014; **28** (4) : 895-903.
- FAULKNER KT, ROBERTSON MP, ROUGET M, WILSON JRU.** A simple, rapid methodology for developing invasive species watch lists. *Biological Conservation* 2014; **179** : 25-32.
- FONTAINE MC, ROLAND K, CALVÈS I, AUSTERLITZ F, PALSTRA FP, TOLLEY KA, RYAN SF, FERREIRA MM, JAUNIAUX TP, LLAVONA Á, ÖZTÜRK B, ÖZTÜRK AA, RIDOUX V, ROGAN E, SEQUEIRA M, SIEBERT U, VÍKINGSSON GA, BORRELL A, MICHAUX JR, AGUILAR Á.** Postglacial climate changes and rise of three ecotypes of harbour porpoises, *Phocoena phocoena*, in western Palearctic waters. *Molecular Ecology* 2014; **23**(13) : 3306–3321.
- GAERTNER M, BIGGS R, TE BEEST M, HUI C, MOLOFSKY J, RICHARDSON DM.** Invasive plants as drivers of regime shifts: identifying high-priority invaders that alter feedback relationships. *Diversity and Distributions* 2014; **20**(7) : 733-744.
- GAERTNER M.** Invasion Ecology, 2nd edition. *Restoration Ecology* 2014; **22**(3) : 435-436.
- GILIOMEÉ JH.** First record of the lace bug *Cochlochila bullita* (Hemiptera: Tingidae) as a pest of rosemary in South Africa. *African Entomology* 2014; **22**(3) : 670-672.
- GRANT PBC, ROETS F, SAMWAYS MJ.** Sound characterization and structure of the stridulatory organ in *Gonogenia tabida* (Coleoptera: Carabidae). *Bioacoustics-The International Journal of Animal Sound and Its Recording* 2014; **23** : 209-217.
- GROBBELAAR MC, MAKUNGA NP, STANDER MA, KOSSMANN J, HILLS PN.** Effect of strigolactones and auxins on growth and metabolite content of *Sutherlandia frutescens* (L.) R. Br. microplants in vitro. *Plant Cell Tissue and Organ Culture* 2014; **117** : 401-409.
- HAN X, HUI C.** Niche Construction on Environmental Gradients: The Formation of Fitness Valley and Stratified Genotypic Distributions. *PLoS ONE* 2014; **9**(6) : e99775.
- HANKEY AJ, HAHN N, BUYS MH.** *Ledebouria caesiomontana* A.J.Hankey & N.Hahn (Hyacinthaceae: Hyacinthoideae): A new species from the Blouberg centre of endemism, Limpopo, South Africa. *Bothalia* 2014; **44**(1) : Art. #119, 4 pages.

- HAUPT TM, CRAFFORD JE, CHOWN SL.** Solving the puzzle of *Pringleophaga* – threatened, keystone detritivores in the sub-Antarctic. *Insect Conservation and Diversity* 2014; **7**(4) : 308-313.
- HAUPT TM, SINCLAIR BJ, CHOWN SL.** Chemosensory and thermal cue responses in the sub- Antarctic moth *Pringleophaga marioni*: Do caterpillars choose wandering Albatross nest proxies?. *Polar Biology* 2014; **37**(4) : 555-563.
- HEYSTEK A, GEERTS S, BARNARD P, PAUW A.** Pink flower preference in sunbirds does not translate into plant fitness differences in a polymorphic *Erica* species. *Evolutionary Ecology* 2014; **28**(3) : 457-470.
- HEYSTEK A, PAUW A.** Does competition for pollinators contribute to structuring *Erica* communities? *Journal of Vegetation Science* 2014; **25** (3) : 648-656.
- HIGGINS SI, RICHARDSON DM.** Invasive plants have broader physiological niches. *Proceedings of the National Academy of Sciences of the United States of America* 2014; **111** : 10610-10614.
- HOBBS RJ, HIGGS E, HALL C , BRIDGEWATER P, CHAPIN FS, ELLIS EC, EWEL JJ, HALLETT LM, HARRIS JA, HULVEY KB, JACKSON ST, KENNEDY PL , KUEFFER C, LACH L, LANTZ TC, LUGO AE, MASCARO J, MURPHY SD, NELSON CR, PERRING MP, RICHARDSON DM, SEASTEDT TR, STAND.** Managing the whole landscape: historical, hybrid, and novel ecosystems. *Frontiers in Ecology and the Environment* 2014; **12**(10) : 557-564.
- HONZA M, ŠULC M, CHERRY MI.** Does nest luminosity play a role in recognition of parasitic eggs in domed nests? A case study of the red bishop. *Naturwissenschaften* 2014; **101** : 1009-1015.
- HUI C, RICHARDSON DM, VISSER V, WILSON JRU.** Macroecology meets invasion ecology: performance of Australian acacias and eucalypts around the world revealed by features of their native ranges. *Biological Invasions* 2014; **16**(3) : 565-576.
- HUISKES AHL, GREMMEN NJM, BERGSTROM DM, FRENOT Y, HUGHES KA, IMURA S, KIEFER K, LÉBOUVIER M, LEE JE, TSUJIMOTO M, WARE C, VAN DE VIJVER B, CHOWN SL.** Aliens in Antarctica: Assessing transfer of plant propagules by human visitors to reduce invasion risk. *Biological Conservation* 2014; **171** : 278-284.
- IMBERT E, WANG H, ANDERSON BC, HERVOUET B, TALAVERA M, SCHATZ B.** Reproductive biology and colour polymorphism in the food-deceptive *Iris lutescens* (Iridaceae). *Acta Botanica Gallica* 2014; **161**(2) : 117-127.
- JACOBS LEO, RICHARDSON DM, WILSON JRU.** *Melaleuca parvistaminea* Byrnes (Myrtaceae) in South Africa: Invasion risk and feasibility of eradication. *South African Journal of Botany* 2014; **94** : 24-32.
- JESCHKE JM, BACHER S, BLACKBURN TM, DICK JT, ESSL F, EVANS THOMAS, GAERTNER M, HULME PE, KÜHN I, MRUGAIA A, PERGL J, PYŠEK P, RABITSCH W, RICCIARDI A, RICHARDSON DM, SENDEK A, VILÀ M, WINTER M, KUMSCHICK S.** Defining the Impact of Non-Native Species. *Conservation Biology* 2014; **28**(5) : 1188-1194.
- JOHNSON CM, HE T, PAUW A.** Floral divergence in closely related *Leucospermum tottum* (Proteaceae) varieties pollinated by birds and long proboscis flies. *Evolutionary Ecology* 2014; **28**(5) : 849-868.
- JOHNSON CM, PAUW A.** Adaptation for rodent pollination in *Leucospermum arenarium* (Proteaceae) despite rapid pollen loss during grooming. *Annals of Botany* 2014; **113** : 931-938.
- KAPLAN H, VAN NIEKERK A, LE ROUX JJ, RICHARDSON DM, WILSON JRU.** Incorporating risk mapping at multiple spatial scales into eradication management plans. *Biological Invasions* 2014; **16**: 691-703.

KATZ EM, TOLLEY KA, BISHOP JM. Temporal changes in allelic variation among Cape Dwarf Chameleons, *Bradypodion pumilum*, inhabiting a transformed, semi-urban wetland. *African Journal of Herpetology* 2014; **63**(1) : 1-12.

KLEINERT A, VENTER M, KOSSMANN J, VALENTINE AJ. The reallocation of carbon in P deficient lupins affects biological nitrogen fixation. *Journal of Plant Physiology* 2014; **171** : 1619-1624.

KLEYNHANS EJ, CLUSELLA-TRULLAS S, TERBLANCHE JS. Impacts of environmental variability on desiccation rate, plastic responses and population dynamics of *Glossina pallidipes*. *Journal of Evolutionary Biology* 2014; **27** : 337-348.

KRUG RM, RICHARDSON DM. Modelling the effect of two biocontrol agents on the invasive alien tree *Acacia cyclops* – Flowering, seed production and agent survival. *Ecological Modelling* 2014; **278** : 100-113.

LA SORTE FA, ARONSON MFJ, WILLIAMS NSG, CELESTI-GRAPOW L, CILLIERS SS, CLARKSON BD, DOLAN RW, HIPPEL AL, KLOTZ S, KÜHN I, PYŠEK P, SIEBERT SJ, WINTER M. Beta diversity of urban floras among European and non-European cities. *Global Ecology and Biogeography* 2014; **23**(7) : 769-779.

LAMB JM, DOWNS S, EISEB S, TAYLOR PJ. Increased geographic sampling reveals considerable new genetic diversity in the morphologically conservative African Pygmy Mice (Genus *Mus*; Subgenus *Nannomys*). *Mammalian Biology* 2014; **79**(1) : 24-35.

LE ROUX JJ, BLIGNAUT M, GILDENHUYS E, MAVENGERE NR, BERTHOULY-SALAZAR C. The molecular ecology of biological invasions: what do we know about non-additive genotypic effects and invasion success?. *Biological Invasions* 2014; **16**(5) : 997-1001.

LE ROUX JJ, STRASBERG D, ROUGET M, MORDEN C W, KOORDOM M, RICHARDSON DM. Relatedness defies biogeography: the tale of two island endemics (*Acacia heterophylla* and *A. koa*). *New Phytologist* 2014; **204**(1) : 230-242.

LE ROUX M, PHIRI EE, KHAN W, SAKIROGLU M, VALENTINE AJ, KHAN S. Expression of novel cytosolic malate dehydrogenases (cMDH) in *Lupinus angustifolius* nodules during phosphorus starvation. *Journal of Plant Physiology* 2014; **171** : 1609-1618.

LEE JE, TERAUDS A, CHOWN SL. Natural dispersal to sub-Antarctic Marion Island of two arthropod species. *Polar Biology* 2014; **37** : 781-787.

LEISHMAN MR, COOKE J, RICHARDSON DM. Evidence for shifts to faster growth strategies in the new ranges of invasive alien plants. *Journal of Ecology* 2014; **102** : 1451-1461.

LINDEN VMG, WEIER SM, GAIGHER I, KUIPERS HJ, WETERINGS MJA, TAYLOR PJ. Changes of Bat Activity, Species Richness, Diversity and Community Composition over an Altitudinal Gradient in the Soutpansberg Range, South Africa. *Acta Chiropterologica* 2014; **16**(1) : 27-40.

LÖTTER D, ARCHER VAN GARDEREN E, TADROSS M, VALENTINE AJ. Seasonal variation in the nitrogen nutrition and carbon assimilation in wild and cultivated *Aspalathus linearis* (rooibos tea). *Australian Journal of Botany* 2014; **62**(1) : 65-73.

LOTTER D, VALENTINE AJ, ARCHER VAN GARDEREN E, TADROSS M. Physiological responses of a fynbos legume, *Aspalathus linearis* to drought stress. *South African Journal of Botany* 2014; **94** : 218-223.

LOUW SVDM, WILSON JRU, JANION C, VELDTMAN R, DAVIES SJ, ADDISON M. The unknown underworld: Understanding soil health in South Africa. *South African Journal of Science* 2014; **110** : 5-6.

- LYONS CL, COETZEE M, TERBLANCHE JS, CHOWN SL.** Desiccation tolerance as a function of age, sex, humidity and temperature in adults of the African malaria vectors *Anopheles arabiensis* Patton and *Anopheles funestus*. *Journal of Experimental Biology* 2014; **217** : 3823-3833.
- MACHINGAMBI NM, ROUX J, DREYER LL, ROETS F.** Bark and ambrosia beetles (*Curculionidae: Scolytinae*), their phoretic mites (*Acari*) and associated *Geosmithia* species (*Ascomycota: Hypocreales*) from *Virgilia* trees in South Africa. *Fungal Biology* 2014; **118**(5-6) : 472-483.
- MAGADLELA A, KLEINERT A, DREYER LL, VALENTINE AJ.** Low-phosphorus conditions affect the nitrogen nutrition and associated carbon costs of two legume tree species from a Mediterranean-type ecosystem. *Australian Journal of Botany* 2014; **62**(1) : 1-9.
- MAVENGERE NR, ELLIS AG, LE ROUX JJ.** *Burkholderia aspalathi* sp. nov., isolated from root nodules of the South African legume *Aspalathus abietina* Thunb. *International Journal of Systematic and Evolutionary Microbiology* 2014; **64**(6) : 1906-1912.
- MERCADO VT, SOLIMANO FERNÁNDEZ E, GILIOMEE JH.** Life table parameters of the woolly whitefly *Aleurothrixus floccosus* (Hemiptera: Aleyrodidae) and its parasitoid *Cales noacki* (Hymenoptera: Aphelinidae). *European Journal of Entomology* 2014; **111**(2) : 251-256.
- MINNAAR IA, SHINNER R, VAN NOORT S, CLUSELLA-TRULLAS S.** New Records of the Parasitic wasp *Dinocampus coccinellae* (Hymenoptera: Braconidae) and its Hosts in South Africa. *African Entomology* 2014; **22**(1) : 226-229.
- MINOARIVÉLO HO, HUI C, TERBLANCHE JS, KOSAKOVSKY POND SL, SCHEFFLER K.** Detecting phylogenetic signal in mutualistic interaction networks using a Markov process model. *Oikos* 2014; **123** : 1250-1260.
- MKARE KT, VON DER HEYDEN S, GROENEVELD JC, MATTHEE CA.** Genetic population structure and recruitment patterns of three sympatric shallow-water penaeid prawns in Ungwana Bay, Kenya, with implication for fisheries management. *Marine and Freshwater Research* 2014; **65** : 255-266.
- MOODLEY D, GEERTS S, REBELO AG, RICHARDSON DM, WILSON JRU.** Site-specific conditions influence plant naturalization: The case of alien Proteaceae in South Africa. *Acta Oecologica- International Journal of Ecology* 2014; **59** : 62-71.
- MOTHAPO NP, WOSSLER TC.** Resource competition assays between the African big-headed ant, *Pheidole megacephala* (Fabricius), and the invasive Argentine ant, *Linepithema humile* (Mayr): mechanisms of inter-specific displacement. *Ecological Entomology* 2014; **39**(4) : 501-510.
- MOUTON PLN, FLEMMING AF, BROECKHOVEN C.** Generation Gland Morphology in Cordylid Lizards: An Evolutionary Perspective. *Journal of Morphology* 2014; **275**(4) : 456-464.
- MOUTON PLN, GLOVER JL, FLEMMING AF.** Solitary individuals in populations of the group-living lizard *Ouroborus cataphractus*: voluntary or forced?. *African Zoology* 2014; **49**(2) : 307-310.
- MURIENNE J, DANIELS SR, BUCKLEY TR, MAYER G, GIRIBET G.** A living fossil tale of Pangaeon biogeography. *Proceedings of the Royal Society B-Biological Sciences* 2014; **281** : 20132648.
- NEL A, PITCHER G, RICHOUX NB, JACKSON S.** Culture environment and hatchery of origin influence growth, condition and feeding organ morphology in the Pacific oyster *Crassostrea gigas* in South Africa. *African Journal of Marine Science* 2014; **36**(4) : 481-491.
- NEL JL, LE MAITRE DC, NEL DC, REYERS B, ARCHIBALD S, VAN WILGEN BW, FORSYTH GG, THERON AK, O'FARRELL PJ, KAHINDA J-MM, ENGELBRECHT FA, KAPANGAZIWIRI E, VAN NIEKERK L, BARWELL L.** Natural Hazards in a Changing World: A Case for Ecosystem-Based Management. *PLoS ONE* 2014; **9**(5) : e95942.

- NEWMAN E, MANNING J, ANDERSON BC.** Matching floral and pollinator traits through guild convergence and pollinator ecotype formation. *Annals of Botany* 2014; **113** : 373-384.
- NKOMO MM, KATERERE DDR, VISMER H, CRUZ TT, BALAYSSAC SS, MALET-MARTINO MM, MAKUNGA NP.** *Fusarium* inhibition by wild populations of the medicinal plant *Salvia africana-lutea* L. linked to metabolomic profiling. *BMC Complementary and Alternative Medicine* 2014; **14**(99) : 1472-6882.
- NKOMO MM, VISMER H, MAKUNGA NP.** *Fusarium* inhibition by wild populations of the medicinal plant *Salvia africana-lutea* L. linked to metabolomic profiling. *BIOMEDICA* 2014; **14**(1) : 99.
- NOVOA A, RODRÍGUEZ R, RICHARDSON DM, GONZALEZ L.** Soil quality: a key factor in understanding plant invasion? The case of *Carpobrotus edulis* (L.) N.E.Br. *Biological Invasions* 2014; **16**(2) : 429-443.
- O'CONNELL CP, ANDREOTTI S, RUTZEN M, MEYËR MA, HE P.** The use of permanent magnets to reduce elasmobranch encounter with a simulated beach net. 2. The great white shark (*Carcharodon carcharias*). *Ocean & Coastal Management* 2014; **97** : 20-28.
- O'CONNELL CP, ANDREOTTI S, RUTZEN M, MEYËR MA, MATTHEE CA, HE P.** Effects of the Sharksafe barrier on Great white shark (*Carcharodon carcharias*) behavior and its implications for future conservation technologies. *Journal of Experimental Marine Biology and Ecology* 2014; **460** : 37-46.
- OBERLANDER KC, ROETS F, DREYER LL.** Discovery of substantial *Oxalis* (Oxalidaceae) diversity and endemism in an arid biodiversity hotspot. *Phytotaxa* 2014; **181** (2) : 079-095.
- OBERLANDER KC, ROETS F, DREYER LL.** Pre-Pleistocene origin of an endangered habitat: links between vernal pools and aquatic *Oxalis* in the Greater Cape Floristic Region of South Africa. *Journal of Biogeography* 2014; **41** : 1572-1582.
- OCHYRA R, VÁÑA J, SMITH VR, CYKOWSKA B.** Seven liverwort species new or confirmed from subantarctic Prince Edward Island. *Herzogia* 2014; **27** (2) : 397-407.
- OSBORNE CP, SALOMAA A, KLUYVER TA, VISSER V, KELLOGG EA, MORRONE O, VORONTSOVA MS, CLAYTON WD, SIMPSON DA.** A global database of C₄ photosynthesis in grasses. *New Phytologist* 2014; **204**(3) : 441-446.
- OUYANG F, HUI C, MEN X-Y, ZHAO Z-H, SHI P-J, ZHANG F, LI B-L, SAIYING G.** Weakening density dependence from climate change and agricultural intensification triggers pest outbreaks: a 37-year observation of cotton bollworms. *Ecology and Evolution* 2014; **4**(17) : 3362-3374.
- OWOJORI OJ, REINECKE AJ.** Differences in ionic properties of salts affect saline toxicity to the earthworm *Eisenia fetida*. *Applied Soil Ecology* 2014; **83** : 247-252.
- PETERS K, GRIFFITHS CL, ROBINSON TB.** Patterns and drivers of marine bioinvasions in eight Western Cape harbours, South Africa. *African Journal of Marine Science* 2014; **36**(1) : 49-57.
- PHIRI EE, DANIELS SR.** Disentangling the divergence and cladogenesis in the freshwater crab species (Potamonautidae: *Potamonautes perlatus sensu lato*) in the Cape Fold Mountains, South Africa, with the description of two novel cryptic lineages. *Zoological Journal of the Linnean Society* 2014; **170** : 310-332.
- PIO DV, ENGLER R, LINDER HP, MONADJEM A, COTTERILL FPD, TAYLOR PJ, SCHOEMAN MC, PRICE BW, VILLET MH, EICK G, SALAMIN N, GUISAN A.** Climate change effects on animal and plant phylogenetic diversity in southern Africa. *Global Change Biology* 2014; **20**(5) : 1538-1549.

- PLIENINGER T, HUI C, GAERTNER M, HUNTSINGER L.** The Impact of Land Abandonment on Species Richness and Abundance in the Mediterranean Basin: A Meta-Analysis. *PLoS ONE* 2014; **9**(5) : e98355.
- POTGIETER LJ, RICHARDSON DM, WILSON JRU.** *Casuarina cunninghamiana* in the Western Cape, South Africa: Determinants of naturalisation and invasion, and options for management. *South African Journal of Botany* 2014; **92** : 134-146.
- POTGIETER LJ, RICHARDSON DM, WILSON JRU.** *Casuarina*: biogeography and ecology of an important tree genus in a changing world. *Biological Invasions* 2014; **16**(3) : 609-633.
- POTGIETER LJ, WILSON JRU, STRASBERG D, RICHARDSON DM.** *Casuarina* Invasion Alters Primary Succession on Lava Flows on La Reunion Island. *Biotropica* 2014; **46**(3) : 268-275.
- PRIVETT SDJ, KRUG RM, FORBES G, GAERTNER M.** Wild flower harvesting on the Agulhas Plain, South Africa: Impact of harvesting intensity under a simulated commercial harvesting regime for two re-seeding and two re-sprouting fynbos species. *South African Journal of Botany* 2014; **94** : 270-275.
- PYŠEK P, JAROŠÍK V, PERGL J, MORAVCOVA L, CHYTRÝ M, KÜHN I.** Temperate trees and shrubs as global invaders: the relationship between invasiveness and native distribution depends on biological traits. *Biological Invasions* 2014; **16** : 577-589.
- RADLOFF FGT, MUCINA L, SNYMAN D.** The impact of native large herbivores and fire on the vegetation dynamics in the Cape renosterveld shrublands of South Africa: insights from a six-year field experiment. *Applied Vegetation Science* 2014; **17** : 456-469.
- RAZOWSKI J, GILIOME JH.** A new Afrotropical Chlidanotini species (Lepidoptera: Tortricidae) inhabiting galls of white milkwood, *Sideroxylon inerme*, in South Africa. *African Entomology* 2014; **22**(4) : 796-800.
- REINECKE AJ, REINECKE SA, MDZEKE NP.** 'n Vergelykende ondersoek na die akkumulering van metale in die mosselkrewel (*Tetraclita serrata*) en die swartmossel (*Choromytilis meridionalis*) in Valsbaai, Suid-Afrika. *South African Journal for Science and Technology* 2014; **33**(1) : Art. #1181, 9 pages.
- REINECKE SA, REINECKE AJ.** Cellular responses of the starfish, *Parvalustra exigua* to metal pollution in False Bay, South Africa. *African Zoology* 2014; **49**(2) : 233-246.
- REYNOLDS T, MATTHEE CA, VON DER HEYDEN S.** The Influence of Pleistocene Climatic Changes and Ocean Currents on the Phylogeography of the Southern African Barnacle, *Tetraclita serrata* (Thoracica; Cirripedia). *PLoS ONE* 2014; **9**(7) : e102115.
- RICHARDSON DM, HUI C, NUÑEZ MA, PAUCHARD A.** Tree invasions: patterns, processes, challenges and opportunities. *Biological Invasions* 2014; **16** : 473-481.
- RIUS M, CLUSELLA-TRULLAS S, MCQUAID CD, NAVARRO RA, GRIFFITHS CL, MATTHEE CA, VON DER HEYDEN S, TURON X.** Range expansions across ecoregions: interactions of climate change, physiology and genetic diversity. *Global Ecology and Biogeography* 2014; **23**(1) : 76-88.
- ROBINSON TJ, CERNOHORSKA H, DIEDERICKS G, CABELOVA K, DURAN A, MATTHEE CA.** Phylogeny and vicariant speciation of the Grey Rhebok, *Pelea capreolus*. *Heredity* 2014; **112** : 325-332.
- ROETS F, OBERLANDER KC, DREYER LL.** New relatives of *Oxalis pes-caprae* (*Oxalidaceae*) from South Africa. *Blumea* 2014; **59** : 131-138.
- ROGERS AM, CHOWN SL.** Novel ecosystems support substantial avian assemblages: the case of invasive alien *Acacia* thickets. *Diversity and Distributions* 2014; **20**(1) : 34-45.

- ROTH KM, BEEKMAN M, ALLSOPP MH, GOUDIE F, WOSSLER TC, OLDROYD B.P.** Cheating workers with large activated ovaries avoid risky foraging. *Behavioral Ecology* 2014; **25**(3) : 668-674.
- ROUSSE P, VAN NOORT S.** *Belesica madiba* and *Cremastus tutui* (Ichneumonidae: Cremastinae), two entomological gems from South Africa. *Zootaxa* 2014; **3795**(2) : 161-173.
- ROY HE, PEYTON J, ALDRIGDE DC, BANTOCK T, BLACKBURN TM, BRITTON R, CLARK P, COOK E, DEHNEN-SCHMUTZ K, DINES T, DOBSON M, EDWARDS F, HARROWER C, HARVEY MC, MINCHIN D, NOBLE DG, PARROTT D, POCOCK MJO, PRESTON CD, ROY S, SALISBURY A, SCHÖNROGGE K, SEWELL J.** Horizon scanning for invasive alien species with the potential to threaten biodiversity in Great Britain. *Global Change Biology* 2014; **20** : 3859-3871.
- RUNDEL PW, DICKIE IA, RICHARDSON DM.** Tree invasions into treeless areas: mechanisms and ecosystem processes. *Biological Invasions* 2014; **16** : 663-675.
- RUSCH UD, MIDGLEY JJ, ANDERSON BC.** Seasonal fluctuations in rodent seed caching and consumption behaviour in fynbos shrublands: Implications for fire management. *South African Journal of Botany* 2014; **93** : 217-221.
- RUTHERFORD MC, POWRIE LW, HUSTED LB.** Herbivore-driven land degradation: consequences for plant diversity and soil in arid subtropical thicket in South-Eastern Africa. *Land Degradation & Development* 2014; **25**(6) : 541-553.
- SHACKLETON RT, LE MAITRE DC, PASIECZNIK NM, RICHARDSON DM.** *Prosopis*: a global assessment of the biogeography, benefits, impacts and management of one of the world's worst woody invasive plant taxa. *AoB Plants* 2014; **6**(27) : plu027.
- SHI P-J, HUI C, MEN X-Y, ZHAO Z, OUYANG F, GE F, JIN X-S, CAO HF, LI B-L.** Cascade effects of crop species richness on the diversity of pest insects and their natural enemies. *Science China-Life Sciences* 2014; **57**(7) : 718-725.
- SHI P-J, ISHIKAWA T, SANDHU HS, HUI C, CHAKRABORTY A, JIN X-S, TACHIHARA K, LI B-L.** On the $3/4$ -exponent von Bertalanffy equation for ontogenetic growth. *Ecological Modelling* 2014; **276** : 23-28.
- SHI P-J, ZHAO Z, SANDHU HS, HUI C, MEN X-Y, GE F, LI B-L.** An optimization approach to the two-circle method of estimating ground-dwelling arthropod densities. *Florida Entomologist* 2014; **97**(2) : 644-652.
- SIMON CA, MARTIN GS, ROBINSON G.** Two new species of *Syllis* (Polychaeta: Syllidae) from South Africa, one of them viviparous, with remarks on larval development and vivipary. *Journal of the Marine Biological Association of the United Kingdom* 2014; **94**(4) : 729-746.
- SOUZA-ALONSO P, NOVOA A, GONZALEZ L.** Soil biochemical alterations and microbial community responses under *Acacia dealbata* Link invasion. *Soil Biology & Biochemistry* 2014; **79** : 100-108.
- SU S, CASSEY P, BLACKBURN TM.** Patterns of non-randomness in the composition and characteristics of the Taiwanese bird trade. *Biological Invasions* 2014; **16**(12) : 2563-2575.
- TAYLOR PJ, MAREE S, COTTERILL FPD, MISSOUP AD, NICOLAS V, DENYS C.** Molecular and morphological evidence for a Pleistocene radiation of laminate-toothed rats (*Otomys*: Rodentia) across a volcanic archipelago in equatorial Africa. *Biological Journal of the Linnean Society* 2014; **113**(1) : 320-344.
- THUYNSMA R, VALENTINE AJ, KLEINERT A.** Phosphorus deficiency affects the allocation of below-ground resources to combined cluster roots and nodules in *Lupinus albus*. *Journal of Plant Physiology* 2014; **171** : 285-291.

- THUYN SMA R, VALENTINE AJ, KLEINERT A.** Short-term supply of elevated phosphate alters the below ground carbon allocation costs and functions of lupin cluster roots and nodules. *Journal of Plant Physiology* 2014; **171** : 648-654.
- TOLLEY KA, CHAUKE LF, JACKSON JC, FELDHEIM KA.** Multiple paternity and sperm storage in the Cape Dwarf Chameleon (*Bradypodion pumilum*). *African Journal of Herpetology* 2014; **63** : 47-56.
- TOLLEY KA, DANIELS RJ, FELDHEIM KA.** Characterisation of microsatellite markers in the Spotted Sand Lizard (*Pedioplanis lineoocellata*) shows low levels of inbreeding and moderate genetic diversity on a small spatial scale. *African Journal of Herpetology* 2014; **63**(2) : 1-11.
- TOMS JA, COMPTON JS, SMALE M, VON DER HEYDEN S.** Variation in palaeo-shorelines explains contemporary population genetic patterns of rocky shore species. *Biology Letters* 2014; **10**(6) : 20140330.
- TREASURE AM, CHOWN SL.** Antagonistic effects of biological invasion and temperature change on body size of island ectotherms. *Diversity and Distributions* 2014; **20** : 202-213.
- TROLLOPE W, VAN WILGEN BW, TROLLOPE LA, GOVENDER N, POTGIETER AL.** The long-term effect of fire and grazing by wildlife on range condition in moist and arid savannas in the Kruger National Park. *African Journal of Range & Forage Science* 2014; **31**(3) : 199-208.
- TRUTER JC, VAN WYK JH, MOUTON PLN.** An evaluation of daily, seasonal and population-level variation in the thermal preference of a group-living lizard, *Ouroborus cataphractus* (Sauria: Cordylidae). *Amphibia-Reptilia* 2014; **35** : 391-403.
- TRUTER JC, VAN WYK JH, OBERHOLSTER PJ, BOTHA A-M.** The impacts of neutralized acid mine drainage contaminated water on the expression of selected endocrine-linked genes in juvenile Mozambique tilapia *Oreochromis mossambicus* exposed *in vivo*. *Ecotoxicology and Environmental Safety* 2014; **100** : 209-217.
- VAN DEN HEUVEL IM, CHERRY MI, KLUMP GM.** Crimson-breasted Shrike females with extra pair offspring contributed more to duets. *Behavioral Ecology and Sociobiology* 2014; **68**(8) : 1245-1252.
- VAN DEN HEUVEL IM, CHERRY MI, KLUMP GM.** Land or lover? Territorial defense and mutual mate guarding in the crimson-breasted shrike. *Behavioral Ecology and Sociobiology* 2014; **68** : 373-381.
- VAN WILGEN BW, DAVIES SJ, RICHARDSON DM.** Invasion science for society: A decade of contributions from the Centre for Invasion Biology. *South African Journal of Science* 2014; **110**(7/8): Art. #a0074, 12 pages.
- VAN WILGEN BW, GOVENDER N, SMIT IPJ, MACFADYEN S.** The ongoing development of a pragmatic and adaptive fire management policy in a large African savanna protected area. *Journal of Environmental Management* 2014; **132** : 358-368.
- VAN WILGEN BW, RICHARDSON DM.** Challenges and trade-offs in the management of invasive alien trees. *Biological Invasions* 2014; **16** : 721-734.
- VANHOYDONCK B, JAMES RS, TALLIS J, AERTS P, TADIC Z, TOLLEY KA, MEASEY GJ, HERREL A.** Is the whole more than the sum of its parts? Evolutionary trade-offs between burst and sustained locomotion in lacertid lizards. *Proceedings of the Royal Society B-Biological Sciences* 2014; **281**(177) : 20132677.
- VARDIEN W, MESJASZ-PRZYBYLOWICS J, PRZYBYLOWICZ WJ, WANGY, STEENKAMP ET, VALENTINE AJ.** Nodules from Fynbos legume *Virgilia divaricata* have high functional plasticity under variable P supply levels. *Journal of Plant Physiology* 2014; **171** : 1732-1739.

VEYRUNES F, PEREZ J, BORREMANS B, GRYSEELS S, RICHARDS LR, DURAN A, CHEVRET P, ROBINSON TJ, BRITTON-DAVIDIAN J. A new cytotype of the African pygmy mouse *Mus minutoides* in Eastern Africa. Implications for the evolution of sex-autosome translocations. *Chromosome Research* 2014; **22**(4) : 533-543.

VISSER J, CLAYTON WD, SIMPSON DA, FRECKLETON RP, OSBORNE CP. Mechanisms driving an unusual latitudinal diversity gradient for grasses. *Global Ecology and Biogeography* 2014; **23**(1) : 61-75.

VISSER J, LANGDON B, PAUCHARD A, RICHARDSON DM. Unlocking the potential of Google Earth as a tool in invasion science. *Biological Invasions* 2014; **16** : 513-534.

VON DER HEYDEN S, BEGER M, TOONEN RJ, VAN HERWERDEN L, JUINIO-MEÑEZ MA, RAVAGO-GOTANCO R, FAUVELOT C, BERNARDI G. The application of genetics to marine management and conservation: examples from the Indo-Pacific. *Bulletin of Marine Science* 2014; **90**(1) : 123-158.

VOUA OTOMO P, REINECKE SA, REINECKE AJ. Using the Comet Assay to Assess the Combined and Separate Genotoxic Effects of Cd and Zn in *Eisenia andrei* (Oligochaeta) at Different Temperatures. *Bulletin of Environmental Contamination and Toxicology* 2014; **92** : 285-288.

WESTER P. Feeding on the wing: hovering in nectar-drinking Old World birds – more common than expected. *Emu* 2014; **114**(2) : 171-183.

WILSON JRU, CAPLAT P, DICKIE IA, HUI C, MAXWELL BD, NUÑEZ MA, PAUCHARD A, REJMÁNEK M, RICHARDSON DM, ROBERTSON MP, SPEAR D, WEBBER BL, VAN WILGEN BW, ZENNI RD. A standardized set of metrics to assess and monitor tree invasions. *Biological Invasions* 2014; **16**(3) : 535-551.

ZHANG F, HUI C. Recent experience-driven behaviour optimizes foraging. *Animal Behaviour* 2014; **88** : 13-19.

Journal articles (non-subsidised) / Tydskrifartikels (ongesubsidieer)

COLAUTTI RI, PARKER JD, CADOTTE MW, PYŠEK P, BROWN C, SAX DF, RICHARDSON DM. Quantifying the invasiveness of species. *Neobiota* 2014; **21** : 7-27.

MOTLOUNG RF, ROBERTSON MP, ROUGET M, WILSON JRU. Forestry trial data can be used to evaluate climate-based species distribution models in predicting tree invasions. *NeoBiota* 2014; **20** : 31-48.

ROSCHÉ C, SCHRIEBER K, HIRSCH H, BLACHNIK T, TRÄGER S, RICHTER F, SEIDLER G, HENSEN I. Sexuelle Reproduktion und klonales Wachstum in kleinen Populationen von *Antennaria dioica* (L.) Gaertner. *Hercynia N. F.* 2014; **47** : 59-86.

Books / Boeke

MUCINA L, RUTHERFORD MC, POWRIE LW, VAN NIEKERK A, VAN DER MERWE JH. *Vegetation Field Atlas of the Continental South Africa, Lesotho and Swaziland (Strelitzia 33)*. South African National Biodiversity Institute, Pretoria, South Africa 2014:48 pp.

Chapters in books / Hoofstukke in boeke

ALLSOPP N, ANDERSON PML, HOLMES PM, MELIN A, O'FARRELL PJ. People, the Cape Floristic Region, and sustainability. In *Fynbos: Ecology, Evolution, and Conservation of a Megadiverse Region*, Oxford University Press 2014, Oxford, United Kingdom, 2014: 337-360.

ALTWEGG R, WEST A, GILLSON L, MIDGLEY GF. Impacts of climate change in the Greater Cape Floristic Region. In *Fynbos: Ecology, Evolution, and Conservation of a Megadiverse Region*, Oxford University Press 2014, Oxford, United Kingdom, 2014: 299-320.

ANDERSON BC, ALLSOPP MH, ELLIS AG, JOHNSON SD, MIDGLEY JJ, PAUW A, RODGER JG. Biotic interactions. In *Fynbos: Ecology, Evolution, and Conservation of a Megadiverse Region*, Oxford University Press 2014. Oxford, United Kingdom, 2014: 224-247.

COLVILLE JF, POTTS AJ, BRADSHAW PL, MEASEY GJ, SNIJMAN D, PICKER MD, PROCHES S, BOWIE RCK, MANNING J. Floristic and faunal Cape biochoria: do they exist?. In *Fynbos: Ecology, Evolution, and Conservation of a Megadiverse Region*, Oxford University Press 2014. Oxford, United Kingdom, 2014: 73-92.

ELLIS AG, VAN DER NIETT, JOHNSON SD, VERBOOM GA, LINDER HP. Speciation and extinction in the Greater Cape Floristic Region. In *Fynbos: Ecology, Evolution, and Conservation of a Megadiverse Region*, Oxford University Press. Oxford, United Kingdom, 2014: 119-141.

KRAAIJ T, VAN WILGEN BW. Drivers, ecology and management of fire in fynbos. In *Fynbos: Ecology, Evolution, and Conservation of a Megadiverse Region*, Oxford University Press 2014. Oxford, United Kingdom, 2014: 47-72.

SLINGSBY JA, ACKERLY DD, LATIMER AM, LINDER HP, PAUW A. The assembly and function of Cape plant communities in a changing world. In *Fynbos: Ecology, Evolution, and Conservation of a Megadiverse Region*, Oxford University Press. Oxford, United Kingdom, 2014: 200-223.

TOLLEY KA, BOWIE RCK, MEASEY GJ, PRICE BW, FOREST F. The shifting landscape of genes since the Pliocene: terrestrial phylogeography in the Greater Cape Floristic Region. In *Fynbos: Ecology, Evolution, and Conservation of a Megadiverse Region*, Oxford University Press 2014. Oxford, United Kingdom, 2014: 142-163.

WILSON JRU, GAERTNER M, GRIFFITHS CL, KOTZÉ I, LE MAITRE DC, PICKER MD, SPEAR D, STAFFORD L, RICHARDSON DM, VAN WILGEN BW, WANNENBURGH A. Biological invasions in the Cape Floristic Region: history, current patterns, impacts, and management challenges. In *Fynbos: Ecology, Evolution, and Conservation of a Megadiverse Region*, Oxford University Press 2014. Oxford, United Kingdom, 2014: 273-298.

Doctoral completed / Doktoraal afgehandel

BLANCHARD R. *An assessment of the potential biodiversity impacts from biofuel production in South Africa.* PhD, 2014. 183 pp. Promotor: Richardson DM. Co-promotor: O'Farrell PJ.

DAVIES SJ. *Geographic range, spread and potential distribution of the painted reed frog *Hyperolius marmoratus* in the Western Cape Province, South Africa.* PhD, 2014. 133 pp. Promotor: Clusella-Trullas S. Co-promotor: McGeoch MA.

MUSVUUGWA T. *Biodiversity and ecology of ophiostomatoid fungi associated with trees in the Cape Floristic Region of South Africa.* PhD, 2014. 185 pp. Promotor: Roets F. Co-promotor: Dreyer LL.

Masters completed / Magister afgehandel

AYLWARD J. *Diversity and dispersal of the ophiostomatoid fungus *Knoxdaviesia proteae* (Gondwanamyces proteae) within *Protea repens* infructescences.* MSc, 2014. 96 pp. Study leader: Dreyer LL. Co-study leaders: Steenkamp ET, Wingfield MJ, Roets F.

AYLWARD J. *Diversity and dispersal of the ophiostomatoid fungus, *Knoxdaviesia proteae*, within *Protea repens* infructescences.* MSc, 2014. 96 pp. Study leader: Roets F. Co-study leader: Dreyer LL.

- HAVENGA B.** *Fouling by non-indigenous marine species – impacts on biodiversity and mariculture.* MSc, 2014. 72 pp. Study leader: Robinson TB.
- KEMP JE.** *Untangling mechanisms structuring insect diversity patterns in the Cape Floristic Region: the Restionaceae and their herbivores.* MSc, 2014. 85 pp. Study leader: Ellis AG.
- POTGIETER L.** *Casuarina invasions: a multi-scale assessment of an important tree genus.* MSc, 2014. 170 pp. Study leader: Richardson DM. Co-study leader: Wilson JRU.
- SCHREUDER E.** *Impacts of the alien invasive pine *Pinus radiata* on lizard diversity and thermal habitat quality.* MSc, 2014. 0 pp. Study leader: Clusella-Trullas S.
- SHINNER R.** *Thermal biology of the invasive ladybird *Harmonia axyridis*: physiological plasticity, thermoregulatory behaviour and fitness.* MSc, 2014. 112pp. Study leader: Clusella-Trullas S. Co-study leader: Terblanche JS.
- VAN DER COLFF D.** *Plant stress and the prevalence of pest and pathogens associated with a native and an invasive alien legume tree in the Cape Floristic Region, South Africa.* MSc, 2014. 145 pp. Study leader: Dreyer LL. Co-study leaders: Roets F, Valentine A.
- WIESE TJ.** *The evolution of fynbos-endemic *Cephalelini* leafhoppers specialising on Restionaceae.* MSc, 2014. 62 pp. Study leader: Ellis AG. Co-study leader: Le Roux JJ.

CHEMISTRY & POLYMER SCIENCE / CHEMIE & POLIMEERWETENSKAP

Journal articles (subsidised) / Tydskrifartikels (gesubsidieer)

- AGGARWAL H, BHATT PM, BEZUIDENHOUT CX, BARBOUR LJ.** Direct evidence for single-crystal to single-crystal switching of degree of interpenetration in a metal-organic framework. *Journal of the American Chemical Society* 2014; **136** : 3776-3779.
- AHIRE JJ, NEPPALLI R, HEUNIS TDJ, VAN REENEN AJ, DICKS LMT.** 2,3-Dihydroxybenzoic acid electrospun into poly(D,L-lactide) (PDLLA)/Poly(ethylene oxide) (PEO) nanofibers inhibited the growth of gram-positive and gram-negative bacteria. *Current Microbiology* 2014; **69**(5) : 587-593.
- ANDERSSON RL, MARTINEZ-ABAD A, LAGARON JM, GEDDE UW, MALLON PE, OLSSON RT, HEDENQVIST M.** Antibacterial properties of tough and strong electrospun PMMA/PEO fiber mats filled with Lanazol – A naturally occurring brominated substance. *International Journal of Molecular Sciences* 2014; **15** : 15912-15923.
- ANDERSSON RL, STRÖM V, GEDDE UW, MALLON PE, HEDENQVIST MS, OLSSON RT.** Micromechanics of ultra-toughened electrospun PMMA/PEO fibres as revealed by in-situ tensile testing in an electron microscope. *Scientific Reports* 2014; **4** : 6335.
- ARNOTT GE, MOQUIST P, DANILIUC CG, KEHR G, ERKER G.** A phosphine calix[4]arene bis-frustrated Lewis pair. *European Journal of Inorganic Chemistry* 2014; **8** : 1394-1398.
- BARBOUR LJ.** An introduction to the virtual issue on *coordination polymers*. *Acta Crystallographica Section C-Crystal Structure Communications* 2014; **C70** : 638-369.
- BARBOUR LJ.** Crystallographic studies of gas sorption in metal-organic frameworks. *Acta Crystallographica Section B-Structural Science* 2014; **B70** : 404-422.
- BASSO MC, GIOVANDO S, PIZZI A, PASCH H, PRETORIUS NO, DELMOTTE L, CELZARD A.** Flexible-elastic copolymerized polyurethane-tannin foams. *Journal of Applied Polymer Science* 2014; **131**(13) : 40499.

BLACKIE MAL. Creating semantic waves: using legitimation code theory as a tool to aid teaching of chemistry. *Chemistry Education Research and Practice* 2014; **15** : 462-469.

BOTES MG, PELLY SC, BLACKIE MAL, KORNIENKO A, VAN OTTERLO WAL. Synthesis of 4-azapodophyllotoxins with anticancer activity by multicomponent reactions (Review). *Chemistry of Heterocyclic Compounds* 2014; **50(2)** : 119-138.

BOTHA CB, WEBER WG, PFUKWA H, PASCH H. Controlled radical polymerization using a novel symmetrical selenium RAFT agent. *Macromolecular Chemistry and Physics* 2014; **215** : 1625-1632.

BOTHA L, SINHA PP, JOUBERT S, DUVESKOG H, VAN REENEN AJ. Solution and solid-state NMR characterization of heterophasic propylene-ethylene copolymers (HEPC) with increasing ethylene content. *European Polymer Journal* 2014; **59** : 94-104.

CHAKRAVORTY S, KLEIN HF, HODSON LE, RABILLER M, FANG Z, RICHTERS A, PELLY SC, RAUH D, VAN OTTERLO WAL. Synthesis of novel piperazine-linked anthranilic acids as potential small molecule kinase inhibitors. *South African Journal of Chemistry-Suid-Afrikaanse Tydskrif vir Chemie* 2014; **67** : 71-79.

CHERUTHAZHEKATT S, PASCH H. Defining the distribution of ethylene-propylene copolymer phases in heterophasic ethylene-propylene copolymers by a sequential xylene extraction method: Chemical and morphological analysis. *Polymer* 2014; **55** : 5338-5369.

CHERUTHAZHEKATT S, PASCH H. Preparative solution crystallization fractionation: a simple and rapid fractionation method for the chemical composition separation of complex ethylene-propylene copolymers. *Analytical and Bioanalytical Chemistry* 2014; **406** : 2999-3007.

CHIROWODZA H, HARTMANN PC, PASCH H. Surface-initiated RAFT polymerization of clay nanoparticles with polystyrene: New insights using MALDI-TOF MS and ¹H NMR. *Macromolecular Chemistry and Physics* 2014; **215** : 791-801.

DASARI R, BANULS LMY, MASI M, PELLY SC, MATHIEU V, GREEN IR, VAN OTTERLO WAL, EVIDENTE A, KISS R, KORNIENKO A. C1, C2-ether derivatives of the *Amaryllidaceae* alkaloid lycorine: Retention of activity of highly lipophilic analogues against cancer cells. *Bioorganic & Medicinal Chemistry Letters* 2014; **24** : 923-927.

DE JONGH L-A, DOBRZANSKA L, STRASSER CE, RAUBENHEIMER HG, CRONJE S. Imine-coordinated 2-aminoazole complexes of Au(I): Complicating reactions and verification of products by crystal structure determination. *Zeitschrift Fur Naturforschung Section B-A Journal of Chemical Sciences* 2014; **69b** : 1073-1084.

DOMAGALA S, KOSC K, ROBINSON SW, HAYNES DA, WOZNIAK K. Dithiadiazolyl radicals – structures and charge densities of their crystals and co-crystal. *Crystal Growth & Design* 2014; **14** : 4834-4848.

DU PLESSIS M, SMITH VJ, BARBOUR LJ. Single-crystal to single-crystal guest exchange and phase transformations in a porous metallocycle. *CrystEngComm* 2014; **16** : 4126-4132.

ENGEL E, SMITH VJ, BEZUIDENHOUT CX, BARBOUR LJ. Uniaxial negative thermal expansion facilitated by weak host-guest interactions. *Chemical Communications* 2014; **50** : 4238-4241.

FISHER LC, BLACKIE MAL. Tetraoxanes as antimalarials: Harnessing the endoperoxide. *Mini-Reviews in Medicinal Chemistry* 2014; **14(2)** : 123-125.

GREESH NGI, SANDERSON RD, HARTMANN PC. Functionalization of montmorillonite by end-chain mono-cationic polystyrene and end-chain mono-cationic poly(styrene-b-2-hydroxyethyl acrylate). *Applied Clay Science* 2014; **93-94** : 38-47.

- GREYLING GH, PASCH H.** Multidetector thermal field-flow fractionation as a novel tool for the microstructure separation of polyisoprene and polybutadiene. *Macromolecular Rapid Communications* 2014; **35**(12) : 1846-1851.
- HADASHA WAS, KLUMPERMAN B.** Atom transfer radical polymerization as a powerful tool in the synthesis of molecular brushes. *Polymer International* 2014; **63** : 824-834.
- HAMANN AR, DE KOCK C, SMITH PJ, VAN OTTERLO WAL, BLACKIE MAL.** Synthesis of novel triazole-linked mefloquine derivatives: Biological evaluation against *Plasmodium falciparum*. *Bioorganic & Medicinal Chemistry Letters* 2014; **24** : 5466-5469.
- HERBERT SA, VAN LAEREN L, CASTELL DC, ARNOTT GE.** Inherently chiral calix[4]arenes via oxazoline directed ortholithiation: synthesis and probe of chiral space. *Beilstein Journal of Organic Chemistry* 2014; **10** : 2751-2755.
- HILLER W, SINHA PP, HEHN M, PASCH H.** Online LC-NMR - From an expensive toy to a powerful tool in polymer analysis. *Progress in Polymer Science* 2014; **39** : 979-1016.
- HUSSAIN H, AL-HARRASI A, AL-RAWAHI A, GREEN IR, GIBBONS S.** Fruitful decade for antileishmanial compounds from 2002 to late 2011. *Chemical Reviews* 2014; **114** : 10369-10428.
- HUSSAIN H, AL-HARRASI A, GREEN IR, AHMED I, ABBAS G, REHMAN NU.** Meta-Chloroperbenzoic acid (mCPBA): a versatile reagent in organic synthesis. *RSC Advances* 2014; **4** : 12882-12917.
- HUSSAIN H, Kliche-Spory C, AL-HARRASI A, AL-RAWAHI A, ABBAS G, GREEN IR, SCHULZ B, KROHN K, SHAH A.** Antimicrobial constituents from three endophytic fungi. *Asian Pacific Journal of Tropical Medicine* 2014; **7** : 224-227.
- HUSSAIN H, KOCK I, AL-HARRASI A, ABBAS G, REHMAN NU, SHAH A, BADSHAH A, RANA UA, NOUREEN Z, GREEN IR, DRAEGER S, SCHULZ B, KROHN K.** Coniothyren: a new phenoxyphenyl ether from the endophytic fungus, *Coniothyrium* sp. *Journal of Asian Natural Products Research* 2014; **16**(11) : 1094-1098.
- HUSSAIN H, KOCK I, AL-HARRASI A, AL-RAWAHI A, ABBAS G, GREEN IR, SHAH A, BADSHAH A, SALEEM M, DRAEGER S, SCHULZ B, KROHN K.** Antimicrobial chemical constituents from endophytic fungus *Phoma* sp. *Asian Pacific Journal of Tropical Medicine* 2014; **7** (9) : 699-702.
- HUSSAIN H, ROOT N, JABEEN F, AL-HARRASI A, AL-RAWAHI A, AHMAD M, HASSAN Z, ABBAS G, MABOOD F, SHAH A, BADSHAH A, KHAN A, AHMAD R, GREEN IR, DRAEGER S, SCHULZ B, KROHN K.** Seimatoric acid and colletonic acid: Two new compounds from the endophytic fungi, *Seimatosporium* sp. and *Colletotrichum* sp. *Chinese Chemical Letters* 2014; **25** : 1577-1579.
- JACOBST, SMITH VJ, THOMAS LH, BARBOUR LJ.** Carbon dioxide entrapment in an organic molecular host. *Chemical Communications* 2014; **50** : 85-87.
- KALILI KM, DE SMET S, VAN HOEYLANDT T, LYNEN FDA, DE VILLIERS AJ.** Comprehensive two-dimensional liquid chromatography coupled to the ABTS radical scavenging assay: a powerful method for the analysis of phenolic antioxidants. *Analytical and Bioanalytical Chemistry* 2014; **406** : 4233-4242.
- LAMA P, DAS RK, SMITH VJ, BARBOUR LJ.** A combined stretching-tilting mechanism produces negative, zero and positive linear thermal expansion in a semi-flexible Cd(II)-MOF. *Chemical Communications* 2014; **50** : 6464-6467.
- LOOTS L-A, HAYNES DA, LE ROEX T.** Synthesis and solid-state supramolecular chemistry of a series of pyridinium-derived zwitterions. *New Journal of Chemistry* 2014; **38** : 2778-2786.

LUSI M, BARBOUR LJ. Temperature-dependent guest reorientation: a reversible order-disorder transformation in a single crystal. *CrystEngComm* 2014; **16** : 36-38.

LUSI M, DE VILLIERS D, ESTERHUYSEN C. Hydrogen-bond analysis: Statistical and computational versus experimental position refinement. *Crystal Growth & Design* 2014; **14** : 3480-3484.

MAHAMOT T, MOSS JR, MAPOLIE SF, SMITH GS, SLOOTWEG JC, LAMMERTSMA K. Platinacycloalkane complexes containing [P,N] bidentate ligands: synthesis and decomposition studies. *Dalton Transactions* 2014; **43** : 5546-5557.

MALGAS-ENUS R, MAPOLIE SF. Nickel metallodendrimers as catalyst precursors in the tandem oligomerization of ethylene and Friedel-Crafts alkylation of its olefinic products. *Inorganica Chimica Acta* 2014; **409** : 96-105.

MALIK MI, PASCH H. Novel developments in the multidimensional characterization of segmented copolymers. *Progress in Polymer Science* 2014; **39** : 87-123.

MALINGA SP, AROTIBA OA, KRAUSE RWM, MAPOLIE SF, DIALLO MS, MAMBA BB. Composite polyester membranes with embedded dendrimer hosts and bimetallic Fe/Ni nanoparticles: synthesis, characterisation and application to water treatment. *Journal of Nanoparticle Research* 2013; **15** : 1698.

MOTSOENENG TS, LUYT AS, VAN REENEN AJ. Investigation of the crystalline phase morphology of a beta-nucleated impact polypropylene copolymer. *Journal of Applied Polymer Science* 2014; **131**(4) : 39923.

MÜLLER R, MULANI I, BASSON AE, PRIBUT N, HASSAM M, MORRIS L, VAN OTTERLO WAL, PELLY SC. Novel indole based NN.RTIs with improved potency against wild type and resistant HIV. *Bioorganic & Medicinal Chemistry Letters* 2014; **24** : 4376-4380.

MURRAY P, KOCH KR, VAN ELDIK R. Mechanism of tetrachloroplatinate(II) oxidation by hydrogen peroxide in hydrochloric acid solution. *Dalton Transactions* 2014; **43** : 6308-6314.

NKABYO H, HANEKOM DC, MCKENZIE JM, KOCH KR. Light-induced cis/trans isomerization of cis- [Pd(L-S,O)₂] and cis-[Pt(L-S,O)₂] complexes of chelating N,N-dialkyl-N'-acylthioureas: key to the formation and isolation of trans isomers. *Journal of Coordination Chemistry* 2014; **23-24** : 4039-4060.

ORZEL J, DASZYKOWSKI M, KAZURA M, DE BEER D, JOUBERT E, SCHULZE AE, BEELDERS T, DE VILLIERS AJ, MALHERBE CJ, WALCZAK B. Modeling of the total antioxidant capacity of rooibos (*Aspalathus linearis*) tea infusions from chromatographic fingerprints and identification of potential antioxidant markers. *Journal of Chromatography A* 2014; **1366** : 101-109.

PASCH H, MAKAN AC, CHIROWODZA H, NGAZA N, HILLER W. Analysis of complex polymers by multidetector field-flow fractionation. *Analytical and Bioanalytical Chemistry* 2014; **406** : 1585-1596.

PRETORIUS NO, RODE K, SIMPSON JM, PASCH H. Analysis of complex phthalic acid based polyesters by the combination of size exclusion chromatography and matrix-assisted laser desorption/ionization mass spectrometry. *Analytica Chimica Acta* 2014; **808** : 94-103.

PRETORIUS NO, WILLEMSE CM, DE VILLIERS AJ, PASCH H. Combined size exclusion chromatography, supercritical fluid chromatography and electrospray ionization mass spectrometry for the analysis of complex aliphatic polyesters. *Journal of Chromatography A* 2014; **1330** : 74-81.

RAUBENHEIMER HG, SCHMIDBAUR H. The late start and amazing upswing in gold chemistry. *Journal of Chemical Education* 2014; **91** : 2024-2036.

RAUBENHEIMER HG. Fischer carbene complexes remain favourite targets, and vehicles for new discoveries. *Dalton Transactions* 2014; **43**(45) : 16959-16973.

RISSANEN K, BARBOUR LJ, MACGILLIVRAY LR. Structural macrocyclic supramolecular chemistry. *CrystEngComm* 2014; **16** : 3644-3645.

ROBERTSON DD, NEPPALLI R, VAN REENEN AJ. Solution crystallization analysis of poly(lactic acid) by Scalls: A facile approach for thermal analysis of polymers in solution. *Polymer Testing* 2014; **40** : 79-87.

SALARI JWO, MUTSAERS G, MEULDIJK J, KLUMPERMAN B. Deformation of the water/oil interface during the adsorption of sterically stabilized particles. *Langmuir* 2014; **30** : 7327-7333.

SCHMIDBAUR H, RAUBENHEIMER HG, DOBRZANSKA L. The gold-hydrogen bond, Au-H, and the hydrogen bond to gold, Au-H-X. *Chemical Society Reviews* 2014; **43** : 345-380.

SCHULZE AE, DE BEER D, DE VILLIERS AJ, MANLEY M, JOUBERT E. Chemometric analysis of chromatographic fingerprints shows potential of *Cyclopia maculata* (Andrews) Kies for production of standardized extracts with high xanthone content. *Journal of Agricultural and Food Chemistry* 2014; **62** : 10542-10551.

SCOTT R, KARKI M, REISENAUER MR, RODRIGUES R, DASARI R, PELLY SC, VAN OTTERLO WAL, SHUSTER CB, ROGELJ S, MAGEDOV IV, FROLOVA LV, KORNIENKO A. Synthetic and biological studies of tubulin targeting C2-substituted 7-deazahypoxanthines derived from marine alkaloid rigidins. *ChemMedChem* 2014; **9** : 1428-1435.

SHEKHAH O, SWAIDAN R, BELMABKHOUTY, DU PLESSIS M, JACOBST, BARBOUR LJ, PINNAU I, EDDAOUDI M. The liquid phase epitaxy approach for the successful construction of ultra-thin and defect-free ZIF-8 membranes: pure and mixed gas transport study. *Chemical Communications* 2014; **50** : 2089-2092.

SWARTS AJ, MAPOLIE SF. The synthesis and application of novel Ni(II) N-alkyl dipyrityldaldiminato complexes as selective ethylene oligomerisation catalysts. *Dalton Transactions* 2014; **43** : 9892-9900.

SWARTS AJ, ZHENG F, SMITH VJ, NORDLANDER E, MAPOLIE SF. Reactivity of bis(pyridyl)-N-alkylaminato methylpalladium complexes toward ethylene: Insights from experiment and theory. *Organometallics* 2014; **33** : 2247-2256.

TATUEDOM OK, KOUAM SF, YAPNA DB, NGADJUI BT, GREEN IR, HOUDHARY MI, LANTOVOLOLONA JER, SPITELLER M. Spiroalkaloids and coumarins from the stem bark of *Pauridiantha callicarpoides*. *Zeitschrift Fur Naturforschung Section B-A Journal of Chemical Sciences* 2014; **69b** : 747-752.

THERON KA, MULLER M, VAN DER RIJST M, CRONJE JC, LE ROUX M, JOUBERT E. Sensory profiling of honeybush tea (*Cyclopia* species) and the development of a honeybush sensory wheel. *Food Research International* 2014; **66** : 12-22.

VAN WIJK J, HEUNISTDJ, HARMZEN E, DICKS LMT, MEULDIJK J, KLUMPERMAN B. Compartmentalization of bacteria in microcapsules. *Chemical Communications* 2014; **50** : 15427-15430.

VAN WIJK J, VAN DEVENTER N, HARMZEN E, MEULDIJK J, KLUMPERMAN B. Formation of hybrid poly(styrene-co-maleic anhydride)-silica microcapsules. *Journal of Materials Chemistry B* 2014; **2** : 4826-4835.

VAN WYK P, VAN DYK JB, GERBER WJ, STANDER MA, DE VILLIERS AJ, KOCH KR. Speciation of $[\text{Pt}^{\text{IV}}\text{Cl}_{6-n}\text{Br}_n]^{2-}$ ($n = 0-6$) and some of their mono-aquated $[\text{Pt}^{\text{IV}}\text{Cl}_{5-n}\text{Br}_n(\text{H}_2\text{O})]^-$ ($n = 0-5$) anions in solution at low concentrations by means of ion-pairing reversed-phase ultra-high-performance liquid chromatography coupled to electrospray ionization quadrupole time-of-flight mass spectrometry. *Rapid Communications in Mass Spectrometry* 2014; **28** : 505-519.

VIVIERS MZ, BURGER BV, LE ROUX NJ, MORRIS J, LE ROUX M. Temporal changes in the neonatal recognition cue of Dohne merino lambs (*Ovis aries*). *Chemical Senses* 2014; **39**(3) : 249-262.

WILLEMSE CM, STANDER MA, TREDOUX AGJ, DEVILLIERS AJ. Comprehensive two-dimensional liquid chromatographic analysis of anthocyanins. *Journal of Chromatography A* 2014; **1359** : 189-201.

ZHOU X, ESSAWY HA, PIZZI A, LI X, PASCH H, PRETORIUS NO, DU G. Poly(amidoamine)s dendrimers of different generations as components of melamine urea formaldehyde (MUF) adhesives used for particleboards production: what are the positive implications?. *Journal of Polymer Research* 2013; **20** : 267.

Journal articles (non-subsidised) / Tydskrifartikels (ongesubsidieer)

ESTERHUYSEN C. Crystallography a modern science with a rich history. *Quest (SA)* 2014; **10**(3) : 3-8.

Proceedings international / Verrigtinge internasionaal

CHERUTHAZHEKATT S, PASCH H. Fractionation and characterization of impact poly(propylene) copolymers by high temperature two-dimensional liquid chromatography. 12th Annual UNESCO/IUPAC Workshop and Conference on Macromolecules and Materials (Macromolecular Symposia), Wallenberg Research Centre, STIAS, Stellenbosch, South Africa, Wiley-VCH 2014: 51-57.

LUCKAY RC, MURRAY G, TASKER PA, TURKINGTON JR, WILSON AM. Outer-sphere coordination chemistry: use of amida-ammonium ligands as selective extractants for precious metals. 20th ISEC 2014 International Solvent Extraction Conference, Congress Centrum, Würzburg, Germany, 2014: 1.

LUCKAY RC, SMUTS H-M, HENSBERG JC. Synthesis of novel ditopic ligands for the extraction of transition metal salts. 20th ISEC 2014 International Solvent Extraction Conference, Congress Centrum, Würzburg, Germany, 2014: 1.

SINHA PP, HILLER W, PASCH H. HPLC ¹H-NMR characterization of polystyrene-block-polyisoprene copolymers: LCCC-¹H-NMR using a single mobile phase. 12th Annual UNESCO/IUPAC Workshop and Conference on Macromolecules and Materials (Macromolecular Symposia), Wallenberg Research Centre, STIAS, Stellenbosch, South Africa, Wiley-VCH 2014: 44-50.

Books / Boeke

PASCH H, MALIK MI. *Advanced Separation Techniques for Polyolefins*. Springer, Heidelberg, Germany 2014:191 pp.

Chapters in books / Hoofstukke in boeke

ARNOTT GE, KNOCHEL P. Reduction of carboxylic acids and their derivatives to alcohols, ethers and amines. In *Comprehensive Organic Synthesis II (Second Edition)*, Elsevier, Amsterdam, Netherlands, 2014: 368-409.

ARNOTT GE, KNOCHEL P. Reduction of carboxylic acids and their derivatives to aldehydes. In *Comprehensive Organic Synthesis II (Second Edition)*, Elsevier, Amsterdam, Netherlands, 2014: 410-445.

BURGER BV. First investigation of the semiochemistry of South African dung beetle species. In *Neurobiology of Chemical Communication: Frontiers in Neuroscience*, CRC Press, Boca Raton, USA, 2014: 57-97.

Doctoral completed / Doktoraal afgehandel

BARNARD BF. *The synthesis of selective immobilized ligands for the extraction of toxic metal ions from water doped with these contaminants.* PhD, 2014. 120 pp. Promotor: Luckay RC. Co-promotor: Petrik L.

BOTHA L. *The effect of in-process ethylene incorporation in the evolution of particle morphology and molecular characteristics of commercial heterophasic ethylene propylene copolymers (HEPCs).* PhD, 2014. 179 pp. Promotor: Van Reenen AJ.

MAIKO KG. *Multidimensional separation of complex polymers according to microstructure.* PhD, 2014. 116 pp. Promotor: Pasch H.

MONGWAKETSI N. *Studies of porphyrin-based nano rods for artificial light harvesting applications.* PhD, 2014. 100 pp. Promotor: Maaza M. Co-promotor: Klumperman B, Sparrow R.

READER PW. *Anti-malarial polymer-peptide conjugates.* PhD, 2014. 112 pp. Promotor: Klumperman B.

SWARTS AJ. *Novel transition metal complexes based on N,N and N,P ligands as catalysts for ethylene transformation reactions.* PhD, 2014. 247 pp. Promotor: Mapolie SF.

WAHL H. *Development of novel supramolecular framework materials based on organic salts.* PhD, 2014. 271 pp. Promotor: le Roex T. Co-promotor: Haynes DA.

Masters completed / Magister afgehandel

BASSON N. *Free volume of electrospun organic-inorganic copolymers.* MSc, 2014. 153 pp. Study leader: Mallon PE.

DE JAGER JJ. *Design and synthesis of novel antimalarial agents.* MSc, 2014. 165 pp. Study leader: Pelly SC. Co-study leader: van Otterlo WAL.

DIPPENAAR AB. *Hydrate formation in pharmaceutically relevant salts.* MSc, 2014. 147 pp. Study leader: Esterhuysen C. Co-study leader: Haynes DA.

HAJEE I. *Speciation studies of di-potassium pentachloro(nitrosyl)ruthenate(II) and di-potassium pentabromo(nitrosyl)ruthenate(II) using online RP-IP-HPLC-UV and ICP-OES techniques.* MSc, 2014. 127 pp. Study leader: Koch KR.

HARMZEN E. *Study of nanofibrous membranes for application in postharvest technology.* MSc, 2014. 214 pp. Study leader: Klumperman B. Co-study leader: Cronje L.

HODSON LE. *The synthesis of novel kinase inhibitors using click chemistry.* MSc, 2014. 160 pp. Study leader: van Otterlo WAL. Co-study leader: Pelly SC.

KARGAARD A. *Polyisocyanopeptide hydrogels as effective tissue engineering scaffolds.* MSc, 2014. 125 pp. Study leader: Klumperman B.

MBIZANA S. *Kinetic study of copolymerization and terpolymerization of N-carboxyanhydrides of ornithine, glycine and aspartic acid.* MSc, 2014. 125 pp. Study leader: Klumperman B.

MELTZ F. *Amphiphilic electrospun fibres of poly(methacrylic acid)-graft-poly(dimethylsiloxane) copolymers as a means to controlling electrospun fibre morphology and obtaining nanofibre hydrogels.* MSc, 2014. 148 pp. Study leader: Mallon PE. Co-study leader: Klumperman B.

NEL A. *Investigation of effect of chitin nanowisker distribution on structural and physical properties of high impact polypropylene/chitin nanocomposites.* MSc, 2014. 125 pp. Study leader: Lutz M.

NGAZA N. *Thermal field-flow fractionation and asymmetrical flow field-flow fractionation as new tools for the analysis of block copolymers and their respective homopolymers.* MSc, 2014. 102 pp. Study leader: Pasch H.

NKABYO H. *A study on the reversible photo-induced isomerisation of platinum(II) and palladium(II) complexes of the N,N-dialkyl-N'-acyl(aryl)thioureas with reversed-phase HPLC separation from related rhodium(III), ruthenium(III) and iridium(III) complexes.* MSc, 2014. 107 pp. Study leader: Koch KR.

SCHARLACH K. *The non-covalent compatibilization of carbon nanotubes for use in polymeric composite materials.* MSc, 2014. 145 pp. Study leader: Mallon PE.

SWANEPOEL A. *Preparation and surface-functionalization of dye-doped bioconjugated poly(styrene-co-maleimide) nanoparticles.* MSc, 2014. 145 pp. Study leader: Klumperman B.

VAN DER WESTHUIZEN L. *The synthesis of potentially irreversible Akt inhibitors.* MSc, 2014. 197 pp. Study leader: van Otterlo WAL. Co-study leader: Pelly SC.

EARTH SCIENCES / AARDWETENSKAPPE

Journal articles (subsidised) / Tydskrifartikels (gesubsidieer)

ALLEN KG, VON BACKSTRÖM TW, KRÖGER DG, KISTERS AFM. Rock bed storage for solar thermal power plants: Rock characteristics, suitability, and availability. *Solar Energy Materials and Solar Cells* 2014; **126** : 170-183.

ARENAS R, FERNÁNDEZ RD, SÁNCHEZ-MARTINEZ S, GERDES A, FERNÁNDEZ RD, ALBERT R. Two-stage collision: Exploring the birth of Pangea in the Variscan terranes. *Gondwana Research* 2014; **25** : 756-763.

ARENAS R, SÁNCHEZ MARTÍNEZ S, GERDES A, ALBERT R, FERNÁNDEZ RD, ANDONAEGUI P. Re-interpreting the Devonian ophiolites involved in the Variscan suture: U-Pb and Lu-Hf zircon data of the Moeche Ophiolite (Cabo Ortegal Complex, NW Iberia). *International Journal of Earth Sciences* 2014; **103** : 1385-1402.

BAKER A, BLAAUW M, ROUTH J, ROYCHOUDHURY AN. Geochemical records of palaeoenvironmental controls on peat forming processes in the Mfabeni peatland, Kwazulu-Natal, South Africa, since the Late Pleistocene. *Palaeogeography, Palaeoclimatology, Palaeoecology* 2014; **395** : 95-106.

BE'ERI-SHLEVIN Y, AVIGAD D, GERDES A, ZLATKIN O. Detrital zircon U-Pb-Hf systematics of Israeli coastal sands: a new perspective on the provenance of Nile sediments. *Journal of the Geological Society* 2014; **171** : 107-116.

BRANDT S, RAITH MM, SCHENK V, SENGUPTA P, STRIKANTAPPA C, GERDES A. Crustal evolution of the Southern Granulite Terrane, south India: New geochronological and geochemical data for felsic orthogneisses and granites. *Precambrian Research* 2014; **246** : 91-122.

CLARKE C, LE ROUX SG, ROYCHOUDHURY AN. The role of evaporation on the formation of secondary Cu-hydroxy minerals in the arid Namaqualand soil system of South Africa. *Applied Geochemistry* 2014; **47** : 52-60.

CLEMENS JD, BEZUIDENHOUT A. Origins of co-existing diverse magmas in a felsic pluton: the Lysterfield Granodiorite, Australia. *Contributions to Mineralogy and Petrology* 2014; **167** : 197-212.

CLEMENS JD, FREI D, FINGER F. A new precise date for the Tolmie Igneous Complex in northeastern Victoria. *Australian Journal of Earth Sciences* 2014; **61** : 151-158.

CLEMENS JD, PHILLIPS GN. Inferring a deep-crustal source terrane from a high-level granitic pluton: the Strathbogie Batholith, Australia. *Contributions to Mineralogy and Petrology* 2014; **168**(1070) : 1-22.

CLEMENS JD. Element concentrations in granite magmas: ghosts of textures past? *Journal of the Geological Society* 2014; **171** : 13-19.

COCHRANE R, SPIKINGS R, GERDES A, ULIANOV A, MORA A, VILLAGÓMEZ D, PUTLITZ B, CHIARADIA M. Permo-Triassic anatexis, continental rifting and the disassembly of western Pangaea. *Lithos* 2014; **190-191** : 383-402.

COCHRANE R, SPIKINGS R, GERDES A, WINKLER W, ULIANOV A, MORA A, CHIARADIA M. Distinguishing between in-situ and accretionary growth of continents along active margins. *Lithos* 2014; **202-203** : 382-394.

CUTTS KA, STEVENS G, HOFFMANN JE, BUICK I, FREI D, MÜNKER C. Paleo- to Mesoproterozoic polymetamorphism in the Barberton Granite-Greenstone Belt, South Africa: Constraints from U-Pb monazite and Lu-Hf garnet geochronology on the tectonic processes that shaped the belt. *Geological Society of America Bulletin* 2014; **126**(3/4) : 251-270.

DUNCAN RJ, BUICK I, KOBAYASKI K, WILDE AR. Chemical and stable isotopic characteristics of syn-tectonic tourmaline from the Western fold belt, Mount Isa inlier, Queensland, Australia. *Chemical Geology* 2014; **381** : 131-143.

EVUK D, FRANZ G, FREI D, LUCASSEN F. The Neoproterozoic evolution of the central-eastern Bayuda Desert (Sudan). *Precambrian Research* 2014; **240** : 108-125.

FABER C, ROWE CD, MILLER JA, FAGERENG A, NEETHLING JH. Silica gel in a fault slip surface: Field evidence for palaeo-earthquakes? *Journal of Structural Geology* 2014; **69** : 108-121.

FARINA F, DINI A, ROCCHI S, STEVENS G. Extreme mineral-scale Sr isotope heterogeneity in granites by disequilibrium melting of the crust. *Earth and Planetary Science Letters* 2014; **399** : 103-115.

FARINA F, STEVENS G, GERDES A, FREI D. Small-scale Hf isotopic variability in the Peninsula pluton (South Africa): the processes that control inheritance of source $^{176}\text{Hf}/^{177}\text{Hf}$ diversity in S-type granites. *Contributions to Mineralogy and Petrology* 2014; **168** : 1065.

FAURE M, ROSSI P, GACHÉ J, MELLETON J, FREI D, LI X, LIN W. Variscan orogeny in Corsica: new structural and geochronological insights, and its place in the Variscan geodynamic framework. *International Journal of Earth Sciences* 2014; **103** : 1533-1551.

FRANZ G, MORTEANI G, GERDES A, RHEDE D. Ages of protolith and Neoproterozoic metamorphism of Al-P-bearing quartzites of the Veredas formation (Northern Espinhaco, Brazil): LA-ICP-MS age determinations on relict and recrystallized zircon and geodynamic consequences. *Precambrian Research* 2014; **250** : 6-26.

FROITZHEIM N, JAHN-AWE S, FREI D, WAINWRIGHT AN, MAAS R, GEORGIEV N, NAGEL TJ, PLEUGER J. Age and composition of meta-ophiolite from the Rhodope Middle Allochthon (Satovcha, Bulgaria): A test for the maximum-allochthony hypothesis of the Hellenides. *Tectonics* 2014; **33** : 1477-1500.

GEE DG, LADENBERGER A, DAHLQVIST P, MAJKA J, BE'ERI-SHLEVIN Y, FREI D, THOMSEN T. The Baltoscandian margin detrital zircon signatures of the central Scandes. *Journal of the Geological Society* 2014; **390** : 131-155.

HO SL, MOLLENHAUER G, FIETZ S, MARTÍNEZ-GARCIA A, LAMY F, RUEDA G, SCHIPPER K, MÉHEUST M, ROSELL-MELÉ A, STEIN R, TIEDEMANN R. Appraisal of TEX86 and TEX86 thermometries in subpolar and polar regions. *Geochimica et Cosmochimica Acta* 2014; **131** : 213-226.

HOFMANN M, LINNEMANN U, HOFFMANN K-H, GERDES A, ECKELMANN K, GÄRTNER A. The Namuskluft and Dreigratberg sections in southern Namibia (Kalahari Craton, Gariep Belt): a geological history of Neoproterozoic rifting and recycling of cratonic crust during the dispersal of Rodinia until the amalgamation of Gondwana. *International Journal of Earth Sciences* 2014; **103** : 1187-1202.

JANOUSEK V, AICHLER J, HANZL P, GERDES A, ERBAN V, ZÂCEK V , PECINA V, PUDILOVÁ M, HRDLICKOVÁ K, MIXA P, ZÁCKOVÁ E. Constraining genesis and geotectonic setting of metavolcanic complexes: a multidisciplinary study of the Devonian Vrbno Group (Hruby Jeseník Mts., Czech Republic). *International Journal of Earth Sciences* 2014; **103** : 455-483.

KOEGELENBERG C, KISTERS AFM. Tectonic wedging, back-thrusting and basin development in the frontal parts of the Mesoproterozoic Karagwe-Ankole belt in NW Tanzania. *Journal of African Earth Sciences* 2014; **97** : 87-98.

LAURENT O, NICOLI G, ZEH A, STEVENS G, MOYEN J-F, VEZINET A. Comment on “Ultrahigh temperature granulites and magnesian charnockites: Evidence for the Neoproterozoic accretion along the northern margin of the Kaapvaal craton” by Rajesh et al. *Precambrian Research* 2014; **255** : 455-458.

LAURENT O, RAPOPO M, STEVENS G, MOYEN J-F, MARTIN H, DOUCELANCE R, BOSQ C. Contrasting petrogenesis of Mg-K and Fe-K granitoids and implications for post-collisional magmatism: Case study from the Late-Archean Matok pluton (Pietersburg block, South Africa). *Lithos* 2014; **196-197** : 131-149.

MAJKA J, BE'ERI-SHLEVIN Y, GEE DG, CZERNY J, FREI D, LADENBERGER A. Torellian (c. 640 Ma) metamorphic overprint of Tonian (c.950 Ma) basement in the Caledonides of southwestern Svalbard. *Geological Magazine* 2014; **151** : 732-748.

MÄKITIE H, DATA G, ISABIRYE E, MÄNTTÄRI I, HUHMA H, KLAUSEN MB, PAKKANEN L, VIRRANSALO P. Petrology, geochronology and emplacement model of the giant 1.37 Ga arcuate Lake Victoria Dyke Swarm on the margin of a large igneous province in Eastern Africa. *Journal of African Earth Sciences* 2014; **97** : 273-297.

MENEHINI F, KISTERS AFM, BUICK I, FAGERENG A. Fingerprints of late Neoproterozoic ridge subduction in the Pan-African Damara belt, Namibia. *Geology* 2014; **42** : 903-906.

MENGES J, HUGUET C, ALCANIZ JM, FIETZ S, SACHSE D, ROSELL-MELÉ A. Influence of water availability in the distribution of branched glycerol dialkyl glycerol tetraether in soils of the Iberian Peninsula. *Biogeosciences* 2014; **11** : 2571-2581.

NAYDENOV KV, LEHMANN J, SAALMANN K, MILANI L, KINNAIRD JA, CHARLESWORTH G, FREI D, RANKIN W. New constraints on the Pan-African Orogeny in Central Zambia: A structural and geochronological study of the Hook Batholith and the Mwembeshi Zone. *Tectonophysics* 2014; **637** : 80-105.

NICOLI G, STEVENS G, BUICK I, MOYEN J-F. A comment on ultrahigh-temperature metamorphism from an unusual corundum + orthopyroxene intergrowth bearing Al-Mg granulite from the Southern Marginal Zone, Limpopo Complex, South Africa, by Belyanin et al. *Contributions to Mineralogy and Petrology* 2014; **167** : 1022.

PADOVANO M, DÖRR W, ELTER FM, GERDES A. The East Variscan Shear Zone: Geochronological constraints from the Capo Ferro area (NE Sardinia, Italy). *Lithos* 2014; **196-197** : 27-41.

PHILANDER C, ROZENDAAL A. A process mineralogy approach to geometallurgical model refinement for the Namakwa Sands heavy minerals operations, West Coast of South Africa. *Minerals Engineering* 2014; **65(65)** : 9-16.

ROYCHOUDHURY AN, PETERSEN J. Geochemical evaluation of soils and groundwater affected by infiltrating effluent from evaporation ponds of a heavy mineral processing facility, West Coast, South Africa. *Journal of Geochemical Exploration* 2014; **144** : 478-491.

RUBATTO D, PUTLITZ B, GAUTHIEZ-PUTALLAZ L, CRÉPISSON C, BUICK I, ZHENG YF. Measurement of in-situ oxygen isotope ratios in monazite by SHRIMP ion microprobe: Standards, protocols and implications. *Chemical Geology* 2014; **380** : 84-96.

SZILAS K, VAN HINSBERG VJ, CREASER RA, KISTERS AFM. The geochemical composition of serpentinites in the Mesoarchaeon Tartoq Group, SW Greenland: Harzburgitic cumulates or melt- modified mantle? *Lithos* 2014; **198-199** : 103-116.

TAYLOR J, NICOLI G, STEVENS G, FREI D, MOYEN J-F. The processes that control leucosome compositions in metasedimentary granulites: perspectives from the Southern Marginal Zone migmatites, Limpopo Belt, South Africa. *Journal of Metamorphic Geology* 2014; **32** : 713-742.

VAN SCHIJNDEL V, CORNELL DH, FREI D, SIMONSEN SL, WHITEHOUSE MJ. Crustal evolution of the Rehoboth Province from Archaean to Mesoproterozoic times: Insights from the Rehoboth Basement Inlier. *Precambrian Research* 2014; **240** : 22-36.

WILLNER AP, GERDES A, MASSONNE H-J, VAN STAAL CR, ZAGOREVSKI A. Crustal Evolution of the Northeast Laurentian Margin and the Per-Gondwanan Microcontinent Ganderia Prior to and During Closure of the Iapetus Ocean: Detrital Zircon U-Pb and Hf Isotope Evidence from Newfoundland. *Geoscience Canada* 2014; **41** : 346-364.

ZEH A, GERDES A. HFSE (High Field Strength Elements)-transport and U-Pb-Hf isotope homogenization mediated by Ca-bearing aqueous fluids at 2.04 Ga: Constraints from zircon, monazite and garnet of the Venetia Klippe, Limpopo Belt, South Africa. *Geochimica et Cosmochimica Acta* 2014; **138** : 81-100.

ZEH A, STERN RA, GERDES A. The oldest zircons of Africa-Their U-Pb-Hf-O isotope and trace element systematics, and implications for Hadean to Archean crust-mantle evolution. *Precambrian Research* 2014; **241** : 203-230.

ZLATKIN O, AVIGAD D, GERDES A. Peri-Amazonian provenance of the Proto-Pelagonian basement (Greece), from zircon U-pB geochronology and Lu-Hf isotopic geochemistry. *Lithos* 2014; **184-187** : 379-392.

Journal articles (non-subsidised) / Tydskrifartikels (ongesubsidieer)

VON DER HEYDEN BP, MTSHALITN, HAUSER EJ, MISHRA B, MARTINEZ GA, BOWIE AR, TYLISZCZAK T, ROYCHOUDHURY AN, MYNENI SCB. Ubiquitous Presence of Fe(II) in Aquatic Colloids and its Association with Organic Carbon. *Environmental Science & Technology Letters* 2014; **1** : 387-392

Proceedings international / Verrigtinge internasionaal

DUNFORD A J, MILLER J, CLARKE C, SWANA K A, DURR L. Impacts of large scale groundwater abstraction from the TMG Aquifer on the bottled water industry: An example from Hartebeeskraal Farm, Paarl. International Association of Hydrogeologists IAH, the Moroccan Chapter – 41st IAH International Congress on Groundwater: Challenges and Strategies, 2014: 15-19.

Doktoraal afgehandel / Doctoral completed

HANSEN RN. Numeric geochemical modeling, incorporating systems theory and implications for sustainable development – study on East Rand Basin acid mine drainage, Witwatersrand, South Africa. PhD, 2014. 219 pp. Promotor: Roychoudhury AN.

Masters completed / Magister afgehandel

ONANEYE OA. Multi-disciplinary 3-D reservoir characterization and flow simulation of Aptian/Albian silicate sandstone reservoirs in Bredasdorp Basin, offshore South Africa. MSc, 2014. 161 pp. Study leader: Mikes D. Co-study leader: Rozendaal A.

RENTEL R. Development and implementation of flow-injection analyser with chemiluminescence for detection of sub-nanomolar Fe in seawater. MSc, 2014. 93 pp. Study leader: Roychoudhury AN.

MATHEMATICAL SCIENCES / WISKUNDIGE WETENSKAPPE

APPLIED MATHEMATICS / TOEGEPASTE WISKUNDE

Journal articles (subsidised) / Tydskrifartikels (gesubsidieer)

DRISCOLL TA, WEIDEMAN JAC. Optimal Domain Splitting for Interpolation by Chebyshev Polynomials. *SIAM Journal on Numerical Analysis* 2014; **52**(4) : 1913-1927.

ELS-BOTES A, FIDDER H, WOUDBERG S, MCGRATH PJ. Mechanical Characterisation of the Effect of Various Forming Processes Applied to Commercially Pure Titanium. *Materials Characterization* 2014; **96** : 206-212.

FORNBERG B, WEIDEMAN JAC. A Computational Exploration of the Second Painleve Equation. *Foundations of Computational Mathematics* 2014; **14** : 985-1016.

GELDENHUYS G, GLANZMANN B, LOMBARD D, BOOLAY S, CARR J, BARDIEN S. Identification of a common founder couple for 40 South African Afrikaner families with Parkinson's disease. *SAMJ South African Medical Journal* 2014; **104**(6) : 413-419.

HALE N, TOWNSEND A. An Algorithm for the Convolution of Legendre Series. *SIAM Journal on Scientific Computing* 2014; **36**(3) : 1207-1220.

ROUX A, VAN VUUREN JH. Upper Bounds on the Balanced (r, s) -Domination Number of a Graph. *Discrete Applied Mathematics* 2014; **179** : 214-221.

TREFETHEN LN, WEIDEMAN JAC. The Exponentially Convergent Trapezoidal Rule. *SIAM Review* 2014; **56**(3) : 385-458.

VAN DER WALT S, SCHÖNBERGER JL, NUNEZ-IGLESIAS J, BOULOGNE F, WARNER JD, YAGER N, GOUILLART E, YU T. Scikit-image: Image Processing in Python. *PeerJ* 2014; **2** : e453.

WOUDBERG S, VAN HEYNINGEN MC, LE COQ L, LEGRAND J, DU PLESSIS JP. Analytical Determination of the Effect of Compression on the Permeability of Fibrous Porous Media. *Chemical Engineering Science* 2014; **112** : 108-115.

Journal articles (non-subsidised) / Tydskrifartikels (ongesubsidieer)

GARYFALLIDIS E, BRETT M, AMIRBEKIAN B, ROKEM A, VAN DER WALT S, DESCOTEAUX M, NIMMO-SMITH I, DIPY CONTRIBUTORS. Dipy, a Library for the Analysis of Diffusion MRI Data. *Frontiers in Neuroinformatics* 2014; **8** : 18.

Proceedings international / Verrigtinge internasionaal

KEAIKITSE AS, BRINK WH, GOVENDER N. *Long-term Tracking of Multiple Interacting Pedestrians using a Single Camera.* Proceedings of the 2014 PRASA, RobMech and ALaT International Joint Symposium, Laguna Beach Hotel, Cape Town, South Africa, PRASA 2014: 59-65.

SMIT WA, HERBST BM. *Mobile computers as scientific computing machines.* 2014 IEEE International Conference on High Performance Computing and Communications (HPCC), FEMTO-ST Institute, Paris, France, IEEE 2014: 934-938.

SWANEPOEL JP, COETZER J. *Feature Weighted Support Vector Machines for Writer-independent On-line Signature Verification.* 14th International Conference on Frontiers in Handwriting Recognition, ICFHR 2014, Hersonissos, Crete Island, Greece, CPS 2014: 434-439.

WOUDBERG S, SMIT GJF. *Comparative Analysis of Geometric Models for Predicting the Dynamic Specific Surface of Foamlike Media.* 5th International Conference on Porous Media and its Applications in Science and Engineering. Kona, Hawaii, USA, ECI Digital Archives 2014: 1-6.

Masters completed / Magister afgehandel

HUGHES LH. *Enhancing Mobile Camera Pose Estimation through the Inclusion of Sensors.* MSc, 2014. 115 pp. Study leader: Brink WH.

JOUBERT P. *Thermal and Colour Data Fusion for People Detection and Tracking.* MSc, 2014. 80 pp. Study leader: Brink WH.

KEAIKITSE AS. *Long-term Tracking of Multiple Interacting Pedestrians using a Single Camera.* MSc, 2014. 110 pp. Study leader: Brink WH. Co-study leader: Govender N.

SULLWALD W. *Grain Regression Analysis.* MSc, 2014. 182 pp. Study leader: Smit GJF. Co-study leader: Knoetze JH.

VAN HEYNINGEN MC. *Investigating the Effect of Compression on the Permeability of Fibrous Porous Media.* MSc, 2014. 124 pp. Study leader: Woudberg S.

COMPUTER SCIENCE / REKENAARWETENSKAP

Journal articles (subsidised) / Tydskrifartikels (gesubsidieer)

BENSCH S, DREWES F, JURGENSEN H, VAN DER MERWE AB. Graph transformation for incremental natural language analysis. *Theoretical Computer Science* 2014; **531** : 1-25.

BORGES MATEUS, FILIERIA, D'AMORIM M, PASAREANU CS, VISSER W. Compositional Solution Space Quantification for Probabilistic Software Analysis. *Acm Sigplan Notices* 2014; **49**(6) : 123-132.

MINOARIVELO HO, HUI C, TERBLANCHE JS, KOSAKOVSKY POND SL, SCHEFFLER K. Detecting phylogenetic signal in mutualistic interaction networks using a Markov process model. *Oikos* 2014; **123** : 1250-1260.

SCHEFFLER K, MURRELL B, KOSAKOVSKY POND SL. On the Validity of Evolutionary Models with Site-Specific Parameters. *PLoS ONE* 2014; **9**(4) : 1-4.

VAN DER MERWE AB, VAN ZIJL L, GELDENHUYS J. Ambiguity and structural ambiguity of symmetric difference NFAs. *Theoretical Computer Science* 2014; **537** : 97-104.

WERTHEIM JO, SMITH MD, SMITH D, SCHEFFLER K, KOSAKOVSKY POND SL. Evolutionary Origins of Human Herpes Simplex Viruses 1 and 2. *Molecular Biology and Evolution* 2014; **31**(9) : 2356-2364.

Journal articles (non-subsidised) / Tydskrifartikels (ongesubsidieer)

MORSE J, CORDEIRO L, NICOLE D, FISCHER B. Applying Symbolic bounded model checking to the 2012 RERS Greybox Challenge. *Software Tool Technology Transfer* 2014; **16**(5) : 519-529.

VAN DER MERWE H, VISSER W, VAN DER MERWE AB. Execution and Property Specifications for JPF-Android. *SIGSOFT Software Engineering Notes* 2014; **39**(1) : 1-5.

Proceedings international / Verrigtinge internasionaal

AUBREY-JONES T, FISCHER B. *Synthesizing MPI Implementations from Functional Data-Parallel Programs.* 7th International Symposium on High Level Parallel Programming and Applications (HLPP 2014), Amsterdam, Netherlands, 2014: 1-21.

BERGLUND M, DREWES F, VAN DER MERWE AB. *Analyzing catastrophic backtracking behaviour in practical regular expression matching.* 14th International Conference on Automata and Formal Languages (AFL 2014), EPTCS, Szeged, Hungary, Electronic proceedings in Theoretical Computer Science (EPTCS) 2014: 109-123.

BRAND DJ, VAN DER MERWE AB. *Comment classification for an online news domain.* Proceedings of the 1st International Conference on the Use of Mobile ICT in Africa 2014, STIAS Conference Centre, Stellenbosch University, Stellenbosch, South Africa, Department Electrical and Electronic Engineering 2014: 50-56.

FILIERI A, PASAREANU CS, VISSER W, GELDENHUYS J. *Statistical Symbolic Execution with Informed Sampling.* 22nd ACM Sigsoft International Symposium on Foundations of Software Engineering (FSE 2014), Hong Kong, China, 2014: 437-448.

GREENE G, FISCHER B. *Concept Cloud: A Tagcloud Browser for Software Archives.* 22nd ACM Sigsoft International Foundations of Software Engineering (FSE 2014), Hong Kong, ACM Publishers 2014: 759-762.

INVERSO O, TOMASCO E, PARLATO G, FISCHER B, LA TORRE S. *Bounded Model Checking of Multi-threaded C Programs via Sequentialization.* 26th International Conference Computer Aided Verification (CAV 2014), LNCS, Vienna, Austria, Springer International 2014: 585-602.

INVERSO O, TOMASCO E, PARLATO G, FISCHER B, LA TORRE S. *Lazy-CSeq: A lazy sequentialization Tool for C (Competition Contribution).* 20th International Conference Tools and Algorithms for the Construction and Analysis of Systems (TACAS 2014), Grenoble, France, Springer 2014: 398-401.

KROON RS, BRAND DJ. *Sample Evaluation for Action Selection in Monte Carlo Tree Search.* Proceedings of the Annual Conference of the South African Institute of Computer Scientists and Information Technologists (SAICSIT 2014), Leriba Lodge, Centurion, Pretoria, South Africa, ACM 2014: 314-322.

KROON RS, VAN NIEKERK F. *Decision Trees for Computer Go Features.* Workshop on Computer Games & 23rd International Conference on Artificial Intelligence, Beijing, China, Springer 2014: 44- 56.

KRZESINSKI AES. *Robust Cooperation in Mobile Ad Hoc Networks.* Australasian Telecommunication Networks and Applications Conference (ATNAC 2014), Melbourne, Australia, 2014: November 2014.

LUCKOW K, PASAREANU CS, DWYER MB, FILIERI A, VISSER W. *Exact and Approximate Probabilistic Symbolic Execution for Nondeterministic Programs*. 29th ACM/IEEE International Conference on Automated Software Engineering (ASE 2014), Vasteras, Sweden, 2014: 575-586.

MORSE J, NICOLE D, RAMALHO M, CORDEIRO L, FISCHER B. *ESBMC 1.22 (Competition Contribution)*. 20th International Conference Tools and Algorithms for the Construction and Analysis of Systems (TACAS 2014), Grenoble, France, Springer 2014: 405-407.

NEL PJC, BOOYSEN MJ, VAN DER MERWE AB. *ICT-enabled solutions for smart management of water supply in Africa*. Proceedings of the 1st International Conference on the Use of Mobile ICT in Africa 2014, STIAS Conference Centre, Stellenbosch, South Africa, Stellenbosch University 2014: 40- 44.

TOMASCO E, INVERSO O, PARLATO G, FISCHER B, LA TORRE S. *MU-CSeq: Sequentialization of C programs by shared memory unwindings*. 20th International Conference Tools and Algorithms for the Construction and Analysis of Systems (TACAS 2014), France, Springer 2014: 402-404.

VISSER W, BJORNER N, SHANKAR N. *Software Engineering and Automated Deduction*. Future of Software Engineering (FOSE 2014), Hyderabad, India, 2014: 155-166.

Proceedings national / Verrigtinge nasionaal

BRAND DJ, KRZESINSKI AES. *Collaborative Incentive Schemes and Virtual Coordinate Routing in Sensor Networks*. Southern African Telecommunication Networks and Applications Conference (SATNAC 2014), Boardwalk Conference Centre, Port Elizabeth, South Africa, 2014: 301-306.

Chapters in books / Hoofstukke in boeke

VAN ZIJL L. Cellular automata in content-based image retrieval. In *Cellular Automata in Image Processing and Geometry*, Springer, Switzerland, 2014: 147-162.

Masters completed / Magister afgehandel

DUNAISKI M. *Analysing ranking algorithms and publication trends on scholarly citation networks*. MSc, 2014. 128 pp. Study leader: Visser W, Geldenhuys J.

KRUGER RP. *Virtual World Accessibility: a Multitool Approach*. MSc, 2014. 64 pp. Study leader: Van Zijl L.

VAN NIEKERK F. *Decision forests for computer Go feature learning*. MSc, 2014. 95 pp. Study leader: Kroon RS.

MATHEMATICS / WISKUNDE

Journal articles (subsidised) / Tydskrifartikels (gesubsidieer)

ASAKLY W, BLECHER A, BRENNAN C, KNOPFMACHER A, MANSOUR T, AGNER S. Set partition asymptotics and a conjecture of Gould and Quaintance. *Journal of Mathematical Analysis and Applications* 2014; **416** : 672-682.

BAMUNOBA AS. On some properties of Carlitz cyclotomic polynomials. *Journal of Number Theory* 2014; **143** : 102-108.

BÖCKER S, WAGNER S. Counting glycans revisited. *Journal of Mathematical Biology* 2014; **69** : 799-816.

- BONYAH E, NYABADZA F, DONTWI I.** A Theoretical Model for the Transmission Dynamics of the Buruli Ulcer with Saturated Treatment. *Computational and Mathematical Methods in Medicine* 2014; **2014** :Art. #576039, 14 pages.
- CRISTEA LL, PRODINGER H.** Order statistics of the generalised multinomial measure. *Monatshefte für Mathematik* 2014; **175** : 333-346.
- GRABNER PJ, KNOPFMACHER A, WAGNER S.** A General Asymptotic Scheme for the Analysis of Partition Statistics. *Combinatorics Probability & Computing* 2014; **23** : 1057-1086.
- GRAN M, JANELIDZE Z.** Star-regularity and regular completions. *Journal of Pure and Applied Algebra* 2014; **218** : 1771-1782.
- HAN X, HUI C.** Niche Construction on Environmental Gradients: the Formation of Fitness Valley and Stratified Genotypic Distributions. *PLoS ONE* 2014; **9(6)** : e99775.
- HEUBERGER C, KROPF S, PRODINGER H.** Asymptotic analysis of the sum of the output of transducers. *Discrete Mathematics and Theoretical Computer Science* 2014; **BA** : 145-156.
- HOWELL K-T, MAXSON CJ.** Covers of Semigroups and Function Semirings. *Results in Mathematics* 2014; **65** : 429-439.
- HOWELL K-T, MEYER J.** Near-vector spaces determined by finite fields. *Journal of Algebra* 2014; **398** : 55-62.
- HUI C, MCGEOCH MA.** Zeta Diversity as a Concept and Metric That Unifies Incidence-Based Biodiversity Patterns. *American Naturalist* 2014; **5(184)** : 684-694.
- JANELIDZE Z, RODELO D, VAN DER LINDEN T.** Hagemann's theorem for regular categories. *Journal of Homotopy and Related Structures* 2014; **9** : 55-66.
- JANELIDZE Z, WEIGHILL T.** Duality in Non-Abelian Algebra I. From Cover Relations to Grandis EX2-Categories. *Theory and Applications of Categories* 2014; **29(11)** : 315-331.
- JANELIDZE Z.** On the Form of Subobjects in Semi-Abelian and Regular Protomodular Categories. *Applied Categorical Structures* 2014; **22** : 755-766.
- KILIC E, AKKUS I, PRODINGER H.** A Generalization of a Conjecture of Melham. *Utilitas Mathematica* 2014; **93** : 225-232.
- KILIC E, PRODINGER H.** Asymmetric generalizations of the Hilbert matrix and variants. *Publications de l'Institut Mathématique-Beograd* 2014; **95(109)** : 267-280.
- KILIC E, PRODINGER H.** The Generalized q-Hilbert Matrix. *Mathematica Slovaca* 2014; **64(5)** : 1083-1092.
- KRENN D, RALAIVAOSAONA D, WAGNER S.** On the Number of Multi-Base Representations of an Integer. *Discrete Mathematics and Theoretical Computer Science* 2014; **BA** : 229-240.
- KRENN D, WAGNER S.** The Number of Compositions into Powers of b. *Discrete Mathematics and Theoretical Computer Science* 2014; **BA** : 241-252.
- MOUTON S, MUZUNDU K.** Domination by ergodic elements in ordered Banach algebras. *Positivity* 2014; **18** : 119-130.
- MULLER MA.** Underestimating the Probability of Coincidence. *Obiter* 2014; **35(2)** : 173-187.
- NJAGARAH JBH, NYABADZA F.** A metapopulation model for cholera transmission dynamics between communities linked by migration. *Applied Mathematics and Computation* 2014; **241** : 317- 331.

- PLIENINGER T, HUI C, GAERTNER M, HUNTSINGER L.** The impact of Land Abandonment on Species Richness and Abundance in the Mediterranean Basin: A Meta-Analysis. *PLoS ONE* 2014; **9**(5) : e98355.
- PRODINGER H, TAURASO R.** New Multiple Harmonic Sum Identities. *Electronic Journal of Combinatorics* 2014; **21**(2) : #P2.43, 14 pages.
- PRODINGER H.** The box parameter for words and permutations. *Central European Journal of Mathematics* 2014; **12**(1) : 167-174.
- RAMANANTOANINA A, OUHINOU A, HUI C.** Spatial Assortment of Mixed Propagules Explains the Acceleration of Range Expansion. *PLoS ONE* 2014; **9**(8) : e103409.
- SZIGETI J, VAN WYK L.** Determinants for $n \times n$ matrices and the symmetric Newton formula in the 3×3 case. *Linear & Multilinear Algebra* 2014; **62**(8) : 1076-1090.
- WAGNER S, WANG H.** Indistinguishable Trees and Graphs. *Graphs and Combinatorics* 2014; **30** : 1593-1605.
- WAGNER S.** Enumeration of Highly Balanced Trees. *Ars Combinatoria* 2014; **114** : 15-32.
- WILD MMW.** Counting or Producing All Fixed Cardinality Transversals. *Algorithmica* 2014; **69** : 117- 129.
- WILD MMW.** Output-Polynomial Enumeration of All Fixed-Cardinality Ideals of a Poset, Respectively All Fixed-Cardinality Subtrees of a Tree. *Order-A Journal on the Theory of Ordered Sets and Its Applications* 2014; **31** : 121-135.
- ZHAO ZH, HUI C, HARDEV S, OUYANG F, DONG Z, GE F.** Responses of Cereal Aphids and Their Parasitic Wasps to Landscape Complexity. *Journal of Economic Entomology* 2014; **107**(2) : 630-637.
- ZHU Z, YUAN C, ANDRIANTIANA EOD, WAGNER S.** Graphs with maximal Hosoya index and minimal Merrifield-Simmons index. *Discrete Mathematics* 2014; **329** : 77-87.

Journal articles (non-subsidised) / Tydskrifartikels (ongesubsidieer)

- BONYAH E, DONTWI I, NYABADZA F, FATMAWATI.** An Age-structured Model for the Spread of Buruli Ulcer: Analysis and Simulation in Ghana. *British Journal of Mathematics & Computer Science* 2014; **4**(16) : 2298-2319.
- BONYAH E, DONTWI I, NYABADZA F.** Optimal Control Applied to the Spread of Buruli Ulcer Disease. *American Journal of Computational and Applied Mathematics* 2014; **4**(3) : 61-76.
- HARE K, PRODINGER H, SHALLIT J.** Three Series for the Generalized Golden Mean. *The Fibonacci Quarterly* 2014; **52**(4) : 307-313.
- HOVE-MUSEKWA SD, NYABADZA F, MAMBILI-MAMBOUNDOU H, CHIYAKA C, MUKANDAVIRE Z.** Cost-Effectiveness Analysis of Hospitalization and Home-Based Care Strategies for People Living with HIV/AIDS: The Case of Zimbabwe. *International Scholarly Research Notices* 2014; **13**.
- KILIC E, PRODINGER H.** A note on the conjecture of Ramirez and Sirvent. *Journal of Integer Sequences* 2014; **17** : 1-3.
- OLIVER K, PRODINGER H.** Horizontal runs in domino tilings. *Journal of Algebra Combinatorics Discrete Structures and Applications* 2014; **1**(1) : 19-27.

PRODINGER H. A Short Proof of Carlitz's Bernoulli Number Identity. *Journal of Integer Sequences* 2014; **17** : 1-2.

PRODINGER H. Counting Palindromes According to r-Runs of Ones Using Generating Functions. *Journal of Integer Sequences* 2014; **17** : 1-10.

SHOWA SP, NYABADZA F, HOVE-MUSEKWA SD, MAGOMBEDZE G. A comparison of elasticities of viral levels to specific immune response mechanisms in human immunodeficiency virus infection. *BMC Research Notes* 2014; **7** : 18.

TUMWIINE J, HOVE-MUSEKWA SD, NYABADZA F. A Mathematical Model for the Transmission and Spread of Drug Sensitive and Resistant Malaria Strains within a Human Population. *ISRN Biomathematics* 2014; **2014** : 12.

Doctoral completed / Doktoraal afgehandel

BAMUNOBA AS. *Arithmetic of Carlitz Polynomials.* PhD, 2014. 75 pp. Promotor: Keet AP.

BASSON DJ. *On the coefficients of Drinfeld modular forms of higher rank.* PhD, 2014. 99 pp. Promotor: Breuer F.

Masters completed / Magister afgehandel

AKINLOTAN DM. *Modelling the dynamics of HIV related malignancies.* MSc, 2014. 139 pp. Study leader: Nyabadza F.

HASSAN AMAO. *Topology control in wireless ad hoc networks.* MSc, 2014. 92 pp. Study leader: Sanders JW.

JONES PCG. *Structure learning of gene interaction networks.* MSc, 2014. 110 pp. Study leader: Jacobson D.

OOSTHUIZEN J. *Random Walks on Graphs.* MSc, 2014. 81 pp. Study leader: Wagner S.

RAZANAJATOVO MISANANTENAINA VR. *Properties of greedy trees.* MSc, 2014. 74 pp. Study leader: Wagner S.

WEIGHILL T. *Bifibrational duality in non-abelian algebra and the theory of databases.* MSc, 2014. 124 pp. Study leader: Janelidze Z.

SOUTH AFRICAN CENTRE OF EXCELLENCE FOR EPIDEMIOLOGICAL MODELLING & ANALYSIS (SACEMA) / SUID-AFRIKAANSE SENTRUM VAN UITNEMENDHEID VIR EPIDEMIOLOGIESE MODELLERING EN ANALISE (SACEMA)

Journal articles (subsidised) / Tydskrifartikels (gesubsidieer)

BEAUCLAIR R, MYER L, PETRO G. The association between timing of initiation of antenatal care and stillbirths: a retrospective cohort study of pregnant women in Cape Town, South Africa. *BMC Pregnancy and Childbirth* 2014; **14**(204) : 1-10.

BRAITHWAITE RS, NUCIFORA KA, TOOHEY C, KESSLER J, UHLER LM, MENTOR SM, KEEBLER DS, HALLETT T. How do different eligibility guidelines for antiretroviral therapy affect the cost-effectiveness of routine viral load testing in sub-Saharan Africa?. *Aids* 2014; **28**(Suppl 1) : S73-S83.

DELVA W, KARIM QA. The HIV Epidemic in Southern Africa - Is an AIDS-Free Generation Possible?. *Current HIV/AIDS Reports* 2014; **11**(2) : 99-108.

- DESMOND C, BRUCE F, TOMLINSON M, MARLOW MB, ABER JL, OUIFKI R, WELTE A.** Modelling the long-term impacts on affected children of adult HIV: benefits, challenges and a possible approach. *Aids* 2014; **28**(Suppl 3) : S269-S275.
- DHEDA K, THERON G, WELTE A.** Cost-effectiveness of Xpert MTB/RIF and investing in health care in Africa. *Lancet Global Health* 2014; **2**(10) : e554-e556.
- DU TOIT E, VAN SCHALKWYK C, DUNBAR R, JENNINGS K, YANG B, COETZEE D, BEYERS N.** Missed Opportunities for Retention in Pre-ART Care in Cape Town, South Africa. *PLoS ONE* 2014; **9**(5) : e96867.
- ELSHEIKH S M-A S, OUIFKI R, PATIDAR KC.** A non-standard finite difference method to solve a model of HIV-Malaria co-infection. *Journal of Difference Equations and Applications* 2014; **20**(3) : 354-378.
- ELSHEIKH S M-A S, PATIDAR KC, OUIFKI R.** Analysis of malaria model with a distributed delay. *Journal of Applied Mathematics* 2014; **79**(6) : 1139-1160.
- FORGUS S, DELVA W, HAUPTFLEISCH C, GOVENDER S, BLITZ J.** Community v. non-community assault among adults in Khayelitsha, Western Cape, South Africa: A case count and comparison of injury severity. *SAMJ South African Medical Journal* 2014; **104**(4) : 299-301.
- HALLETT TB, MENZIES NA, REVILL P, KEEBLER D, BORQUEZ A, MCROBIE E, EATON JW.** Using modeling to inform international guidelines for antiretroviral treatment. *Aids* 2014; **28**(Suppl 1) : S1-S4.
- HILL PC, DYE C, VINEY K, TABUTOA K, KIENENE T, BISSELL K, WILLIAMS BG, ZACHARIAH R, MARAIS BJ, HARRIES AD.** Mass treatment to eliminate tuberculosis from an island population. *International Journal of Tuberculosis and Lung Disease* 2014; **18**(8) : 899-904.
- KAJUNGURI D, HARGROVE JW, OUIFKI R, MUGISHA JYT, COLEMAN PG, WELBURN SC.** Modelling the Use of Insecticide-Treated Cattle to Control Tsetse and *Trypanosoma brucei rhodesiense* in a Multi-host Population. *Bulletin of Mathematical Biology* 2014; **76**(3) : 673-696.
- KASSANJEE R, MCWALTER TA, WELTE A.** Defining Optimality of a Test for Recent Infection for HIV Incidence Surveillance. *Aids Research and Human Retroviruses* 2014; **30**(1) : 45-49.
- KASSANJEE R, PILCHER CD, KEATING SM, FACENTE SN, MCKINNEY E, PRICE MA, MARTIN JN, LITTLE S, HECHT FM, KALLAS EG, WELTE A, BUSCH MP, MURPHY G.** Independent assessment of candidate HIV incidence assays on specimens in the CEPHIA repository. *Aids* 2014; **28**(16) : 2439-2449.
- KEEBLER DS, REVILL P, BRAITHWAITE S, PHILLIPS A, BLASER N, BORQUEZ A, CAMBIANO V, CIARANELLOT A, ESTILL J, GRAY R, HILL A, KEISER O, KESSLER J, MENZIES NA, NUCIFORA KA, VIZCAYA LS, WALKER S, WELTE A, EASTERBROOK P, DORETHY M, HIRNSCHALL G, HALLETT TB.** Cost-effectiveness of different strategies to monitor adults on antiretroviral treatment: a combined analysis of three mathematics models. *Lancet Global Health* 2014; **2**(1) : e35-e43.
- MAHIANE SG, FIAMMA A, AUVERT B.** Mixture models for calibrating the BED for HIV incidence testing. *Statistics in Medicine* 2014; **33**(10) : 1767-1783.
- MARX FM, DUNBAR R, ENARSON DA, WILLIAMS BG, WARREN RM, VAN DER SPUY GD, VAN HELDEN PD, BEYERS N.** The temporal dynamics of relapse and reinfection tuberculosis after successful treatment: a retrospective cohort study. *Clinical Infectious Diseases* 2014; **58**(12) : 1676-1683.
- NIEUWOUTD M, LAMERIS R, CORCORAN C, ROSSOUW TM, SLAVIK T, DU PLESSIS J, OMOSHORO-JONES JAO, STIVAKTAS P, POTGIETER F, VAN DER**

MERWE SW. Polymerase Chain Reaction Amplifying Mycobacterial DNA from Aspirates Obtained By Endoscopic Ultrasound Allows Accurate Diagnosis of Mycobacterial Disease in HIV-Positive Patients with Abdominal Lymphadenopathy. *Ultrasound in Medicine and Biology* 2014; **40**(9) : 2031-2038.

SUTHARA, BUI DD, GRANICH RM, NADOL P, TRAN HV, SABIN K, WILLIAMS BG, LOY, KATO M. The Potential Impact of Expanding Antiretroviral Therapy and Combination Prevention in Vietnam: The Modeling Approach. *JAIDS-Journal of Acquired Immune Deficiency Syndromes* 2014; **66**(2) : E62-E63.

VALE GA, HARGROVE JW, SOLANO P, COURTIN F, RAYAISSE JB, LEHANE MJ, ESTERHUIZEN J, TIRADOS I, TORR SJ. Explaining the Host-Finding Behavior of Blood-Sucking Insects: Computerized Simulation of the Effects of Habitat Geometry on Tsetse Fly Movement. *PLoS Neglected Tropical Diseases* 2014; **8**(6) : e2901.

VAN SCHALKWYK C, VARIAVA E, SHAPIRO AE, RAKGOKONG M, MASONOKE K, LEBINA L, WELTE A, MARTINSON N. Incidence of TB and HIV in Prospectively Followed Household Contacts of TB Index Patients in South Africa. *PLoS ONE* 2014; **9**(4) : e95372.

YING R, BARNABAS RV, WILLIAMS BG. Modeling the Implementation of Universal Coverage for HIV Treatment as Prevention and its Impact on the HIV Epidemic. *Current HIV/AIDS Reports* 2014; **11**(4) : 459-467.

Journal articles (non-subsidised) / Tydskrifartikels (ongesubsidieer)

LURIE MN, WILLIAMS BG. Migration and health in Southern Africa: 100 years and still circulating. *Health Psychology & Behavioural Medicine* 2014; **2**(1) : 34-40.

SATTAR S, VAN SCHALKWYK C, CLAASSENS M, DUNBAR R, FLOYD S, NARSON DA, GODFREY-FAUSSETT P. Symptom reporting among prevalent tuberculosis cases who smoke, are HIV-positive or have hyperglycaemia. *Public Health Action* 2014; **4**(4) : 222-225.

WLODZIMIROW KA, ESLAMI S, ABU-HANNA A, NIEUWOUDT M, CHAMULEAU RAFM. A Systematic Review on Prognostic Indicators of Acute Liver Failure and Their Predictive Value for Poor Outcome. *British Journal of Medicine & Medical Research* 2014; **4**(15) : 2796-2852.

MICROBIOLOGY / MIKROBIOLOGIE

Journal articles (subsidised) / Tydskrifartikels (gesubsidieer)

AHIRE JJ, DICKS LMT. 2,3-Dihydroxybenzoic Acid-Containing Nanofiber Wound Dressings Inhibit Biofilm Formation by *Pseudomonas aeruginosa*. *Antimicrobial Agents and Chemotherapy* 2014; **58**(4): 2098-2104.

AHIRE JJ, NEPPALLI R, HEUNIS TDJ, VAN REENEN AJ, DICKS LMT. 2,3-Dihydroxybenzoic acid electrospun into poly(D,L-lactide) (PDLLA)/Poly(ethylene oxide) (PEO) nanofibers inhibited the growth of gram-positive and gram-negative bacteria. *Current Microbiology* 2014; **69**(5) : 587-593.

AZNAVEH NB, SAFDAR M, WOLFAARDT GM, GREENER J. Micropatterned biofilm formations by laminar flow-templating. *Lab on A Chip* 2014; **14** : 2666-2672.

CAVKA A, ALRIKSSON B, ROSE SH, VAN ZYL WH, JONSSON LJ. Production of cellulosic ethanol and enzyme from waste fiber sludge using SSF, recycling of hydrolytic enzymes and yeast and recombinant cellulase-producing *Aspergillus niger*. *Journal of Industrial Microbiology & Biotechnology* 2014; **41** : 1191-1200.

COETZEE G, JOUBERT E, VAN ZYL WH, VIJJOEN-BLOOM M. Improved extraction of phytochemicals from rooibos with enzyme treatment. *Food and Bioproducts Processing* 2014; **92** : 393-401.

CONRADIE A, SIGGE GO, CLOETE TE. Influence of winemaking practices on the characteristics of winery wastewater and water usage of wineries. *South African Journal of Enology and Viticulture* 2014; **35**(1) : 10-19.

DICKS LMT, BOTHA M, DICKS E, BOTES M. The equine gastro-intestinal tract: An overview of the microbiota, diseases and treatment. *Livestock Science* 2014; **160** : 69-81.

DICKS LMT, BOTHA M, LOOS B, SMITH C. Adhesion of *Lactobacillus reuteri* strain Lr1 to equine epithelial cells and competitive exclusion of *Clostridium difficile* from the gastro-intestinal tract of horses. *Annals of Microbiology* 2014; **65**: 1087-1096 doi:10.1007/s13213-014-0954-4.

DOBROWSKY PH, MANNEL D, DE KWAADSTENIET M, PROZESKY HE, KHAN W, CLOETE TE. Quality assessment and primary uses of harvested rainwater in Kleinmond, South Africa. *Water SA* 2014; **40**(3) : 401-406.

DOBROWSKY P, DE KWAADSTENIET M, CLOETE TE, KHAN W. Distribution of Indigenous Bacterial Pathogens and Potential Pathogens Associated with Roof-Harvested Rainwater. *Applied and Environmental Microbiology* 2014; **80**(7) : 2307-2316.

DOBROWSKY P, VAN DEVENTER A, DE KWAADSTENIET M, NDLOVU T, KHAN S, CLOETE TE, KHAN W. Prevalence of Virulence Genes Associated with Pathogenic *Escherichia coli* Strains Isolated from Domestically Harvested Rainwater during Low- and High-Rainfall Periods. *Applied and Environmental Microbiology* 2014; **80**(5) : 1633-1638.

ENDO A, TANAKA N, OIKAWA Y, OKADA S, DICKS LMT. Fructophilic characteristics of *Fructobacillus* spp. may be due to the absence of an alcohol/acetaldehyde dehydrogenase gene. *Current Microbiology* 2014; **68**(4) : 531-535.

FERREIRA T, VAN REENEN CA, ENDO A, TAILLIEZ P, PAGES S, SPROER C, MALAN AP, DICKS LMT. *Photorhabdus heterorhabditis* sp. nov., a symbiont of the entomopathogenic nematode *Heterorhabditis zealandica*. *International Journal of Systematic and Evolutionary Microbiology* 2014; **64**(5) : 1540-1545.

FERREIRA T, VAN REENEN CA, TAILLIEZ P, PAGES S, MALAN AP, DICKS LMT. First report of the symbiotic bacterium *Xenorhabdus indica*, associated with the entomopathogenic nematode *Steinernema yirgalemense*. *Journal of Helminthology* 2014; **14** : 1-5.

GOOSEN NJ, DE WET LF, GÖRGENS JF, JACOBS K, DE BRUYN A. Fish silage oil from rainbow trout processing waste as alternative to conventional fish oil in formulated diets for Mozambique tilapia *Oreochromis mossambicus*. *Animal Feed Science and Technology* 2014; **188** : 74-84.

HATTINGH M, ALEXANDER A, MEIJERING I, VAN REENEN CA, DICKS LMT. Malting of barley with combinations of *Lactobacillus plantarum*, *Aspergillus niger*, *Trichoderma reesei*, *Rhizopus oligosporus* and *Geotrichum candidum* to enhance malt quality. *International Journal of Food Microbiology* 2014; **173** : 36-40.

HEUNIS TDJ, DEANE SM, SMIT S, DICKS LMT. Proteomic profiling of the acid stress response in *Lactobacillus plantarum* 423. *Journal of Proteome Research* 2014; **13** : 4028-4039.

HOUBRAKEN J, VISAGIE CM, MEIJER M, FRISVAD JC, BUSBY PE, PITT JI, SEIFERT KA, LOUIS-SEIZE G, DEMIREL R, YILMAZ N, JACOBS K, CHRISTENSEN M, SAMSON RA. A taxonomic and phylogenetic revision of *Penicillium* section *Aspergilloides*. *Studies in Mycology* 2014; **78** : 373-451.

LE ROUX M, PHIRI EE, KHAN W, SAKIROGLU M, VALENTINE AJ, KHAN S. Expression of novel cytosolic malate dehydrogenases (cMDH) in *Lupinus angustifolius* nodules during phosphorus starvation. *Journal of Plant Physiology* 2014; **171** : 1609-1618.

LOFF M, MARE L, DE KWAADSTENIET M, KHAN W. 3M™Molecular Detection system versus MALDI-TOF mass spectrometry and molecular techniques for the identification of *Escherichia coli* O157:H7, *Salmonella spp.* & *Listeria spp.* . *Journal of Microbiological Methods* 2014; **101** : 33-43.

MALHERBE AR, ROSE SH, VILJOEN-BLOOM M, VAN ZYL WH. Expression and evaluation of enzymes required for the hydrolysis of galactomannan. *Journal of Industrial Microbiology & Biotechnology* 2014; **41** : 1201-1209.

MATTARELLI P, HOLZAPFEL W, FRANZ CMAP, ENDO A, FELIS GE, HAMMES W, POT B, DICKS LMT, DELLAGLIO F. Recommended minimal standards for description of new taxa of *Bifidobacterium*, *Lactobacillus* and related genera. *International Journal of Systematic and Evolutionary Microbiology* 2014; **64** : 1434-1451.

MOORE JP, NGUEMA-ONA EE, FANGEL JU, WILLATS WGT, HUGO A, VIVIER MA. Profiling the main cell wall polysaccharides of grapevine leaves using high-throughput and fractionation methods. *Carbohydrate Polymers* 2014; **99** : 190-198.

NEVELING DP, VAN DEN HEEVER TS, BUCHER R, PEROLD WJ, DICKS LMT. Effect of seed layer deposition, Au film layer thickness and crystal orientation on the synthesis of hydrothermally grown ZnO nanowires. *Current Nanoscience* 2014; **10** : 827-863.

NEVELING DP, VAN DEN HEEVER TS, PEROLD WJ, DICKS LMT. A nanoforce ZnO nanowire-array biosensor for the detection and quantification of immunoglobulins. *Sensors and Actuators B- Chemical* 2014; **203** : 102-110.

NIU DD, TIAN KM, PRIOR BA, WANG M, WANG Z-X, LU F, SINGH S. Highly efficient L-lactate production using engineered *Escherichia coli* with dissimilar temperature optima for L-lactate formation and cell growth . *Microbial Cell Factories* 2014; **13**(78) : doi: 10.1186/1475-2859.

SLABBERT E, JACOBS K, JACOBS SM. The Soil Bacterial Communities of South African Fynbos Riparian Ecosystems Invaded by Australian Acacia Species. *PLoS ONE* 2014; **9** : e86560, 10 pages.

TROLLOPE K, NIEUWOUDT HH, GORGENS JF, VOLSCHENK H. Screening a random mutagenesis library of a fungal β fructofuranosidase using FT MIR ATR spectroscopy and multivariate analysis. *Applied Microbiology and Biotechnology* 2014; **98**(9) : 4063-4073.

TROSKIE AM, DE BEER A, VOSLOO JA, JACOBS K, RAUTENBACH M. Inhibition of agronomically relevant fungal phytopathogens by tyrocidines, cyclic antimicrobial peptides isolated from *Bacillus aneurinolyticus*. *Microbiology* 2014; **160** : 2089-2101.

VAN WIJK J, HEUNIS TDJ, HARMZEN E, DICKS LMT, MEULDIJK J, KLUMPERMAN B. Compartmentalization of bacteria in microcapsules. *Chemical Communication* 2014; **50** : 15427-15430.

VAN ZYL J-HDV, DEN HAAN R, VAN ZYL WH. Over-expression of native *Saccharomyces cerevisiae* exocytic SNARE genes increased heterologous cellulase secretion. *Applied Microbiology and Biotechnology* 2014; **98** : 5567-5578.

VISAGIE CM, SEIFERT KA, HOUBRAKEN J, SAMSON RA, JACOBS K. Diversity of *Penicillium* section *Citrina* within the fynbos biome of South Africa, including a new species from a *Protea repens* infructescence. *Mycologia* 2014; **106**(3) : 537-552.

WILSENACH J, BURKE L, RADEBE V, MASHEGO M, STONE W, MOUTON M, BOTHA A. Anaerobic ammonium oxidation in the old trickling filters at Daspoort Wastewater Treatment Works. *Water SA* 2014; **40** : 81-88.

ZWANE E, ROSE SH, VAN ZYL WH, RUMBOLD K, VILJOEN-BLOOM M. Overexpression of *Aspergillus tubingensis faeA* in a protease-deficient *Aspergillus niger* enables ferulic acid extraction from plant material. *Journal of Industrial Microbiology & Biotechnology* 2014; **41** : 1027-1034.

Journal articles (non-subsidised) / Tydskrifartikels (ongesubsidieer)

HART RS, CALITZ F, BOTHA A. Hyphomycetous fungi spore release induced by air currents and aqueous solution. *African Journal of Microbiology Research* 2014; **8** : 2415-2422.

Proceedings national / Verrigtinge nasionaal

SMITH JFN, HARDIE A, BOTHA A. *Effect of compost and foliar sprays on rooibos tea growth and yields.* Combined Congress 2014, Grahamstown, South Africa, 2014: 165.

Chapters in books / Hoofstukke in boek

BJÖRKROTH J, DICKS LMT, ENDO A, HOLZAPFEL W. The genus *Leuconostoc*. In *Lactic Acid Bacteria: Biodiversity and Taxonomy*, John Wiley & Sons Ltd, West Sussex, United Kingdom, 2014: 391-404.

BJÖRKROTH J, DICKS LMT, ENDO A. The genus *Weissella*. In *Lactic Acid Bacteria: Biodiversity and Taxonomy*, John Wiley & Sons Ltd, West Sussex, United Kingdom, 2014: 417-428.

BOTHA A, BOTES A. Geotrichum. In *Encyclopedia of Food Microbiology, Second Edition*, Elsevier, 2014: 88-93.

BOTHA A, BOTES A. Mucor. In *Encyclopedia of Food Microbiology, Second Edition*, Elsevier, 2014: 834-840.

DICKS LMT, ENDO A, VAN REENEN C. Minor genera of the *Enterococcaceae*: *Catteliococcus*, *Melissococcus* and *Pillibacter*. In *Lactic Acid Bacteria: Biodiversity and Taxonomy*, John Wiley & Sons Ltd, West Sussex, United Kingdom, 2014: 239-243.

DICKS LMT, HEUNIS TDJ, VAN STADEN ADP, BRAND A, SUTYAK NOLL K, CHIKINDAS ML. Medical and Personal Care Applications of Bacteriocins Produced by Lactic Acid Bacteria. In *Prokaryotic Antimicrobial Peptides*, Springer, New York, USA, 2014: 391-421.

ENDO A, DICKS LMT, BJÖRKROTH J, HOLZAPFEL W. The family *Leuconostocaceae*. In *Lactic Acid Bacteria: Biodiversity and Taxonomy*, John Wiley & Sons Ltd, West Sussex, United Kingdom, 2014: 377-380.

ENDO A, DICKS LMT. Physiology of the Lactic Acid Bacteria. In *Lactic Acid Bacteria: Biodiversity and Taxonomy*, John Wiley & Sons Ltd, West Sussex, United Kingdom, 2014: 13-30.

ENDO A, DICKS LMT. The genus *Oenococcus*. In *Lactic Acid Bacteria: Biodiversity and Taxonomy*, John Wiley & Sons Ltd, West Sussex, United Kingdom, 2014: 405-415.

ENDO A, DICKS LMT. The genus *Fructobacillus*. In *Lactic Acid Bacteria: Biodiversity and Taxonomy*, John Wiley & Sons Ltd, West Sussex, United Kingdom, 2014: 381-389.

ENDO A, IRISAWA T, DICKS LMT, TANASUPAWAT S. Fermentations of East and South-east Asia. In *Encyclopedia of Food Microbiology, vol. 1, 2nd Edition*, Elsevier, 2014: 846-851.

FRANZ CMAP, ENDO A, ABRIQUEL H, VAN REENEN CA, GÁLVEZ A and DICKS LMT. The genus *Pediococcus*. In *Lactic Acid Bacteria: Biodiversity and Taxonomy*, John Wiley & Sons, Ltd, 2014: 359-376.

VAN RENSBURG E, DEN HAAN R, LA GRANGE DC, VOLSCHEK H, VAN ZYL WH, GÖRGENS JF. Engineering Recombinant Organisms for Next-Generation Ethanol Production. In *Biofuels From Microbes to Molecules*, Caister Academic Press, Norfolk, United Kingdom, 2014: 93-135.

Doctoral completed / Doktoraal afgehandel

BOTES A. *Insights into the lignocellulosic physiology of the yeast pathogen Cryptococcus neoformans var. grubii.* PhD, 2014. 255 pp. Promotor: Botha A.

RAWLINGS DE. *The biology, diversity and evolution of the broad host-range, promiscuous IncQ plasmids, with an emphasis on the IncQ2 sub-family.* DSc, 2014. 87 pp. Promotor: Van Zyl WH.

ZWANE E. *Production, characterisation and application of a recombinant ferulic acid esterase from Aspergillus tubingensis.* PhD, 2014. 135 pp. Promotor: Viljoen-Bloom M. Co-promotors: Rumbold K and Van Zyl, WH.

Masters completed / Magister afgehandel

DOBROWSKY P. *Quality Assessment of Domestic Harvested Rainwater in the Peri-Urban region of Kleinmond, Western Cape and the Optimisation of Point-of-Use Treatment Systems.* MSc, 2014. 228 pp. Study leader: Khan W. Co-study leader: Cloete TE.

DOBSON R. *Hydrolase production by recombinant Aspergillus niger for application in lignocellulose conversion.* MSc, 2014. 106 pp. Study leader: Van Zyl WH. Co-study leader: Rose SH.

KOSSATZ LH. *Evaluation of triticale straw as feedstock for the production of bioethanol in a SSF process.* MSc, 2014. 95 pp. Study leader: Viljoen-Bloom M. Co-study leader: Rose SH.

PHYSICS / FISIKA

Journal articles (subsidised) / Tydskrifartikels (gesubsidieer)

BARK RA, MURRAY SM, LIEDER EO, LIEDER RM, LAWRIE EA, LAWRIE JJ, BVUMBI S, KHESWA NY, NTSHANGASE SS, MADIBA TE, MASITENG PL, MULLINS SM, MURRAY SM, PAPKA P, MENG J, ET AL. Studies of chirality in the mass 80, 100 and 190 regions. *International Journal of Modern Physics E-Nuclear Physics* 2014; **23**(7) : 1461001-8.

BIRECH Z, SCHWOERER M, SCHMEILER T, PFLAUM J, SCHWOERER HPH. Ultrafast dynamics of excitons in tetracene single crystals. *Journal of Chemical Physics* 2014; **140**(11) : 114501-9.

BRYDEGAARDT M, GEBRU A, SVANBERG S. Super Resolution Laser Radar with Blinking Atmospheric Particles – Application to Interacting Flying Insects. *Progress in Electromagnetics Research-PIER* 2014; **147** : 141-151.

CHEN QB, ZHANG SQ, ZHAO P-W, MENG J. Collective Hamiltonian for wobbling modes. *Physical Review C* 2014; **90** : 044306-12.

CHEN YY, RING P, MENG J. Influence of pairing correlations on the size of the nucleus in relativistic continuum Hartree-Bogoliubov theory. *Physical Review C* 2014; **89** : 014312-9.

DIMITROVA SS, COWLEY AA, VAN ZYL JJ, ZEMLYANAYA EV, LUKYANOV KV. Inclusive reaction $^{93}\text{Nb}(p,\alpha)$ at an incident energy of 160 MeV. *Physical Review C* 2014; **89**(3) : 034616-1-7.

DIMITROVA SS, COWLEY AA, ZEMLYANAYA EV, LUKYANOV KV. Pre-equilibrium mechanisms in the $^{93}\text{Nb}(p,\alpha)$ inclusive reaction at incident energies from 65 to 160 MeV. *Physical Review C* 2014; **90**(5) : 054604-1-10.

GEBRU A, ROHWER EG, NEETHLING PH, BRYDEGAARDT M. Investigation of atmospheric insect wing-beat frequencies and iridescence features using a multi-spectral kHz remote detection system. *Journal of Applied Remote Sensing* 2014; **8** : 083501-1-14.

- IBRAHIM TT, WYNGAARDT SM.** Preformation factor and alpha decay half-lives of superheavy nuclei. *Journal of Physics G-Nuclear and Particle Physics* 2014; **41**(5) : 055111-10.
- KHESWA NY, PAPKA P, PINEDA-VARGAS CA, PRZYBYLOWICZ WJ, STEYN GF, MADIBA TE, SHARPEY-SCHAFFER JF.** Characterisation of thin solid Xe targets. *Journal of Radioanalytical and Nuclear Chemistry* 2014; **299** : 1067-1072.
- LIANG HZ, NAKATSUKASA T, NIU ZM, MENG J.** Finite-amplitude method: an extension to the covariant density functionals. *Physica Scripta* 2014; **89**(5) : 054018-6.
- LIEDER EO, LIEDER RM, BARK RA, CHEN QB, ZHANG SQ, MENG J, LAWRIE EA, LAWRIE JJ, BVUMBI S, KHESWA NY, NTSHANGASE SS, PAPKA P, ET AL.** Resolution of Chiral Conundrum in ^{106}Ag : Doppler-Shift Lifetime Investigation. *Physical Review Letters* 2014; **112** : 202502-1-6.
- LITVIN IA, NGCOBO S, NAIDOO D, AIT-AMEUR K, FORBES A.** Doughnut laser beam as an incoherent superposition of two petal beams. *Optics Letters* 2014; **39**(3) : 704-707.
- MCLAREN MG, MHLANGA T, PADGETT MJ, ROUX FS, FORBES A.** Self-healing of quantum entanglement after an obstruction. *Nature Communications* 2014; **5** : 3248-8.
- MENG J, CHEN QB, ZHANG SQ.** Chirality in atomic nuclei: 2013. *International Journal of Modern Physics E-Nuclear Physics* 2014; **23** : 1430016-13.
- MENG J, ZHAO P-W, ZHANG SQ, HU JN, LI J.** Nuclear moments in covariant density functional theory. *Physica Scripta* 2014; **89**(5) : 054029-4.
- PAPKA P, SHARPEY-SCHAFFER JF, BROWN BA, DINOKO TS, KHALEEL EMA, LAWRIE EA, LAWRIE JJ, LI KCW, VYMERS P, ET AL.** High-resolution two-proton stripping to $2p-1h$ $7/2$ -states via the $^{59}\text{Co}(^3\text{He}, n\alpha)^{61}\text{Cu}$ reaction. *European Physical Journal A* 2014; **50**(10) : 14158-1-5.
- PIETERSE CL.** Characteristic Taylor cone formation time optimisation of electrospray systems. *South African Journal for Science and Technology* 2014; **33**(1) : Art.#1205, 1 page.
- REN X-L, GENG LS, MENG J.** Baryon chiral perturbation theory with Wilson fermions up to $O(\alpha^2)$ and discretization effects of latest $n_f=2+1$ LQCD octet baryon masses. *European Physical Journal C* 2014; **74**(2) : 2754-10.
- REN X-L, GENG LS, MENG J.** Decuplet baryon masses in covariant baryon chiral perturbation theory. *Physical Review D* 2014; **89**(5) : 054034-13.
- REN X-L, GENG LS, OSET E, MENG J.** Test of $h_1(1830)$ made of $K^* \bar{K}^*$ with the $\eta_c \rightarrow \varphi K^* \bar{K}^*$ decay. *European Physical Journal A* 2014; **50** : 14133-7.
- SONG LS, YAO JM, RING P, MENG J.** Relativistic description of nuclear matrix elements in neutrinoless double- β decay. *Physical Review C* 2014; **90**(5) : 054309-16.
- SPANGENBERG D, DUDLEY A, NEETHLING PH, ROHWER EG, FORBES A.** White light wavefront control with a spatial light modulator. *Optics Express* 2014; **22**(11) : 13870-13879.
- SUN TT, ZHANG SQ, ZHANG Y, HU JN, MENG J.** Green's function method for single-particle resonant states in relativistic mean field theory. *Physical Review C* 2014; **90** : 054321-9.
- TABI CB, MAINA I, MOHAMADOU A, EKOBENA FOU DA HP, KOFANE TC.** Wave instability of intercellular Ca^{2+} oscillations. *EPL* 2014; **106**(1) : 18005-6.
- VON ESCHWEGE KG, BOSMAN GW, CONRADIE J, SCHWOERER HPH.** Femtosecond Laser Spectroscopy and DFT Studies of Photochromic Dithizonatomercury Complexes. *Journal of Physical Chemistry A* 2014; **118**(5) : 844-855.
- YAO JM, HAGINO K, LI ZP, MENG J, RING P.** Microscopic benchmark study of triaxiality in low-lying states of ^{76}Kr . *Physical Review C* 2014; **89** : 054306-10.

YAO JM, ITAGAKI N, MENG J. Searching for 4α linear-chain structure in excited states of ^{16}O with a covariant density functional theory. *Physical Review C* 2014; **90** : 054307-9.

ZHANG SQ, NIU ZM, LI ZP, YAO JM, MENG J. Global dynamical correlation energies in covariant density functional theory: Cranking approximation. *Frontiers of Physics* 2014; **9**(4) : 529-536.

ZHANG Y, MATSUO M, MENG J. Asymptotic form of neutron Cooper pairs in weakly bound nuclei. *Physical Review C* 2014; **90** : 034313-5.

ZHANG Y, ROUX FS, MCLAREN MG, FORBES A. Radial modal dependence of the azimuthal spectrum after parametric down-conversion. *Physical Review A* 2014; **89** : 043820-5.

ZHAO P-W, ZHANG SQ, MENG J. Explanation of the simplicity of the quadrupole moments recently observed in Cd isotopes from covariant density functional theory. *Physical Review C* 2014; **89** : 011301-5.

Journal articles (non-subsidised) / Tydskrifartikels (ongesubsidieer)

TABI CB. Formation and Interaction of Bright Solitons with Shape Changing in a DNA Model. *Journal of Physical Chemistry & Biophysics* 2014; **4**(5) : 1000162-6.

Proceedings international / Verrigtinge internasionaal

COWLEY AA, VAN ZYL JJ. Interplay between multiple intranuclear scattering and pickup in proton-induced emission of ^3He into the continuum. INPC 2013 International Nuclear Physics Conference, Firenze, Italy, EDP Sciences 2014: 66, 03020-4.

COWLEY AA. Current Understanding of the Reaction Mechanism in Two-Nucleon Transfer Reactions. XX International School on Nuclear Physics, Neutron Physics and Applications, Journal of Physics Conference Series 533, Club Hotel Bolero, Varna, Bulgaria, IOP Publishing 2014: 533, 02003-1-4.

GEBRU A, ROHWER EG, NEETHLING PH, BRYDEGAARDT M. Investigation of atmospheric insect wing-beat frequencies and iridescence features using a multi-spectral kHz remote detection system. SPIE Proceedings: Remote Sensing and Modeling of Ecosystems for Sustainability XI, San Diego Convention Center, San Diego, California, USA, SPIE Proceedings 2014: 922106-922106.

Proceedings national / Verrigtinge nasionaal

FOURIE H, NEWMAN RT, SLABBERT JP, BEUKES P. Cytogenetic analysis of ^{60}Co gamma-radiation-induced chromosome damage and simulations using the Geant4 Monte Carlo toolkit. 58th Annual Conference of the South African Institute of Physics, Johannesburg, South Africa, Roelf Botha and Thulani Jili 2014: 248-253.

MAQABUKA BG, MULLINS SM, BARK RA, BOGOLOMOV S, CONNELL H, EFREMOV A, LAWRIE EA, LAWRIE JJ, MAJOLA SNT, MOLNAR J, MURRAY SHT, NYAKO BM, PAPKA P, THOMAE R. Characterization of Incomplete Fusion Reaction with AFRODITE and DIAMANT. The 57th Annual Conference of the South African Institute of Physics, Pretoria, South Africa, Department of Physics, University of Pretoria 2014: 271-275.

NDAYISHIMYE J, LAWRIE EA, EASTON JL, BARK RA, BVUMBI S, DINOKO TS, JONES P, KAMBLAWE A, KHALEEL EMA, KHESWA NY, LAWRIE JJ, MAJOLA SNT, MASITENG PL, PAPKA P, WYNGAARDT SM, ET AL. Search for chirality in ^{193}Tl . 58th Annual Conference of the South African Institute of Physics, Johannesburg, South Africa, Roelf Botha and Thulani Jili 2014: 302-306.

NDLOVU NB, FRONTASYEVA MV, NEWMAN RT, MALEKA PP. *Emissions of Trace Elements from Motor Vehicles Monitored by Active Biomonitoring: a tunnel study in the Western Cape, South Africa using ICP-MS and neutron activation.* 58th Annual Conference of the South African Institute of Physics, Johannesburg, South Africa, Roelf Botha and Thulani Jili 2014: 307-311.

Doctoral completed / Doktoraal afgehandel

ADERA GB. *Relativistic distorted wave analysis of neutrino-induced strange particle production from nuclei.* PhD, 2014. 133 pp. Promotor: Van der Ventel BIS. Co-promotor: Phillips DR.

DE KOCK MB. *From stable priors to maximum Bayesian evidence via a generalised rule of succession.* PhD, 2014. 152 pp. Promotor: Eggers HC.

KHESWA BV. *Impact of the $^{138,139}\text{La}$ Radiative Strength Functions and Nuclear Level Densities on the Galactic Production of ^{138}La .* PhD, 2014. 119 pp. Promotor: Wiedeking M. Co-promotor: Papka P.

MATEYISI JM. *Particle diffusion in elastically coupled narrow parallel channels.* PhD, 2014. 142 pp. Promotor: Müller-Nedebock KK. Co-promotor: Boonzaaier L.

MCLAREN MG. *Tailoring Quantum Entanglement of Orbital Angular Momentum.* PhD, 2014. 136 pp. Promotor: Forbes A. Co-promotor: Rohwer EG, Roux FS.

ROHWER CM. *Combinatorics and dynamics in polymer knots.* PhD, 2014. 157 pp. Promotor: Müller-Nedebock KK. Co-promotor: Scholtz FG.

ROHWER EJ. *Ultrafast photodynamics of ZnO solar cells sensitized with the organic indoline derivative D149.* PhD, 2014. 76 pp. Promotor: Schwoerer HPH. Co-promotor: Schlettwein D.

VERMEULEN C. *Production of Radionuclides with Medium Energy Protons with the Emphasis on Targetry.* PhD, 2014. 289 pp. Promotor: Steyn GF. Co-promotor: Cowley AA.

Masters completed / Magister afgehandel

CAPRARO MH. *Vacuum polarisation energies of two interacting scalar fields with a mass gap in $(1+1)$ dimensions.* MSc, 2014. 84 pp. Study leader: Weigel H.

DU TOIT E. *Cluster Model Analysis of Exotic Decay in Actinide Nuclei.* MSc, 2014. 120 pp. Study leader: Wyngaardt SM. Co-study leader: Perez SM.

FOURIE H. *Microdosimetric studies of Auger electrons from DNA-incorporated ^{123}I using the micronucleus assay and the Geant4 Monte Carlo simulation toolkit.* MSc, 2014. 101 pp. Study leader: Newman RT. Co-study leader: Slabbert JA.

GUMEDE SR. *Translocation of a polymer chain under geometric confinement.* MSc, 2014. 82 pp. Study leader: Müller-Nedebock KK.

HISSEN HZA. *Spectral characterization of materials using Terahertz Time Domain Spectroscopy (THz-TDS).* MSc, 2014. 114 pp. Study leader: Rohwer EG. Co-study leader: Neethling PH.

KIMENE KAYA BDC. *Crossovers and phase transitions in Bose-Fermi mixtures.* MSc, 2014. 70 pp. Study leader: Avdeenkov A. Co-study leader: Kriel JN.

MATINDI TB. *Development of VUV tuneable laser spectroscopy techniques for characterising calcium fluoride.* MSc, 2014. 116 pp. Study leader: Steenkamp CM. Co-study leader: Rohwer EG.

MINDA I. *Photoinduced Charge Dynamics in Indoline-Dye Sensitised Solar Cells.* MSc, 2014. 56 pp. Study leader: Schwoerer HPH. Co-study leader: Schlettwein D.

ROHWER AB. *Introducing Organic Molecular Crystals into Ultrafast Electron Diffraction.* MSc, 2014. 106 pp. Study leader: Schwoerer HPH. Co-study leader: Rohwer EG.

SMIT AB. *A New Femtosecond Electron Diffractometer for Structural Dynamics Experiments at Cryogenic Temperatures.* MSc, 2014. 85 pp. Study leader: Schwoerer HPH.

STEYN R. *Portable X-ray Fluorescence and Nuclear Microscopy Techniques Applied to the Characterisation of Southern African Rock Art Paintings.* MSc, 2014. 104 pp. Study leader: Papka P. Co-study leader: Pineda-Vargas CA.

SULEIMAN AO. *Structural Dynamics of 1T-TiSe₂ Using Femtosecond Electron Diffraction.* MSc, 2014. 76 pp. Study leader: Schwoerer HPH.

INSTITUTE FOR THEORETICAL PHYSICS / INSTITUUT VIR TEORETIESE FISIKA

Journal articles (subsidised) / Tydskrifartikels (gesubsidieer)

ANGELETTI F, BERTIN E, ABRY P. General limit distributions for sums of random variables with a matrix product representation. *Journal of Statistical Physics* 2014; **157** : 1255-1283.

ANGELETTI F, TOUCHETTE H, BERTIN E, ABRY P. Large deviations for correlated random variables described by a matrix product ansatz. *Journal of Statistical Mechanics-Theory and Experiment* 2014; **2014(2)** : P02003-1-14.

CHANDRA N, GROENEWALD HW, KRIEL JN, SCHOLTZ FG, VAIDYA S. Spectrum of the three-dimensional fuzzy well. *Journal of Physics A-Mathematical and Theoretical* 2014; **47(44)** : 445203-1- 32.

CINTI F, BONINSEGGNI M, POHL T. Exchange-induced crystallization of soft-core bosons. *New Journal of Physics* 2014; **16(3)** : 033038-1-14.

CINTI F, MACRI T, LECHNER W, PUPILLO G, POHL T. Defect-induced supersolidity with soft-core bosons. *Nature Communications* 2014; **5** : 3235-1-6.

DEVI YC, GHOSH KJB, CHAKRABORTY B, SCHOLTZ FG. Thermal effective potential in two-and three-dimensional non-commutative spaces. *Journal of Physics A – Mathematical and Theoretical* 2014; **47(2)** : 025302-1-32.

DUTTA A, GANGOPADHYAY S. Remnant mass and entropy of black holes and modified uncertainty principle. *General Relativity and Gravitation* 2014; **46** : 1747-1-10.

GANGOPADHYAY S, DUTTA A, SAHA A. Generalized uncertainty principle and black hole thermodynamics. *General Relativity and Gravitation* 2014; **46(2)** : 1661-1-10.

GANGOPADHYAY S, SAHA A, SAHA S. Trace of Phase-Space Noncommutativity in Response of a Free Particle to Linearized Gravitational Waves. *Modern Physics Letters A* 2013; **28(35)** : 1350161-1- 10.

GANGOPADHYAY S, SCHOLTZ FG. Noncommutativity from exact renormalization group dualities. *Physical Review D* 2014; **90(4)** : 047702-1-5.

GANGOPADHYAY S, SCHOLTZ FG. Path integral action and Chern-Simons quantum mechanics in noncommutative plane. *Journal of Physics A-Mathematical and Theoretical* 2014; **47(23)** : 235301- 1-11.

GANGOPADHYAY S, SCHOLTZ FG. Path integral action of a particle in a magnetic field in the noncommutative plane and the Aharonov-Bohm effect. *Journal of Physics A-Mathematical and Theoretical* 2014; **47(7)** : 075301-1-14.

GANGOPADHYAY S. Holographic superconductors in Born-Infeld electrodynamics and external magnetic field. *Modern Physics Letters A* 2014; **29**(17) : 1450088-1-10.

GRAHAM N, QUANDT M, WEIGEL H. Casimir energy of frequency dependent interactions. *Physical Review D* 2014; **90** : 085004-1-17.

HAZZARD KRA, VAN DEN WORM M, FOSS-FEIG M, MANMANA SR, DALLA TORRE EG, PFAU T, KASTNER M, REY AM. Quantum correlations and entanglement in far-from-equilibrium spin systems. *Physical Review A* 2014; **90** : 063601-1-22.

HEISS WD, WUNNER G. Fano-Feshbach resonances in two-channel scattering around exceptional points. *European Physical Journal D* 2014; **68** : 284-1-6.

KRIEL JN, KARRASCH C, KEHREIN S. Dynamical quantum phase transitions in the axial next- nearest-neighbor Ising chain. *Physical Review B* 2014; **90**(12) : 125106-1-9.

MACRIT, SACCANI S, CINTI F. Ground state and excitation properties of soft-core bosons. *Journal of Low Temperature Physics* 2014; **177** : 59-71.

MEHTA D, HUGHES C, KASTNER M, WALES DJ. Potential energy landscape of the two-dimensional XY model: Higher-index stationary points. *Journal of Chemical Physics* 2014; **140**(22) : 224503-1-7.

METIVIER D, BACHELARD R, KASTNER M. Spreading of Perturbations in Long-Range Interacting Classical Lattice Models. *Physical Review Letters* 2014; **112**(21) : 210601-1-5.

OLIVIER G, KASTNER M. Microcanonical analysis of the Curie-Weiss anisotropic quantum Heisenberg model in a magnetic field. *Journal of Statistical Physics* 2014; **157** : 456-473.

ROHWER CM, MÜLLER-NEDEBOCK KK, MPIANA MULAMBA F. Conservation of polymer winding states: a combinatoric approach. *Journal of Physics A-Mathematical and Theoretical* 2014; **47**(6) : 065001-1-27.

VILLAVICENCIO-SANCHEZ R, HARRIS RJ, TOUCHETTE H. Fluctuation relations for anisotropic systems. *EPL* 2014; **105**(3) : 30009-1-6.

Proceedings international / Verrigtinge internasionaal

BLANCKENBERG JP, WEIGEL H. *Heavy Baryons with Strangeness.* 58th Annual Conference of the South African Institute of Physics, Johannesburg, South Africa, Roelf Botha and Thulani Jili 2014: 525-530.

WEIGEL H. *Kink-Antikink Scattering in ϕ^4 and ϕ^6 Models.* Physics and Mathematics of Nonlinear Phenomena 2013, Gallipoli, Italy, IOP Publishing 2014: 012045-1-9.

Chapters in books / Hoofstukke in boeke

LOOS B, HOFMEYR J-H S, MÜLLER-NEDEBOCK KK, BOONZAAIER L, KINNEAR C. Autophagic Flux, Fusion Dynamics, and Cell Death. In *Autophagy: Cancer, Other Pathologies, Inflammation, Immunity, Infection, and Aging*, Elsevier and Book Aid, San Diego, California, USA, 2014: 39-56.

LOOS B, HOFMEYR JS, MÜLLER-NEDEBOCK KK, BOONZAAIER L, KINNEAR CJ. Autophagic Flux, Fusion Dynamics and Cell Death. In *Autophagy: Cancer, Other Pathologies, Inflammation, Immunity, Infection and Aging, Volume 3*, Elsevier, USA, 2014: 39-56.

Journal articles (subsidised) / Tydskrifartikels (gesubsidieer)

COOMER M, ESSOP MF. Differential hexosamine biosynthetic pathway gene expression with type 2 diabetes. *Molecular Genetics and Metabolism* 2014; **1** : 158-169.

DAVIS T, LOOS B, ENGELBRECHT A-M. AHNAK: The giant jack of all trades. *Cellular Signalling* 2014; **26** : 2683-2693.

DICKS LMT, BOTHA M, LOOS B, SMITH C. Adhesion of *Lactobacillus reuteri* strain Lr1 to equine epithelial cells and competitive exclusion of *Clostridium difficile* from the gastro-intestinal tract of horses. *Annals of Microbiology* 2014; doi:10.1007/s13213-014-0954-4.

GOETSCH KP, SNYMAN C, MYBURGH KH, NIESLER CU. ROCK-2 is associated with focal adhesion maturation during myoblast migration. *Journal of Cellular Biochemistry* 2014; **115** : 1299-1307.

GOVENDER J, LOOS B, MARAIS E, ENGELBRECHT A-M. Mitochondrial catastrophe during doxorubicin-induced cardiotoxicity: a review of the protective role of melatonin. *Journal of Pineal Research* 2014; **57** : 367-380.

IMBRIOLO J, MAPANGA RF, ESSOP MF. The hexosamine biosynthetic pathway induces gene promoter activity of acetyl-CoA carboxylase beta. *Biochemical and Biophysical Research Communications* 2014; **452** : 734-739.

JOSEPH D, ESSOP MF. The effects of thiamine treatment on pre-diabetic versus overt diabetic rat hearts: Role of non-oxidative glucose pathways. *International Journal of Cardiology* 2014; **176** : 1371-1373.

JOSEPH D, KIMAR C, SYMINGTON B, MILNE R, ESSOP MF. The detrimental effects of acute hyperglycemia on myocardial glucose uptake. *Life Sciences* 2014; **105** : 31-42.

JOVANOVIC K, LOOS B, DA COSTA DIAS B, PENNY C, WEISS SFT. High Resolution Imaging Study of Interactions between the 37 kDa/67 kDa Liminin Receptor and APP, Beta-Secretase and Gamma-Secretase in Alzheimer's Disease. *PLoS ONE* 2014; **9**(6) : 1-10.

KLEEMAN B, LOOS B, SCRIBA TJ, LANG D, DAVIDS LM. St John's Wort (*Hypericum perforatum* L.) Photomedicine: Hypericin-Photodynamic Therapy Induces Metastatic Melanoma Cell Death. *PLoS ONE* 2014; **9**(7) : 1-20.

KRUGER M, DAVIES N, MYBURGH KH, LECOUR S. Proanthocyanidins, anthocyanins and cardiovascular diseases. *Food Research International* 2014; **59** : 41-52.

KRUGER M, MYBURGH KH, SMITH C. Contusion Injury with Chronic *In vivo* Polyphenol Supplementation: Leukocyte Responses. *Medicine and Science in Sports and Exercise* 2014; **46**(2) : 225-231.

LOOS B, DU TOIT A, HOFMEYR J-HS. Defining and measuring autophagosome flux – concept and reality. *Autophagy* 2014; **10**(11) : 2087-2096.

LOOS B. Autophagy researchers. *Autophagy* 2014; **10**(7) : 1-4.

MACALUSO F, ISAACS AW, DI FELICE V, MYBURGH KH. Acute change of titin at mid-sarcomere remains despite 8 wk of plyometric training. *Journal of Applied Physiology* 2014; **116** : 1512-1519.

MAPANGA RF, JOSEPH D, SYMINGTON B, GARSON K-L, KIMAR C, KELLY-LAUBSCHER R, ESSOP MF. Detrimental effects of acute hyperglycaemia on the rat heart. *Acta Physiologica* 2014; **210** : 546-564.

MYBURGH KH. Polyphenol Supplementation: Benefits for exercise performance or oxidative stress?. *Sports Medicine* 2014; **44** : 57-70.

REYSKENS KMSE, ESSOP MF. HIV protease inhibitors and onset of cardiovascular diseases: A central role for oxidative stress and dysregulation of the ubiquitin-proteasome system. *Biochimica et Biophysica Acta-General Subjects* 2014; **1842** : 256-268.

SANTOS-CONCEJERO J, TUCKER R, MYBURGH KH, ESSEN-GUSTAVSSON B, KOHN TA. Greater performance impairment of black runners than white runners when running in hypoxia. *International Journal of Sports Medicine* 2014; **35** : 809-816.

SCHLOMS L, SMITH C, STORBECK K-H, MARNEWICK JL, SWART P, SWART AC. Rooibos influences glucocorticoid levels and steroid ratios in vivo and in vitro: A natural approach in the management of stress and metabolic disorders?. *Molecular Nutrition & Food Research* 2014; **58** : 537-549.

SMITH C, JANSE VAN VUUREN M. Central and peripheral effects of *Sutherlandia frutescens* on the response to acute psychological stress. *Experimental Biology and Medicine* 2014; **239** : 123-128.

SMITH C, KRYGSMAN A. *Hoodia gordonii* extract targets both adipose and muscle tissue to achieve weight loss in rats. *Journal of Ethnopharmacology* 2014; **155** : 1284-1290.

SMITH C, KRYGSMAN A. *Hoodia gordonii*: To eat, or not to eat. *Journal of Ethnopharmacology* 2014; **155** : 987-991.

SMITH C, VILJOEN JT, MCGEACHIE L. African drumming: a holistic approach to reducing stress and improving health?. *Journal of Cardiovascular Medicine* 2014; **15**(6) : 441-446.

SWART C, HAYLETT W, KINNEAR CJ, JOHNSON G, BARDIEN S, LOOS B. Neurodegenerative disorders: Dysregulation of a carefully maintained balance?. *Experimental Gerontology* 2014; **58** : 279-291.

VAN DE VYVER M, MYBURGH KH. Variable inflammation and intramuscular STAT3 phosphorylation and myeloperoxidase levels after downhill running. *Scandinavian Journal of Medicine & Science in Sports* 2014; **24** : 360-371.

VAN DER MERWE C, LOOS B, SWART C, KINNEAR C, HENNING F, VAN DER MERWE L, PILLAY K, MULLER N, ZAHARIE D, ENGELBRECHT L, CARR J, BARDIEN S. Mitochondrial impairment observed in fibroblasts from South African Parkinson's disease patients with parkin mutations. *Biochemical and Biophysical Research Communications* 2014; **447** : 334-340.

VERHOOG N, ALLIE-REID F, VANDEN BERGHE W, SMITH C, HAEGEMAN G, HAPGOOD JP, LOUWA A. Inhibition of Corticosteroid-Binding Globulin Gene Expression by Glucocorticoids Involves C/EBP β . *PLoS ONE* 2014; **9**(10) : e110702.

Journal articles (non-subsidised) / Tydskrifartikels (ongesubsidieer)

BROOKS N, MYBURGH KH. Skeletal muscle wasting with disuse atrophy is multi-dimensional: the response and interaction of myonuclei, satellite cells and signaling pathways. *Frontiers in Physiology* 2014; **5** : 1-14.

DURCAN PJ, CONRADIE JD, VAN DE VYVER M, MYBURGH KH. Identification of novel Kirrel3 gene splice variants in adult human skeletal muscle. *BMC Physiology* 2014; **14**(11) : 1-11.

GARSON K-L, MAPANGA RF, MILNE R, ESSOP MF. The effects of benfotiamine in attenuating hyperglycemia-induced cardiac pathology. *Journal of African Association of Physiological Sciences* 2014; **2** : 5-13.

SMITH C, ESSOP MF. Influence of lifestyle choices on metabolic risk has distinct gender and age differences. *International Journal of Clinical & Experimental Physiology* 2014; **1** : 13-19.

Chapters in books / Hoofstukke in boeke

LOOS B, HOFMEYR JS, MÜLLER-NEDEBOCK KK, BOONZAAIER L, KINNEAR CJ. Autophagic Flux, Fusion Dynamics and Cell Death. In *Autophagy: Cancer, Other Pathologies, Inflammation, Immunity, Infection and Aging, Volume 3*, Elsevier, USA, 2014: 39-56.

LOOS B, SISHI BJN, ENGELBRECHT A-M. Role of Autophagy in Heart Disease. In *Autophagy: Cancer, other Pathologies, Inflammation Immunity, Infection and Aging, Volume 2*, Elsevier, USA, 2014: 315-328.

Doctoral completed / Doktoraal afgehandel

JOSEPH D. *Hyperglycemia-mediated onset of myocardial insulin resistance - unraveling molecular mechanisms and identifying therapeutic targets.* PhD(Fisiol), 2014. 288 pp. Promotor: Essop MF.

Masters completed / Magister afgehandel

AFRICA L. *HIV-associated neuroinflammation: effects of two complimentary medicines illustrated in an in vitro model of the blood-brain barrier.* MScFisiol, 2014. 96 pp. Study leader: Smith C.

BEUKES DC. *Anthropometric characteristics and changes with HIV and ART in a randomly selected population in the Drakenstein region Western Cape Province.* MScFisiol, 2014. 117 pp. Study leader: Nell TA. Co-study leader: Essop MF.

DRIESCHER N. *Establishing a rodent model of long-term consumption of sugar-sweetened beverages.* MScFisiol, 2014. 132 pp. Study leader: Essop MF.

GOLDSWAIN T. *The (un)SAFE and RISK(y) sides of doxorubicin-induced cardiotoxicity.* MScFisiol, 2014. 174 pp. Study leader: Sishi BJN. Co-study leader: Lacerda L.

HILLHOUSE M. *Injury surveillance during the 2011 FNB varsity cup rugby season.* MScFisiol, 2014. 94 pp. Study leader: Nell TA.

MITCHELL M. *Exploitation of circadian rhythms as a novel chemotherapeutic strategy for breast cancer.* MScFisiol, 2014. 140 pp. Study leader: Engelbrecht A-M.

ROOS M. *Elucidating the role of WDR47 in regulating neuronal migration, autophagy and tubulin dynamics.* MScFisiol, 2014. 136 pp. Study leader: Loos B. Co-study leader: Kinneer CJ.

CENTRAL ANALYTICAL FACILITY / SENTRALE ANALITIESE FASILITEIT

Journal articles (subsidised) / Tydskrifartikels (gesubsidieer)

BEELDERS T, BRAND DJ, DE BEER D, MALHERBE CJ, MAZIBUKO SE, MULLER CJF, JOUBERT E. Benzophenone C- and O-glucosides from *Cyclopia genistoides* (Honeybush) inhibit mammalian alpha-glucosidase. *Journal of Natural Products* 2014; **77** : 2694-2699.

BEELDERS T, DE BEER D, STANDER MA, JOUBERT E. Comprehensive phenolic profiling of *Cyclopia genistoides* (L.) Vent. by LC-DAD-MS and -MS/MS reveals novel xanthone and benzophenone constituents. *Molecules* 2014; **19** : 11760-11790.

DU PLESSIS A, SEIFERT T, BOOYSEN G, ELS J. Microfocus X-Ray Computed Tomography (CT) analysis of laser sintered parts. *South African Journal of Industrial Engineering* 2014; **25**(1) : 39-49.

STREICHER EM, MAHARAJ K, YORK T, VAN HEERDEN C, BARNARD M, DIACON AH, MENDEL CM, BOSMAN ME, HEPPLER JA, PYM AS, WARREN RM, VAN HELDEN PD. Rapid sequencing of the *Mycobacterium tuberculosis* pncA gene for detection of Pyrazinamide susceptibility. *Journal of Clinical Microbiology* 2014; **52**(11) : 4056-4057.

VAN DER MERWE C, LOOS B, SWART C, KINNEAR C, HENNING F, VAN DER MERWE L, PILLAY K, MULLER N, ZAHARIE D, ENGELBRECHT L, CARR J, BARDIEN S. Mitochondrial impairment observed in fibroblasts from South African Parkinson's disease patients with parkin mutations. *Biochemical and Biophysical Research Communications* 2014; **447** : 334-340.

Chapters in books / Hoofstukke in boeke

GENISA, SMIT S, WESTCOTT C, MTHETHWA M, STRIJDOM H. Attenuation of eNOS-NO biosynthesis, up-regulation of antioxidant proteins and differential protein regulation in TNF-Alpha treated cardiac endothelial cells: Early signs of endothelial dysfunction. In *Endothelial dysfunction. Risk factors, role in cardiovascular diseases and therapeutic approaches*, Nova Science publishers, Inc, New York, USA, 2014: 169-204.

MORTON AC, FREI D, STOKER M, ELLIS D. Detrital zircon age constraints on basement history on the margins of the northern Rockall Basin. In *Hydrocarbon Exploration to Exploration to Exploitation West of Shetlands, Special Publication 397*, Geological Society, London, United Kingdom, 2014: 209- 223.

Department of Biochemistry

Leading international researcher	Prof Jannie Hofmeyr	systems biology and complexity studies
Internationally acclaimed researcher	Prof Johann Rohwer	systems biology
	Prof Jacky Snoep	systems biology
	Prof Erick Strausss	mechanistic enzymology and inhibitor development
	Prof Pieter Swart	adrenal steroidogenesis, affinity separation and protein immobilisation
Established researcher	Prof Dirk Bellstedt	molecular systematics and immunology
	Prof Ann Louw	steroid receptors, bioactivity of honeybush
	Prof Amanda Swart	bioactivity of rooibos and <i>Sutherlandia frutescens</i>

Department of Botany and Zoology

Leading international researcher	Prof Dave Richardson	biological invasions and conservation biogeography
	Prof Terry Robinson	evolutionary genetics and phylogenomics of mammals
Internationally acclaimed researcher	Prof Conrad Matthee	molecular systematics and phylogeography
	Prof Guy Midgley	Global Change Biology
	Prof Valdon Smith	Antarctic and Southern Island biology and ecology
	Prof Michael Cherry	behaviour ecology
	Prof Bruce Anderson	plant-animal interaction
Established researcher	Dr Savel Daniels	molecular systematics, phylogeography and conservation of invertebrata
	Prof Leanne Dreyer	evolution of Cape Flora
	Prof LeFras Mouton	evolutionary ecology of lizards
NRF Prestigious Awardee	Prof Alex Valentine	molecular physiology of host-microbe interactions of legumes in phosphorus deficient soils

Promising Young Researcher	Dr Susanne Clusella-Trullus	thermal adaptation of ectotherms and implications for climate change
	Prof Allan Ellis	evolutionary ecology of plants and insects
	Dr Jaco Le Roux	evolutionary biology and ecology of plant invaders
	Dr Nox Makunga	medicinal plant biotechnology
	Prof Anton Pauw	evolutionary ecology of plants and their pollinators
	Dr Carol Simon	marine invertebrate reproduction and polychaete worm taxonomy
	Dr Sophie von der Heyden	marine molecular ecology and conservation

Department of Chemistry and Polymer Science

Leading international researcher	Prof Bert Klumperman	living radical polymerization and advanced macromolecular architectures
	Prof Len Barbour	functional nanostructured materials
Internationally acclaimed researcher	Prof Ben Burger	chemical communication in living organisms
	Prof Harald Pasch	analytical polymer science, multidimensional chromatography
	Prof Willem van Otterlo	organic synthesis and medicinal chemistry
	Prof Helgard Raubenheimer	ligand design aimed at applications in homogeneous catalysis; gold chemistry
	Prof Klaus Koch	multinuclear NMR spectroscopy and platinum group metals chemistry

Established researcher	Prof Peter Mallon	complex polymer materials and polymer nano-composites
	Prof Delia Haynes	crystal engineering, chemistry of main group elements
	Prof Selwyn Mapolie	homogeneous catalysis via dendrimeric complexes
	Prof Catharine Esterhuysen	intermolecular interactions
	Prof Ivan Green	small molecules syntheses for medicinal application
	Prof Ed Jacobs	membrane and process development
	Prof Albert van Reenen	structure-property relationships
	Prof Robbie Luckay	ligand design for metal ion coordination in industrial and medical applications
Promising Young Researcher	Prof André de Villiers	separation science fundamentals and applications
	Dr Gareth Arnott	inherently chiral calixarenes; asymmetric methodology
	Dr Stephan Pelly	medicinal chemistry

Department of Earth Sciences

Internationally acclaimed researcher	Prof IS Buick	metamorphic petrology, geochronology and isotope geochemistry
	Prof JD Clemens	granite petrogenesis
	Prof A Kisters	structural geology
	Prof G Stevens	experimental petrology
	Established researcher	Dr S Fietz
Prof A Roychoudhury		environmental geochemistry and hydrology

Department of Mathematical Sciences

Leading international researcher	Prof Helmut Prodinger	analysis of algorithms, number theory and combinatorics
---	-----------------------	---

Internationally acclaimed researcher	Prof Ben Herbst	computer vision and machine learning
	Prof Leon van Wyk	ring theory and matrix algebras
	Prof Stephan Wagner	Graph theory and combinatorics
	Prof Willem Visser	software failure, software engineering and software development
	Prof André Weideman	numerical analysis and scientific computation
Established researcher	Prof MK Banda	numeral methods for flow and transport processes
	Prof Florian Breuer	number theory
	Prof Bernd Fischer	software engineering
	Dr Jaco Geldenhuys	software engineering, specifically model checking and process algebra
	Prof Sonja Mouton	banach algebras and spectral theory
	Dr Farai Nyabadza	mathematical biology
	Prof Ingrid Rewitzky	mathematics of computer science
	Prof Brink van der Merwe	automata theory
	Prof Lynette van Zijl	theoretical computer science and assistive technologies
Promising young researcher	Dr Karin-Therese Howell	algebra
	Dr Zurab Janelidze	category theory and universal algebra
	Dr Gareth Boxall	model theory, logic
NRF Prestigious Awardee	Prof Cang Hui	invasion biology, mathematical ecology

Department of Microbiology

Internationally acclaimed researcher	Prof Eugene Cloete	water biotechnology
	Prof Leon Dicks	lactic acid bacteria, probiotics and bacteriocins
	Prof Emile van Zyl	bioethanol from plant material and expression of foreign proteins in yeast and fungi
Established researcher	Prof Marinda Bloom	fungus bioprocessing
	Prof Karin Jacobs	microbial ecology
	Dr Heinrich Volschenk	bioprospecting for enzymes and expression of foreign proteins in yeast
Promising young researcher	Prof Alf Botha	yeast and fungal ecology

Department of Physiological Sciences

Internationally acclaimed researcher	Prof Kathy Myburgh	skeletal muscle biology
Established researcher	Prof Faadiel Essop	cardiac metabolism

Department of Physics

Internationally acclaimed researcher	Prof Anthony Cowley	nuclear physics
	Prof HB Geyer	theoretical physics
	Prof Dieter Heiss	theoretical physics
	Prof Michael Kastner	theoretical physics
	Prof FG Scholtz	theoretical physics
	Prof HPH Schwoerer	laser physics
	Prof H Touchette	theoretical physics
	Prof H Weigel	theoretical physics
Established researcher	Prof EG Rohwer	laser physics
	Dr F Cinti	theoretical physics
	Prof HC Eggers	theoretical physics
	Prof RT Newman	nuclear physics
	Prof SM Wyngaard	nuclear physics
	Prof BIS van der Ventel	nuclear physics
	Dr CM Steenkamp	laser physics
	Dr JJ van Zyl	nuclear physics
Promising young researcher	Prof P Papka	nuclear physics
	Dr PH Neethling	laser physics

FACULTY OF SCIENCE / FAKULTEIT NATUURWETENSKAPPE
STAFF / PERSONEEL
2014

DEPARTMENT OF BIOCHEMISTRY

ACADEMIC STAFF

Dr DJ Africander
Prof DU Bellstedt
Dr A Botes
Prof J-HS Hofmeyr
Prof A Louw
Prof M Rautenbach
Prof JM Rohwer
Prof JL Snoep
Dr K Storbeck
Prof E Strauss
Prof AC Swart
Prof P Swart Head of department
Dr DD van Niekerk

**EXTRAORDINARY
PROFESSOR**

Prof WCA Gelderbloem

SUPPORT STAFF

Ms WW Maart Secretary
Mr AP Arends
Mr KD Botha
Mr R Brandt
Mrs H Bredell
Mrs CA de Villiers
Mrs L du Toit
Dr Y Engelbrecht
Mrs AP Februarie
Mrs GD Gerstner
Mr CR Jansen
Mrs C Langeveldt
Ms RP Louw
Dr MA Stander

POSTDOCS

Dr L Bloem
Dr R Domingo
Dr J Eicher
Dr L Koekemoer
Dr R Louw-du Toit
Dr T Magcwabeba
Dr AM Troskie
Dr JC Visser
Dr GA Wells

**RESEARCH
ASSOCIATES
NEW
APPOINTMENTS**

Dr MD Pirie

Dr M de Villiers

RCA fellow/Researcher

DEPARTMENT OF BOTANY AND ZOOLOGY

ACADEMIC STAFF

Prof Conrad Matthee

Prof BC Anderson

Prof MI Cherry

Dr S Clusella-Trullas

Prof SR Daniels

Prof LL Dreyer

Prof AG Ellis

Dr AF Flemming

Dr JJ Le Roux

Prof NP Makunga

Prof G Midgley

Prof PLN Mouton

Dr MI Mouton

Prof Anton Pauw

Dr RV Rambau

Prof DM Richardson

Prof TJ Robinson

Dr TB Robinson

Dr CA Simon

Prof VR Smith

Prof AJ Valentine

Prof JH Van Wyk

Dr S Von der Heyden

Prof T Wossler

Executive head

Associate professor (promoted)

Professor (promoted)

Professor (promoted)

Associate professor (promoted)

Senior lecturer (promoted)

Senior Professor (promoted)

**CENTRE OF
EXCELLENCE FOR
INVASION BIOLOGY**

Prof DM Richardson

Dr Cang Hui

Dr John Measey

Prof Brian van Wilgen

(director since May 2012)

(until March 2014)

(since April 2014)

(since April 2014)

**EXTRAORDINARY
PROFESSORS**

Prof AM Bauer

Prof S Barrett

Prof SL Chown

Prof KJ Gaston

Prof MA McGeoch

Prof L Mumba

Prof KJ Tolley

Prof B van Wilgen

Prof JR Wilson

SUPPORT STAFF

Ms S Jacobs

principal secretary

Ms J Basson
Mr A Fransman
Ms F Gordon
Ms RM Honing
Ms S Johnson
Ms DJD Julies
Dr A Kleinert
Ms J Law-Brown
Mr R Robertson
MP Sauerman
Mr M Siebritz
Mr N Solomons
Mr RC Thompson
Mr JP Williams
Mr H Witbooi

**CENTRE OF
EXCELLENCE FOR
INVASION BIOLOGY**

K Coombe-Davis
S Davies
D du Plessis
Dr M Gaertner
A Garthwaite
M Koordom
S Kritzinger-Klopper
E Marais
C Momberg
R Moses
E Nortje
C Scheepers
M van der Vyver

POSTDOCS

Dr Mhairi Alexander
Dr Marinus de Jager
Dr Nina dU TOIT
Dr Shelley Edwards
Dr Romina Henriques
Dr Heidi Hirsch
Dr Christian Kelstrup
Dr Michael Logan
Dr Matthew Mc Connachie
Dr Natasha Mothapo
Dr Ana Novoa Perez
Dr Ethel Phiri
Dr JG Rodger
Dr Adelle Roux
Dr Gary Stafford
Dr Vernon Visser

RETIRED

Prof Valdon Smith

DEPARTMENT OF CHEMISTRY AND POLYMER SCIENCE

ACADEMIC

Prof PE Mallon Departmental head
Dr GE Arnott
Prof LJ Barbour
Dr MAL Blackie
Dr L Cronje
Prof AJ de Villiers
Dr K de Villiers
Prof JLM Dillen
Prof C Esterhuysen
Dr WJ Gerber
Ms A Gericke
Dr DA Haynes
Prof EP Jacobs
Prof L Klumperman
Prof KR Koch
Dr T le Roex
Dr M le Roux
Dr RC Luckay
Dr M Lutz
Dr R Malgas-Enus
Prof SF Mapolie
Prof H Pasch
Dr SC Pelly
Dr L Retief
Dr I Rootman-le Grange
Prof WAL van Otterlo
Prof AJ van Reenen
Dr PFM Verhoeven

SENIOR RESEARCHER

Dr R Pfukwa

RCA FELLOWS

Dr NP Gule
Dr VJ Smith
Dr AGJ Tredoux

EXTRAORDINARY PROFESSORS

Prof WM Mackenroth
Prof A Rowan

RESEARCH ASSOCIATE

Prof IR Green
Dr AE Smit

EMERITUS PROFESSORS

Prof BV Burger
Prof HG Raubenheimer

SUPPORT STAFF

Mr JG Goldie Departmental manager
Ms LD Bailey
Mr M Bickerstaff
Ms MMG Cooper
Ms DM Davids

Ms M du Plessis
Ms AE Fourie
Ms C Hendrickse
Ms DM Isaacs
Ms MC Johnson
Mr RD Lawrence
Mr CW Maart
Mr MG Marupula
Ms SG May
Ms CJ van Reenen
Mr A van Zaal
Ms DC Wenn
Mr GR Willemse

TECHNICAL STAFF

Mr WJ Adonis
Mr MC de Jongh
Mr JD Groenewald
Mr DJ Koen
Mr EJ Lukhele
Mr MA McLean
Mr S Mohamed
Mr JS Motshweni
Dr NO Pretorius
Mr J Smit
Ms PJ Steyn

NEW APPOINTMENTS

Mr EJ Lukhele
Ms C Hendrickse

DEPARTMENT OF EARTH SCIENCES

ACADEMIC

Prof IS Buick
Prof JD Clemens
Dr S Fietz
Dr R Heyn
Prof A Kisters
Dr M Klausen
Dr J Miller
Prof A Roychoudhury Departmental chair
Prof A Rozendaal
Prof G Stevens
Dr R Tucker

EXTRAORDINARY PROFESSORS

Dr I Basson
Prof D Frei
Prof A Gerdes

SUPPORT STAFF

Ms L Conradie
G Olivier
F Timney

NEW APPOINTMENTS

Dr R Tucker

RETIRED

Prof A Rozendaal

**DEPARTMENT OF MATHEMATICAL SCIENCES
(MATHEMATICS, APPLIED MATHEMATICS, COMPUTER SCIENCE)**

ACADEMIC STAFF

Prof IM Rewitzky	Professor and Executive head: Mathematical Sciences
Prof MK Banda	Professor
Dr B Bartlett	Lecturer
Mr W Bester	Junior Lecturer
Dr G Boxall	Lecturer
Prof F Breuer	Professor and Head: Mathematics division
Dr WH Brink	Senior Lecturer
Dr J Brink	Senior Lecturer
Ms EJ Burger	Junior Lecturer
Dr J Coetzer	Senior Lecturer
Dr H de Villiers	Lecturer
Dr GH Diedericks	Senior Lecturer
Dr S Fidler-Woudberg	Senior Lecturer
Prof B Fischer	Professor of Computer Science
Prof A Fransman	Associate Professor
Prof J Geldenhuys	Associate Professor
Mr I Govender	Lecturer
Dr J Gray	Lecturer
Prof BW Green	Professor seconded to AIMS-SA
Dr PJP Grobler	Senior Lecturer
Ms HA Haroldt	Lecturer
Prof BM Herbst	Professor of Applied Mathematics
Dr K-T Howell	Senior Lecturer
Prof Cang Hui	Research Chair
Dr CP Inggs	Senior Lecturer
Prof Z Janelidze	Associate Professor
Dr AP Keet	Senior Lecturer
Dr RS Kroon	Senior Lecturer
Dr MF Maritz	Senior Lecturer
Prof S Mouton	Associate Professor
Dr MA Muller	Senior Lecturer
Dr NL Muller	Senior Lecturer
Dr CG Naude	Senior Lecturer
Prof F Nyabadza	Associate Professor
Dr PJP Ouwehand	Senior Lecturer
Prof H Prodinger	Professor of Mathematics
Dr NL Ralaivaosaona	Lecturer
Dr R Roux	Lecturer
Prof GJF Smit	Associate Professor and Head: Applied Mathematics Division
Mr JP Swanepoel	Junior Lecturer
Prof AB van der Merwe	Associate Professor
Dr S van der Walt	Senior Lecturer

	Prof L van Wyk	Professor of Mathematics
	Prof L van Zijl	Professor of Computer Science and Head: Computer Science Division
	Prof W Visser	Professor of Computer Science
	Prof S Wagner	Professor of Mathematics
	Ms L Wessels	Lecturer
	Prof M Wild	Professor of Mathematics
EXTRAORDINARY PROFESSORS	Prof JM de Villiers	Mathematics
	Prof MB Dwyer	Computer Science
	Prof T Krzesinski	Computer Science
	Prof HE Porst	Mathematics
	Prof JW Sanders	Mathematical Sciences
EXTRAORDINARY ASSOCIATE PROFESSOR	Prof K Scheffler	Computer Science
	Prof A Welte	Mathematical Sciences
SUPPORT STAFF	Mrs HA du Plessis	Computer Science
	Ms L Adams	Mathematics
	Ms W Isaacs	Mathematics
	Mr B Jacobs	Mathematics
	Mrs OM Marais	Mathematics
	MS Rabie	Mathematical Sciences
	Mrs MM Rhoda	Applied Mathematics
	Mr AL Roman	Applied Mathematics
	Mr D Stephanus	Computer Science
	Mrs M van Niekerk	Applied Mathematics
POSTDOCS	Dr N Hale	Applied Mathematics
RETIRED ACADEMICS	Dr MA Muller	Senior Lecturer
NEW APPOINTMENTS	Dr J Brink	Senior Lecturer
	Dr R Roux	Lecturer
RESIGNATIONS	M Banda	Professor of Applied Mathematics
	S van der Walt	Senior Lecturer

DEPARTMENT OF MICROBIOLOGY

ACADEMIC STAFF	Prof Marinda Bloom	
	Prof A Botha	
	Prof TE Cloete	Vice-rector: research and innovation
	Prof LM Dicks	Distinguished Professor
	Prof K Jacobs	
	T Jansen	
	Dr W Khan	
	Prof DE Rawlings	
	Prof WH Van Zyl	Departmental chair, Distinguished Professor Biofuels Research Chair
	Dr H Volschenk	
	Prof GM Wolfaardt	Director, Stellenbosch University Water Institute and ERWAT Chair in Water Research

**EXTRAORDINARY
PROFESSORS**

Prof Axcell
Prof L Lynd
Prof BA Prior
Prof J Thevelein
Prof D Toerien

SUPPORT STAFF

J Daniels
LJ Daniels
J de Kock
M Gey van Pittius
MH Koopman
M Stuurman
T van der Merwe
L van der Westhuizen
W Wentzel

DEPARTMENT OF PHYSICS

ACADEMIC STAFF

Prof EG Rohwer
Dr L Boonzaaier
Dr GW Bosman
Dr A du Plessis
Prof HC Eggers
Mr D Geduld
Prof HB Geyer
Dr H Kriel
Prof KK Müller-Nedebock
Prof PH Neethling
Prof RT Newman
Prof P Papka
Prof FG Scholtz
Prof HPH Schwoerer
Dr JA Stander
Dr CM Steenkamp
Prof BIS van der Ventel
Dr JJ van Zyl
Prof H Weigel
Prof SM Wyngaardt

Executive head

**EXTRAORDINARY
PROFESSORS**

Prof AA Cowley
Prof CA Dominguez
Prof A Forbes
Prof WD Heiss
Prof J Meng
Prof T Parker
Prof H Stafast
Prof Z Vilakazi
Prof HM von Bergmann

**PROFESSORS
EMERITUS**

Prof PR de Kock
Prof PE Walters

SUPPORT STAFF Ms C April
Mr DP Pool
Ms H Randall
Ms C Ruperti

TECHNICAL STAFF Mr MC Botha
Mr J Burns
Mr SH February
Mr JM Germishuizen
Mr GJ Louwrens
MR DP Pool
EJ Shields

DEPARTMENT OF PHYSIOLOGICAL SCIENCES

ACADEMIC STAFF Prof MF Essop Departmental chair
Prof A-M Engelbrecht
Dr B Loos
Prof KH Myburgh
Dr T Nell
Dr B Sishi
Prof C Smith
Dr JA de Wet Strauss

SUPPORT STAFF Mr J Isaacs
Ms S Martins
Ms GA Simon

TECHNICAL STAFF Mr A Isaacs
Dr A Krygsman
Dr L Lacerda

POSTDOCS Dr A Brand
Dr P Durcan
Dr D Joseph
Dr M Kruger
Dr R Mapanga