OCTOBER 2016

SCIENCE @UJ

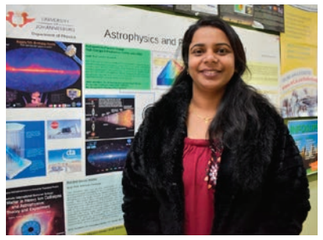
NEWSLETTER OF THE FACULTY OF SCIENCE

UNIVERSITY OF JOHANNESBURG

RETHINK. REINVENT.

UNIVERSITY OF JOHANNESBURG

Passionate about analytical and environmental chemistry, Dr Philiswa Nomngongo is a 2014 L'Oreal-UNESCO Science Fellow whose current research is supported by the NRF Thuthuka Fund.



Astrophysicist, Ms Jessymol Kayyunnaparayil Thomas is a recipient of the NRF Free-standing-Scarce Skills-Innovation Postdoctoral Fellowship for 2016.

Ms Sanele Shiba, a molecular systematics in DNA barcoding researcher, belongs to the International Society of Barcode of Life and the South African Association of Botanists.

THE FACULTY SALUTES IT'S 2016 YOUNG WOMEN IN SCIENCE

The Faculty of Science celebrates its inspirational young women in science who continue to make a sterling contribution towards advancing the development of science and technology through innovative research, teaching and community engagement within their respective disciplines at UJ. We acknowledge you and highlight your fields of research.

Intelligent information security researcher, Dr Wai Sze Leung delivered the best overall presentation at the Early Careers Researchers symposium hosted by Cyber Security Oxford.

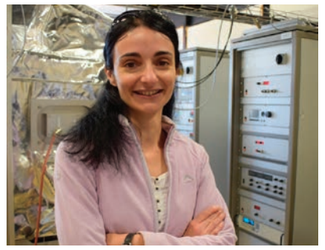
Dr Buyi Sondezi is the President of Women in Physics in South Africa. She is a condensed matter physics researcher, particularly experimental physics of highly correlated matter.

Dr Farhana Allie is a member of the South African Society of Biochemistry and Molecular Biology, and the South African Society for Microbiology. Her research focuses on plant pathology and biotechnology.

Ms Lee-Ann Modley is an environmental science researcher and a member of the Southern African Society for Aquatic Scientists.

Dr Laurelle Neethling is passionate about parasitology, reproductive biology, and behavioural analysis research.

Ms Teffo Seakamela graduated with a Masters of Philosophy in Energy Studies in June. Her research focuses on nuclear material.



Dr Emanuela Carleschi is the co-applicant of a NRF-NEP grant award of R14.85 million for the acquisition of an Angle Resolved Photoemission Spectroscopy apparatus which was recently installed and commissioned at UJ.

NRF Scarce Skills Doctoral Scholarship recipient, Ms Candice Louw, has a knack for smartphone applications, virtual and augmented realities, tech entrepreneurship and user experience design.

Dr Soraya Malinga is the recipient of the Water Research Commission, ESKOM TESP and NRF Thuthuka Research Grants for her work on water research and membrane technology.

Ms Mulalo Rabumbulu is a member of the Society of South African Geographers specialising in geomorphology.

Dr Lindy Esterhuizen enjoys molecular plant pathology research, specifically characterising plant viruses of agricultural concern.

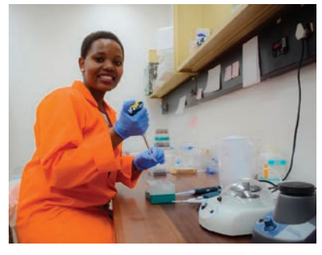
Ms Marie-Chantal Cyulinyana is an Organization for Women in Science for the Developing World Fellow whose research focuses solar irradiance modeling and atmospheric physics.

The 2016 International Conference on Pure and Applied Chemistry Best Poster Presentation Award went to Ms Khathutshelo Mqehe-Nedzivhe. Her research focuses on water purification ad treatment.

Water pollution, fish health and reproduction is the research focus of NRF Scarce Skills Bursary holder, Jamie-Lee Das Neves.

Organometallic chemistry and catalysis researcher, Dr Banothile Makhubela, was awarded the 2016 Sasol University Research Grant and 2016 NRF Thuthuka Research Grant.

Dr Maria Vivien Visaya was a Claude Leon Foundation Fellow, awarded research grants in topological data analysis and is currently a dynamical systems researcher in mathematics.



Ms Zamadube Dube received the Dean's Merit Bursary and her research interests are in plant biotechnology.

Algebraic logic and pure mathematics is the focus of South African Mathematical Society member, Dr Wilmari Morton.

A MESSAGE FROM THE EXECUTIVE DEAN OF SCIENCE

We introduce you to 21 of our up and coming young, female scientists who are trailblazers in their own right. In this issue we also celebrate the successful completion of an international review of our Faculty along with numerous achievements by individuals or groups in the Faculty. In keeping with the tradition of the scientist, we slave away at quality research, teaching & learning and community engagement, getting recognition much later and usually unexpected. Congratulations to those who continue to fly the UJ Faculty of Science flag high!

Faculty leadership engage with the international review panel at the verbal feedback session.

FACULTY OF SCIENCE SUCCESSFULLY HOSTS INTERNATIONAL REVIEW PANEL

The Faculty of Science was recently reviewed by a panel of three international professors and together with the University of Cape Town's Prof Daya Reddy during a site visit to UJ's Auckland Park Kingsway campus and Doornfontein campus from 12 to 15 September 2016.

The panel was led by Prof Karen Oates from Worcester Polytechnic Institution (USA), joined by Prof Victor Gadzekpo from the University of Cape Coast (Ghana), and Prof Olov Sterner who hails from one of the U21 universities, Lund University (Sweden). The visit included a tour of the laboratory facilities on each of the campuses and the panel had an opportunity to engage with the Vice-Chancellor of UJ, Professor Ihron Rensburg, Deputy Vice-Chancellors, Vice-Deans, staff, students, alumni and external stakeholders.

The review panel concluded that the Faculty was instrumental for the university achieving global excellence and stature. In addition, the Faculty was commended on its significant strides towards the development and promotion of science and technology in South Africa, and received positive recommendations on how to improve on this endeavour. A final report will be submitted to the Dean, after which it will be disseminated to the Faculty community and its stakeholders.

FISH STUDY PUBLISHED IN NATURE

A study to which UJ NRF A-rated researcher, Professor John Maina, contributed was recently published in the top international journal, *Nature*. The study documents that the Magadi tilapia, *Alcolapia grahami*, a small cichlid fish of Lake Magadi, Kenya lives in one of the most challenging aquatic environments on earth, characterized by very high alkalinity, unusual water chemistry, and extreme O_2, ROS, and temperature regimes. "In contrast to most fishes which live at temperatures substantially lower than the 36–40 °C of mammals and birds, an isolated population (South West Hot Springs, SWHS) of Magadi tilapia thrives in fast-flowing hotsprings with daytime highs of 43 °C and night-time lows of 32 °C. Another population (Fish Springs Lagoon, FSL) lives in a lagoon with fairly stable daily temperatures (33–36 °C). The upper critical temperatures (Ct_{max}) of both populations are very high; moreover the SWHS tilapia exhibit the highest Ct_{max} (45.6 °C) ever recorded for a fish," the study reported. Routine rates of O_2 consumption (MO_2) measured on site, together with MO_2 and swimming performance at 25, 32, and 39 °C in the laboratory, showed that the SWHS tilapia exhibited the greatest metabolic performance ever recorded in a fish. These rates were in the basal range of a small mammal of comparable size, and were all far higher than in the FSL fish. The SWHS tilapia represents a bellwether organism for global warming.

Prof Catherine Ngila.

PROFESSOR CATHERINE NGILA WINS DISTINGUISHED WOMEN IN SCIENCE AWARD

This year's Distinguished Woman Researcher Award for Physical and Engineering Sciences, issued by the National Department of Science and Technology (DST), went to UJ Applied Chemistry's former HOD and nanotechnology for water treatment specialist, Prof Catherine Ngila.

Prof Ngila was inspired by her then secondary school chemistry teacher to excel and has been on top of her game since. Not only did she graduate as a Bachelor of Education in Science top student, Honours degree led her to be awarded a Germany Academic Exchange Services scholarship to pursue a Chemistry Masters in Science degree followed by a doctoral scholarship in Analytical Chemistry sponsored by the Australian International Development Assistance Bureau / Equity & Merit Scholarship Scheme at the University of New South Wales in Sydney.

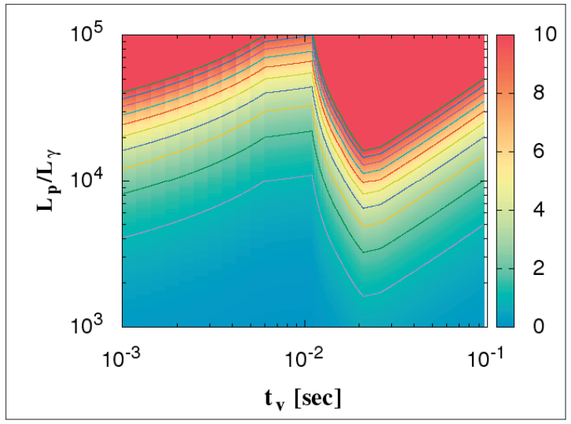
Prof Ngila aims to design innovative filters that can be used in households by communities without potable water. Also passionate about capacity building through postgraduate student supervision, Prof Ngila said she hopes to spend more time in community engagement activities and work closely with DST /SA Agency for Science and Technology Advancement, to promote science and technology among the school learners. "I would like to pay special attention to girls in schools in addition to mentorship of young researchers in my research field," she said.

BRITISH ROYAL VISITS UJ SOWETO SCIENCE CENTRE

The University of Johannesburg (UJ) had the honour to welcome youth empowerment ambassador, His Royal Highness, Prince Edward, who engaged with school learners and teachers during his one-hour visit to the UJ Soweto Science Centre through its partnership with the South African Institute of Physics (SAIP) and the Institute of Physics (UK). The Centre was established six years ago and has made significant strides in science education intervention strategies annually. School learners and teachers from the township have been assisted through the Centre's intervention initiatives, with the learners showing improved performance in the relevant subject matter.

The Centre is a necessity in the community because it encourages learners to do well in matric. Through innovative science theory and laboratory lessons, computer training, exhibitions stressing aspects of everyday life and other developments in Africa, the Centre is ideally poised to play an important role in youth development and nation-building. Prince Edward presented Physics Education doctoral candidate, Paul Molefe, with an award for his outstanding dedication and commitment by a facilitator in Physical Science during the visit.

UJ SCIENTISTS SEARCH FOR SOURCES OF EINSTEIN'S GRAVITATIONAL WAVE WITH FERMI



Constraints on the parameter space of the fireball model of short GRB derived from non-detection of neutrinos from the GW150914 event. The y-axes correspond to the ratio of proton to gamma-ray luminosities and the x-axes are speed of the jet (in relativistic unit) and the light-crossing time where gamma-ray and neutrinos are made, respectively.

Albert Einstein predicted Gravitational Waves or ripples in space-time, squeezing and squashing of dimensions, due to violent movement of massive objects in the universe. The first Gravitational Wave event, dubbed GW150914, was detected on September 14, 2015 by two instruments run by ALIGO, which are located in Hanford, Washington State and Livingston, Louisiana State, USA. This is one of the most significant discoveries in this century and the proof of Einstein's General Theory of Relativity in exactly 100 years after proposition. The detected GW was created by mergers of two black holes of masses 36 and 29 times the mass of the Sun. The merger created one single black hole of mass 62 times the mass of the Sun with 3 times the mass of the Sun emitted in pure GW energy.

High-energy neutrino (HEN) and gravitational wave (GW) can probe astrophysical sources in addition to electromagnetic observations, a novel study between professors Soebur Razzaque (UJ), Nayantara Gupta (India), Peter Meszaros (USA) and Dr Reetanjali Moharana (UJ) has found.

Published in the "Kaleidoscope" section of the online version of the journal, Physical Review D, the collaborators reported that multimessenger studies can reveal nature of the sources which may not be discerned from one type of signal alone. They discussed HEN emission in connection with the Advanced Laser Interferometer Gravitational-wave Observatory (ALIGO) event GW150914 which could be associated with a short gamma-ray burst (GRB) detected by the *Fermi* Gamma-ray Burst Monitor (GBM) 0.4 s after the GW event and within localization uncertainty of the GW event.

The study was prompted by the discovery of the gravitational wave event last year (dubbed GW 150914) from mergers of two black holes, leading the researchers to calculate HEN flux from this short GRB, GW150914-GBM, and show that non-detection of a high-energy starting event (HESE) by the IceCube Neutrino Observatory can constrain the total isotropic-equivalent jet energy of this short burst to be less than 3×10^{52} erg.

Prof Razzaque explained that the detection of high energy neutrinos arising from electroweak interactions can give an independent channel of information of the most powerful astrophysical phenomena in the universe in addition to gravitational wave. The predictions of their study can be tested by new science runs of the Advanced LIGO gravitational wave detector towards the end of 2016, he added.

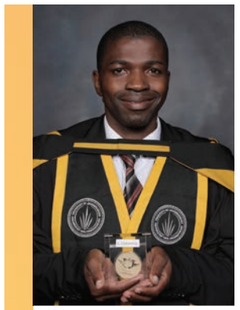
"This is an exciting experience as only a selected few articles are showcased on the website of the journal, among hundreds published each month. This will improve the visibility of our paper among both scientists and non-scientists," said Prof Razzaque. His research interests are neutrino and gamma-Ray astrophysics – "relatively new and emerging research areas" where there is a lot to understand about the universe using those channels.

Prof Razzaque's group in the Physics Department of UJ's Faculty of Science is involved in GRB and GW research. He is a coordinator of the GRB and GW science group of the Fermi-Large Area Telescope (LAT) Collaboration. UJ is the only Full Member Institute of the *Fermi*-LAT Collaboration on the African continent. Prof Razzaque is a co-author of the *Fermi*-LAT paper on the GW150914. In another paper Prof Razzaque and his co-author estimated the rate of binary black hole mergers as would be tested by ALIGO.

GRADUATION HIGHLIGHTS

The Faculty of Science celebrated the achievements of its staff and students as witnessed by proud parents, peers and family members of our graduates this year. We produced an impressive 302 graduates on 10 March, 218 graduates on 12 April, 190 on 14 June, and 110 on 28 September 2016, adding up to 820 graduates in total. The Faculty congratulates every individual who played a crucial role in supporting each graduate on their journey to success.

We salute our 2016 cohort of PhDs!



Saymore Chifamba was awarded a Chancellor's medal in recognition of his Master of Philosophy degree in Energy Studies, conferred with distinction, and named the most meritorious master's study in the Faculty of Science.

Kevin Paul Downs obtains his BSc Hons (Information Technology) with distinction.

This year's S2A3 Bronze Medal, awarded to the most outstanding research student in a scientific subject graduating at the Masters level, went to Msizi Innocent Mhlongo. His Master of Science degree in Biochemistry was obtained with distinction.

Dr Richard Greenfield supervised six Zoology Masters candidates who graduated in June.

2016 INAUGURAL LECTURES

Prof Debra Meyer (Biochemistry) delivered her inaugural lecture as Executive Dean of the Faculty of Science on 23 May 2016. Her topic was: *"Managing HIV/AIDS"*

Professor Soebur Razzaque (Physics) delivered an inaugural lecture entitled "A neutrino view of the sky" on 18 May 2016.

Prof Jan Kramers (Geology) delivered his inaugural lecture on 12 September 2016 entitled: "Adventures with Isotopes, from Cosmology to Hominin Evolution".

MATHS BOFFIN COMPLETES PHD AT AGE 25

Dr Francois Schulz.

"We were extremely happy to be able to offer Dr Schulz a lectureship in the Department of Pure and Applied Mathematics, where is he making very valuable contributions. He is a highly talented young researcher, a dedicated lecturer, and is already involved in postgraduate supervision."

These were the words of UJ's Pure and Applied Mathematics HoD, Professor Willem Conradie, in his congratulatory remarks to Dr Francois Schulz who completed a PhD in the department at the remarkable age of 25.

"I am very proud to have reached this academic milestone. It feels great knowing that I have been acknowledged for my gift," said Schulz.

After achieving 100% for mathematics in matric, Schulz decided to honour the talent he had been given. "I would like to become a world famous mathematician and help to develop mathematics in Africa," said Schulz. He said to younger generations: "If you are curious about the universe, and if you want to make a difference in the world, then a career in Science or Mathematics is definitely for you."

He enjoys spending quality time with his wife, family and friends.

Mr Sonwabile Mafunda.

CUM LAUDE MASTERS FOR YOUNG MATHS LECTURER

The friends, family and colleagues of UJ lecturer, Mr Sonwabile Mafunda, were ecstatic when he was awarded with his Master of Science degree in Mathematics cum laude this year.

The degree was conferred at the University of KwaZulu-Natal where his family from Matatiele in the Eastern Cape initially struggled to pay his first-year tuition fees. Prayer, determination and academic excellence are what attracted several scholarships and bursaries enabling Mafunda's success. His degree prompted him to join UJ's distinguished Department of Pure and Applied Mathematics as a young lecturer and PhD candidate.

"This is the proudest moment in my educational and personal life," said Mafunda when his Masters degree was awarded. His mentor, the late Professor Henda Swart as well as his supervisors, Dr Gareth Amery (UKZN), Professor Simon Mukwembi (UZim), Dr Christine Swart (UCT), Professor Peter Dankelmann (UJ) and Professor Betsie Jonck (Wits) applauded his achievement.

"I want to supervise and change student's lives, introduce them to the beauty of Mathematics, make academia a dream job for aspiring mathematicians and increase the intake of postgraduate students in Mathematics," he said and advised undergraduates to avoid laziness and lay themselves a solid foundation on which to secure a bright future.

ZOOLOGY HOD SCOOPS ACADEMY'S MEDAL OF HONOR

Die Suid-Afrikaanse Akademie vir Wetenskap en Kuns bestowed a Medal of Honor upon UJ Zoology Head, Prof Annemarièe Oldewage, for continually excelling in the advancement and development of her profession. Nominated by the Academy Board Trustee, Prof Kobus Eloff for the award, Prof Oldewage's curriculum vitae was read out at a prestigious event held in Pretoria's Atterbury Theatre where she recollected her academic journey and how much more could still be achieved.

Prof Oldewage said she was humbled by the award and acknowledged that her accolades were driven by solid team work with her colleagues at UJ and very firm support from her husband and two kids – all custodians of UJ. She also acknowledged with gratitude the sterling support from UJ management in providing funding and infrastructure.

Prof Oldewage said she loves all aspects of her work, especially her interaction with students. "I love their enthusiasm and curiosity, and it energizes me!" Every day at work, for her, is like opening a lucky packet – "anticipation followed by surprise".

It is Prof Oldewage's fascination with the animal kingdom that fuels her passion for Zoology. "There is a never ending supply of weird and wonderful animals out there," she said, explaining that while most people consider only the big and furry animals, her day in the office includes the many tiny species with structures and adaptations for survival in very strange places "such as the inside of a stomach or intestine or buried in the flesh of a fish… and yet they manage to find a mate and reproduce to enable the species to survive," she marveled.

We use these creatures as sentinels for water quality as they are able to concentrate pollutant to high concentrations and thereby provide an early warning system of potential problems.

Prof Annemarièe Oldewage receiving her award at the ceremony.

GOLD MEDAL FOR UJ BIOCHEMISTRY PROFESSOR

Prof Ian Dubery.

The prestigious Gold Medal Award at this year's South African Society for Biochemistry and Molecular Biology (SASBMB) was received by UJ Biochemistry Prof, Ian Dubery. The judges expected candidates to have displayed a consistent record of national and international research excellence as evidenced by achievement in a number of categories including: an internationally recognised standard of academic research, academic scholarship and dynamic scientific leadership, high-impact scientific publications and a track record of training and delivering postgraduate students, among others.

His work was recognised by fellow biochemist and UJ Executive Dean of Science, Prof Debra Meyer, who made the nomination. He was invited to present a plenary lecture in the 'Plant Biochemistry' stream, apart from accepting his medal at the conference. "It is a great honour to receive this award by the SASBMB," said Prof Dubery, "a society which represents my peers and fellow biochemists in South Africa. I regard it as a lifetime achievement award!"

Prof Dubery has received numerous awards for research excellence. His early research was recognized by the South African Biochemical Society with the Boehringer-Mannheim award in 1981. Later on, he was awarded a young scientist travel fellowship by the International Union of Biochemists (IUB) in 1988.

The SASBMB again recognized him with the Scientific Group award in 1991. He is also a lifelong fellow of the prestigious Alexander-von-Humboldt Foundation since 1994. In 2005 he shared the 'von Hertwig-prize' from the German Science Foundation for interdisciplinary collaborative research. In 2014 the Chromatography Society of South Africa (ChromSA), a division of the South African Chemical Institute (SACI), recognized the quality of his metabolomics research with the 'Chromatographer of the Year' award.

Prof Dubery's research interests are in the biochemistry and molecular biology of the plant innate immune system and how plants defend themselves against pathogen attack and adapt to restrictive environmental conditions. "Understanding plants is crucial to managing and maintaining a sustainable biosphere and securing humankind's well-being," he said.

UJ'S COLLABORATION IN AN INTERNATIONAL MASTERS DEGREE IN SUSTAINABLE DEVELOPMENT

A grant worth EUR 2 650 000 has been awarded by the European Union (EU) for a new international Masters degree in Sustainable Development for which UJ's Department of Geography, Environmental Management and Energy Studies is one of the collaborating partners.

Of 98 applications for funding by the EU, only 23 were granted and the coursework Masters Degree in Sustainable Development, which is to be presented over a two-year period, was one of them. The first intake will be in 2017 with most of this grant going towards funding 16 to 20 students per year for the grant's duration.

UJ's Prof Nico Kotze said the students will commence their studies at the University of Padova (Italy) for the first six months, then continue their studies at Paris 1 in France, and the third quarter will be spent studying at the KU Leuven in Belgium. "In the final six months the students have a choice to complete their studies at UJ, or in Cairo and Sau Paolo. In this final six months a minor dissertation and an internship will be handled by the partners in South Africa, Egypt and Brazil."

Students from UJ students will have to apply for and compete against students from all over the world to obtain these very lucrative bursaries that cover their tuition fees and subsistence for two years. "The students who will choose to complete their final six months at UJ will conduct their studies and research in Sustainable Urban Development," Prof Kotze said.

L-R: Prof Kodama, Ambassador Sisulu, Prof Oluwafemi and Minister Counsellor: Science and Technology, South African Embassy-Japan, Ms Eudy Mabuza.

STUDENTS TO BENEFIT FROM APPLIED CHEMISTRY MOU WITH JAPAN

The Honourable Ambassador of South Africa to Japan, Ms Beryl Rose Sisulu, visited Tohoku University (Japan) during Prof Samuel Oluwafemi's visit to the institution for the signing of a Memorandum of Understanding (MoU) between the University of Johannesburg and Tohoku University to improve skills and knowledge development through innovative science education.

The official signing ceremony which took place in August and Prof Oluwafemi of UJ's Applied Chemistry Department said students will benefit immensely from the South African-Japan bilateral which includes an African Business Education (ABE) Initiative master's degree and internship program is to support young personnel who have the potential to contribute to the development of industries in Africa.

Prof Oluwafemi and his research counterpart, Prof Testuya Kodama, from the Laboratory of Biomedical Engineering for Cancer at the Department of Biomedical Engineering of Tohoku University paid a courtesy visit to Ambassador Sisulu in July. They have been working on a Joint Research funded by the National Research Foundation and the Japan Society for the Promotion of Science on "Development of photothermal therapy for lymph node metastasis using gold nanorods and near infrared". Throughout this collaboration, Prof Kodama has accepted a number of South African students at his laboratory.

A stand with various plant products at the Faraday Traditional Medicine Market, Johannesburg. Photo by Zandisile Shongwe.

STUDY EXPOSES ILLEGAL TRADE OF CYCAD SPECIES AT TRADITIONAL MEDICINE MARKETS

A study by researchers at UJ's African Centre for DNA Barcoding (ACDB) has exposed the illegal trade of cycads at the Faraday and Warwick Traditional Medicine Markets using DNA barcoding. The study highlighted that the emergence of DNA barcoding is providing an invaluable tool in addressing the challenge of trading in endangered plants.

Cycads are classified as the world's most threatened plant group. Its South African representatives include *Stangeria eriopus* and 37 *Encephalartos* species of which three are extinct in the wild, 12 critically endangered, four endangered, seven near threatened, nine vulnerable, and statistics reveal that only three of the species are of least concern.

Published in the Botanical Society journal, *Veld & Flora*, the ACDB paper indicated that South Africa is currently at risk of losing 50% of its cycads within the next two to 10 years – a predicament recently described by SANBI's Michele Pfab as "the South African cycad extinction crisis".

According to the ACDB, accurate identification is essential to enforce the highest penalties for illegal cycad trafficking. They explained that DNA barcoding involves using a short, agreed-upon region of a genome as a unique identifier for each species. These short gene sequences – known as DNA barcodes – can be used to identify a species, even if only a small fragment of plant material is available.

UJ found that *Encephalartos* is traded at traditional medicine markets in the form of bark strips and stem sections, thus determining the actual species traded presents a major challenge due to lack of characteristic plant identification markers. In response to an increase in cycad poaching, South Africa's officials are turning to DNA barcoding to safeguard local cycads.

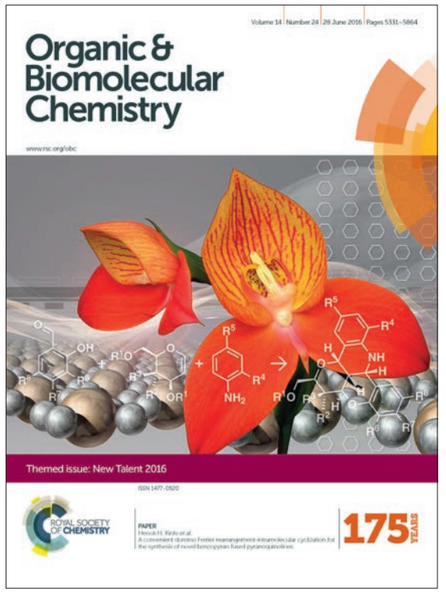
IMPROVING FOOD SECURITY AND SAFETY FOR SUSTAINABILITY IN AFRICA

UJ's Biotechnology and Food Technology Department collaborated with the Human Sciences Research Council (HSRC), Agricultural Research Council (ARC) and the Department of Science and Technology (DST) to host a successful international congress on Food Security and Safety.

Themed "Improving Food Security and Safety for Sustainability in Africa", the conference attracted wide media coverage and highlighted that food security is pivoted on four major aspects: availability, access, stability and utilization. In the same way, food safety implies "the absence of, or acceptable and safe levels of contaminants, adulterants, naturally occurring toxins or any other substances that make food injurious to health on an acute or chronic basis", the organizing committee said.

"The conference boasted high-level debates among key delegates around the food safety and (in)security nexus," co-chairperson of the organizing committee, UJ's Dr Patrick Njobeh said. The Executive Dean of UJ's Faculty of Science, Prof Debra Meyer, further stated during the welcome dinner that the future of the global food chain is largely determined by five major drivers: population growth and demography; availability, use of resources and the environment; innovation & technology; social attitudes; and public policy and Africa as knowledge generation requires the dissemination and exchange of knowledge and expertise through conferences and publications.

Dr Patrick Njobeh.



UJ study appears on the front cover of the journal.

FRONT PAGE PUBLICITY FOR UJ CHEMISTRY STUDY

Professor Henok Kinfe was recently identified as a rising star in the field of Organic Chemistry by the Editorial Board of the highly reputable journal *Organic and Biomolecular Chemistry* (OBC; Impact Factor 3.559), published by the Royal Society of Chemistry. He was invited by the Editor-in Chief of OBC, Professor Andrei Yudin, to contribute a research article to a New Talent issue, highlighting excellent work being carried out by younger members of the research community. Accordingly, Prof Kinfe and his team submitted a manuscript to this special issue which was published in the June edition (Moshapo et al, "A convenient domino Ferrier rearrangement-intramolecular cyclization for the synthesis of novel benzopyran-fused pyranoquinolines", *Org. Biomol. Chem*., 2016, 14, 5627-5638).

More interestingly, the article featured on the front cover of the journal, signifying the importance and novelty of the work carried out by the UJ researchers. Their study entailed the preparation of polycyclic carbohydrate-based molecules via the Ferrier and Povarov-like reactions. The unique features of this methodology are the ability of the reaction to provide in high yields and diastereoselectivity, polycyclic compounds of complex molecular architectures via a domino-type multi-component transformation with an intriguing reaction mechanism. Evaluation of these novel compounds for their biological activity and further derivatization are currently under way.

COMPUTER SCIENCE AND SOFTWARE ENGINEERING ACADEMY PRESENTS IN FRANCE

Dr Duncan Anthony Coulter, the Deputy Head of UJ's Academy Computer Science and Software Engineering, scooped the award for "Best Junior Contributor" in recognition of his contributions over the previous five iterations of the International Symposium on the Tools and Methods of Competitive Engineering (TMCE) conference which takes place every second year.

The Academy presented five peer reviewed papers at the TMCE's 11th conference which was held in France this year. The UJ delegation, headed by Academy Head, Professor Elizabeth Ehlers, consisted of two academics, three postgraduate students, and a former Masters graduate where they engaged participants from government, academia and industry experts exchanging views, knowledge and cultural values.

Dr Duncan Anthony Coulter receiving his award at the conference.

Professors Greg Leslie and Catherine Ngila at UNSW.

APPLIED CHEMISTRY DELIBERATES MOA WITH UNIVERSITY OF NEW SOUTH WALES

A possible Memorandum of Agreement (MoA) on water treatment may emanate from Professor Catherine Ngila's recent visit to the University of New South Wales in Sydney (UNSW), Australia. The former Applied Chemistry Department HoD met with the Director of the host institution's UNESCO Membrane Centre, Professor Greg Leslie, to discuss possible collaboration, in line with UJ's Nanotechnology Innovation Centre (NIC)/ Mintek Project.

The Department of Applied Chemistry collaborates with the DST/Mintek NIC in an attempt to develop nanomaterials-based solutions to solve problems relating to water treatment. The NIC operates under the umbrella of the Water and Health Research Group, which is a multidisciplinary sounding board within the university, for water-related issues, including the treatment, distribution, and social consequences of water resources. Its vision is to provide nanotechnology solutions for effective treatment of water to improve the quality of life of the people of South Africa.

The project seeks to address the objectives of the National Nanotechnology Strategy (NNS) of South Africa, Prof Ngila said. "This is in respect of improving the quality of life by pursuing research and development in water treatment, utilizing nanotechnology and membrane technology."

The modes of collaboration on the table include student and staff exchange between UNSW and UJ, applying for joint external funding to undertake research projects, among other activities. A draft MOA document is currently being developed.

PURE AND APPLIED MATHS DEPARTMENT CO-HOSTS INTERNATIONAL CONFERENCE

UJ's Department of Pure and Applied Mathematics successfully co-hosted the fifth instalment of the Logic, Algebra and Truth Degrees (LATD) Conference held this winter in partnership with the University of the Witwatersrand's Faculty of Science at the Hans Merensky Hotel, situated on the border of the world renowned Kruger National Park Game Reserve.

This year's conference was attended by three staff members and a student from UJ. Professor Willem Conradie, HoD of Pure and Applied Mathematics at UJ, said the conference has evolved from focussing on Mathematical Fuzzy Logic, a subdiscipline of Mathematical Logic, into a wider meeting in algebraic logic and related areas. "Its main goal is to foster collaboration between researchers in these areas, and to promote communication and cooperation with members of neighbouring fields." Its scientific programme included five invited talks and 29 contributed talks.

International delegates at the LATD 2016.

Dr Yegnanew Shiferaw.

PHD FOR ETHIOPIAN STATISTICS LECTURER

The Department of Statists celebrated the achievement of its young lecturer, Yegnanew Shiferaw, who recently obtained a PhD in Statistics at the University of the Witwatersrand.

Shiferaw said he believes that mathematics is the key to success in science. "It is very exciting to be a statistician nowadays. Companies are collecting more data than ever, so there is no shortage of data to be analysed."

MAMMALS, SPINY PLANTS AND THE SAVANNA STORY

The origin and spread of savannas is one of the great mysteries in the earth's ecological history. A new study published in *Proceedings of the National Academy of Sciences* suggests a key role for mammal herbivores. The study used DNA data for African trees collected by Professor Michelle van der Bank and her team at the University of Johannesburg, to reconstruct the history of spiny plant evolution. In collaboration with Prof Jonathan Davies, an expert in phylogenetic analysis from McGill University, the team were then able to date the evolutionary origins of spines. "We were shocked" said Professor van der Bank "to discover that spiny plants only appeared about 15 million years ago, 40 million years after mammals replaced dinosaurs". For most of this time, Africa was an island continent dominated by now extinct ancestors of browsing elephants and hyrax. "Apparently spines just didn't work as a plant defence against these ancient mammal groups" commented Prof van der Bank. But in a remarkable example of apparent coevolution, the diversification of spiny plants coincides with the appearance of antelope. Antelope were latecomers to Africa appearing only after the continent collided with Eurasia. They browsed in novel ways and were highly efficient herbivores. This injection of new types of browsers, argue the authors, demolished young forest trees, opening up forests to the grass invaders. The parallel radiation of spiny plants and the antelope that feed on them initiated the rise of savannas in the drier more fertile regions of Africa. Fire only began to roll back the forests to create wetter savannas several million years later. One implication of the study, according to Professor Muasya (UCT), is that the loss of Africa's native browsing antelope may threaten the future of drier savannas, and lead to their replacement by dense woody scrub of little ecological or economic value.

An impala eating spiny plants

UJ'S MAJORITY WIN AT NATIONAL MICROSOFT IMAGINE CUP

UJ's Academy of Computer Science and Software Engineering (ACSSE) won two of the three award categories presented at the national leg of the world's premier student technology competition, the Microsoft Imagine Cup South Africa 2016. Over the years, former ACSSE students have travelled to Australia, India, and Russia to represent South Africa at the final round of the international Microsoft Imagine Cup.

This year, a team of third-year students from the Academy mentored by Mr Blauw and Mr Downs, scooped the World Citizenship Award for devising a Tender Management System in a project designed to foster an effective and transparent tender procurement process from start to finish. Clinching the Innovation Category award was Mr Rhyno Heydenrych, mentored by Academy senior lecturer Dr Wai Sze Leung, with a lie-detecting desktop application that exhibited the potential to improve the way in which unwieldy polygraph tests are conducted today. Now working in the Digital Forensics department of one of the "Big Four" auditing firms, Heydenrych said he is also looking into the commercial viability of his system.

Delegates at the conference.

UJ TAKES THE LEAD AT NATIONAL PHYSICS CONFERENCE

UJ's Physics Department excelled at the South African Institute of Physics' 61st annual conference held recently at the University of Cape Town. The department hosted the conference in 2014. Its team, consisting of academics, postdocs and postgraduate students, delivered 18 presentations where Feraol Dirirsa won first prize for the best PhD poster in the Astrophysics division, and Jessica Tsuen and Chani van Niekerk shared the prize for the best Honours poster in the Condensed Matter and Materials division.

Dr Buyi Sondezi was elected as the new president of Women in Physics in South Africa, taking over from her colleague, the Department's Professor Aletta Prinsloo, while Senior Lecturer and Physics Deputy HoD for Teaching and Learning, Dr Emanuela Carleschi was elected to serve on the Executive Committee of the Division for Condensed Matter and Materials of SAIP.

The team was congratulated by UJ Physics Head, Prof Hartmut Winkler who said: "The department has once again shown itself to be a force in Physics in this country. Our students and postdocs have impressed at the conference, and have enhanced our reputation".

WHITESCI TRAVEL AWARD FOR ZOOLOGY DOCTORAL STUDENT

All roads read to the 4th International Conference on Fisheries and Aquaculture in San Antonio, Texas, USA for Zoology PhD candidate, Tirupathi Rao Golla. He uses Next-Generation Sequencing technology (Double Digest Restriction site associated DNA sequencing and transcriptomic data) to identify adaptive divergence in South African sardines and he said while this kind of work had become the standard in North America and Europe, it was important for WhiteSci to show that "we" can also do it "here" as reagents and equipment are needed locally in order for studies to produce good results.

Golla will deliver an oral presentation of his study, "*A genomic appraisal of the stock structure of South African sardine (Sardinops sagax)*, in Texas. The results of this study have important implications for ensuring the sustained exploitation of the commercially important sardine fishery. "My project addresses a question that is important both from a biogeographical point of view and in terms of improving food security. In addition, the methods used are cutting-edge, and are as yet rarely used in South Africa or India."

"I like using genetic data to identify biological information that is not immediately obvious, but hidden in plain sight. Before I worked on sardines, I studied genetic structure in Indian snow leopards… The genes have interesting stories to tell, and are a rich source of information on which to base conservation initiatives and the management of exploited species."

Tiru Golla (left) accepting his award.

Maseda Mphaphuli and Ndivhuho Nendouvhada in Germany.

GEOLOGY MASTERS STUDENTS ATTEND TRAINING COURSE IN GERMANY

Ndivhuho Nendouvhada and Maseda Mphaphuli, Master of Science students in the Department of Geology under the supervision of Dr Nicola Wagner attended an in-depth training course on coal and organic petrology after they both received a student travel grant from the International Committee for Coal and Coal Petrology (ICCP). The 9th ICCP Organic Petrology training course was hosted in Postdam, Germany by the GeoForschungsZentrum, from 6 to 10 June 2016 under the leadership of the ICCP Chairperson, Dr Angelos Borrego and ICCP Secretary Dr Walter Pickel.

The main purpose of attending the course was to gain substantial and sound understanding on coal geology and organic petrology. Whilst UJ students cover coal geology and petrology at a minor level during the honours course, it was imperative that the students acquire more detailed training in this field pertinent to their postgraduate research studies. The training course comprised of extensive theory and practical training on the assessment and quantification of organic and inorganic components of coal, as well as the industrial applications. A great advantage of attending the course was that Dr Carl Hilgers was available for detailed discussions pertaining to the Zeiss Axio imager M2m reflected light microscope fitted with Hilgers Diskus Fossil software, the key analytical tool used in the students' research at UJ. Dr Hilgers personally provided further insight into the software. Other students who partook in the course were MSc and PhD students from all corners across the globe, namely; Portugal, Greece, Serbia, Italy, USA, France, and Australia. On completion of the course, the students received certificates in Organic Petrology, issued by the ICCP. Both students aim to complete their MSc studies by the end of 2016.

UJ ZOOLOGISTS APPLAUDED AT NATIONAL CONFERENCE

Adjudicators were impressed with the calibre of research presented by UJ Zoology staff and students at this year's Southern African Society of Aquatic Scientists (SASAqS) conference held at the Kruger National Park.

The second prize for Best Student Oral Presentation went to Lizaan De Necker for conducting an ecological assessment of selected temporary pans located on the Phongolo River Floodplain, and her fellow Masters students, Kelly Dyamond and Gregg Jansen van Rensburg received special mentions for their presentations. The department's esteemed fish physiologist and ecotoxicologist, Prof Johan Janse van Vuren was awarded the SASAqS Gold Medal for his exceptionally high standard of research in the aquatic sciences. The Gold medal is not awarded every year and only 17 have been awarded in the last 31 years.

"This is a really great achievement as previous gold medal awardees include Kader Asmal, Mark Chutter, Brian Allanson and Jenny Day," said Zoology Head of Department, Prof Annemarie Avenant-Oldewage. "Congratulations to all of you on your achievements! It is great to have people of your calibre in our department! Congratulations to the very capable supervisors too!"

NATIONAL SCIENCE WEEK 2016

The Soweto Science Centre celebrated the National Science Week 2016 by showcasing several scientific exhibits and activities. The event was attended by learners from various schools in Soweto. Mathematical puzzles and games as well as demonstration of chemical phenomena by the Departments of Pure and Applied Mathematics and Applied Chemistry at the University of Johannesburg captured the imagination of the learners. The National Youth Development Agency and Sangari also provided valuable educational material and information to the learners.

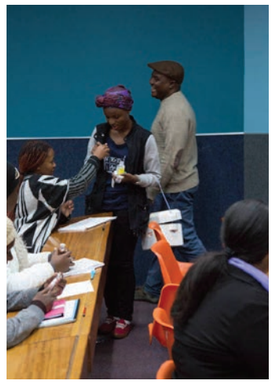
REACHING OUT ON MANDELA DAY

Applied Physics and Engineering Mathematics staff dedicated 67minutes for Mandela Day painting the walls of John Orr Technical College with its learners.

The Department of Zoology contributed 67 minutes of their time to cleaning litter out of the Padda Dam below the UJ Sports Stadium. The aim of the project was to remove the litter that was stuck in the vegetation, deposited there through the input of storm water runoff. Staff and students armed with gloves and black bags jumped into boats and collected take away containers, plastic bottles, chip packets and plastic bags from the periphery of the dam. Some interesting finds were a car tyre, numerous tennis balls, a plastic chair and a damaged boogie board with a tree growing out of it. The litter was then placed in bags and taken to the UJ recycling facility on the Kingsway campus. The Department was happy to have been involved in cleaning the dam and doing a little bit towards cleaning our immediate urban environment. Staff and students were treated to a warm cup of soup and donations were collected in an effort to raise money to buy books for the Faculties Mandela Day initiative to help the Eldorado Park Primary School establish a library for its young learners. A word of thanks goes out to all Dr Richard Greenfield and Kelly Dyamond who facilitated this venture and made the day a success.

DIMENSION DATA WINTER SCHOOL, A SUCCESS

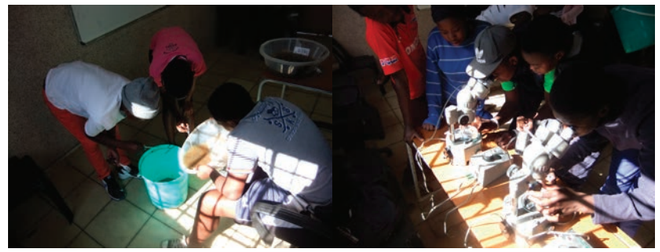
The Faculty of Science participated in the fifth successful Winter School held by the institution in collaboration with the global information technology services provider, Dimension Data. Aimed to provide supplementary tutoring that is not covered in the Saturday classes provided by Dimension Data, the 10-day Winter School was attended by Grade 12 high school learners from Thembisa, Thokoza, Palmridge, Turfontein, Corronationville, Westbury, Florida, Bosmont, Diepsloot, Midrand, Lanseria and Alexandra. Gauteng on the Auckland Park campus. Besides the rigorous learning programme, "The awesome highlights of the winter programme was the campus tour and beauty of the University of Johannesburg," said Mr Shakes Makgalemane who heads the Dimension Data Saturday School programme.



Dr Edwin Madala conducted a workshop on basic DNA extraction protocol with learners attending this year's UJ Winter School.

Learners attending the Winter School.

WATER POLLUTION AWARENESS RAISED AMONGST KLIPTOWN YOUTH



Kliptown Youth learning about the dangers of water pollution.

This winter, as one of the Department of Zoology's annual community engagement initiatives, Dr Cobus van Dyk, visited Soweto's Kliptown Youth Program (KYP) where he presented a workshop for high school learners from the surrounding informal settlement. The workshop raised awareness and provided basic education about water pollution and the conservation and monitoring of river systems. A short lecture was presented on the research projects currently underway on the polluted Klipspruit River flowing through Kliptown and basic experiments on water purification were demonstrated.

The learners were also informed on how aquatic animals can be used as bio-indicators of aquatic pollution where after they were given the opportunity to identify and study different macroinvertebrates using dissection microscopes. "The aim of this ongoing initiative is to instill the importance of water conservation in the youth of disadvantaged communities residing alongside polluted rivers and to create awareness about the importance of protecting these precious and limited freshwater resources for future generations," said Dr van Dyk.

KYP's mission is to provide opportunities that will enable young people to rise out of poverty. It seeks to develop young and dynamic individuals who are willing to contribute effectively for the betterment of their community. The Department of Zoology thanked the coordinators of the KYP: Mr Thulani Mhambi and Mr Siphiwe Mhlaba, for arranging the use of the KYP classroom on the day.

Physics student at HartRAO.

PHYSICS STUDENTS MOTIVATED AT RADIO ASTRONOMY EXCURSION

The Hartebeesthoek Radio Astronomy Observatory (HartRAO) was pleased to host 35 UJ Physics students during their recent excursion organised by Senior Lecturer and Deputy Head of the Physics Department's Teaching and Learning, Dr Emanuela Carleschi.

Insightful, enjoyable and free of charge to the students, the trip was hosted by Mrs Marion West, an astronomer working at HartRAO, where they participated in a host of activities in the visitors centre, toured the main telescope, and finally, did some stargazing after dark.

HartRAO is located in a valley in the Magaliesberg hills and operates as a National Research Facility under the auspices of the National Research Foundation. The observatory began as Deep Space Station 51, built in 1961 by the National Aeronautics and Space Administration (NASA) of the United States of America, and today boasts an array of research instrumentation available to UJ students.

Dr Carleschi said, "It is always so rewarding to see how much students enjoy the whole experience at HartRAO. The most interesting part for them is to get to know about the leading role played by South Africa in the international landscape in the fields of astronomy and astrophysics. It was my forth excursion to HartRAO with UJ students, and I learned new things myself. I am very grateful to the HartRAO staff, and to Mrs West in particular, for this wonderful opportunity."

The students were fascinated by what they saw at the observatory and are encouraged to pursue postgraduate research in radio astronomy.

GRAPH THEORY CONFERENCE HONOURS PROF BETSIE JONCK

Colleagues Bid Farewell to Prof Betsie Jonck.

A host of young and seasoned mathematicians from various African universities united at UJ's Madibeng Building in June to bid farewell to exiting Department of Pure and Applied Mathematics Head, Prof Betsie Jonck. Graph Theory Day 2016 was commemorated in the form of a conference honouring Prof Jonck who was initially Deputy Head of Department for three years before spending a full decade as Head.

Described as "cheerful, accessible and always professional" by former and current colleagues, Prof Jonck was congratulated for her new maths headship at Wits starting in July. She reflected on a productive tenure at UJ, adding that it was not a challenge heading the department because her colleagues were always proactive and supportive.

"We felt that holding a conference was the traditional way to bid farewell to an outstanding HoD," said UJ's Prof Peter Dankelmann whose co-conference organiser was the prolific graph theorist, Prof Izak Broere from the University of Pretoria's Mathematics and Applied Mathematics Department. The conference included nine topical specialist presentations in the area of graph theory which is a branch of mathematics and Prof Jonck's area of expertise. The topics ranged from *Total Domination in Quadrilateral Free Graphs with Minimum Degree Four* by UJ's Prof Mike Hennings, to *k-defect polynomials vs chromatic polynomials* by Associate Prof, Eunice Mphako-Banda from Wits and a stimulating presentation on *Mathematics and Corruption: From theory to practice* by Prof Simon Mukwembi - a University of KwaZulu-Natal 2013 Distinguished Teacher awardee. Professor Willem Conradie succeeds Prof Jonck as the new HoD of Pure and Applied Mathematics Head at UJ.

Jonty Marks.

NATIONAL ROWING COLOURS FOR UJ COMPUTER WIZ

The month of June ended on a high note for UJ MSc Informatics student, Jonty Marks. He was donned with Full University Colours (National Colours), inviting to him to compete in the South African National University Team for 2016.

"I never imagined that I would be rowing on a professional level or representing my country and varsity at an international level. I stopped rowing after matric and truly believed that I was finished with the sport until I was persuaded otherwise once I applied at UJ in 2014," said Marks, attracted to the sport by his older brother who had been rowing at Jeppe High School for Boys three years in ahead of him.

Marks said what makes him passionate is the physically demanding nature and technically challenging aspects rowing. "I thoroughly enjoy pushing myself to find and surpass new limits, which is exactly what rowing does for me."

THE PURSUIT OF EXCELLENCE CONTINUES!

The Academy for Computer Science and Software Engineering (ACSSE) was among the departments severely affected by the burning down of UJ's Sanlam Auditorium in May. Despite this, the Academy is doing everything in its power to remain one of the best Information Technology departments in the country, ACSSE HOD, Prof Elize Ehlers said at the end of a fruitful first semester. "We saw the fire as a challenge to even better the quality of the students we produce," she said.

ACSSE staff have been operating from temporary offices on the Auckland Park campus ever since the heavy soot and smoke incident which left university property damaged and hazardous. This extended to the E-Ring Computer Rooms, disrupting the Academy's teaching and learning. Prof Ehlers said it was a pity this money could rather have been used for bursaries than to repair the auditorium, laboratories and affected infrastructure. She acknowledged UJ's efforts towards sourcing new bursaries for students and thanked university

GEMES AWARDS TOP-ACHIEVERS

The Department of Geography, Environmental Management and Energy Studies (GEMES) recently celebrated the achievements of top undergraduate and postgraduate students at its Annual Prize-giving Ceremony held at the Auckland Park campus. Providing a learning and an intellectually stimulating environment as well as recognising their development potential is one of the long standing traditions in this Department.

"As a Department we are very pleased about the academic performance and the distinguished accolades received by our top students. They are an example of excellence to other students and we hope that they will not lose the momentum to work harder than the rest, thus positioning themselves well for their academic career and future employment prospects. We also recognize the meaningful role and the quality teaching and instruction provided by lecturers in our Department. Lastly, we also acknowledge the supportive and nurturing environment they have received from their parents, family and friends," said the Department HoD, Dr Isaac Rampedi.

Prevlan Chetty (CGS), Margaret Phiri (Best Undergraduate GIS Student) and Dr Solomon Tesfamichael (Senior Lecturer)

Su-Marie van Tonder (Best Undergraduate Geography Student) and Dr Clare Kelso (Senior Lecturer)Mothusi Boihang (Best Undergrad Environmental

Management Student) and Michelle Venter (Cabanga Concepts)

Craig Mahlasi (Best Hons Geography Student) and Michael Whitfield (Golder Associates)

Prof John Ledger (Energy Honours Co-ordinator), Barry MacColl (General Manager, Research, Testing and Development, Eskom Transmission and Sustainability Division), Sakhile Ngcongwane (Best Honours Energy Studies student), Dr Isaac Rampedi (HOD), Dave Lucas (Corporate Specialist – Environmental Management, Eskom) and Njabulo Kambule (Assistant Lecturer).

Belinda Cooper (Best Environmental Management Masters student) and Thea Schoeman (Lecturer)

CONGRATULATIONS TO OUR 2016 FIRST-YEAR TOP ACHIEVERS

The Faculty of Science applauded its outstanding first-year students who were recognised for excellent academic performance in their first semester examinations at UJ's First-Year Top Achievers Awards Ceremony. The parents, peers, school teachers and UJ lecturers of these students are to be equally acknowledged for their continued support, encouragement and enthusiasm throughout the years, UJ Vice-Chancellor and Principal, Prof Ihron Rensburg, said.

The Faculty of Science scooped a number of awards with special recognition for BSc Computer Science and Informatics student, Shirley Tsholofelo Mashiane, who, with an aggregate of 95.3%, scored the highest Average Final Mark in the Faculty of Science, at UJ and received the Alumni Network Trophy for Best Female Top Achiever at UJ. Out top achievers were:

AVERAGE MARK	TITLE	NAME AND SURNAME
95.3	Miss	Shirley Tsholofelo Mashiane
87.8	Mr	Ruan Spijkerman
85.3	Miss	Isabel Zenobia Bester
84.0	Mr	Thishan Hansragh
80.3	Mr	Molefi Matla
80.0	Mr	Thabiso Gabela
79.8	Miss	Ntuthuko Lethokuhle Zikalala
75.0	Mr	Patrick Kyle Richards
74.8	Mr	Emmanuel Bongani Dlamini

The Executive Dean of Science, Professor Debra Meyer, joined the Faculty in wishing Mr Pedro Boshoff a speedy recovery from a serious injury incurred while collecting samples for his MSc in Geology. The incident took place at the Armageddon Cave, west of Johannesburg where after a five-hour rescue effort by SEC, Mountain Rescue and Off-road rescue, Boshoff was safely brought back to surface and taken to Netcare Milpark Hospital.

We express our sympathy on the loses experienced by the family, friends and faculty of Analytical Chemistry specialist and lecturer in the Department of Applied Chemistry, Dr Sarah Maoela, as well as Mr Kwanele Mabasa who was registered for a third-year BSc degree in Life and Environmental Sciences at UJ. We remember both Dr Maoela and Mr Mabasa and the contribution they made in our lives and in the Faculty.

NEW APPOINTMENTS IN THE FACULTY OF SCIENCE

Dr Richard Moutloali	DFC Applied Chemistry	Senior Lecturer
Mr Andre Swartz	APK Pure & Applied Mathematics	Lecturer
Mr Ofentse Moroeng	APK Geology	Assistant Lecturer
Mrs Jacqueline Mofokeng	DFC Applied Chemistry	Administrative Officer I
Mr Sonwabile Mafunda	APK Pure & Applied Mathematics	Lecturer
Mrs Itumeleng Komane	APK Geography, Environmental Management & Energy Studies	Technician
Ms Henriette Ueckermann	APK Geology	Instrument Scientist
Dr Mamo Messai	DFC Applied Chemistry	Senior Lecturer
Dr Trishya Owen-Smith	APK Geology	Lecturer
Mr Vincent Makhubela	APK Geology	Lecturer
Mr Njabulo Kambule	APK Geography, Environmental Management & Energy Studies	Assistant Lecturer
Mr Thulane Paepae	APK Applied Chemistry	Assistant Lecturer
Ms Thendo Mugwena	APK Geography, Environmental Management & Energy Studies	Lecturer
Dr Caliphs Zvinowanda	APK Applied Chemistry	Senior Lecturer
Ms Tshegofatso Moipolai	APK Applied Physics & Engineering Mathematics	Assistant Lecturer
Mr Phumlani Msomi	APK Applied Chemistry	Assistant Lecturer
Mrs. Jamie Lee Das Neves	APK Zoology	Assistant Lecturer
Mrs Lourelle Neetling	APK Zoology	Assistant Lecturer
Dr Maria Vivien Visaya	APK Pure & Applied Mathematics	Lecturer
Dr Hope Serepa Dlamini	DFC Food Technology and Biotechnology	Lecturer
Mr Lunga Innocent Memela	APK Deans office	Faculty Marketer
Dr Garreth Kemp	APK Pure & Applied Mathematics	Lecturer
Dr Farhana Allie	APK Biochemistry	Lecturer

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