



RESEARCH REPORT 2015



UNIVERSITY OF
KWAZULU-NATALTM
INYUVESI
YAKWAZULU-NATALI

INSPIRING GREATNESS



Research Report 2015

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Editorial Team

Professor Urmilla Bob, Dr Thoko Mnisi, Mr Lesiba Seshoka,
Ms Thembekile Simelane, Ms Raylene Captain-Hasthibeer,
Mrs Sunayna Bhagwandin, Ms Sithembile Shabangu,
Artworks

Photography

Artworks, stock images, UKZN Archives

Design and layout

Artworks

Printing

Innovative Printing Solutions



*"We need to be prepared
for a world of research
that might not resemble
anything we have now
and to grow our next
generation of young
academics to be world
leaders."*

Growing UKZN's Research Capacity

In the past number of years, the University of KwaZulu-Natal (UKZN) has established itself as a research-led university. We are now strengthening our reputation by looking critically at our research capacity. A couple of points are pertinent in this regard.

First, we have increased research participation amongst staff from around 40% to more than 80%. Research has thus become a fundamental part of our institutional culture.

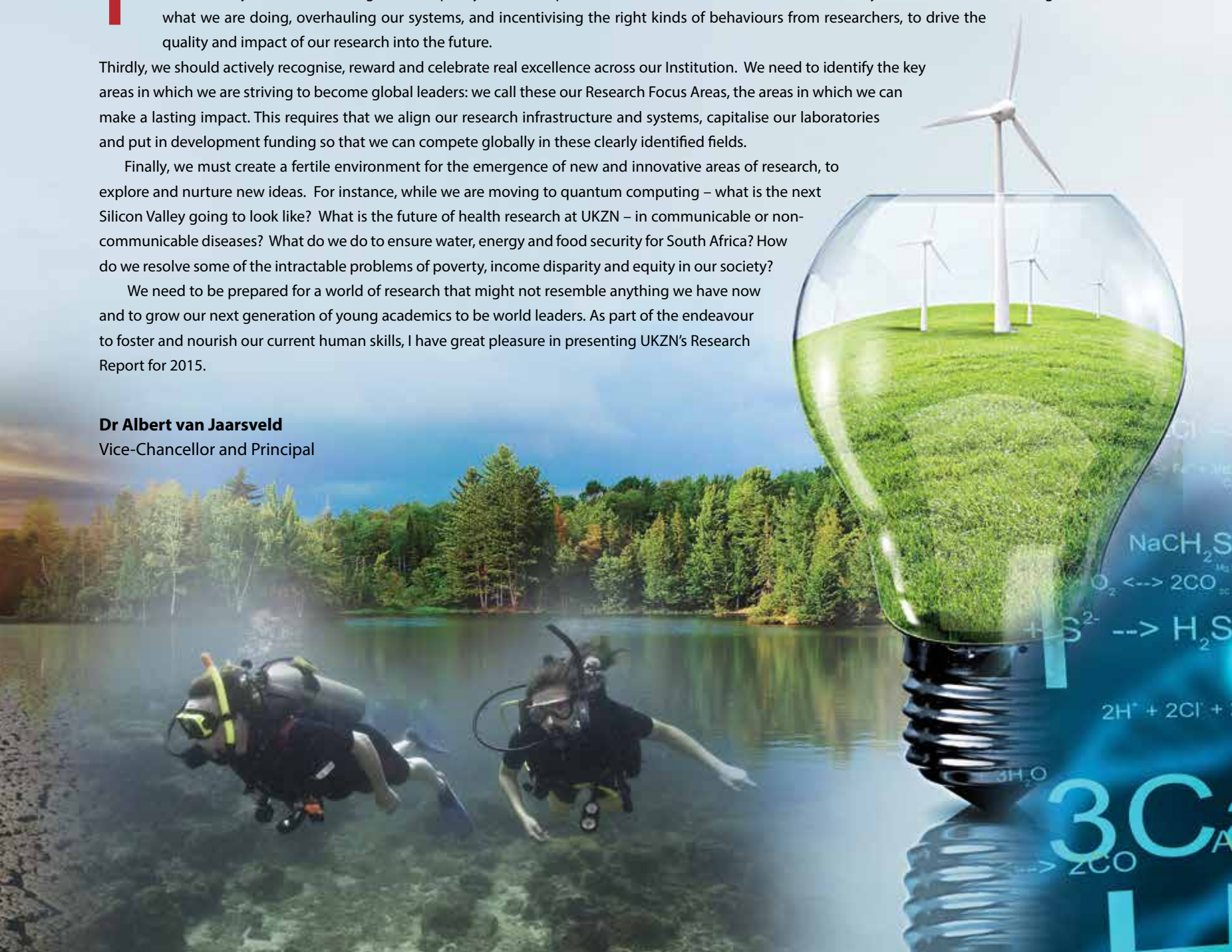
Secondly, we need to strengthen the quality and the impact of our research, to the benefit of our society. This means re-examining what we are doing, overhauling our systems, and incentivising the right kinds of behaviours from researchers, to drive the quality and impact of our research into the future.

Thirdly, we should actively recognise, reward and celebrate real excellence across our Institution. We need to identify the key areas in which we are striving to become global leaders: we call these our Research Focus Areas, the areas in which we can make a lasting impact. This requires that we align our research infrastructure and systems, capitalise our laboratories and put in development funding so that we can compete globally in these clearly identified fields.

Finally, we must create a fertile environment for the emergence of new and innovative areas of research, to explore and nurture new ideas. For instance, while we are moving to quantum computing – what is the next Silicon Valley going to look like? What is the future of health research at UKZN – in communicable or non-communicable diseases? What do we do to ensure water, energy and food security for South Africa? How do we resolve some of the intractable problems of poverty, income disparity and equity in our society?

We need to be prepared for a world of research that might not resemble anything we have now and to grow our next generation of young academics to be world leaders. As part of the endeavour to foster and nourish our current human skills, I have great pleasure in presenting UKZN's Research Report for 2015.

Dr Albert van Jaarsveld
Vice-Chancellor and Principal



Measuring and Assessing Research Achievement

Universities around the world take great pride in their research achievements. Indeed, the prestige associated with a university often stems from the achievements of its researchers. This 2015 Research Report highlights many inspiring research achievements and paints an impressive picture of the state of research at UKZN. The researchers whose work is highlighted in this report make us proud and set the benchmark for even greater research achievements over the next few years.

How do we measure and assess research achievement? There is no universally agreed way. Although controversial, the standard-bearer for measuring research achievement across the globe is peer-review. Peers judge research achievement on a range of different criteria, subjectively strewn together. The differences in their views are often as important as the consensual aspects. However, peer-review is non-standardised and time-consuming and its accuracy (ability to correctly predict important research achievements) is sometimes questionable. Regardless, it is widely used to measure research achievements.

Unfortunately, the current research productivity measures used by UKZN do not measure research achievement. Instead, they quantitatively measure research output, much like a bean-counting exercise. Since increasing quantity may come at the expense of quality, these two aspects of research are closely interlinked. In South Africa the pursuit of research quantity is driven principally by university funding formulas that reward research on the basis of number of articles while the pursuit of research quality is driven by individual researchers in search of excellence. Importantly, research quality, which increases the impact and citations of the research, is central to the reputation of universities. So if the current UKZN research productivity measures do not achieve the desired goal of assessing research achievement both quantitatively and qualitatively, what can we do in pursuit of measuring research accomplishment, even if we can't measure it accurately?

In assessing research achievement, two aspects can be considered – the first is assessment of the impact of the research within the scientific community, which is usually reflected in the extent to which other researchers in the field are drawing on this research contribution for their own research. This measure of research impact can be counted in most, but not all, disciplines by citations. The second is the novelty of the research contribution. In measuring how novel and innovative the research contribution is we need to assess the extent to which the research provides a new approach or new way of thinking of the problem. And while there is no simple index for novelty, citations are one of the ways in which to measure it.

Until recently, it was difficult to get an accurate measure of citations but this has changed since the development of comprehensive databases such as Scopus and Web of Science, as well as analytic tools like SciVal and Pure. Information on citations is now much more readily available and includes citations not merely in the sciences like physics and medicine but also in the social sciences. The ability to measure citations provides us with a better potential index that may take us one step closer to measuring research achievement.

Citations, however, have limitations. Journal articles in some disciplines do not frequently cite other research. A further limitation in the modern era of research where many studies are done in extremely large groups is that citations are not able to distinguish between participation in a large team as opposed to being the individual who actually generated the novel

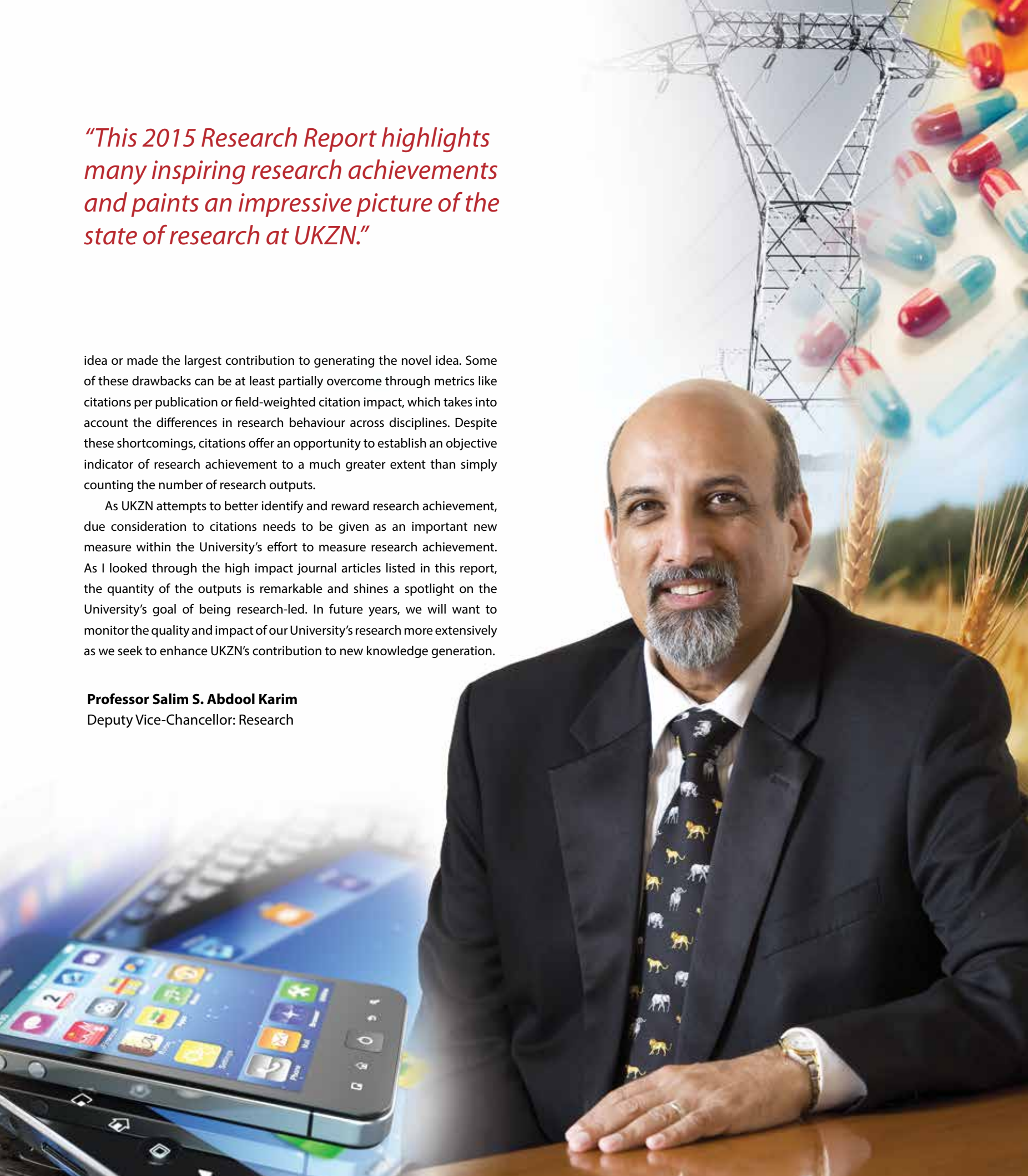


“This 2015 Research Report highlights many inspiring research achievements and paints an impressive picture of the state of research at UKZN.”

idea or made the largest contribution to generating the novel idea. Some of these drawbacks can be at least partially overcome through metrics like citations per publication or field-weighted citation impact, which takes into account the differences in research behaviour across disciplines. Despite these shortcomings, citations offer an opportunity to establish an objective indicator of research achievement to a much greater extent than simply counting the number of research outputs.

As UKZN attempts to better identify and reward research achievement, due consideration to citations needs to be given as an important new measure within the University's effort to measure research achievement. As I looked through the high impact journal articles listed in this report, the quantity of the outputs is remarkable and shines a spotlight on the University's goal of being research-led. In future years, we will want to monitor the quality and impact of our University's research more extensively as we seek to enhance UKZN's contribution to new knowledge generation.

Professor Salim S. Abdool Karim
Deputy Vice-Chancellor: Research



Maintaining the Highest Ethical Standards

UKZN's rich and diverse research record of more than 100 years is a legacy that the Institution is justly proud of.

But with that legacy comes the responsibility to maintain and embrace a brand of scientific investigation that not only honours past achievement but encourages those at the helm to take the learning and curiosity process further.

Now in her third year as the University Dean of Research at UKZN, Professor Urmilla Bob is well aware of that academic journey and all that it entails.

"We have to constantly ask ourselves if we are on the right path and if there are things we could do better. If there are things we could improve on, what strategies do we need to put in place?"



A large part of that conversation involves overseeing the University's research outflow and the delicate and often complex interrogation of ethics protocols.

"In many ways the research endeavour is the lifeblood of this University," says Bob. "It sets the critical benchmark for young students to learn from their mentors and thus carry on the research legacy. It also enables and ensures the sort of financial support the Institution needs to serve some of the Higher Education imperatives."

The Research Office is the administrative centre of research activities at UKZN and includes the Publications, Grants and Awards, Ethics, and Finance and Contracts Clusters. In 2015, 256 grants and contracts were vetted by the Research Office with a total value of R354 338 519.60. The Grants and Awards Cluster, for example, processed and submitted 400 applications to the National Research Foundation (NRF) in 2015 (of which, 195 were awarded). Twenty-one applications were submitted to the Medical Research Council and eight were awarded. In addition, 51 Research Development Equipment applications were screened and 32 were awarded funding. The Publications Cluster screened 4 756 items (including 2 807 journal articles, 326 conference proceedings, 258 books and chapters in books, and 1 179 masters and doctoral graduates) in 2015. There are three ethical committees that process ethical applications: the Animal Research Ethics Committee (AREC), Biomedical Research Ethics Committee (BREC) and the Human and Social Sciences Research Ethics Committee (HSSREC). In 2015, the AREC reviewed 68 applications, the BREC reviewed 517 applications and the HSSREC reviewed 1 873 applications.

The Research Office is committed to improving efficiencies, including decreasing the turn-around times of approving ethical applications.

Bob accepts that the balancing act of encouraging and supporting research initiatives and ensuring that "all the boxes are ticked – and ticked again" is not an easy exercise.

"Research by its very nature comes with a great degree of passion and commitment. But as any researcher will tell you, including myself, the process can be extremely onerous and at times very frustrating. However, at the end of the day, it is the maintenance of rigorous and internationally accepted standards that will ensure that research quality and integrity are retained".

Professor Urmilla Bob
Dean of Research

Research Portfolio Organogram



217 NUMBER OF
AFRICAN
RESEARCHERS

9
RESEARCH
FOCUS
AREAS

Biotechnology

Agriculture and Food Security

Energy and Technology for Sustainable Development

Gender, Race and Identity Studies

Indigenous African Knowledge System

Maritime Studies

Social Development and Economic Studies

Water, Environment and Biodiversity

HIV/AIDS, Tuberculosis and Health Promotion

NUMBER OF JOURNAL ARTICLES SUBMITTED TO DHET

2 232

NUMBER OF PATENTS

2

PUBLISHING RESEARCH STAFF

1 240

NUMBER OF AFRICAN RESEARCHERS

217

NUMBER OF FEMALE RESEARCHERS

623

PROLIFIC RESEARCHERS

135

EMERGING RESEARCHERS

82

DOCTORAL DEGREES AWARDED

267

MASTERS DEGREES AWARDED

987

POST-DOCTORAL FELLOWS

317

NUMBER OF NRF-RATED RESEARCHERS

290

NRF A-RATED RESEARCHERS

8

SARCHI CHAIRS

14



1 240

PUBLISHING RESEARCH
STAFF

2 232

NUMBER OF JOURNAL ARTICLES
SUBMITTED TO DHET

623  NUMBER OF
FEMALE
RESEARCHERS



Evolutionary Biology

Gravitating Systems

Systems Biology of HIV/AIDS

Quantum Information Processing and Communication

Fluorine Process Engineering and Separation Technology

Indigenous Healthcare Systems Research

Applied Poverty Reduction Assessment

Land Use Planning and Management

Rural Agronomy and Development

Gender and Childhood Sexuality: Violence, Inequalities and Schooling

Proteolysis in Homeostasis Health and Disease

Ecosystem Health and Biodiversity in KwaZulu-Natal and the Eastern Cape

Antibiotic Resistance and One Health

Indigenous Knowledge Systems and the Chemistry of Indigenous Medicinal Plants



987

MASTERS
DEGREES
AWARDED



267

DOCTORAL
DEGREES
AWARDED



317

POST-DOCTORAL
FELLOWS



82

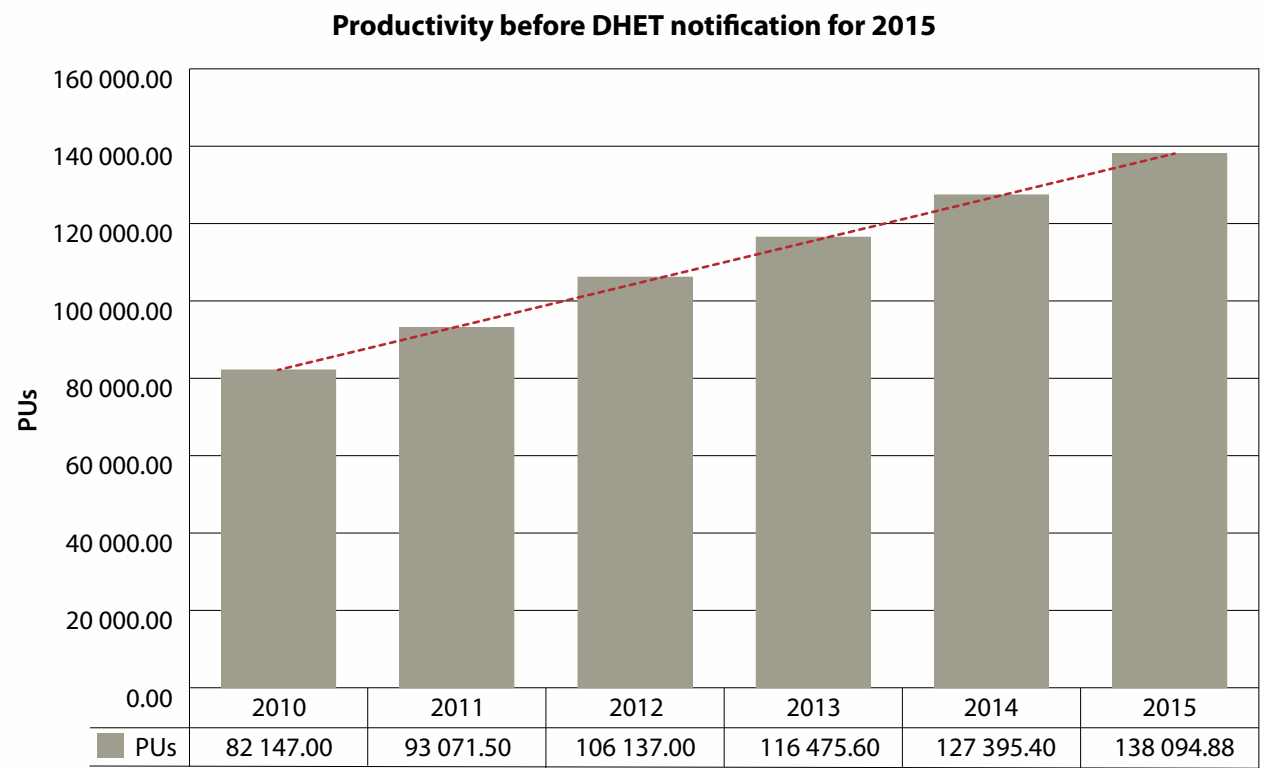
EMERGING
RESEARCHERS



135

PROLIFIC
RESEARCHERS

Productivity Units (PUs)



The yearly increase in Productivity Units (PUs) was 13.3%, 14.0%, 9.7%, 9.4% and 8.4% respectively from 2010 to 2015. Overall, the increase in the number of PUs attained by UKZN researchers increased by 68% over the 6 year period, from 82 147 in 2010 to 138 094.88 in 2015 (8 Sept 2016).

How are PUs Calculated?

Category	Productivity Units (PU)
Whole Book	100
Patent	80
Journal article	60
Graduated doctoral student	60
Graduated full dissertation masters	16
Graduated coursework masters	8
Creative contribution (international)	50
Book editorial	30
Chapter in book	15
Creative contribution (local)	15
Refereed conference proceedings	10
Journal editorial	8
Refereed conference proceedings (non-DHET/ISI listed)	4
NRF rating	60-100
Staff graduated with doctoral degree	60

College of Agriculture, Engineering and Science

PROFESSOR KEVIN KIRKMAN
DEAN OF RESEARCH: COLLEGE OF AGRICULTURE, ENGINEERING AND SCIENCE

The College improved its longstanding position as the top research producer at UKZN. It has three of five SARCHI Chairs awarded to the University, making a total of nine SARCHI Chairs in the College. All three Chairs were awarded to female researchers – a first! Thirty one academics in the College were awarded NRF-ratings in 2015, giving a total of 49% of staff holding NRF-ratings.

The University's Top 30 Published Researchers' list was again dominated by the College (19 out of 30). This included the Top Publisher (Professor Johannes van Staden) and Top Woman Publisher (Professor Colleen Downs).

Participation in high level collaborative research continued to increase, with resultant high impact publications and recognition, raising the profile of the College and UKZN.

Research facilities continued to improve, with the procurement of additional state-of-the-art equipment in several research focus areas, including a nanoparticle tracking and characterisation system, which is unique in South Africa.

PhD graduands continued to grow, with 106 caps being awarded at the 2015 Graduation ceremonies out of a University total of 264 (previous College PhD figures being 98 in 2014, 76 in 2013, 77 in 2012 and 69 in 2011).



College of Health Sciences

PROFESSOR MOSES CHIMBARI
DEAN OF RESEARCH: COLLEGE OF HEALTH SCIENCES

The College increased its PhD graduands to 56 from 22 in 2013 and for the first time had four researchers in the University's Top 30 Researchers, with three in the top 10. Among the top achievers were Mahmoud Soliman (position 5), Raj Karpoomath (position 7), Damian Clarke (position 9) and Anil Chuturgoon (position 23). These achievements contributed to the College's almost 4% increase in research output.

In an effort to encourage large grants writing, the College launched the Large Competitive Grants (CHS-CLG) initiative and awarded two teams grants amounting to R1.5 million apiece for their flagship projects.

The grant awards went to "Nanotechnology-Based Solutions for Infectious Diseases (NSID)" and "Osteoporosis in South Africa (OsSA)." The DRILL (Developing Research Innovation, Localisation and Leadership) project clinched a five-year NIH grant that will result in the transformation of 20 young scientists to become the next generation of high quality academics in the College.



College of Humanities

PROFESSOR PHOLOHO MOROJELE
DEAN OF RESEARCH: COLLEGE OF HUMANITIES

The year 2015 saw an increase in research productivity in the College of Humanities, with an output of 37 506, an increase of nearly 8% on the previous year – with significantly more novice, young, women and Black academics contributing than ever before.

The College had seven academics in the UKZN Top 30 list of most productive 2015 academics: Dr Maheshvari Naidu and Dr Inbersagran Narsiah from the School of Social Sciences; Professor Philippe Denis, from the School of Religion, Philosophy and Classics; Professor Pranitha Maharaj from the School of Built Environment and Development Studies; Professor Sarah Bansilal, from the School of Education; Professor Christopher Ballantine, from the School of Arts; and Professor Keyan Tomaselli, from the School of Applied Human Sciences.

Overall, in 2015 the College produced 37 508 Productivity Units (PUs), a nearly 40% increase from 2011. The College contributed 27% to UKZN's total research productivity, maintaining the position it has held for five years as the second most research productive College. Furthermore, the number of staff that graduated with PhDs increased by 50% between 2012 and 2015.

The College's public lecture series on transformation and de-colonialism, held four times in 2015, allow for critical engagements with key stakeholders, members of the public and students on cutting-edge research findings and issues affecting our society today.



College of Law and Management Studies

PROFESSOR MARITA CARNELLEY
DEAN OF RESEARCH: COLLEGE OF LAW AND MANAGEMENT STUDIES

The College had another bumper publication year in 2015. Academics in the College increased their output by almost 20% from the previous year.

The College had five academics in UKZN's Top 30 list of most productive 2015 academics: Professor Stephen Pete (Law); Professor Maxwell Phiri (Management, Information Technology and Governance); Professor Stephen Migiro (Graduate School of Business and Leadership – GSB); Professor Krishna K. Govender (Human Resources Management Research Fellow in Management, Information Technology and Governance); and Professor David McQuoid-Mason (Fellow and Senior Research Associate in Law). Of particular note is the fact that two of the academics on the list, McQuoid-Mason and Govender, are over the age of 60 and have been appointed in an honorary capacity.

The College also boasts a growing number of postdoctoral fellows. While it had a handful in 2013, this increased to a stable 14 in 2014 and 20 in 2015. Their productivity also added to the success of the College and it is expected that this would continue in the next few years.

The success of the College is also seen in doctorate credentialing. PhD graduations increased from around 14 in 2011 and 2012 to 48 in April 2016 (2015 cohort). The trend is also visible in the increase in the percentage of staff with a PhD. Comparing the 2008 numbers with 2015, GSB staff with a PhD increased from 44% to 92%; Accounting, Economics and Finance (AEF) from 19% to 33%; Law from 14% to 32% and Management, Information Technology and Governance from 27% to 65%.





RESEARCH CENTRES

The University of KwaZulu-Natal boasts various leading Research Centres at which investigative work is done in diverse fields. Researchers and scientists at these Centres have been, and continue to be, at the forefront of cutting-edge work which over the past 10 years has seen UKZN establish itself as an internationally respected research-led University.

DST-NRF Centre of Excellence in HIV Prevention

The DST-NRF Centre of Excellence (CoE) in HIV Prevention is co-hosted by the Centre for the AIDS Programme of Research in South Africa (CAPRISA) and UKZN. The CoE in HIV Prevention is a multi-institutional collaboration that includes researchers at UKZN, University of Cape Town (UCT), National Institute for Communicable Diseases (NICD), University of the Western Cape (UWC), and CAPRISA.



The main goal of the CoE is to undertake research aimed at understanding and ameliorating the high risk of HIV in women, especially young women, in South Africa.

The CoE's research programme is set to generate new knowledge that contributes to the development of new HIV prevention technologies such as microbicides and vaccines. The specific aims are to:

1. Generate new data and knowledge on the epidemiology of HIV infection, specifically through assessing HIV prevalence and incidence in high risk populations in South Africa.
2. Generate new insights into the risk factors for HIV acquisition in young women, specifically biological risk factors in the genital mucosa influencing HIV acquisition in women.
3. Develop new approaches to prevent HIV infection in young women.
4. Characterise the pathobiology of HIV infection and elucidate host immunological responses as part of developing immune-based HIV prevention strategies. This includes, amongst others, characterising viral entry, transmitted viruses, innate immune responses, T-cell and humoral adaptive immune responses, and host genetic factors associated with HIV acquisition to inform and identify anti-HIV broadly neutralising antibodies.

To achieve these aims, the CoE's research activities cover a range of disciplines, including public health/epidemiology, basic laboratory science, clinical studies and implementation science. The CoE also aims to train the next generation of researchers. Medical students, medical registrars, postgraduate students and post-doctoral Fellows are identified and offered fellowships within the CoE. Fellows can either follow a degree (masters or doctorate) path or an experiential research path. The goal of the programme is to support the growth and development of accomplished independent scientists and is not only focused on obtaining degrees. The particular focus of the training will be on basic science and epidemiology, including

clinical epidemiology, molecular epidemiology and clinical trials.

Professor Koleka P. Mlisana, Associate Professor and Head of Medical Microbiology at UKZN and NHLS and CAPRISA

Research Associate says that, "CAPRISA continues to be at the cutting-edge of HIV Prevention Research, globally taking the lead in generating data to expand knowledge and the science behind the epidemic in young women. The compelling data on some of the genital tract biological risk factors for HIV acquisition, presented by the diverse CAPRISA group at the recent AIDS2016 Conference in Durban is testimony to the locally responsive and globally relevant goal of the organisation. I believe that understanding what drives the high levels of genital inflammation in these young women is going to be one of the keys that lead to HIV prevention."

The CoE is led by a Director, Professor Salim S. Abdool Karim, who is also Professor of Global Health at Columbia University, Director of CAPRISA and Pro Vice-Chancellor (Research) at UKZN. The CoE leadership team comprises the CoE Director and a senior member from each of the participating institutions – Professor Q. Abdool Karim from CAPRISA; Professor K. Mlisana from UKZN; Professor L. Morris from NICD; Professor S. Travers from UWC; and Professor C. Williamson from UCT. Having just been established, the CoE is an exciting new opportunity to impact on the HIV epidemic through research and innovation.



▶ Professor Koleka Mlisana

A New Research Powerhouse

The Africa Centre for Population Health, a field-research facility based in northern KwaZulu-Natal, has combined with UKZN's K-RITH (KwaZulu-Natal Research Institute for Tuberculosis and HIV) to form a new research centre that combines field studies with laboratory research.

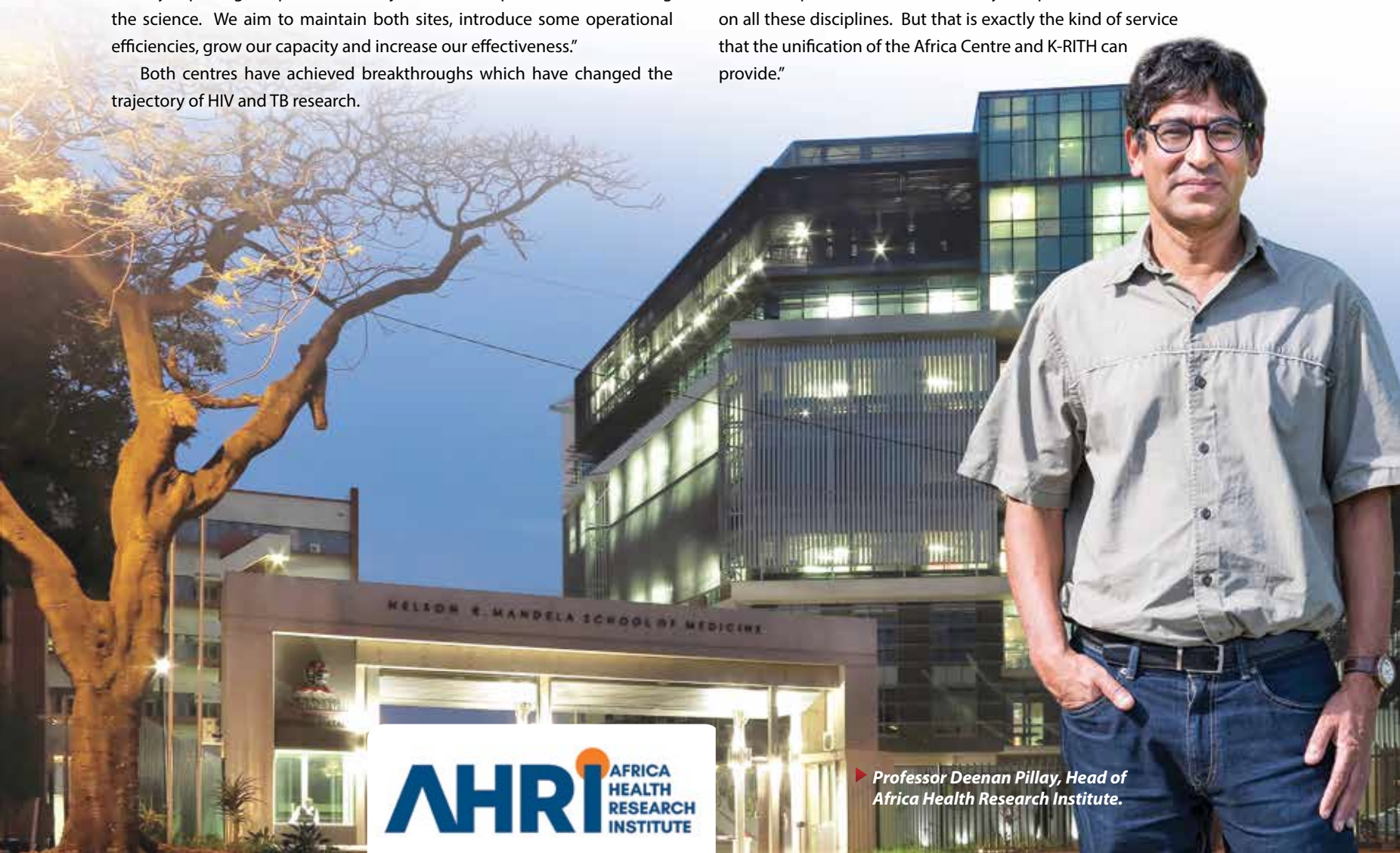
Tuberculosis is the most common illness among HIV-positive people, including those undergoing anti-retroviral treatment, and is the biggest cause of HIV-related deaths. While both of these centres were doing ground-breaking work in these fields, the Africa Centre was concentrating on field work, population studies, social issues and the like, while K-RITH was conducting research in basic science and experimental medicine.

"When I became the Director of the Africa Centre in 2013," says Professor Deenan Pillay, the project leader for the unification of the two centres, "I realised that we could very successfully combine our forces as we were doing such complementary work. Between them, these centres were already exploring the possibilities of joint scientific posts, and assimilating the science. We aim to maintain both sites, introduce some operational efficiencies, grow our capacity and increase our effectiveness."

Both centres have achieved breakthroughs which have changed the trajectory of HIV and TB research.

UKZN's Africa Centre for Population Health and K-RITH have joined hands to tackle the twin scourge of HIV/AIDS and Tuberculosis.

"Our two biggest goals, as a joint research centre," says Pillay, "are to research ways to curb new HIV infections, and reduce TB transmissions. There is no one method to do this; there is no magic bullet. We need to call on all disciplines: social studies, health systems, lab research, diagnostics, cultural imperatives there are very few places in the world that can call on all these disciplines. But that is exactly the kind of service that the unification of the Africa Centre and K-RITH can provide."



► Professor Deenan Pillay, Head of Africa Health Research Institute.

The Centre for the AIDS Programme of Research in South Africa

The Centre for the AIDS Programme of Research in South Africa (CAPRISA), which is headquartered at the University of KwaZulu-Natal's Nelson R Mandela School of Medicine, is world-renowned for its string of breakthroughs over the last 14 years. Led by the husband-and-wife team of Salim and Quarraisha Abdool Karim, the goal of CAPRISA is to undertake globally relevant and locally responsive research that contributes to understanding HIV pathogenesis, prevention and epidemiology as well as the links between tuberculosis and AIDS care.

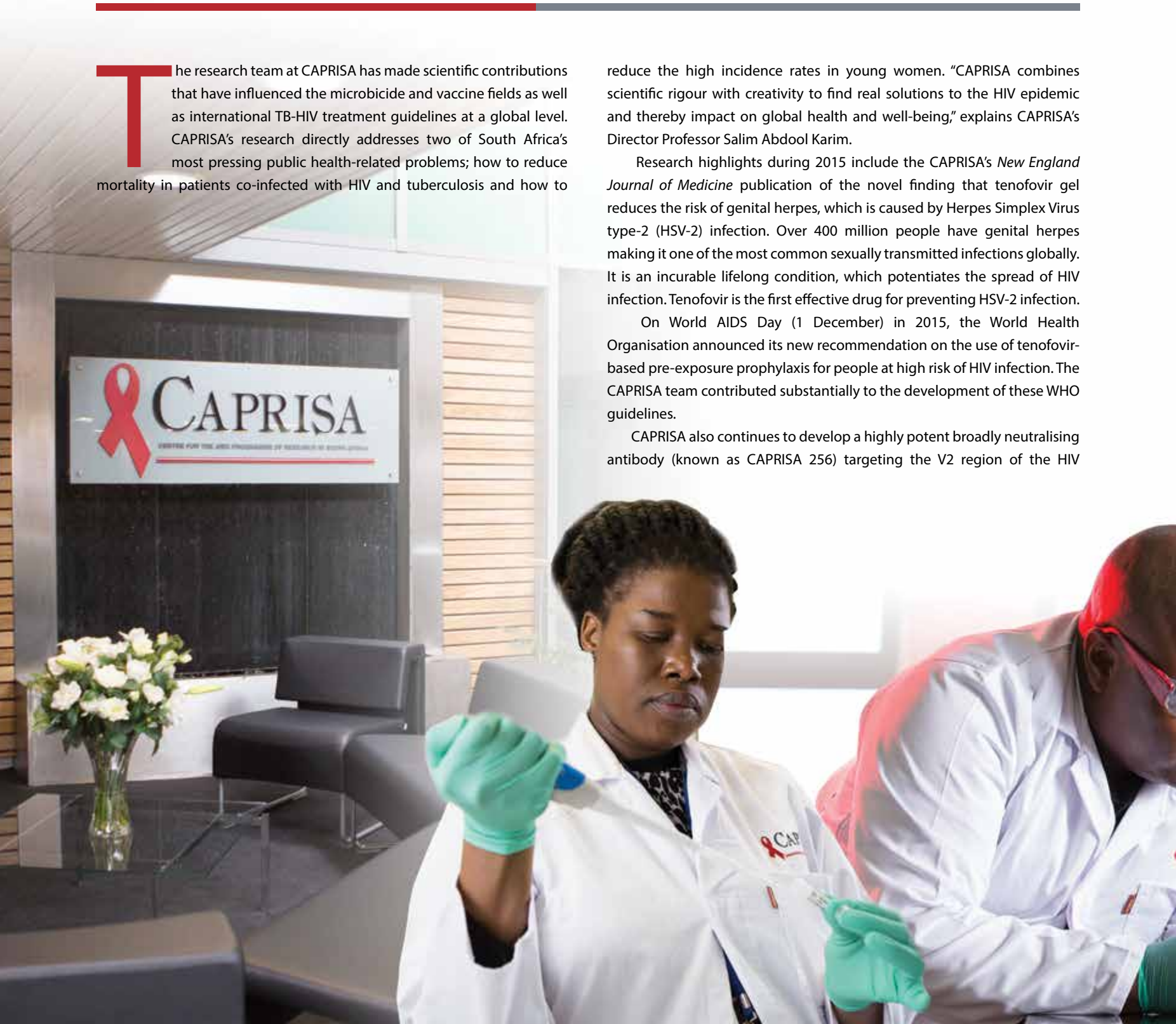
The research team at CAPRISA has made scientific contributions that have influenced the microbicide and vaccine fields as well as international TB-HIV treatment guidelines at a global level. CAPRISA's research directly addresses two of South Africa's most pressing public health-related problems; how to reduce mortality in patients co-infected with HIV and tuberculosis and how to

reduce the high incidence rates in young women. "CAPRISA combines scientific rigour with creativity to find real solutions to the HIV epidemic and thereby impact on global health and well-being," explains CAPRISA's Director Professor Salim Abdool Karim.

Research highlights during 2015 include the CAPRISA's *New England Journal of Medicine* publication of the novel finding that tenofovir gel reduces the risk of genital herpes, which is caused by Herpes Simplex Virus type-2 (HSV-2) infection. Over 400 million people have genital herpes making it one of the most common sexually transmitted infections globally. It is an incurable lifelong condition, which potentiates the spread of HIV infection. Tenofovir is the first effective drug for preventing HSV-2 infection.

On World AIDS Day (1 December) in 2015, the World Health Organisation announced its new recommendation on the use of tenofovir-based pre-exposure prophylaxis for people at high risk of HIV infection. The CAPRISA team contributed substantially to the development of these WHO guidelines.

CAPRISA also continues to develop a highly potent broadly neutralising antibody (known as CAPRISA 256) targeting the V2 region of the HIV



envelope. The CAPRISA 256 antibodies and CAP 256-VRC26.25.LS in particular can kill a wide range of different strains of HIV, hence the name “broadly neutralising”. CAP256-VRC26.25.LS was found to be highly potent. It has reasonable breadth (72% against subtype C), which is of particular importance in South Africa, where subtype clade C is the dominant form of HIV. If the use of this injectable passive immunisation works against HIV, then women could be protected from HIV simply through four injections per year. Hence, this antibody is being developed and manufactured for clinical trials at CAPRISA. If effective, it could provide a pathway for future vaccine development.

CAPRISA is a UNAIDS Collaborating Centre for HIV Research and Policy and hosts a DST-NRF Centre of Excellence in HIV Prevention and a MRC HIV-TB Pathogenesis and Treatment Research Unit.

2015 was an eventful year for CAPRISA. One of the main highlights was the prestigious Kwame Nkrumah Award, which was presented to Professor Salim S. Abdool Karim by the African Union during the AU General Assembly. CAPRISA's Associate Scientific Director, Professor Quarraisha Abdool Karim, also received the Living Legend Award from eThekweni Municipality for her significant contributions in HIV prevention research to the communities of eThekweni and was inducted as a Fellow of the Royal Society of South Africa. She was also inducted as a new International Associate Member of the esteemed US National Academy of Medicine. Another high point was the award of the 2015 Medical Research Council's Gold Scientific Achievement prize, bestowed upon Professor Lynn Morris, a Research Associate of CAPRISA. She also received an “A” rating from the National Research Foundation and Professor Penny Moore, also a Research Associate of CAPRISA, was awarded a DST/NRF South African Research Chair in Virus-Host Dynamics for Public Health.

► Professor Quarraisha Abdool Karim being inducted as a new International Associate Member by the President of the National Academy of Medicine, Dr Victor J. Dzau, in Washington.



A Stalwart in the Struggle against HIV and AIDS

The Health Economics and HIV and AIDS Research Division (HEARD) has been at the coalface of the national and international struggle against HIV/AIDS for almost 20 years. Led by Executive Director, Professor Nana Poku, the applied social science centre works in an interface between policy and research around the issue of health in Africa, conducting a range of research into the macro-economic implications of HIV and AIDS including health systems challenges, costing of treatment and care and the development of national investment cases for health in the Southern African Development Community (SADC) region, lesbian, gay, bisexual, and transgender (LGBTR) diseases and malaria and Tuberculosis.

The Division supports the United Nations Sustainable Development Goals (SDGs) and is a centre of excellence for the Joint United Nations Programme on HIV and AIDS (UNAIDS) and United Nations Development Programme (UNDP).

HEARD also aims to improve private and public sector understanding of the socio-economic impacts of HIV/AIDS through applied research.

Poku said a lot of the work done by HEARD in terms of HIV/AIDS involves how to cost treatment, and how to strengthen support systems both within the formal health system and in communities.

“Current interesting projects of ours are an investigation into community outreach programmes and work to examine how to expand treatment to include both the formal and informal sectors,” he said.

HEARD was involved in 22

research projects in 2015 with 11 being completed and the remainder on-going. They included:

- **Unsafe Abortion in East and Southern Africa.** This multi-country study informed the Malawi Ministry of Health’s position in response to the United Nations’ call for liberalisation of the country’s abortion laws.
- **Health Vulnerabilities of Mobile Populations and Affected Communities in Selected Ports – Durban.** The results of this research were presented to key provincial transport and government officials and will support a strategy to provide services to vulnerable populations operating with the Port precinct.
- **Medico-Legal Evidence in Cases of Sexual Violence.** This research found that the effective collection of medico-legal evidence was undermined by contempt for survivors of sexual violence, inadequate resources – human and financial – and a lack of training for nurses. The results have been used by Tshwarang Legal Advocacy Centre to develop an advocacy campaign to strengthen the collection of medico-legal evidence.
- **Reducing Gender-Based Violence and Enhancing Economic Autonomy for Women and Marginalised Communities,** which informed HEARD’s commissioned background paper for the UNDP Global Expert Meeting on Reducing Gender-Based Violence to Achieve the Sustainable Development Goals in 2016.
- **The SEPO 11 Study** explored the experiences of women and men living with HIV and on ART in Lusaka, Zambia, in order to better understand their hopes and challenges over time. It informed the adaption of an e-model for rehabilitation professionals in the context of HIV in Africa, which was officially launched with the Department of Health in Zambia.

Poku, who was appointed head of HEARD two years ago, was born in London and earned his first degree, a BSc, from Exeter University before going on to complete a first Master’s Degree in Third World Studies (Development Economics) at the University of Coventry, UK, followed by a second



◀ Professor Nana Poku.

Master's Degree in International Political Economy (International Aid and Development) and a doctorate on the International Political Economy, both at Nottingham Trent University, UK.

Poku is now a political economist with more than 20 years of experience in research and consultancy in low and middle-income countries. He is a specialist in Health Sector Governance, with extensive publications and senior level advisory and consultancy experience in: HIV/AIDS Governance (domestic policy reviews, technical support, PRSP development); health sector financing (including costing, review of budgets, planning and accountability); institutional reviews (including governance, strategic prioritisation, costing and efficacy); sexual and reproductive health (SRH), including HIV/AIDS, and gender issues covering: programme management, project identification and design, proposal preparation, implementation, monitoring and evaluation, organisational development and financial management.

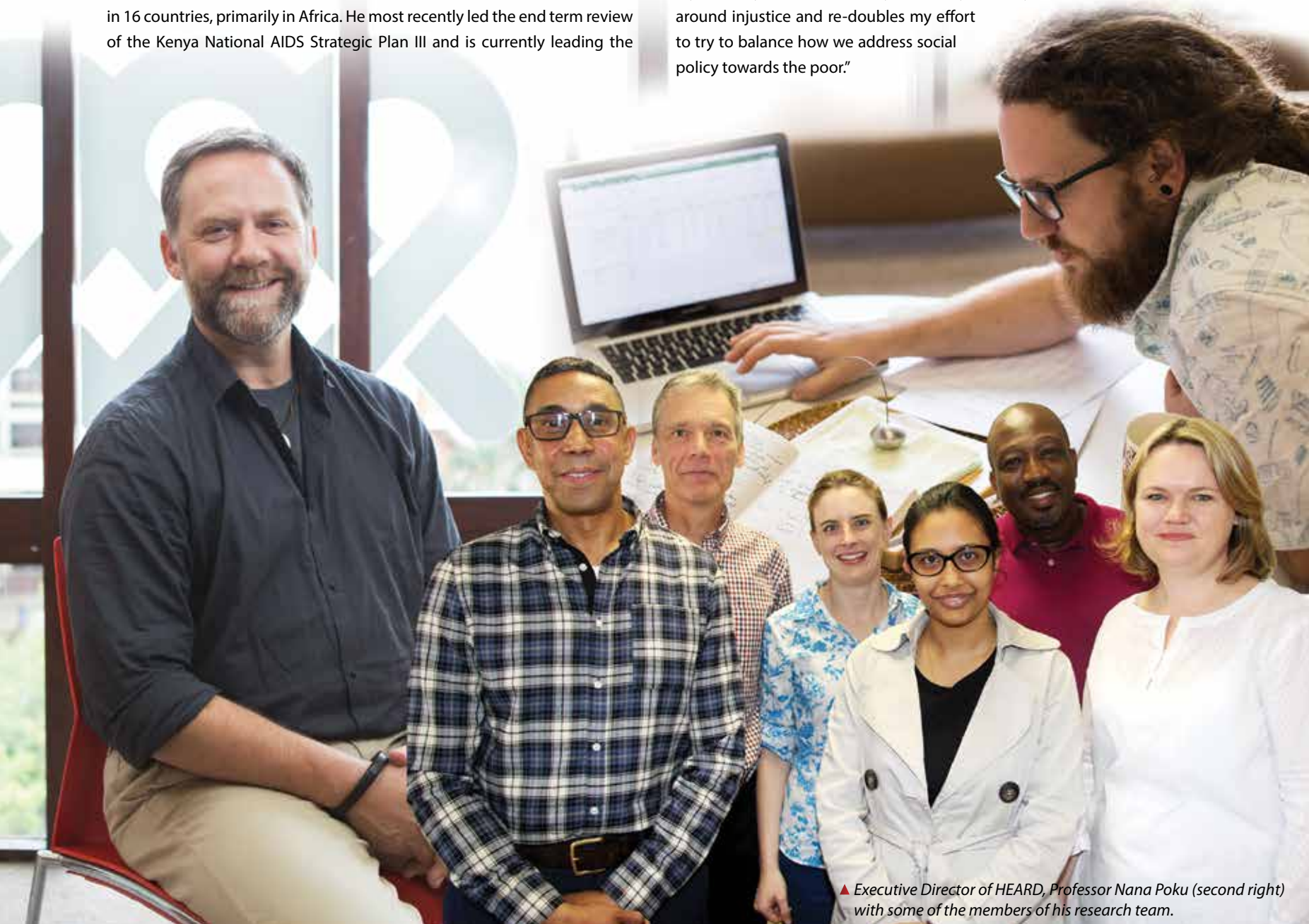
He has led 18 appraisal missions of national strategic plans for HIV/AIDS in 16 countries, primarily in Africa. He most recently led the end term review of the Kenya National AIDS Strategic Plan III and is currently leading the

development of the Namibia Investment Case. He was previously Executive Director of the UN Commission for HIV/AIDS and Governance in Africa (CHGA) (2003-2005) and is regularly asked to advise international agencies including the World Bank, EU, DFID, WHO and AfDB on health, and is on the health systems expert committee of WHO (Africa) as well as the World Bank's Economics Reference Group for Africa.

Before joining UKZN, Poku was Deputy Vice-Chancellor of Bradford University, UK – a position he held for six years before deciding to join UKZN in his current position.

"We at HEARD are on the cusp of being able to create a social science research centre comparable to any in the world. My ambition is for HEARD to become one of the premier research institutions in Africa within three years," said Poku.

"I am motivated by a huge desire to make a contribution to understanding the complexities of African economics and societies. It drives my curiosity around inequality, drives my curiosity around injustice and re-doubles my effort to try to balance how we address social policy towards the poor."



▲ Executive Director of HEARD, Professor Nana Poku (second right) with some of the members of his research team.

Preserving and Promoting Indigenous Knowledge

The 'decolonisation' of education is currently a hot topic and the Department of Science and Technology (DST) – National Research Foundation (NRF) Centre in Indigenous Knowledge Systems (CIKS) at UKZN is at the forefront of initiatives to interface 'classical' Western ways of knowing with 'African traditional' wisdom.

“We are living in a polyepistemic world where diverse knowledge systems should be seen as complementary rather than competitive,” says Professor Hassan Kaya of the CIKS. The mandate of the CIKS as a national Centre is to preserve, protect and promote indigenous knowledge systems through research, postgraduate training, knowledge brokerage, networking and community engagement. The global knowledge economy is increasingly acknowledging the role of IKS in issues of public health, conflict transformation, food security, climate change and natural resource management. For instance, in 2015 the CIKS organised and hosted a colloquium on African Indigenous Approaches to Conflict Transformation and Peace Building attended by 42 international students from the 29th International Scholar Laureate Programme in the United States. The students came from diverse countries, including the United States, Canada, Brazil, the United Kingdom, Japan, Puerto Rico, Botswana, Guinea Conakry, Senegal, Australia, the Philippines and China. The programme served as a platform for building research partnerships and networks for emerging IKS researchers from within and outside Africa.

As part of promoting excellence in its research focus areas, the CIKS organised an International Conference on Indigenous Knowledge Systems

and Environmental Ethics: Implications for Peace-Building and Sustainable Development with representation from research and academic institutions in Ethiopia, Tanzania, the United States of America, the United Kingdom, Uganda, Rwanda, India, Sweden, Germany, Cameroon, Zimbabwe and Canada. The International Conference on Postgraduate Students' Research on Indigenous Knowledge Systems in Southern and Eastern Africa provided a platform for 100 postgraduate researchers from 18 institutions across Eastern and Southern Africa to share their IKS research experiences. These initiatives contribute towards building a critical mass of IKS human capital.

“But we go far beyond this,” continues Kaya. “Our activities in 2015 included publishing two IKS Special Issues in DHET accredited journals on our CIKS focus areas and enhancing IKS research capacity in other Southern African countries, including Rwanda and Namibia. The CIKS facilitated the formation of IKS Forums and policy development in these countries. Currently, South Africa is the only country in Africa with a national IKS policy.”

In the context of IKS in the education curriculum, Kaya indicates, “that the Centre is actively promoting a paradigm shift that emphasises the recognition of the science embedded in African indigenous knowledge and practices, such as indigenous farming systems; natural resource management and traditional medicine.”



Professor Hassan Kaya.

Taking Law to the People

UKZN's Centre for Socio-Legal Studies has spent the past 30 years taking law to the people so that they can use it in their everyday lives. To this end, it has developed the definitive manual on 'Street Law'.

“We want to make people aware of the law,” says Centre head Professor David McQuoid-Mason. “We show them how to use the law to protect or advance their rights, how to use law to help themselves. If they know the law they do not need to resort to violence to get what they want.”

During 2015, McQuoid-Mason helped to draft the United Nations Model Law for Legal Aid in Criminal Proceedings; edited and co-authored the long-awaited book on Street Law, and chaired the Global Alliance for Justice Education (an organisation that brings law clinics from around the world together) Conference in Turkey. McQuoid-Mason and the Centre have helped to launch 'Street Law' clinics in 60 countries around the world.

McQuoid-Mason published six DHET accredited articles, mostly on Medical Law and Ethics (to explain the law to doctors and health professionals); and has eight chapters in books in the process of being published or accepted for publication. In addition, he delivered 22 papers at international and local conferences and conducted 11 international workshops. In October 2015 McQuoid-Mason met Britain's Queen Elizabeth in his capacity as President of the Commonwealth Legal Education Association (CLEA) which represents over 2 000 law schools around the Commonwealth.

He also has an extremely active teaching schedule: “I teach Medical Law and Ethics to legal and healthcare professionals, LLM university students and other healthcare providers. I also promote education about human rights and democracy nationally and internationally; advise on and draft legal aid legislation for transitional countries; and have assisted overseas universities to establish law clinics. Many of the countries that have developed their own 'Street Law' manuals have based them on the South African model”.

◀ Professor David McQuoid-Mason.



Shining a Spotlight on the SABC

“We tend to think of the SABC as this monolithic institution that has always been a government mouthpiece,” says Professor Ruth Teer-Tomaselli of UKZN’s Centre for Communication, Media and Society, “but it has been a pioneer in many respects.”

“When World War II broke out, the SABC sent a mobile unit right to the frontline in North Africa. They made live recordings – sometimes even during battles – and broadcast them back to South Africa via London. This process took about 24 hours but brought the war into the homes of people throughout the world.”

A female journalist from the SABC was the first female reporter from the Commonwealth to report from the front, and the introduction of FM enabled directional broadcasting, which meant that the corporation could have regional radio stations across a scattered population and long

distances. Springbok Radio was the first public broadcaster in the world to be commercialised, which resulted in the strange duality of a public service broadcaster being a commercial radio station at the same time.

“The most important role of public radio in those days was for propaganda,” says Teer-Tomaselli. “That was not a bad thing then. It was used to counter German propaganda. However, later the SABC was turned into a mouthpiece for Afrikaner nationalism, and that really divided South Africa into the English/Afrikaans camps. When the SABC introduced the so-called Bantu stations, it divided the nation even further.”

She adds that, “This is an area of our history that has been extremely under-researched and under-referenced.” Her research aims to fill that gap.



◀ Professor Ruth Teer-Tomaselli.

Sutherland Telescope Arrives at UKZN

UKZN's School of Mathematics, Statistics and Computer Science proudly took delivery of its first telescope in 2015. This coincided with the introduction of the School's first Astronomy module.

Donated by the South African Astronomical Observatory (SAAO), the 0,75 metre telescope was off-loaded on the Westville campus, having arrived safely from Sutherland in the Northern Cape where it had been handed over.

UKZN and the University of the Free State were the two universities chosen from various applicants to each receive a telescope, having met SAAO's requirements that they be used for student training, advancing scientific research and public engagement.

Dr Matt Hilton of UKZN's Astrophysics and Cosmology Research Unit (ACRU), who travelled to Sutherland to help pack up the telescope for transportation along with Physics Lecturer Mr Mbuso Cele, said the School planned to build a housing installation for the telescope.

The measurement, '0,75', refers to the diameter of the telescope's primary mirror, which is 75cm. "The bigger the telescope mirror, the more light you can collect, allowing you to see more distant, fainter objects like galaxies," explained Hilton. "UKZN has never before had a telescope of this size. We will use it to give students hands-on experience of conducting simple observational astronomy research projects. There is a need for

this in the country, and we hope future UKZN graduates will be leading scientific investigations using facilities like the Southern African Large Telescope and the Square Kilometre Array."

Hilton said that once operational, members of the public would also be able to look through the telescope on public observing evenings.

"This is a major undertaking that is the first for the province," he said.

UKZN's telescope was previously used for various infrared and visible light studies of stars, including the supernova that exploded in 1987 in our nearest neighbouring galaxy, the Large Magellanic Cloud.



▼ UKZN's new telescope being unloaded on the Westville campus.





SOUTH AFRICAN RESEARCH CHAIRS INITIATIVE (SARChI)

The South African Research Chairs Initiative (SARChI) is a national intervention aimed at improving research and innovation capacity at public universities while responding to national social and economic challenges.

Antibiotic Resistance and One Health

Professor Sabiha Essack

UKZN's South African Research Chair in Antibiotic Resistance and One Health Professor Sabiha Essack aims to optimise the treatment of infections in humans and animals in the context of antibiotic resistance and antibiotic stewardship. The overarching goal is to help alleviate the antimicrobial resistance (AMR) burden in human, animal and environmental health.

Essack completed her B.Pharm, M.Pharm and PhD at the former University of Durban-Westville returning to the University in 1992 as a junior lecturer.

"I worked my way up the academic ladder, becoming a full professor before taking on leadership roles such as Head of the School of Pharmacy and Pharmacology and later Dean of the Faculty of Health Sciences."

In 2015, Essack and her team of about 30 postgraduate students focused on antibiotic resistance in the private sector where antibiotic use is unrestricted.

"The nature and extent of antibiotic resistance in the private sector is not very well researched so we as a group decided to focus on the private sector in Durban and were involved in several projects delineating the molecular basis of resistance."

Essack says antibiotic resistance is a global public health challenge affecting both developed and developing countries. "Resistance develops when bacteria no longer respond to antibiotics that previously killed the bacteria and cured infection."

"[It] emerges because of selection pressure from indiscriminate antibiotic use in humans, animals and the environment – the greater the

exposure to antibiotics, the greater the likelihood of bacteria mutating to become resistant to the antibiotic."

Essack – who is passionate about living and working in Africa – aims to help make a difference to the health of individuals and health systems in both human and animal spheres because infections are the most commonly encountered diseases and still the leading cause of death on this continent.

"If I can make some impact in optimising the management of infections in humans and animals as well as help to preserve and conserve antibiotics that are essential to health, I think I would have achieved something."



Applied Poverty Reduction Assessment

Professor Sarah Bracking

Professor Sarah Bracking's working life is dedicated to reducing poverty.

The UKZN SARCHI Chair in Applied Poverty Reduction Assessment since 2014 says she abhors economic injustice. "I actually really want to reduce the amount of poor people in the world – my work is not just a job!"

This commitment is borne out by the type of research she conducts with her team of senior and student researchers in the School of Built Environment and Development Studies on the Howard College campus. They are working on ways to reduce the scale and scope of poverty in South Africa by designing better ways to assess policy intervention and implementation.

"The programme begins from the concept of poverty as multi-dimensional and multi-causal with research covering the economic, political and environmental domains, focusing on how to ensure poverty reduction at both micro and macro scales," she said.

Bracking was awarded a PhD by Leeds University in England and worked at the University of Manchester for 12 years, becoming a full professor in 2012. She joined UKZN three years ago. She and her team were involved in several research projects in 2015.

"Three of these, sponsored by the European Union, involve policy to support pro-poor development – we are evaluating how climate change projects can reduce poverty, examining early childhood development in informal settlements, and looking at how to increase employment in KwaZulu-Natal." The research on climate change adaption and poverty co-benefits is conducted under an MoU between UKZN and eThekweni Municipality.

Reducing poverty "involves us in service delivery, housing, the impact of infrastructural building, and Black Economic Empowerment and its effect on economic justice, among others."

"We are also doing an investigation into people being displaced from their homes if the level of the Hazelmore Dam is increased; a survey on job availability in an area of Clairwood and a project in Umlazi looking at problems faced by people wanting a child grant."

The Chair receives annual funding of R3.2 million from the NRF, most of which is invested in employing senior and student researchers. Many of the junior researchers use the income earned to pay their university fees.

"I believe the SARCHI Chairs – there are a total of 198 nationally – are good investments in a variety of ways including their job creation capacity. Over the three years I have been at UKZN all of my student researchers have subsequently found employment."

► With UKZN's SARCHI Chair in Applied Poverty Reduction Assessment, Professor Sarah Bracking, are members of her research team (from left) Mr Celestin Mayombe, Ms Phindile Ngubane and Mr Andrew Okem.



Ecosystem Health and Biodiversity in KwaZulu-Natal and the Eastern Cape

Professor Colleen Downs

Globally the effects of anthropogenic land use change are impacting on biodiversity. Nowhere is the guardianship of South Africa's rich biodiversity more pressing than the eastern seaboard in the KwaZulu-Natal (KZN) and Eastern Cape Provinces.

Studying the health of these ecosystems is therefore a prime imperative for Professor Colleen Downs whose Chair encompasses long-term research into a number of key conservation initiatives, especially relating to terrestrial vertebrates.

"We are fortunate to have a team of highly motivated and passionate postgraduate students, who are engaged in important and far-reaching research" she explains.

"One of our aims is to gather knowledge that not only improves our understanding of the persistence of these species and their environment a great deal further but also serves as pointers to how we should care and manage an ever-changing environment."

A prime focus in the years ahead is the study of mammals, birds and herps relating to anthropogenic changing land use along a gradient from protected areas, and farmland to suburbia, and climate change effects.

Monitoring this biodiversity as well as the adaptive behaviours of these species in these changing environments forms a significant part of the research, involving more than 20 postgraduates.

"Some of the groundwork has already begun," says Downs. "Among the issues we have also focused on is the health and sustainability of mammals, birds and herps that inhabit small areas of natural habitat that remain in KZN and the Eastern Cape."

A corollary to that area of knowledge collection will be the study of various species that have had to adapt to an urban setting in the face of habitat degeneration. Included in this research dynamic is a study of vervet

monkeys and their proliferating numbers, particularly in KZN.

"Contrary to global trends where urbanisation generally negatively affects most wildlife species, we have found certain species increase in suburbia especially with few natural predators and plentiful food supplies. Some of these urban exploiters include hadedas, monkeys, porcupine, caracal, bush pigs, genets and feral cats and many birds of prey. This often leads to human-wildlife conflict."

On the other end of the scale there are many species that are under threat.

"Our research shows that fruit bats are being affected by the increased incidence of extreme hot days typical of climate change. We also need to understand how species cope with increased drought like crocodiles, hippos and terrapins at Ndumo."

To establish such a wide-ranging spectrum of new knowledge on these terrestrial vertebrate species, including the effects of anthropogenic change, requires funding.

"It is not always easy to find funding for research that has little immediate economic benefit, but thanks to a number of generous benefactors, we are able to continue our work," says Downs.

Current research donors include the Ford Wildlife Foundation, the Hans Hoheisen Trust, and Oppenheimer and Son.



Evolutionary Biology

Professor Steven Johnson

Not long ago, scientists might have poured cold water on the idea that certain pollen-producing plants were capable of enticing would-be pollinators through an evolving process of trickery. However, there is a highly developed and rapidly growing body of research that suggests that plants are capable of mimicking certain chemical signals to make themselves more attractive to potential pollen-carrying visitors.

Professor Steven Johnson of UKZN's School of Life Sciences on the Pietermaritzburg campus is at the forefront of this branch of research. His latest book, *Floral Mimicry* (Oxford University Press), co-authored with fellow scientist Florian Schiestl, sets out a convincing argument that understanding the chemical ecology of mimicry systems could lead to

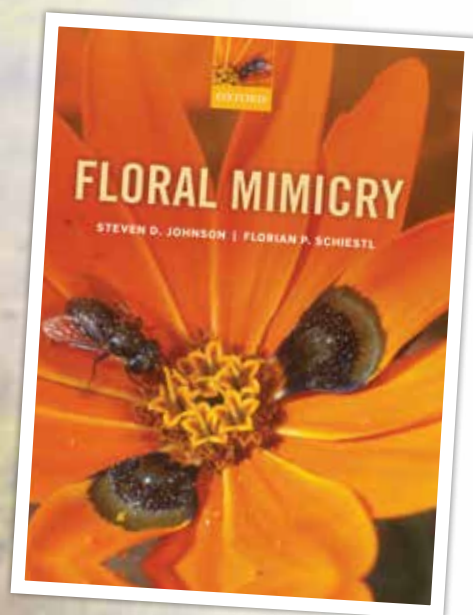
groundbreaking scientific discoveries. It's the first definitive book on the subject, providing a wider treatise on floral adaptation and plant evolution.

Explains Johnson: "Mimicry is a good example of how plants adapt by the process of natural selection. We have a good understanding of how mimicry works in animal defence. Now we are beginning to understand how a similar process works in plants."

A new generation of genomic tools is enabling scientists to uncover the genetic and developmental processes which underlie what he describes as "astonishing changes" that give rise to floral mimicry. "It makes a lot of sense. Plants can't move around – they are stuck in one place and have to work extra hard to entice animals to act as their pollen messengers."

The authors pay particular attention to the increasing body of research on chemical cues: their molecular basis, their role in cognitive misclassification of flowers by pollinators, and their implications for plant speciation.

Johnson has published or co-published more than 260 peer-reviewed articles in journals such as *Evolution*, *Ecology Letters* and *Trends in Ecology and Evolution*, as well as several books and book chapters. His book *Table Mountain: a Natural History*, which he co-authored with Anton Pauw, won both the UCT Merit Book Award and the UKZN General Book Prize. Together with Bill Liltved he produced the impressive two-volume monograph *The Cape Orchids*, which was followed by *Orchids of South Africa: a field guide*, written with Benny Bytebier. Johnson has acted as a reviewer for numerous other journals, and served on the editorial boards of *Oecologia*, *Arthropod-Plant Interactions*, and *Proceedings of the Royal Society: Biological Sciences*.



Fluorine Process Engineering and Separation Technology

Professor Deresh Ramjugernath

South Africa's abundance of strategic minerals makes it one of the most prolific exporters of raw materials in the world. It supports a multi-billion dollar global industry that converts raw products into a myriad of higher value products and industrial applications.

An eight-year research programme, supported by the Department of Science and Technology and aided by the Department of Trade and Industry, and led by Director of the Thermodynamics Research Unit at UKZN Professor Deresh Ramjugernath is examining the possibilities of developing chemical processing capabilities for beneficiation in South Africa.

It aims to determine whether local raw minerals like calcium fluoride (CaF_2), commonly referred to as Fluorspar, could be processed to the point where it can be used for beneficiation and high value applications, e.g. in local steel production, and in the manufacture of electrical and electronic equipment, plastics, refrigerants, pharmaceuticals, and many other products which are in high demand globally.

"One of the problems in South Africa has been the lack of expertise to undertake research and development with regard to beneficiation of raw materials in the chemical engineering sector," Ramjugernath explains. "Having said that there is a strong drive by government to establish beneficiation programmes which through research, development, and innovation can produce technologies which would have socio-economics benefit for the country."

He said that a number of chemical plants are already operational in South Africa, including Pelchem, a subsidiary of the South African Nuclear Energy Corporation (Necsa), which operates and maintain a portfolio of fluorochemical products in the local and international markets.

"A number of the current ARVs used in HIV treatment in the country have fluorine containing molecules. If capacity is developed within the country for synthesis of the active pharmaceutical ingredients in ARVs, it could benefit our own healthcare system and bring down costs."

Chemical processing equipment designed and developed during the research programme at UKZN is now in use in laboratories at the University.

"Our aim is to reach a stage where South African-developed research equipment can be sold on the overseas market," said Ramjugernath.

In the past decade Ramjugernath has graduated more than 80 masters and PhD students and is currently supervising or co-supervising over 30 postgraduate and post-doctoral students. He is passionate about human capacity development and is a strong believer in a collaborative approach to research capacity development.

► Professor Deresh Ramjugernath



Gender and Childhood Sexuality: Violence, Inequalities and Schooling

Professor Deevia Bhana

From the day Professor Deevia Bhana started her academic career at UKZN more than 18 years ago she has been involved in work in the field of Gender and Childhood Sexuality. A National Research Foundation (NRF) B2-rated researcher and professor in the School of Education, she has earned an impressive number of prestigious qualifications, awards and distinctions while being a prolific author and researcher.

"Ever since I began my doctorate in 1999 my work has been a coherent body, building knowledge around gender, children and sexuality," said Bhana.

"The role of the Chair is to bring together a cohort of researchers and postgraduate students to build a knowledge base around a very significant area of concern in this country ... children's vulnerability to – as well as participation in – gendered and sexual culture in relation to violence, sexual coercion and inequalities."

"My inquiries into children's sexual cultures and questions – aimed at enhancing HIV/AIDS, sex and health education, and gender equality – are informed by a cross-cutting approach drawing on the sociology of childhood, the political economy, and critical feminist and sexuality studies and masculinities," said Bhana.

"In addressing an area

of high significance, this approach is part of the reconceptualisation of childhoods and has led to a wider contextualisation, contributing to the global debate around gender and childhood sexualities."

Bhana's work has been published in a variety of leading journals including *Social Science and Medicine*; *Childhood, Culture, Health and Sexuality*, and *Gender and Education*.

Two research projects she and her team of postgraduate students focused on in 2015 were Stop the Violence: Boys and Girls in and Around Schools; and Learning from the Learners: gender and sexuality.

"Each of the projects is designed to attend to the social problems that exist in relation to gender inequalities, toxic forms of masculinity to learning about being a boy and being a girl in ways that produce gender hierarchies and a sense of male entitlements and girls docility."

"These projects intertwine and investigate not simply how children and young people enact their gendered and sexual roles and identities but also how key stakeholders can play a part by intervening and disrupting the dominant gender mores which work to produce this kind of culture of violence in schools, the country and the community."

Bhana's goals for the next five years are to increase the number of doctoral students who graduate under her supervision; increase the amount of research in her field; develop strong international relations and improve the visibility of the work of the Chair around children's sexual agency and interventions to curb gender inequalities and violence.



Gravitating Systems

Professor Sunil Maharaj

The head of UKZN's Astrophysics and Cosmology Research Unit Professor Sunil Maharaj is immersed in a vigorous academic debate involving the understanding of gravity in a branch of Astrophysics that still remains unclear.

His current research is steered towards the study of gravitational activity – be it dark matter or magnetic and electric fields – present in a group of highly dense stars, converting that knowledge into theoretical models that could align themselves with known and proven Einstein theories.

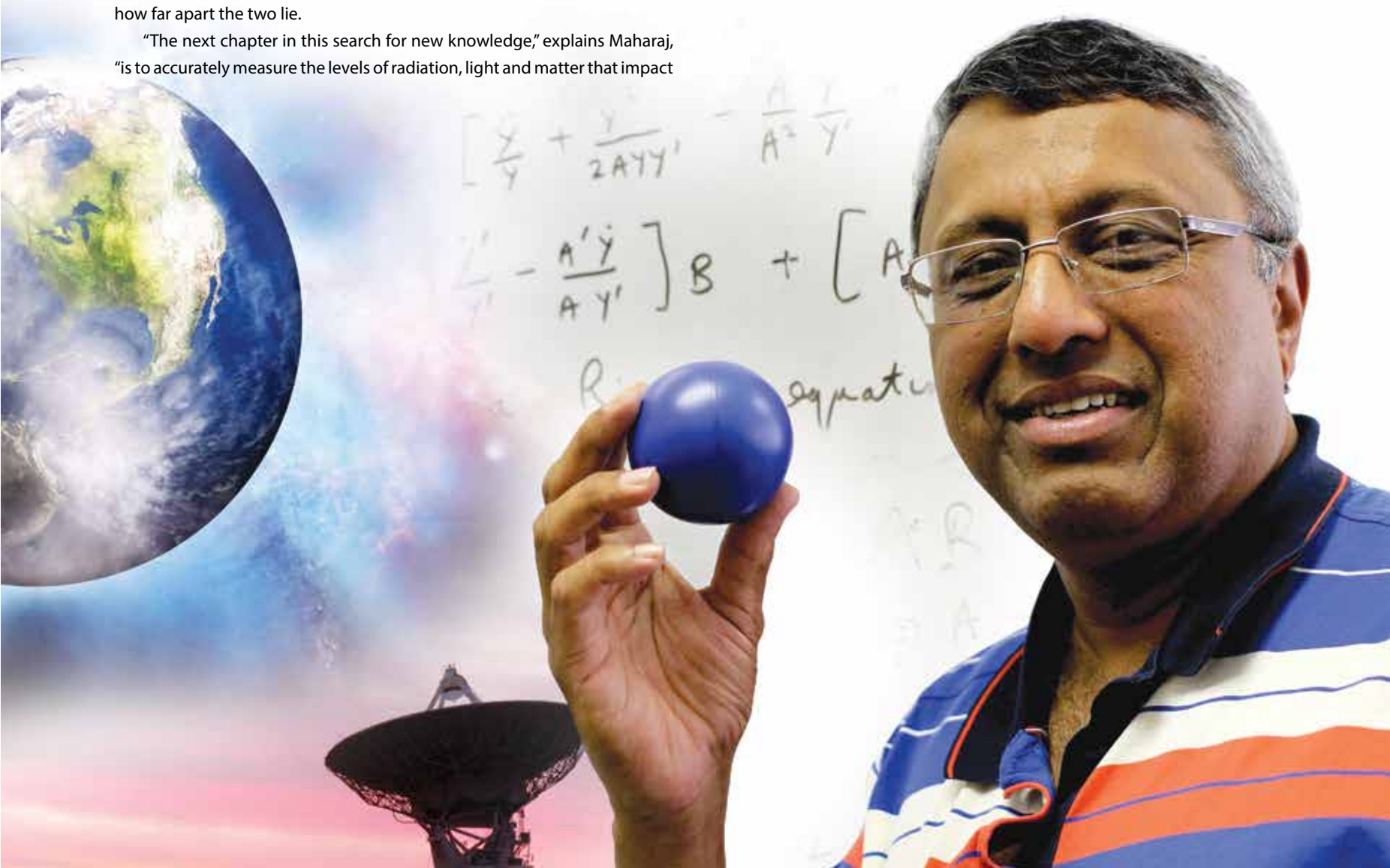
Maharaj clarifies that the Newton theory of universal gravity, which extrapolated the gravitational energy existing between two solar bodies, clearly fitted observations of that time. Newton theorised that the force tugging between two bodies depended on how massive each one is and how far apart the two lie.

"The next chapter in this search for new knowledge," explains Maharaj, "is to accurately measure the levels of radiation, light and matter that impact

on not two solar bodies, but three or more dense stars, using that specific data to create mathematical models – a family of solutions if you like – that could fit the classic Einstein theory."

As space exploration expands, scientists like Maharaj believe that it is imperative to find mathematical models to describe solar configurations other than our own binary system which involves a number of stars or planets revolving around the sun.

"If humankind is to go further into space, to Mars and beyond our own galaxy, these areas of research are critical. These are the exciting and game changing challenges we face. Once we have these models at our fingertips, it will be about which one is closest to the truth. That's where pure mathematics comes in."



Indigenous Healthcare Systems Research

Professor Exnevia Gomo

While traditional indigenous medicine has been and always will be an indelible part of the greater African legacy, discussion around its regulated use in mainstream health care has for the most part remained a sticking point.

Professor Exnevia Gomo, a former lecturer at the University of Zimbabwe, is leading a research initiative at UKZN that could contribute to taking traditional plant-based therapies to a ground breaking new level in South Africa. Since the beginning of this year, his Indigenous Health Care research department on the Howard College campus has been developing an investigative platform that will initially focus on the documentation of traditional treatments and properties contained in traditional medicines widely used in rural and peri-urban communities to treat wounds, cancer and diabetes. Other health challenges under the research spotlight are dysmenorrhea and anxiety.

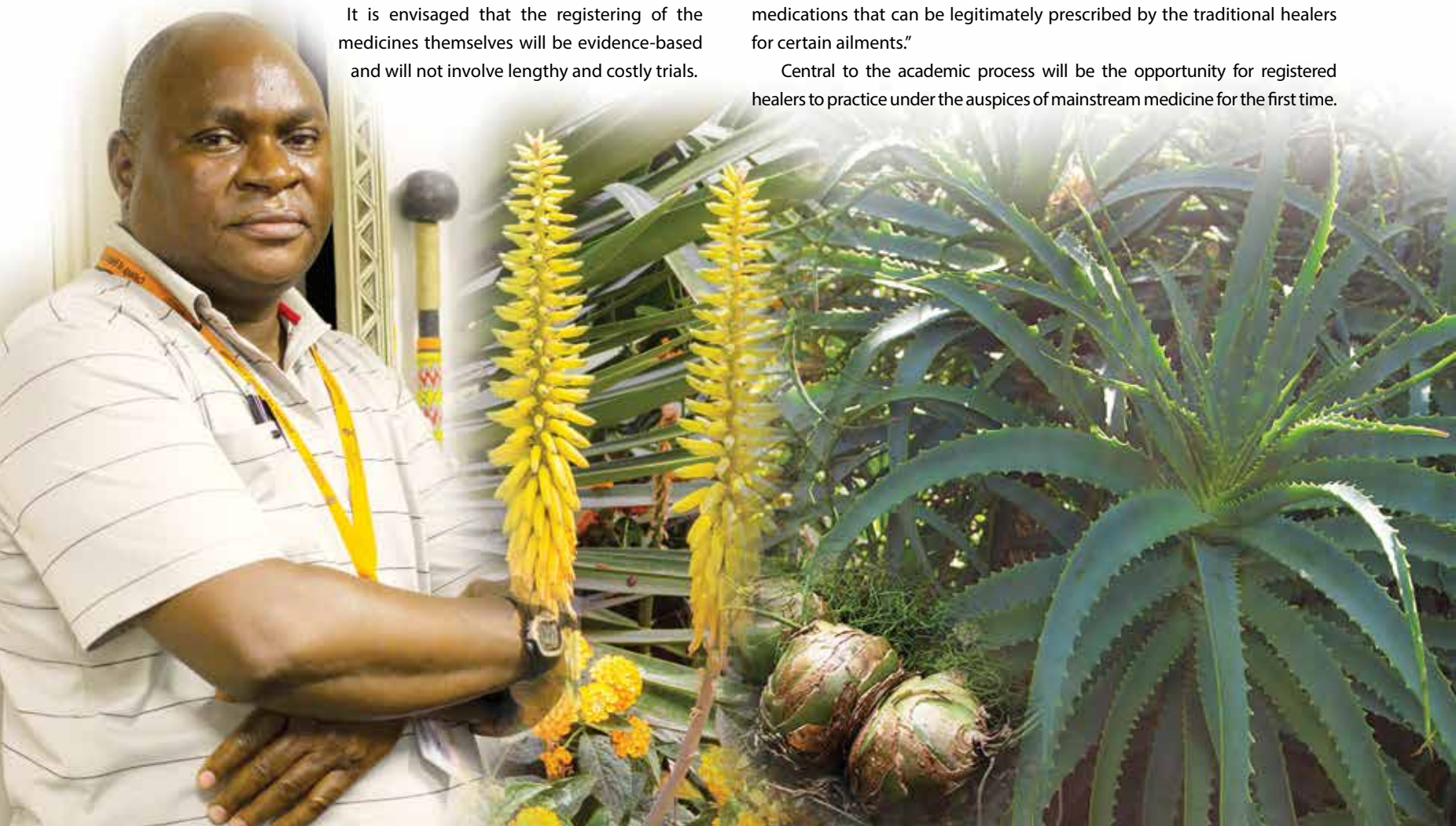
It is envisaged that the registering of the medicines themselves will be evidence-based and will not involve lengthy and costly trials.

“Gaining the trust of traditional healers is one of the major challenges,” says Gomo. “One can understand that much of the knowledge surrounding plant-based therapies has been passed down from family to family over centuries and is often a well-kept secret. There are also geographic differences when it comes to plant species, their uses and names. What may be used on the South Coast to treat an illness, for example, may be different from a medication used by a healer in another part of the country.”

Breaking this non-disclosure mould, he says, is about forging a lasting trust between scientist and traditional healer. Thereafter, it is a matter of establishing the efficacy and safety of the medications healers prescribe, as well as the optimum strength and dosage.

“Our initial research will focus on the best practice needed to register and train traditional healers so that they can take their place in mainstream medicine,” explains Gomo. “Taken one step further it will be to establish accredited training systems that encompasses registered plant based medications that can be legitimately prescribed by the traditional healers for certain ailments.”

Central to the academic process will be the opportunity for registered healers to practice under the auspices of mainstream medicine for the first time.



Indigenous Knowledge Systems and the Chemistry of Indigenous Medicinal Plants

Professor Fanie van Heerden

As a little girl running around barefoot on her parents' farm in the Karoo, Professor Fanie van Heerden developed an insatiable interest in wild plants. That interest grew as she did, eventually leading to her following a career as an academic specialising in the chemistry of medicinal plants.

Apart from her research work in natural product chemistry, van Heerden also lectures on the Pietermaritzburg campus of the School of Chemistry and Physics in the College of Agriculture, Engineering and Science.

With the "indispensable support" of several postgraduate students she is supervising, van Heerden's work in 2015 concentrated to a large extent on research into the medicinal properties of plants to fight cancer and HIV/AIDS; assist with problems during child birth and relieve and cure diabetes.

"I decided we should concentrate our research to help combat diseases that are particularly common and problematic in South Africa," she said.

Van Heerden joined UKZN in 2005 as a professor in Organic Chemistry after being at the University of Johannesburg in a similar position for several years.

"Although I was always interested in science I never thought I would end up as a chemist but a variety of academics I interacted with – including my PhD supervisor at the University of the Free State who was a phenomenal person – steered me in that direction and I am very glad they did."

Van Heerden says she has channelled her work in a direction that ensures her students find employment. "And so far I have been 100% successful! It's very important to me that my students specialise in their field – organic chemistry – as that will ensure they are in demand when they look for work."

What of future goals? "I want to continue with my research in the areas of infectious diseases as well as with cancer and diabetes. I would also like to discover a plant with activity which would be of significant benefit for either human or animal health; something that's going to make a positive difference."



Land Use Planning and Management

Professor Mathieu Rouget

Collaborative research that sets the wheels in motion for meaningful change, allows for inclusive solutions to many of life's most challenging issues.

Professor Mathieu Rouget is involved in a long-term collaborative and multi-pronged initiative to gather and generate knowledge on what is needed to protect eThekweni's rich and sensitive biodiversity.

"It's a partnership that is managing to close the gap between science and the development of local government policies," explains Rouget. "I think it works because all of us involved in the process have a single aim, which is to uplift communities and at the same time protect the environment for this and the next generation."

The research-based partnership, known as the Durban Research Action Partnership (D'RAP) is a joint initiative between eThekweni Municipality and UKZN.

Three research programmes are currently in full swing. The first two involve reforestation and global environmental change, while a more recent initiative is looking at a possible link between the natural environment and human health.

"We have found for example that pristine forest and riverine habitats like Paradise Valley in the Outer West serve as natural water filters. Our research teams at UKZN discovered that when river water entered the valley it was highly polluted, but by the time it exited the valley the water quality had significantly improved."

Rouget says that the fact that people living near rivers are healthier when the water is less polluted has significant policy implications. This is the kind of evidence that the city needs to take the necessary steps to upgrade and protect the environment and at the same time improve the quality of life for all its citizens.

"The good thing is that in a partnership like this we can freely exchange ideas and technical data as well as find ways to overcome barriers and stumbling blocks."



THE SARChI RESEARCH CHAIRS INVOLVED IN D'RAP

- Professor Sarah Bracking: Applied Poverty Reduction Assessment
- Professor Colleen Downs: Ecosystems Health and Biodiversity
- Professor Paramu Mafongoya: Rural Agronomy and Development
- Professor Mathieu Rouget: Land Use Planning Management

Proteolysis in Homeostasis Health and Disease

Professor Theresa Coetzer

More than 20 years of painstaking research into African trypanosomiasis (known as sleeping sickness in humans and nagana in animals), and particularly the proteolytic enzymes of the trypanosome parasites as diagnostic, vaccine and drug targets for this devastating disease, resulted in Professor Theresa Coetzer of the School of Life Sciences at UKZN being appointed a South African Research Chair in 2015. These appointments were awarded by the Department of Science and Technology (DST) and the National Research Foundation (NRF) to 42 female academics across the country during that year.

"There is still no vaccine for nagana," says Coetzer, "but it can be treated, although drug resistance is increasingly becoming a problem in Africa. Unfortunately nagana hits the poor rural farmer the hardest, and so we needed a diagnostic tool that we could use without electricity. What we have developed is a simple dipstick test, using a drop of blood. When the farmer knows his cattle have nagana, he can treat them."

"It is difficult to create a vaccine," she says, "because the invasive parasite changes its coat and subverts its victims' immune system. But this type of diagnostic test is simple and portable, and can be applied to other parasitic diseases, both in humans and animals."

Coetzer's research is also concentrated on finding new drugs to treat the disease in humans and animals, as no new drugs have been developed in more than 50 years.



Quantum Information Processing and Communication

Professor Francesco Petruccione

Despite the advances in encryption technology, security breaches are costing companies millions every year. While data communication designs are becoming increasingly complex, attackers are out there waiting to break the codes and steal sensitive data.

Algorithms that shape data have traditionally been the modus operandi of encryption specialists. Today you need to be one better to outwit those who are able to undo the algorithms' numerical twists and turns.

Professor of Theoretical Physics at UKZN and Head of the Centre for Quantum Technology, Professor Francesco Petruccione believes that random number generation through quantum physics is the answer.

"The laws of quantum physics don't change," he points out. "When you use the randomisation that quantum physics gives you, data is always safe. Yes, there could be fault lines in the setting up of a system, but not with the quantum physics laws themselves. Those cannot change."

Petruccione and a team of fellow physicists are working on the prototype

of a Quantum Cryptography system that has all the promise of being fool proof. Their efforts are made possible by a generous R500 000 grant from the South African government's Technical Innovation Fund.

These advancements would have major benefits for the banking sector, a prime target for professional hackers.

"For scientists like myself working in this field, the future of quantum cryptography is very exciting. We will need the support of funders and venture capitalists, but the benefits are incalculable," says Petruccione. As part of a long-term project, he and his team are realising a quantum key distribution system.

He explains that, using a quantum protocol, a cryptographic key is encoded into the polarisation states of single photons (qubits). The transmission of the key from one party to another is secured by the laws of quantum mechanics.

The flagship project of Petruccione's Research Group was the realisation of a quantum network in eThekweni Municipality's fibre optics network, which marked Durban as the first Quantum City in the country.

FACT FILE

The basic concept of Quantum Information Processing and Communication (QIPC) is that information is stored, processed and communicated according to the laws of quantum physics: the classical 'bit' is replaced by the quantum mechanical 'qubit'. This 'quantum' dimension enables Quantum Computers to perform tasks that cannot be achieved with conventional Internet technology.

Rural Agronomy and Development

Professor Paramu Mafongoya

Professor Paramu Mafongoya spent his third year as SARChI Chair in Agronomy and Rural Development at UKZN graduating five MSc and one PhD students. His other highlight for 2015 was the publication of a book, *Use of Indigenous Knowledge in Managing Climate Change*, which brings together his more than 30 years of research experience in agriculture, development, education and integrated resources management.

"Rural farmers have lived with droughts and floods for thousands of years," he says, "and so they have a wealth of indigenous knowledge about how to cope with climate change. When our team interviewed rural farmers, we were astonished to find how closely their predictions and observations correlated with what we regard as 'mainstream science'. For instance, they predicted the El Nino weather phenomenon of 2015/16 months before it took effect."

The farmers told the researchers how they were able to predict rainfall

through the flowering of certain trees; changes in animal behaviour; and even astronomical observation. They knew that temperatures were rising, that rainfall patterns had become uncertain, and that drought was imminent. Their observations corroborated existing long term meteorological records.

"When we presented this information to the international community," continues Mafongoya, "they become very excited. They want to integrate indigenous knowledge with accepted scientific knowledge. This will open up access to information to a much wider population."

Assisting rural farmers to predict and manage climate change, using their traditional methods, will ameliorate future challenges which could affect food security across sub-Saharan Africa.

The book is being written and produced in collaboration with CTA, the Technical Centre for Agriculture and Rural Co-operation (ACP-EU), based in The Netherlands.



Systems Biology of HIV/AIDS

Professor Thumbi Ndung'u

While antiretroviral therapy has revolutionised the way patients are treated for HIV/AIDS, other game-changing strategies to combat the global scourge are coming to light.

At the forefront of new research initiatives is Kenyan-born scientist, Professor Thumbi Ndung'u, whose groundbreaking work on cloning the virus, understanding viral vulnerability and immune control has received world-wide acclaim. He is the Scientific Director of the HIV Pathogenesis Programme (HPP) at the Doris Duke Medical Research Institute, UKZN and also holds the Victor Daitz Chair in HIV/TB Research.

Ndung'u is quick to point out that, "as everyone working in this field will tell you there is no letting

up on the urgency to find out more about this disease and how best to prevent, control – or eradicate it." He believes the tentative use of the words "functional cure" have marked a new era in HIV research.

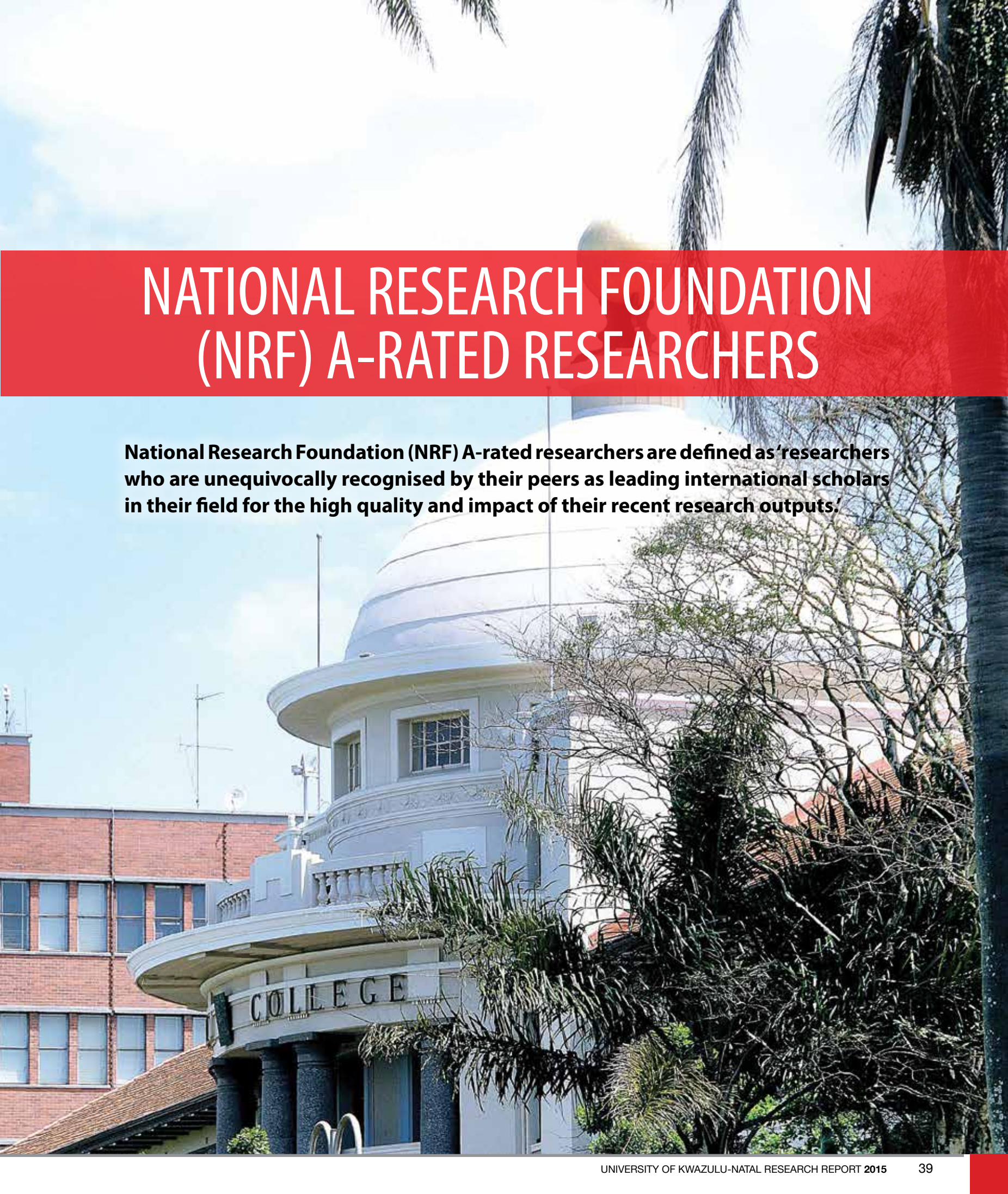
"The well documented cases of the Berlin man and the Mississippi baby have shown that a functional cure is possible. The next steps in this journey are certainly going to change the landscape one way or another."

Ndung'u currently heads a research study among volunteers in Umlazi outside Durban looking at the feasibility of treating the disease with ARVs in its very early stages, or even as a preventative measure for those who are uninfected but who are at high risk of HIV infection.

"We know that while the benefits are huge, long-life ARVs are not the magic bullet," he says. "There are certain immune complications associated with ARVs which we believe can be reduced with early treatment. We want to see whether hitting the disease hard and early reduces the viral reservoirs, improves immune responses and limits the risk of transmission."

He adds that, "every day we are learning more. The idea that patients can one day come off their HIV medication is not as far-fetched as we once thought."





NATIONAL RESEARCH FOUNDATION (NRF) A-RATED RESEARCHERS

National Research Foundation (NRF) A-rated researchers are defined as 'researchers who are unequivocally recognised by their peers as leading international scholars in their field for the high quality and impact of their recent research outputs.'

National Research Foundation (NRF) A-Rated Researchers



Professor Michael Chapman



Professor Rob Gous



Professor Linda Richter



Professor Fernando Albericio



Professor Steve Johnson



Professor Quarraisha Abdool Karim

New A-rated Researcher

Professor Craig Packer

Professor Craig Packer of the Department of Ecology, Evolution and Behaviour of the University of Minnesota and an honorary professor at UKZN obtained an NRF A-rating in 2015. One of the world's leading experts on lion behaviour and known for his outspoken views, he is sceptical of the conservation value of sport hunting, maintaining that it does more harm than good in most African countries, because hunting revenues are often inadequate to conserve wildlife. But he is a passionate advocate of South Africa's 'restoration ecology' movement.

"South Africa lost most of its wildlife by the beginning of the 20th century," he says. "This process is now repeating itself across most of Africa. As people push into wild areas, contact with wildlife causes problems, and people retaliate against dangerous species like elephants and lions. South Africa solved this problem by fencing their park boundaries to protect rural communities from dangerous species. Further, with the economic and political changes over the past 35 years, many of the country's cattle farmers shifted to game ranching, and recognised the growing value of wildlife tourism. So they first established healthy populations of herbivore species before introducing predators such as lions, cheetahs and wild dogs. But the predators often breed so successfully – especially in the smallest reserves – that excess carnivores try to break out through the fences and prey populations may start to collapse. Then you have to resort to culling highly charismatic animals, which is not acceptable to the general public."

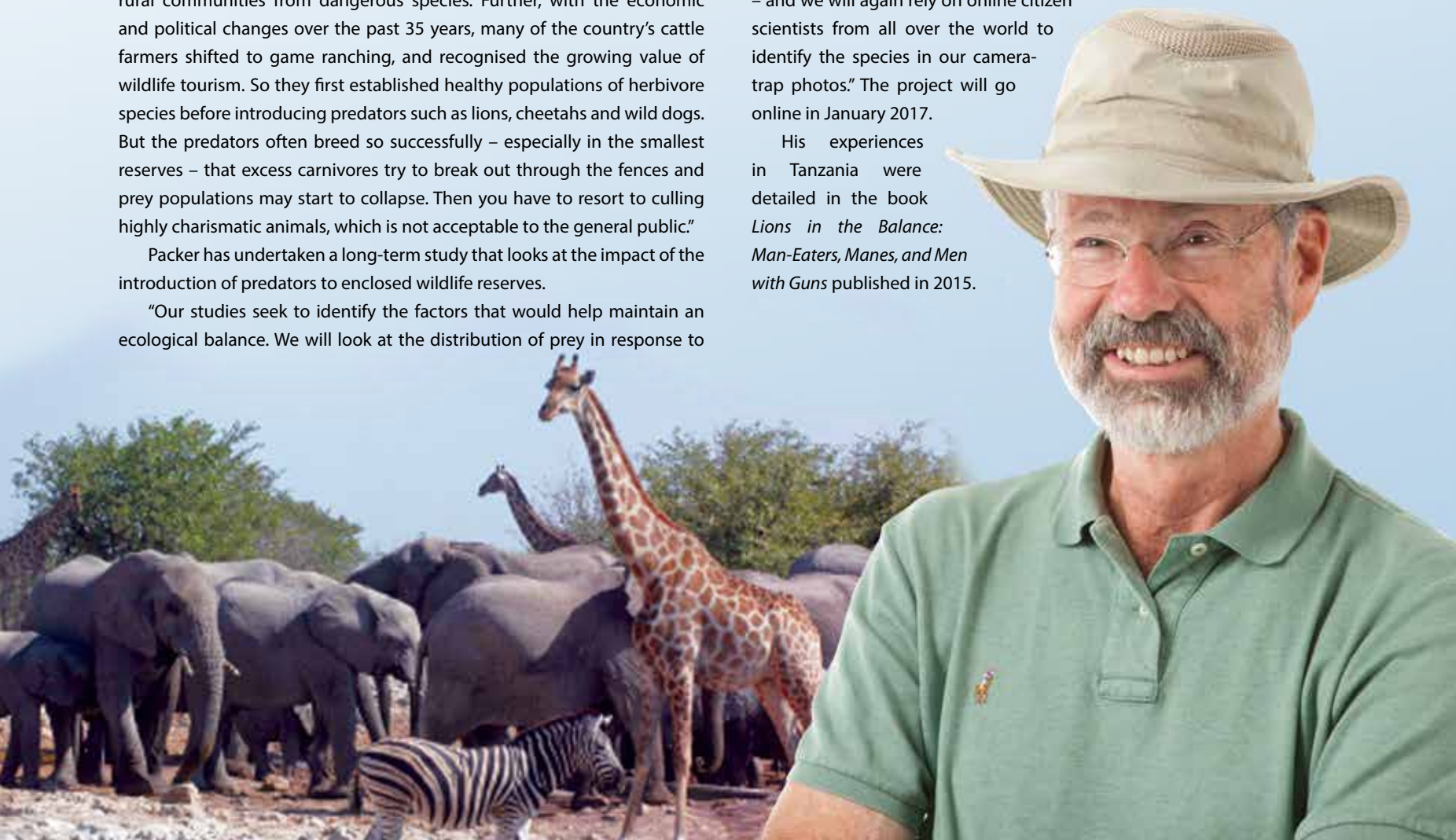
Packer has undertaken a long-term study that looks at the impact of the introduction of predators to enclosed wildlife reserves.

"Our studies seek to identify the factors that would help maintain an ecological balance. We will look at the distribution of prey in response to

predator reintroductions, the location of potential 'refuges' for the prey, and the sizes of the prey and predator populations. We will involve dozens of South African scientists and researchers on the ground to gather the data in 20-30 parks – some which have introduced predators and some which haven't. We concentrate on lions in particular, as they have the biggest impact on their environment. We hope to make concrete recommendations to reserve managers so that they can ensure the viability of these ecosystems."

Before shifting his research programme to South Africa, Packer tracked lions in Tanzania for 36 years, gathering most of the current knowledge about lion behaviour. He started a large-scale camera-trap project in Serengeti in 2011 to measure how different animal species moved around with respect to each other in a 1,000 km² area. "SnapshotSerengeti was a prelude for our much larger project in South Africa, which we will call SnapshotSafari – and we will again rely on online citizen scientists from all over the world to identify the species in our camera-trap photos." The project will go online in January 2017.

His experiences in Tanzania were detailed in the book *Lions in the Balance: Man-Eaters, Manes, and Men with Guns* published in 2015.



NRF-Rated Researchers

College of Agriculture, Engineering and Science			
Title	Surname	First Name	School/Research Unit
Dr	Bertling	Isa	Agricultural, Earth and Environmental Sciences
Professor	Bob	Urmilla	Agricultural, Earth and Environmental Sciences
Professor	Chimonyo	Michael	Agricultural, Earth and Environmental Sciences
Professor	Derera	John	Agricultural, Earth and Environmental Sciences
Professor	Gous	Robert M	Agricultural, Earth and Environmental Sciences
Professor	Green	Jannette Maryann	Agricultural, Earth and Environmental Sciences
Dr	Green	Andrew Noel	Agricultural, Earth and Environmental Sciences
Professor	Hill	Trevor	Agricultural, Earth and Environmental Sciences
Professor	Hughes	Jeffrey Charles	Agricultural, Earth and Environmental Sciences
Dr	Jachowski	David	Agricultural, Earth and Environmental Sciences
Professor	Laing	Mark Delmege	Agricultural, Earth and Environmental Sciences
Dr	Magwaza	Lembe	Agricultural, Earth and Environmental Sciences
Professor	Maharaj	Brijlall	Agricultural, Earth and Environmental Sciences
Dr	Misra	Saumitra Kumar	Agricultural, Earth and Environmental Sciences
Professor	Modi	Albert Thembinkosi	Agricultural, Earth and Environmental Sciences
Professor	Muchaonyerwa	Pardon	Agricultural, Earth and Environmental Sciences
Professor	Mutanga	Onisimo	Agricultural, Earth and Environmental Sciences
Professor	Ortmann	Gerald Friedel	Agricultural, Earth and Environmental Sciences
Professor	Proches	Serban	Agricultural, Earth and Environmental Sciences
Professor	Rouget	Mathieu Jean Francois	Agricultural, Earth and Environmental Sciences
Professor	Savage	Michael John	Agricultural, Earth and Environmental Sciences
Professor	Shimelis	Hussein	Agricultural, Earth and Environmental Sciences
Dr	Warburton	Michele Lynn	Agricultural, Earth and Environmental Sciences
Professor	Zegeye	Edilegnaw Wale	Agricultural, Earth and Environmental Sciences
Professor	Albericio	Fernando	Chemistry and Physics
Professor	Bala	Muhammad	Chemistry and Physics
Professor	Bharuth-Ram	Krishanlal	Chemistry and Physics
Dr	Chetty	Naven	Chemistry and Physics
Professor	Coombes	Philip Hugh	Chemistry and Physics
Professor	Ford	Tony,A	Chemistry and Physics
Professor	Friedrich	Holger Bernhard	Chemistry and Physics
Professor	Hellberg	Manfred Armin	Chemistry and Physics
Professor	Hey	John Douglas	Chemistry and Physics
Professor	Jaganyi	Deogratius	Chemistry and Physics
Professor	Jonnalagadda	Sreekantha Babu	Chemistry and Physics
Professor	Konrad	Thomas	Chemistry and Physics

College of Agriculture, Engineering and Science			
Title	Surname	First Name	School/Research Unit
Professor	Mace	Richard Lester	Chemistry and Physics
Dr	Maguire	Glenn	Chemistry and Physics
Dr	Matthews	Alan	Chemistry and Physics
Professor	Mola	Genene Tessema	Chemistry and Physics
Dr	Moyo	Thomas	Chemistry and Physics
Dr	Msomi	Justice Zakhele	Chemistry and Physics
Professor	Munro	Orde Quentin	Chemistry and Physics
Professor	Nyamori	Vincent Onserio	Chemistry and Physics
Dr	Ojwach	Otieno Stephen	Chemistry and Physics
Dr	Owaga	Bernard Omond	Chemistry and Physics
Professor	Packer	Craig	Chemistry and Physics
Dr	Pellicane	Giuseppe	Chemistry and Physics
Professor	Petrucione	Francesco	Chemistry and Physics
Professor	Robinson	Ross Stuart	Chemistry and Physics
Dr	Sergi	Alessandro	Chemistry and Physics
Professor	Sievers	Leroy Jonathan	Chemistry and Physics
Dr	Sinayskiy	Ilya	Chemistry and Physics
Professor	Tame	Mark	Chemistry and Physics
Professor	Van Heerden	Fanie Retief	Chemistry and Physics
Professor	Van Zyl	Werner Ewald	Chemistry and Physics
Professor	Venkataraman	Sivakumar	Chemistry and Physics
Dr	Yacoob	Sahal	Chemistry and Physics
Dr	Zunckel	Caroline L	Chemistry and Physics
Professor	Adali	Sarp	Engineering
Professor	Afullo	Tomas JO	Engineering
Professor	Bezuidenhout	Carel Nicolaas	Engineering
Professor	Bright	Glen	Engineering
Professor	Carsky	Milan	Engineering
Professor	Govender	Saneshan	Engineering
Dr	Harinarain	Nishani	Engineering
Professor	Haupt	Theodore Conrad	Engineering
Professor	Jewitt	Graham Paul Wyndham	Engineering
Professor	Meikap	Bhim Charan	Engineering
Professor	Ojo	Joseph	Engineering
Professor	Pegram	Geoffrey Guy Sinclair	Engineering
Professor	Ramjugernath	Deresh	Engineering
Professor	Rawatlal	Randhir	Engineering
Dr	Sithole	Bruce	Engineering
Professor	Smithers	Jeffrey Colin	Engineering
Professor	Stopforth	Riaan	Engineering
Professor	Stretch	Derek Dewey	Engineering
Professor	Tapamo	Jules-Raymond	Engineering
Professor	Trois	Cristina	Engineering

College of Agriculture, Engineering and Science			
Title	Surname	First Name	School/Research Unit
Professor	Workneh	Tilahun Seyoum	Engineering
Professor	Xu	Hongjun	Engineering
Dr	Egoh	Benice Nchine	Land Use Planning and Management
Professor	Ariatti	Mario	Life Sciences
Professor	Beckett	Richard Peter	Life Sciences
Dr	Brown	Mark	Life Sciences
Dr	Bytebier	Benny LG	Life Sciences
Dr	Chenia	Hafizah Yousuf	Life Sciences
Professor	Coetzer	Theresa Helen	Life Sciences
Professor	Downs	Colleen Thelma	Life Sciences
Professor	Finnie	Jeffrey Franklin	Life Sciences
Dr	Glassom	David	Life Sciences
Professor	Goldring	Dean James Philip	Life Sciences
Dr	Griffiths	Megan E	Life Sciences
Dr	Gueguim Kana	GK Evariste Bosco	Life Sciences
Professor	Hart	Robert Clynton	Life Sciences
Dr	Islam	M Shahidul	Life Sciences
Professor	Johnson	Steven Dene	Life Sciences
Dr	Juergens	Andreas	Life Sciences
Dr	Light	Marnie E	Life Sciences
Professor	Lin	Johnson	Life Sciences
Professor	Lovegrove	Barry Gordon	Life Sciences
Professor	Mukaratirwa	Samson	Life Sciences
Professor	Naidoo	Gonasageran	Life Sciences
Dr	Naidoo	Yougaspfree	Life Sciences
Dr	Niesler	Carola Ulrike	Life Sciences
Professor	Olaniran	Ademola Olufolahan	Life Sciences
Professor	Pammenter	Norman William	Life Sciences
Professor	Perrin	Michael Richard	Life Sciences
Professor	Pillay	Balakrishna	Life Sciences
Dr	Robertson-Andersson	Debrah V	Life Sciences
Dr	Scharler	Ursula Michaela	Life Sciences
Professor	Schmidt	Stefan	Life Sciences
Dr	Schoeman	Corrie	Life Sciences
Prof	Scogings	Peter	Life Sciences
Dr	Shrader	Adrian Morgan	Life Sciences
Dr	Shuttleworth	Adam	Life Sciences
Dr	Singh	Nisha	Life Sciences
Dr	Singh	Moganavelli	Life Sciences
Professor	Slotow	Robert Hugh	Life Sciences
Dr	Smit	Arbertus Jacobus	Life Sciences
Dr	Stirk	Wendy A	Life Sciences
Dr	Stone	Robert Douglas	Life Sciences

College of Agriculture, Engineering and Science

Title	Surname	First Name	School/Research Unit
Professor	Thandar	Ahmed Suleman	Life Sciences
Professor	Van Staden	Johannes	Life Sciences
Dr	Vanak	Abi Tamim	Life Sciences
Professor	Ward	David M	Life Sciences
Professor	Watt	Maria Paula Mousaco	Life Sciences
Dr	Willows-Munro	Sandi	Life Sciences
Dr	Goswami	Rituparno	Mathematics Statistics and Computer Science
Professor	Baboolal	Dharmanand	Mathematics, Statistics and Computer Science
Professor	Banasiak	Jacek	Mathematics, Statistics and Computer Science
Professor	Bau	Sheng	Mathematics, Statistics and Computer Science
Professor	Govinder	Keshlan Sathasiva	Mathematics, Statistics and Computer Science
Dr	Hilton	Matthew James	Mathematics, Statistics and Computer Science
Professor	Leach	Peter	Mathematics, Statistics and Computer Science
Professor	Maharaj	Sunil	Mathematics, Statistics and Computer Science
Professor	Massamba	Fortune	Mathematics, Statistics and Computer Science
Professor	Moodley	Kavilan	Mathematics, Statistics and Computer Science
Professor	Motsa	Sandile Sydney	Mathematics, Statistics and Computer Science
Professor	Mukwembi	Simon	Mathematics, Statistics and Computer Science
Professor	Pillay	Nelishia	Mathematics, Statistics and Computer Science
Professor	Ray	Subharthi	Mathematics, Statistics and Computer Science
Professor	Rodrigues	Bernardo Gabriel	Mathematics, Statistics and Computer Science
Professor	Sibanda	Precious	Mathematics, Statistics and Computer Science
Dr	Varzinczak	Ivan J	Mathematics, Statistics and Computer Science
Professor	Viriri	Serestina	Mathematics, Statistics and Computer Science
Professor	Zewotir	Temesgen	Mathematics, Statistics and Computer Science
Dr	Chiang	Hsin Cynthia	Mathematics, Statistics and Computer Science

College of Health Sciences

Title	Surname	First Name	School/Research Unit
Dr	Bland	Ruth Margaret	Africa Centre
Dr	Herbst	Abraham Jacobus	Africa Centre
Professor	Newell	Marie Louise	Africa Centre
Dr	Rochat	Tamsen Jean	Africa Centre
Professor	Tanser	Frank Courteney	Africa Centre
Professor	Pillay	Deenan	Africa Centre
Dr	Rodseth	Reitze Nils	Anaesthetics
Professor	Abdool Karim	Quarraisha	CAPRISA
Professor	Singh	Jerome	CAPRISA
Dr	Abbai	Nathlee	Clinical Medicine
Professor	Bhimma	Rajendra	Clinical Medicine
Professor	Biccard	Bruce McClure	Clinical Medicine
Professor	Burns	Jonathan Kenneth	Clinical Medicine

College of Health Sciences			
Title	Surname	First Name	School/Research Unit
Professor	Coutsoudis	Anna	Clinical Medicine
Professor	Madiba	Thandinkosi Enos	Clinical Medicine
Professor	Mody	Girish M	Clinical Medicine
Professor	Moodley	Jagidesa	Clinical Medicine
Professor	Moodley	Dhayendre	Clinical Medicine
Dr	Mosam	Anisa	Clinical Medicine
Professor	Naidoo	Datshana P	Clinical Medicine
Professor	Naidoo	Rajen N	Clinical Medicine
Dr	Adeniyi	Adebayo	Health Sciences
Professor	Arvidsson	Per	Health Sciences
Professor	Chuturgoon	Anil	Health Sciences
Professor	Essack	Sabiha, Y	Health Sciences
Professor	Govender	Thavendran	Health Sciences
Professor	Grosset	Jacques HE	Health Sciences
Professor	Hickner	Robert	Health Sciences
Professor	Kruger	Hendrik Gerhardus	Health Sciences
Professor	McKune	Andrew James	Health Sciences
Professor	Oduntan	Olalekan Alabi	Health Sciences
Professor	Soliman	Mohmoud Elsayed	Health Sciences
Professor	Suleman	Fatima	Health Sciences
Professor	Naicker	Thajasvarie kisten	Laboratory Medicine and Medical Sciences
Dr	Azu	Onyemaechi Okpara	Laboratory Medicine and Medical Sciences
Professor	Das	Gobardhan D	Laboratory Medicine and Medical Sciences
Dr	Mabandla	Musa Vuyisile	Laboratory Medicine and Medical Sciences
Professor	Mackraj	Irene	Laboratory Medicine and Medical Sciences
Dr	Mann	Jaclyn Wright	Laboratory Medicine and Medical Sciences
Professor	Ndung'u	Peter Thumbi	Laboratory Medicine and Medical Sciences
Dr	Pillay	Manormoney (Cookie)	Laboratory Medicine and Medical Sciences
Professor	Satyapal	Kapil Sewsaran	Laboratory Medicine and Medical Sciences
Dr	Thobakgale	Christina Fanesa	Laboratory Medicine and Medical Sciences
Professor	Musabayane	Cephas Tagumirwa	Laboratory Medicine and Medical Sciences
Professor	Brysiewicz	Petra	Nursing and Public Health
Dr	Kvalsvig	Jane Dene	Nursing and Public Health
Dr	Moshabela	Mosa M	Nursing and Public Health
Professor	Taylor	Myra	Nursing and Public Health
Professor	Naidoo	Kovin	Optometry
Dr	Bodenstein	Johannes	Pharmacology
Dr	Honarparvar	Bahareh	Pharmacology
Dr	Karpoormath	Rajshekhar	Pharmacology

College of Humanities			
Title	Surname	First Name	School/Research Unit
Dr	Akintola	Olagoke	Applied Human Sciences
Professor	Bhana	Arvin	Applied Human Sciences
Professor	Collings	Steven John	Applied Human Sciences
Professor	Durrheim	Kevin Locksley	Applied Human Sciences
Professor	McCracken	Donal Patrick	Applied Human Sciences
Professor	Petersen	Inge	Applied Human Sciences
Professor	Potgieter	Cheryl A	Applied Human Sciences
Professor	Richter	Linda M	Applied Human Sciences
Professor	Singh	Shanta	Applied Human Sciences
Professor	Teer-Tomaselli	Ruth Elizabeth	Applied Human Sciences
Professor	Tomaselli	Keyan Gray	Applied Human Sciences
Professor	Alant	Jacob Willem	Arts
Professor	Chapman	Michael JF	Arts
Professor	Coullie	Judith E	Arts
Professor	De Meyer	Bernard Albert Marcel Sylvain	Arts
Professor	Dimitriu	Ileana	Arts
Professor	Green	Michael M	Arts
Professor	Leeb-Du Toit	Juliette C	Arts
Professor	Stiebel	Eelyn Alexandra Lindy	Arts
Professor	Stobie	Cheryl	Arts
Professor	Turner	Noleen Sheila	Arts
Dr	Wessels	Michael A	Arts
Professor	Wildsmith-Cromarty	Rosemary	Arts
Professor	Zeller	Jochen Klaus	Arts
Professor	Bond	Patrick JP	Built Environment and Development Studies
Professor	Bracking	Sarah Louise	Built Environment and Development Studies
Dr	Casale	Daniela Maria	Built Environment and Development Studies
Professor	Maharaj	Pranitha	Built Environment and Development Studies
Professor	Mare	Paul Ggerhardus	Built Environment and Development Studies
Professor	Posel	Dorrit	Built Environment and Development Studies
Professor	Scott	Dianne M	Built Environment and Development Studies
Professor	Xaba	Thokozani Timothy	Built Environment and Development Studies
Professor	Bansilal	Sarah	Education
Dr	Bertram	Carol Anne	Education
Professor	Bhana	Deevia	Education
Professor	Buthelezi	M Thabisile	Education
Professor	Chikoko	Vitallis	Education
Professor	De Villiers	Michael David	Education
Professor	Deacon	Roger A	Education
Dr	Dempster	Edith	Education
Dr	Govender	Desmond Wesley	Education
Professor	Maistry	Suriamurthee Moonsamy	Education
Professor	Moletsane	Relebohile	Education
Professor	Muthukrishna	Anbanithi	Education

College of Humanities			
Title	Surname	First Name	School/Research Unit
Dr	Pillay	Guruvasagie (Daisy)	Education
Dr	Pithouse-Morgan	Kathleen Jane	Education
Professor	Preece	Julia	Education
Professor	Ramrathan	Prevanand/Labby	Education
Professor	Samuel	Michael	Education
Dr	Singh	Shakila	Education
Dr	Van Laren	Linda	Education
Professor	Hiralal	Kalpana	History
Professor	Christiansen	Iben Maj	Religion, Philosophy and Classics
Professor	Collier	John D	Religion, Philosophy and Classics
Professor	Denis	Philippe Marie Berthe Raoul	Religion, Philosophy and Classics
Professor	Draper	Jonathan Alfred	Religion, Philosophy and Classics
Professor	Ebrahim	Mohsin AF	Religion, Philosophy and Classics
Dr	Efthimiadis-Keith	Helen	Religion, Philosophy and Classics
Professor	Hilton	John Laurence	Religion, Philosophy and Classics
Professor	Lenta	Patrick Joseph Peter	Religion, Philosophy and Classics
Dr	Matolino	Bernard	Religion, Philosophy and Classics
Professor	Nadar	Sorjini	Religion, Philosophy and Classics
Professor	Penumala	Pratap Kumar	Religion, Philosophy and Classics
Professor	Spurrett	David	Religion, Philosophy and Classics
Professor	West	Gerald O	Religion, Philosophy and Classics
Professor	Freund	William Mark	Social Sciences
Professor	Khan	Sultan	Social Sciences
Professor	Marschall	Sabine	Social Sciences
Professor	Mutula	Stephen M	Social Sciences
Dr	Naidu	Maheshvari	Social Sciences
Dr	Narsiah	Inbersagran	Social Sciences
Professor	Parle	Julie	Social Sciences
Professor	Sooryamoorthy	Radhamany	Social Sciences
Professor	Stilwell	Christine	Social Sciences
Professor	Vahed	Goolam Hoosen Mohamed	Social Sciences

College of Law and Management Studies			
Title	Surname	First Name	School/Research Unit
Professor	Harris	Geoffrey Thomas	Accounting, Economics and Finance
Professor	Stainbank	Lesley June	Accounting, Economics and Finance
Dr	Casale	Marisa Angela Judy	HEARD
Dr	Hanass-Hancock	Jill	HEARD
Professor	Whiteside	Alan Walter	HEARD
Dr	Govender	Irene	Information Systems and Technology
Professor	Brijball Parumasur	Sanjana	Management, IT and Governance
Professor	Mubangizi	Betty Claire	Management, IT and Governance
Professor	Reddy	Purshotta-Masivanar	Management, IT and Governance
Dr	Ruggunan	Shaun Denvor	Management, IT and Governance
Professor	Kidd	Michael Antony	Law
Professor	McQuoid-Mason	David Jan	Law
Professor	Mubangizi	John Cantius	Law
Professor	Williams	Robert C	Law

FELLOWS OF THE UNIVERSITY OF KWAZULU-NATAL



Fellow of the University of KwaZulu-Natal

Professor Philippe Denis

UKZN Fellow in the College of Humanities, Professor Philippe Denis has two special interests: religious history; and the nature of truth and memory – and how these two intersect. His work in 2015 comprised a book on a French theologian in the 17th century who discussed the relationship between church, government and democracy. Other research was into the life of Abbot Pfanner (the founder of the Mariannhill Monastery), but his overwhelming focus was to discover the elements that make up ‘truth’ as a concept.

“It fits in with my primary area of research,” he says, “which is the history of indigenous Christianity in southern Africa, mostly but not exclusively in the 19th and 20th centuries. By indigenous Christianity I mean the manner

in which African people have transformed Christian theology and practice over time, sometimes in opposition with missionaries, and in reference to their indigenous cultural heritage.”

Because indigenous people’s perspective is insufficiently represented in written sources, Denis developed an interest in oral history. In turn, this encouraged him to reflect on issues of memory and resilience, in the emerging field of memory studies.

“Truth is never simple,” Denis says. “It is a social phenomenon, similar to memory. Truth, memory and history are not the same thing.”

Denis is currently the Vice-Chairperson of the Church History Society of South Africa, a member of the South African Historical Society, and an associate member of the Royal Academy of Belgium.



◀ *Prof Philippe Denis in French Guyana with two Guyanese children, discussing local histories.*

Vice-Chancellor's Research Award

Professor Sarojini Nadar

Professor Sarojini Nadar, former professor in the School of Religion, Philosophy and Classics was awarded the prestigious 2015 Vice-Chancellor's Research Award which recognises UKZN researchers for exceptional quality and proven achievement with sustained records of scholarship. The award is given to a scholar who is under the age of 40.

Nadar says she is deeply honoured and humbled by the award. Despite receiving the Department of Science and Technology award for Distinguished Young Woman in Science in 2012, she believes the Research Award is more special since her own institution recognised her work.

She said there was much to celebrate in 2015, since her son, Nathan, scooped seven distinctions in his 2015 Matric examinations.

Said Nathan: "My mom fully deserves this award. It is another addition to her wide array of achievements and accomplishments. She works really hard and I am extremely proud of her."

Professor Gerald West, who nominated Nadar for the award, said: "Professor Sarojini Nadar is one of the few PhD students I have supervised who has gone on not only to make significant contributions to the research fields in which she works but who has reconfigured the research terrain."

"Her interdisciplinary work in the intersections between gender studies, biblical studies, and religious studies has generated innovative theoretical and methodological resources, shaping the terrain in new ways. Professor Nadar's work inhabits the interface between the academy and local communities, and here too she has made substantive theoretical and methodological contributions," he said.

Nadar considers herself to be an activist-academic; hence it was her passion for gender social transformation that led her into the world of academia. "I bring my commitment to social justice to bear on the research and teaching I undertake, and I also use the tools and resources of the academy in my community engagement," she said.

Her advice to emerging researchers, is to do research on what they are most passionate about rather than simply because it is a requirement of the University. "I often say to my nieces and nephews, that you know you are in the right career when you can answer in the affirmative to the question: Would you still do this if you were not getting paid to do so?"

Asked about her future plans, she replied: "During the next five years I intend to focus my research on the feminist episteme in the context of the study of religion. I am interested in the various ways in which feminist knowledge is produced in a fragmented and fragile South African Higher Education context. How such knowledge is produced, taught and disseminated within Higher Education contexts nationally and internationally is what interests me."

"I am most pleased therefore that I was awarded a Newton Grant by the British Academy for a bilateral project with the University of Leeds titled: *Queering the Curriculum: LGBTI, Sexuality, and Masculinity Issues in Theology & Religious Studies in South Africa and the UK.*"

Sarojini Nadar, who is now the Desmond Tutu Research Chair at the University of the Western Cape, was previously full professor in and leader of the Gender and Religion Programme at UKZN. She served as Dean of Research in the College of Humanities in 2012 and 2013, and has researched and published widely in the field of feminist biblical hermeneutics, with a special focus on HIV and AIDS; gender-based violence; masculinity and sexuality.

Nadar also has a special interest in studying and developing theories of feminism in Africa, and more recently has developed an interest in gender and Higher Education research.

She was a Research Fellow at the Stellenbosch Institute for Advanced Study (STIAS) in 2014 when she received a National Commendation Award for Teaching Excellence from the Higher Education Learning and Teaching Association of South Africa and was also the winner of the 2013 UKZN Distinguished Teachers' Award. She was the winner of the National DST Distinguished Young Woman in Science Award: Human and Social Sciences in 2012.

In 2009 Nadar received the UKZN Top Woman Researcher Award, and in 2006 won the UKZN Book Prize for best edited book titled: *African Women, Religion and Health: Essays in Honour of Mercy Amba Oduyoye*, co-edited by herself and Isabel Phiri. She was selected and featured by *The Mail & Guardian* in their 2008 Book of South African Women.





DEPARTMENT OF SCIENCE AND TECHNOLOGY – WOMEN IN SCIENCE AWARDS

Dr Kenda Knowles

A PhD in Applied Mathematics at age 26, an invitation to meet Nobel Laureates in Germany, a postgraduate bursary from the Square Kilometre Array (SKA), the discovery of a new radio halo in a low-mass galaxy cluster.... Dr Kenda Knowles, a Claude Leon post-doctoral researcher at UKZN's Astrophysics and Cosmology Research Unit, proved that 'reaching for the stars' is not just a cheesy pop-reference. Knowles also received a 2015 Department of Science and Technology (DST) Women in Science Doctoral Fellowship.

Her breakthrough discovery in 2015 was the detection of a radio halo in a faraway galaxy cluster. Radio halos are large areas within galaxy clusters that emit radio waves. They are only found in a few merging galaxy clusters, and are transient objects. Their radio emissions brighten as the galaxy cluster merges, then fade away. The radio emissions are so faint that finding them requires very sophisticated data processing techniques.

"Radio halos are fascinating structures to study," she says. "They probe components of galaxy clusters that we can't study at other wavelengths. Their link to merger activity in the host cluster makes them a powerful tool to understand the complicated physical processes which occur during these energetic events."

Her paper on this detection, based on her PhD thesis, was published in *Monthly Notices of the Royal Astronomical Society*, an international peer-reviewed astronomy journal.

"We chose to observe this galaxy cluster because we knew from existing X-ray imaging that it was undergoing a merger – this gave it a better chance of hosting a radio halo", said Knowles.

She added that although the detection itself was exciting, the new aspect of their paper was the estimation of a timescale for the radio emission.

Using multiwavelength data from X-ray and optical telescopes, the researchers created a model of the cluster merger and used it to estimate the duration of the merger. Comparing this to computer simulations they were able to estimate at what point in its lifetime the radio halo was being observed.

The MeerKAT telescope being built by SKA South Africa in the Northern Cape will allow for exciting new developments in this area of research because it will provide excellent sensitivity to faint sources and the opportunity to detect more radio halos.



Ms Nqobile Masondo

There are an estimated 239 million hungry people in Africa, and on average, one in four people is undernourished. Furthermore, a third of all African people have a low intake of vegetables and fruit – crucial sources of nutrition.

“The importance of traditional fruits and vegetables has been poorly researched and documented,” says PhD student in the Botany Department of the School of Life Sciences at UKZN, Ms Nqobile Masondo. “They not only play a huge role in nutrition and well-being, but they are part of customs, tradition and food culture in different households.”

“I am doing research in plants that are commonly referred to as ‘weeds’ – *amaranth* (pigweed), *morogo* or *imifino* (wild spinach), etc. as well as plant parts that are usually thrown away – pumpkin leaves, beetroot leaves, pawpaw leaves (*Asimina triloba*), which are extremely rich in vitamins and minerals.”

Most of these plants grow in wild rural areas, which makes them extremely easy to cultivate, conserve and utilise. Masondo aims to identify organic fertilisers/biostimulants that can assist rural farmers in enhancing the nutrition of these vegetables during agricultural practices.

“The study intends to find cheaper means of cultivating these vegetables in order to help small-scale farmers achieve higher yields with improved nutritional value at low cost,” she says. The plant is examined from germination through to maturity, taking into account different factors such as light and temperature, salinity, drought, pollution, biostimulants such as smoke, water and worm compost, and then analysing their nutritional and medicinal properties.

Thus far, Masondo has presented eight papers at local and international conferences and published 12 papers. She has been the recipient of four prestigious scholarships for her work.



Dr Charissa Naidoo

Dr Charissa Naidoo recently completed her PhD in Medical Microbiology at UKZN and is currently a Postdoctoral Fellow at the DST/NRF Centre of Excellence for Biomedical TB Research (CBTBR) at Stellenbosch University. Her research focus is on the longitudinal microbiome of multidrug-resistant tuberculosis patients undergoing treatment.

"Several factors contribute to the emergence of multidrug-resistant tuberculosis," she says. "Treatment for TB is long and complicated – a course takes six months to complete, and there are unpleasant side effects. Consequently, patients may default on their treatment and place themselves at increased risk for developing drug-resistant TB. Treating this form of TB requires a longer and more expensive course of treatment."

Clinical trials incorporating a new drug called bedaquiline are currently under way in MDR-TB patients. Naidoo is studying how the human microbiome is altered in response to treatment and its association with treatment outcome.

"When we take antibiotics to treat a disease, we kill off the good

bacteria as well as the bad bacteria. Usually, after a course of antibiotics we need to take a course of probiotics, to restore the bacterial balance. The microbiome has been implicated in various other disorders such as obesity, irritable bowel syndrome and cystic fibrosis."

"The role of the microbiome has only recently been studied in the context of TB, and there are several questions. My research will address how microbial changes correlate with severe side effects experienced by patients and how their microbiome compares to healthy individuals."

Naidoo's study is unique in that it is the only longitudinal study of its nature, using subjects that are also HIV-positive. This research may lead to the development of prophylactic tools for advancing human health in the context of TB.

"I work closely with Professor Grant Theron," concludes Naidoo, "the Principal Investigator for the study. Together with a team of healthcare workers, laboratory technicians and national/international collaborators, we are also involved in several other sub-studies which address various aspects of the pan-microbiome in the context of tuberculosis."





TOP PUBLISHED RESEARCHERS



These are the Top Published Researchers in DHET accredited, peer-reviewed journals. Researchers who have accumulated the most amounts of author units are ranked from highest to lowest to establish the top 30 published researchers.

Top Published Researcher

Professor Johannes van Staden

Having achieved top position in the Thomson Reuters World List of most-cited researchers in his field, multi-award-winning scientist Professor Johannes van Staden, Director of the Research Centre for Plant Growth and Development in the School of Life Sciences, continued with an impressive output for 2015 (42 papers).

Van Staden credits his team for their sterling work: “Despite our huge financial constraints we were able to maintain a very high output from our highly motivated students. We also had input from our very unselfish foreign collaborators.”

“The research and publication scene is changing world-wide, and we have to step up our efforts if we wish to compete at an international level. I thank all the members of the Centre who helped to keep our Unit competitive.”

Out of numerous research reports and publications, certain broad themes emerged:

“Our biggest issue is research into the medicinal properties of our indigenous plants,” says van Staden. “This is what we call the ‘hidden field’ of study, as people do not automatically think of our indigenous plants as being a source of nutrition and medicine. But there is an enormous amount of traditional knowledge out there. So in our research we try to look at as many plants as possible – we look at their properties and their medicinal

and nutritional potential. We have made many, many breakthroughs.”

This research is crucial against the background of growing incidence of lifestyle diseases in developing countries, and the crucial role of plants in combatting them.

Another ‘hidden field’ of research is into the impact of smoke on plants. Elements in plant-derived smoke (from brushfires or wood fires) dissolve in rainwater, clouds, streams and rivers, or are deposited on the ground, where they have a significant impact on plant growth.

Another area of study was the development of natural bio-stimulants instead of chemical fertiliser and pesticides. And there is an increasing awareness of the vast untapped pharmacological and phytochemical potential in micro-algae. Biotechnological studies are being conducted into the potential of seaweed in the food, cosmetic, pharmaceutical and agricultural industries.

An overarching concern with indigenous plants is that they could become extinct in the wild if they are not harvested sustainably. The challenge is to create sustainable populations through commercial cultivation.

Van Staden is the recipient of numerous awards in his fields and is the Editor-in-Chief of the *South African Journal of Botany*. He serves on the Editorial Boards of six other journals.

▼ Professor van Staden (middle) with Manoj Kulkarni (India) left, and Marcio Arruda (Brazil) right, in the University of KwaZulu-Natal Botanical Garden greenhouse.



Top Published Woman Researcher

Professor Colleen Downs

Generally wildlife is negatively affected by changing land use. However, several mammal species are doing well in adapting to changing land use in KwaZulu-Natal, especially in the Midlands and urban areas, according to UKZN biologist and vertebrate specialist, Professor Colleen Downs.

Downs, who is the University's Top Published Woman Researcher for 2015, identified these mammals as caracals, mongoose species, genets, vervet monkeys, bush pigs, Cape porcupines and jackals, who are generally expanding their ranges and increasing in number in urban areas and on farmlands.

Over the past decade, Downs has been consistently recognised for being among the University's most published researchers. She was the top woman researcher from 2009 to 2012 and again in 2014.

A humble person who is almost dismissive of her highly impressive research achievements, she heaps praise on her postgraduate students who assist in her work on the ecology, physiology, behaviour and conservation

of terrestrial vertebrates. These include hippos, crocodiles, bats, caracals, vervet monkeys, porcupines, bush pigs, jackals, Cape Parrots and the list goes on right down to the noisiest birds in town, hadedas!

Downs is a mine of information about mammals and birds, a subject very close to her heart and one which has dominated her work – and her life – since she joined UKZN more than 20 years ago.

She was further recognised in 2015 by being appointed the SARCHI Chair for Ecosystem Health in KwaZulu-Natal and the Eastern Cape.

Downs said her unit is working in partnership with eThekweni Municipality on various projects investigating the presence of mammals and birds in the greater municipal area and another looking at eco-estates and their contribution to biodiversity.

Her 2015 research also produced a paper titled: "Too Hot to Sleep? Sleep Behaviour and Surface Body Temperature of Wahlberg's Epauletted Fruit Bat", which revealed that extremely hot days negatively impacted roosting fruit bats which needed to stay awake to cool themselves. This has implications given predicted climate change scenarios.

Another project was the annual Cape Parrot count which she has become synonymous with, having led the census for the past 18 years! It involves counting the birds in KwaZulu-Natal, the Eastern Cape and parts of Limpopo Province.

Assisted by her team of students, Downs completed 27 research articles which appeared in peer-reviewed journals in 2015 on, among other topics, black-backed jackals on farmlands; beak and feather disease virus in Cape Parrots; the distribution of large spotted genets in an urban environment, and genets using urban areas for 'fast food'.

Another project just begun is monitoring the movement of hippos at Ndumo Game Reserve in Zululand – an area where she has also done a lot of research on Nile crocodiles.

Downs is supervising or co-supervising about 25 masters and doctoral students.

"I get tremendous enjoyment and satisfaction contributing to the development of young postgraduate students who get opportunities through UKZN to give public talks and presentations which all go towards making others more aware of the challenges facing the environment," she said.

"I see no end to the work we are doing with the continued increasing human population and land transformation. These are creating huge challenges for the persistence of wildlife, making it vital for us to help ensure people are aware of the need for caring for our environment and to better understand it."



Top 30 Published Researchers

Position	Title	Surname	First Name	College
1	Professor	Van Staden	Johannes	Agriculture, Engineering and Science
2	Professor	Jonnalagadda	Sreekantha Babu	Agriculture, Engineering and Science
3	Professor	Downs	Colleen Thelma	Agriculture, Engineering and Science
4	Professor	Ramjugernath	Deresh	Agriculture, Engineering and Science
5	Professor	Soliman	Mahmoud Elsayed Soliman	Health Sciences
6	Professor	Mutanga	Onisimo	Agriculture, Engineering and Science
7	Dr	Karpoornath	Rajshekar	Health Sciences
8	Professor	Modi	Albert Thembinkosi	Agriculture, Engineering and Science
9	Dr	Clarke	Damian Luiz	Health Sciences
9	Professor	Pete	Stephen Allister	Law and Management Studies
11	Professor	Denis	Philippe Marie Berthe Raoul	Humanities
11	Dr	Naidu	Maheshvari	Humanities
13	Professor	Migiro	Stephen Oseko	Law and Management Studies
14	Professor	Sibanda	Precious	Agriculture, Engineering and Science
15	Professor	Mohammadi	Amir Hossein	Agriculture, Engineering and Science
16	Professor	Friedrich	Holger Bernhard	Agriculture, Engineering and Science
17	Professor	Chimonyo	Michael	Agriculture, Engineering and Science
18	Professor	Maharaj	Sunil Dutt	Agriculture, Engineering and Science
19	Dr	Moyo	Thomas	Agriculture, Engineering and Science
20	Dr	Phiri	Maxwell Agabu	Law and Management Studies
21	Professor	Maharaj	Pranitha	Humanities
22	Professor	Bansilal	Sarah	Humanities
23	Professor	Chuturgoon	Anil Amichund	Health Sciences
24	Professor	Koorbanally	Neil Anthony	Agriculture, Engineering and Science
25	Professor	Johnson	Steven Dene	Agriculture, Engineering and Science
26	Professor	Tomaselli	Keyan Gray	Humanities
26	Professor	Wade	Jean-Philippe	Humanities
26	Professor	Ballantine	Christopher John	Humanities
26	Dr	Narsiah	Inbersagran	Humanities
26	Professor	McQuoid-Mason	David Jan	Law and Management Studies
26	Professor	Govender	Krishna Kistan	Law and Management Studies



ESTABLISHED RESEARCHERS

Scientist Honoured as a Living Legend

Professor Quarraisha Abdool Karim

Associate Scientific Director at CAPRISA, Professor Quarraisha Abdool Karim, was honoured as a citizen of the eThekweni Municipality for her significant contributions in HIV prevention research among communities in KwaZulu-Natal and the rest of South Africa. The announcement was made at a ceremony at the Inkosi Albert Luthuli International Convention Centre in Durban.

eThekweni Living Legends Awards are presented to “eThekweni citizens who have diligently dedicated their time and skills to uplift communities and contributed immensely to developing the society at large,” said eThekweni Municipality’s Communications Head, Ms Tozi Mthethwa.

“The awards aim to salute the inspirational and continuous contribution these individuals have brought to local communities and South Africa as a whole.”

Mayor, Mr James Nxumalo said the awards presented the Municipality with an opportunity to honour its legends and reflect on their distinct achievements and contribution to the community of eThekweni and the country at large.

“We are proud of their achievements and progressive contribution which serve as an inspiration to the younger generation to emulate these men and women who have selflessly served our communities. They are products of our local neighbourhoods and communities, emerging from different walks of life,” said Nxumalo.

Abdool Karim said she was deeply humbled to be one of the recipients. “Young women have the highest rate of HIV infection in Africa and as researchers we have a chance to alter the course of this epidemic and save millions of lives. It is a commitment that I hope will provide women with an array of safe and efficacious HIV prevention technologies.”

▼ Chad le Clos, Olympic World and Commonwealth Games Champion, presents the eThekweni Living Legend award to CAPRISA’s Associate Scientific Director Professor Quarraisha Abdool Karim.



Two Prestigious Awards for World Renowned AIDS Scientist

Professor Salim S. Abdool Karim

World renowned South African AIDS researcher and Director of the Centre for the AIDS Programme of Research in South Africa (CAPRISA) at UKZN, Professor Salim S. Abdool Karim received two prestigious awards in 2015.

At the African Union (AU) General Assembly in Addis Ababa on 31 January, President Jacob Zuma rose from his seat to congratulate Abdool Karim for winning the most prestigious prize for science in Africa, the \$100,000 (R1.1 million) Kwame Nkrumah Scientific Award. Presented by the Chairperson of the AU Commission Robert Mugabe, the award was for Abdool Karim's research on HIV prevention and treatment in Africa. In conferring it, the AU Commission acknowledged him "for great scientific achievement and contribution through science for the socio-economic development of Africa".

Abdool Karim said that "this award recognises the importance of science and the contributions of scientific innovation in the path to a healthier Africa. Research can play a central role in the development and integration of Africa." He added that he was "humbled" by this honour. "Science has a key role to play in Africa's future growth and prospects. Hence, this African Union award has special significance for me as it highlights science for its contribution to Africa's future."

In October 2015, Abdool Karim was named as a recipient of the South African Medical Research Council's (SAMRC) Platinum Lifetime Achievement

Award for "excellence in research". The award was presented at SAMRC's Scientific Merit Awards evening in Cape Town.

The Platinum Medal is a Lifetime Achievement Award for an outstanding scientist who has contributed substantially to improving health through research and helped build the foundations of health research in the country for future generations. Chairperson of the SAMRC Board, Professor Mike Sathekge, paid tribute to Abdool Karim, noting that he had "contributed enormously to raising the profile of science in South Africa".

One of Africa's foremost scientists, Abdool Karim is highly respected for his global leadership and seminal contributions in microbicides for HIV prevention in women, HIV vaccines, and HIV-TB treatment that have a profound impact on global health. He has spent over 30 years of his scientific career addressing the HIV and TB epidemics in South Africa and on the African continent. He has demonstrated the momentous contribution that innovative multidisciplinary science and medical technology can make to disease treatment, prevention and global health.

In addition to directing CAPRISA, Abdool Karim is Pro Vice-Chancellor (Research) at UKZN and Professor of Epidemiology at Columbia University in New York. He is the Chair of the UNAIDS Scientific Expert Panel and is scientific advisor to the Executive Director of the Joint United Nations Programme on HIV/AIDS (UNAIDS). In a first for an African scientist, he was appointed to the Editorial Board of the prestigious *New England Journal of Medicine* in 2015.

Abdool Karim is an advisor to several governments and the world's leading agencies in AIDS and global health such as the WHO, UNAIDS, UNDP, PEPFAR and the Global Fund to fight AIDS, TB and Malaria. He serves on the Scientific Advisory Board for Global Health of the Bill & Melinda Gates Foundation, the WHO Expert Panel on STDs and HIV and the WHO Steering Committee on HIV Treatment Guidelines.

Photo credit: The Presidency



► **President Jacob Zuma congratulates Professor Salim Abdool Karim on receiving the AU Scientific Award.**

Growing the Finance Sector in Developing Countries

Professor Stephen Migiro

Academic in the School of Business and Leadership in UKZN's College of Law and Management Studies, Professor Stephen Migiro published nine papers in 2015. These focused on the banking and finance sectors in developing countries, and the role that they play in the respective economies.

Five papers looked at various aspects of banking and finance: one analysed the role of the financial sector in the economic growth of Nigeria. An analysis of a 12-year data set confirmed that both credit supply and demand have an influence on the economic growth of a country. The second publication was on bank reforms, using Nigeria as a case study. The results from the data analysis indicated that there is under banking in Nigeria. Most households and business entities experience difficulties accessing loans despite recent bank reforms in the country. The third publication was an empirical analysis of the price stability effect of Nigerian Monetary policy. The results of the analysis of a 31-year data set (1981-2012) revealed that

the country's monetary policy did not yield the expected results. However, it was noted that the consumer price index (CPI) was influenced by the exchange rate, money supply and interest rate. It was also noted that the key determinants of price stability were the monetary policy rate, interest rate and inflation.

"Studies like these would apply to the financial sector in any developing country," says Migiro. "Another paper of significance to developing countries was a study on student entrepreneurial inclination. The study examined the elements of teaching and mentorship in the College of Law and Management Studies, UKZN."

"In our first phase of the study," says Migiro, "we looked at what factors influenced students' intention to start their own businesses – whether it was their parents, their teachers or mentors. The second phase of the study will be to follow these students after graduating from UKZN to find out how many could have started their own businesses."



Harnessing the Power of ICT

Professor Stephen Mutula

Dean and Head of the School of Social Sciences, Professor Stephen Mutula published 15 papers in 2015, mainly to do with the role of Information and Communication Technology in enhancing service delivery in developing countries.

"2015 was the year we concentrated on how to develop and apply ICT to enhance service delivery," he says. "The biggest constraint in this endeavour is a lack of ubiquitous access to critical infrastructure such as broadband, WiFi, the Internet and mobile technology. The Internet is a powerful communication tool to improve people's lives. Improved communication facilitates access to jobs, government services, education (e.g., e-learning), business opportunities (e-commerce, e-business, etc.), and also for political and civic mobilisation (through for example, social media platforms). So the first priority for any developing country is to install adequate infrastructure to enable universal and equitable access to services by entire communities and populations."

"The second constraint is a lack of awareness and education," he continues. "We need to create awareness about the value of ICT and also develop skills to enable people apply the ICT. Infrastructure support, refurbishment and expansion is important and therefore accelerated development of practical ICT skills to attend to these areas is vital. This cannot happen through government or the private sector alone. The government must create an enabling regulatory framework for the private sector to innovate, and deliver the requisite technological infrastructure. They have to do it together."

A further focus for research in 2015 was knowledge production in universities and the ethical implications arising from the information society. The focus in this regard was the responsible use of ICT with regard to individual privacy, trust, access, intellectual property and other legitimate rights of people especially in e-government and social media environments. Overall there is need to direct more research efforts into service delivery through e-governance and social media and look at infrastructure needs, skills development, and issues of policy and ethics.



Strengthening Health Systems at Community Level

Professor Busisiwe Ncama

The year 2015 was a busy one for Professor Busisiwe Ncama, Associate Professor in Nursing and current Dean and Head of UKZN's School of Nursing and Public Health.

Her research focused on systems of care at a community level; particularly around HIV and AIDS, with a focus on strengthening health systems. She also supervised a number of PhD students (both local and international) in the same field that conducted research at community level among vulnerable groups and communities, including children. The studies were mainly around access to and acceptability of services in different contexts.

Ncama was also involved in a continuation study – with colleagues – on

young girls having sexual relations with minibus taxi drivers, often referred to as 'taxi queens'. This study evolved from a rapid assessment of HIV and AIDS in this industry. It showed the vulnerability of young girls who date taxi drivers, some while at school. The study initially focused on minibus taxi drivers' knowledge and access to HIV and AIDS care as well as other health care services since the industry is viewed as an informal employment sector. It was funded by the Medical Research Council.

Ncama was also co-author of a study on training on Nurse-Initiated and Managed Antiretroviral Therapy (NIMART). NIMART is a form of task shifting/ sharing at a primary health care level to optimise the delivery of antiretroviral therapy to people living with HIV/AIDS.



A Second Chance for Offenders

Professor Shanta Balgobind Singh

A unique and historic partnership between UKZN and the South African Department of Correctional Services will soon see prison offenders given the opportunity to improve their quality of life through a mentorship programme. If successful, there are plans to introduce this pilot programme in 240 correctional centres around the country.

The partnership, known as the Experiential Learning Project (Mentorship Programme) is part of a far-reaching rehabilitation initiative to give offenders a second chance in life and to encourage them to move away from criminal activity. Central to the project will be the delivery of key services to offenders with the idea of changing attitudes, behaviour and social circumstances.

Professor Shanta Balgobind Singh in Criminology and Forensic Studies at UKZN's School of Human Sciences and Professor Sultan Khan in the School of Social Sciences are the initiators of the scheme, which will see mentorship of offenders elevated to a new level.

"I believe our initiative will provide invaluable opportunities to conduct comparative research on pressing current issues in partnership with the Department," said Balgobind Singh. "I think it is going to be a very fruitful, interesting and informative time for students and academic staff who will be able to interact with sentenced offenders, understanding their circumstances and challenges possibly for the first time."

Students willing to join the project will be placed under the mentorship of a Correctional Intervention Officer, who will explain how the pilot learnership programme operates and what is expected of them.

"An important aspect will be a focused evaluation of the rehabilitation programmes," explained Singh. "Too often programmes are put in place without sufficient monitoring and evaluation, so critical information is then lost. Another benefit will be that students will be able to add this to their CV as part of their experiential work experience."

As part of the initiative, the Department of Correctional Services will provide training to postgraduate students on how to conduct assessments while mentors, identified in correctional centres, will supervise and coach the students to ensure compliance within the Department's policies and procedures, alongside its rules and regulations.

Singh and Khan will serve on the National Board of the Department to oversee the implementation of this project.



Modelling for the Future

Professor Precious Sibanda

The thermal transfer behaviour of nano particles in a fluidic solution shapes the working life of Zimbabwean-born scientist and Applied Mathematician, Professor Precious Sibanda of UKZN's School of Mathematics, Statistics and Computer Science. This relatively recent research area has enormous potential in the realms of heat transfer technology and drug delivery systems in medical applications.

"Our task as mathematicians is to create models based on differential equations that will enable engineers to modify and improve on current heat transfer technologies. As new demands are created, it is critical that we have the mathematical models that can describe or dovetail with a new era of industrial applications requiring nano fluid technology," says Sibanda.

Nano fluid development would impact coolant systems for nuclear reactors, aerospace, fuel cells, defence equipment and high impact machinery.

"It is the thermo physical properties and behaviour of fluidic material containing nano particles of naturally occurring elements and compounds like aluminium, gold, ceramics and oxides that we need to understand and describe mathematically," explains Sibanda. "But for us to go further we need the engineering sector to engage with us. It is the symbiosis of real

time engineering on the one side and mathematical modelling on the other that will bring results."

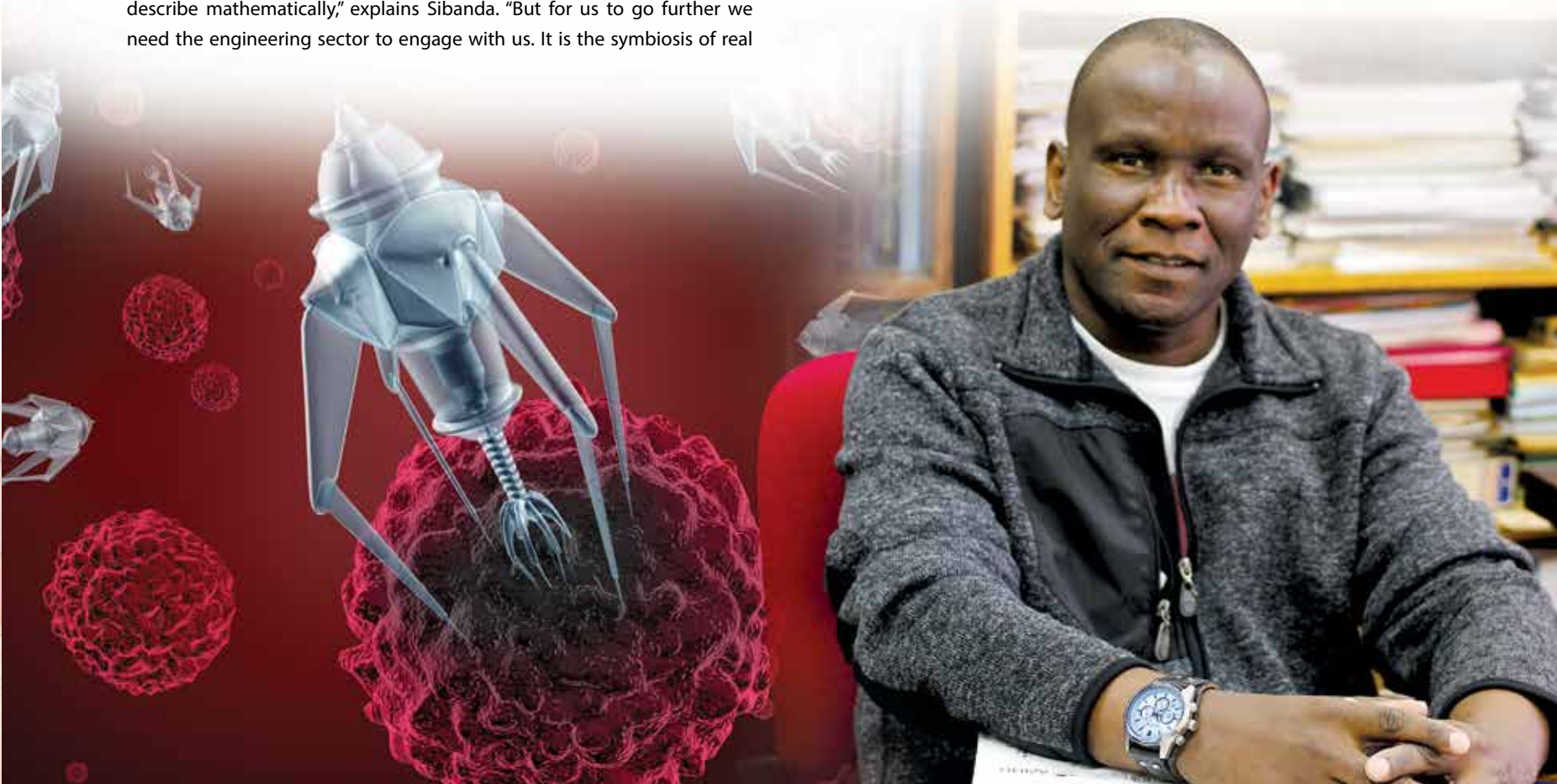
He adds that mathematical modelling has also become an integral part of cancer research.

"Gathering information on cancer both at the basic and clinical levels is one thing. How this information is handled is the major issue going forward."

Last year Sibanda supervised a doctoral study that used mathematical modelling to produce answers to the optimal approach to treating malignant tumours.

Whether it pertains to cancer treatment or is used to improve technology to take humankind into outer space, this type of modelling produces what scientists like Sibanda refer to as 'what if?' scenarios.

Sibanda attained both his MSc and PhD degrees in Applied Mathematics at the University of Manchester in 1992 and 1996, respectively. He has taught at UKZN since 2003. He was rated a C2 researcher by the NRF in 2011. In the same year, Sibanda was elected Vice-President of the South African Mathematical Association (SAMS) having successfully served as the association's Financial Manager since 2008.



Collaboration to Enhance Communication

Professor Ruth Teer-Tomaselli

UKZN's Professor Ruth Teer-Tomaselli was awarded an Honorary Lifelong Fellowship by the South African Communication Association (SACOMM) in 2015, the first woman to receive this award in the Association's history. Her husband, Professor Keyan Tomaselli was also presented with an Honorary Fellowship.

Teer-Tomaselli was recognised for her solid record of active participation in the promotion of the Association's aims since 1993. She spent eight years as a Board Member of the SABC, and more than ten years as the UNESCO Chair for Communication in Southern Africa, and has a remarkable publication record, which culminated in her election as SACOMM president in 2007.

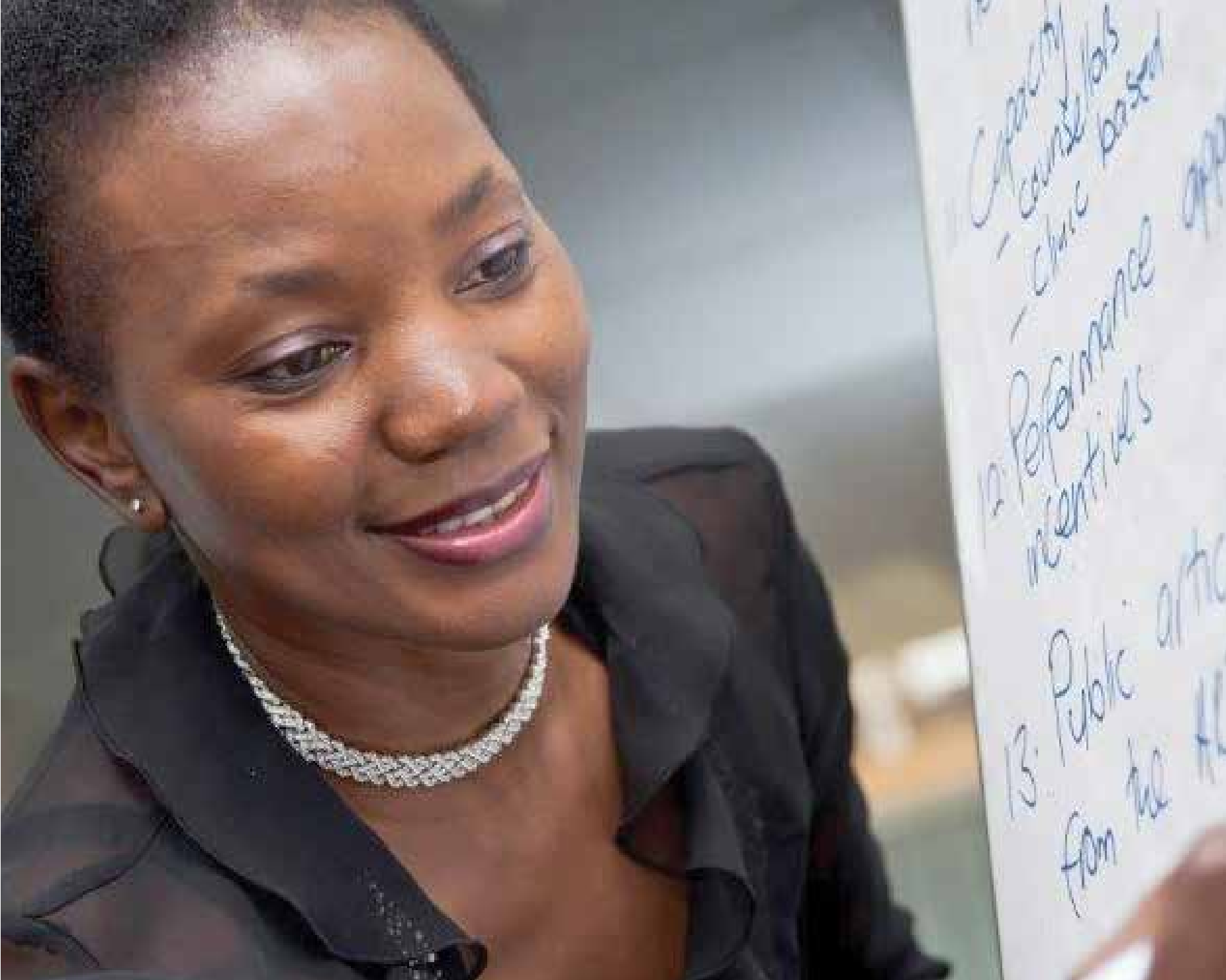
Since its inception in 1974, SACOMM has encouraged contact and co-operation between all the Communication departments in South

African tertiary education institutions that offer Communication Studies. It promotes research, collaboration and debate between communication practitioners, professionals, academics and students. It also works to enhance Communication Studies as an academic discipline in Southern Africa.

In its citation for the award, SACOMM praised Teer-Tomaselli's dedication to research, especially in relation to the political aspect of South Africa's media and technology, as well as her active participation in numerous capacities.

Teer-Tomaselli has played an important mentorship role, providing wisdom and understanding in what have recently been extremely challenging academic times. She is immensely respected by colleagues both within UKZN and at other national and international universities, and is popular with students. She is also a living example of a woman who is able to balance family responsibilities and a flourishing career.





PROLIFIC RESEARCHERS

These are researchers at the University of KwaZulu-Natal who have obtained three or more author units in DHET accredited, peer-reviewed journals.

Prolific Researchers

College of Agriculture, Engineering and Science			
Title	Surname	First Name	School/Research Unit
Professor	Chimonyo	Michael	Agricultural, Earth and Environmental Sciences
Dr	Demlie	Molla Bekele	Agricultural, Earth and Environmental Sciences
Dr	Gebreslasie	Michael Teweldemedhin	Agricultural, Earth and Environmental Sciences
Professor	Laing	Mark Delmege	Agricultural, Earth and Environmental Sciences
Professor	Modi	Albert Thembinkosi	Agricultural, Earth and Environmental Sciences
Professor	Mutanga	Onesimo	Agricultural, Earth and Environmental Sciences
Dr	Odindi	John Odhiambo	Agricultural, Earth and Environmental Sciences
Professor	Shimelis	Hussein	Agricultural, Earth and Environmental Sciences
Dr	Akerman	Matthew Piers	Chemistry and Physics
Professor	Friedrich	Holger Bernhard	Chemistry and Physics
Dr	Giraldi	Filippo	Chemistry and Physics
Professor	Jaganyi	Deogratius	Chemistry and Physics
Professor	Jonnalagadda	Sreekantha Babu	Chemistry and Physics
Professor	Koorbanally	Neil Anthony	Chemistry and Physics
Dr	Maguire	Glenn Eamonn Mitchel	Chemistry and Physics
Professor	Martincigh	Bice Susan	Chemistry and Physics
Professor	Mola	Genene Tessema	Chemistry and Physics
Dr	Moodley	Brenda	Chemistry and Physics
Dr	Moyo	Thomas	Chemistry and Physics
Dr	Ndungu	Patrick Gathura	Chemistry and Physics
Professor	Nyamori	Vincent Onserio	Chemistry and Physics
Dr	Ojwach	Stephen Otieno	Chemistry and Physics
Professor	Petrucione	Francesco	Chemistry and Physics
Professor	Sergi	Alessandro	Chemistry and Physics
Professor	Verheest	Frank	Chemistry and Physics
Professor	Adali	Sarp	Engineering
Professor	Mohammadi	Amir Hossein	Engineering
Dr	Naidoo	Paramespri	Engineering
Professor	Ramjugernath	Deresh	Engineering
Professor	Stretch	Derek Dewey	Engineering
Professor	Xu	Hongjun	Engineering
Professor	Downs	Colleen Thelma	Life Sciences
Dr	Gueguim Kana	Evariste Bosco	Life Sciences
Professor	Islam	Shahidul	Life Sciences
Professor	Johnson	Steven Dene	Life Sciences
Professor	Lin	Johnson	Life Sciences

College of Agriculture, Engineering and Science

Title	Surname	First Name	School/Research Unit
Dr	Londt	Jason Gilbert Hayden	Life Sciences
Dr	Manning	John Charles	Life Sciences
Professor	Slotow	Robert Hugh	Life Sciences
Professor	Van Staden	Johannes	Life Sciences
Dr	Adewumi	Aderemi Oluyinka	Mathematics, Statistics and Computer Science
Professor	Banasiak	Jacek	Mathematics, Statistics and Computer Science
Dr	Maharaj	Aneshkumar	Mathematics, Statistics and Computer Science
Professor	Maharaj	Sunil Dutt	Mathematics, Statistics and Computer Science
Professor	Motsa	Sandile Sydney	Mathematics, Statistics and Computer Science
Professor	Mwambi	Henry Godwell	Mathematics, Statistics and Computer Science
Professor	Sibanda	Precious	Mathematics, Statistics and Computer Science
Professor	Zewotir	Temesgen Tenaw	Mathematics, Statistics and Computer Science

College of Health Sciences

Title	Surname	First Name	School/Research Unit
Professor	Aldous	Colleen Michelle	Clinical Medicine
Professor	Biccard	Bruce McClure	Clinical Medicine
Professor	Burns	Jonathan Kenneth	Clinical Medicine
Dr	Clarke	Damian Luiz	Clinical Medicine
Dr	Hardcastle	Timothy Craig	Clinical Medicine
Professor	Moodley	Jagidesa	Clinical Medicine
Dr	Oosthuizen	George Valentine Eastland	Clinical Medicine
Dr	Rodseth	Reitze Nils	Clinical Medicine
Professor	Govender	Thavendran	Health Sciences
Professor	Govender	Thirumala	Health Sciences
Mr	Gray	Andrew Lofts	Health Sciences
Dr	Karpoormath	Rajshekhar	Health Sciences
Mr	Kong	Victor Y	Health Sciences
Professor	Kruger	Hendrik Gerhardus	Health Sciences
Mr	Mashige	Khathutshelo Percy	Health Sciences
Professor	Soliman	Mahmoud Elsayed Soliman	Health Sciences
Professor	Chuturgoon	Anil Amichund	Laboratory Medicine and Medical Sciences
Dr	Barnighausen	Till Winfried	Nursing and Public Health
Professor	Brysiewicz	Petra	Nursing and Public Health
Professor	Mchunu	Gugu Gladness	Nursing and Public Health
Professor	Ncama	Busisiwe Purity	Nursing and Public Health
Dr	Ross	Andrew John	Nursing and Public Health
Professor	Sartorius	Benn Kurt Daniel	Nursing and Public Health
Professor	Taylor	Myra	Nursing and Public Health

College of Humanities			
Title	Surname	First Name	School/Research Unit
Dr	Akintola	Olagoke Olufikayo	Applied Human Sciences
Professor	Kasiram	Madhubala Ishver	Applied Human Sciences
Professor	McCracken	Donal Patrick	Applied Human Sciences
Professor	Meyer-Weitz	Anna	Applied Human Sciences
Professor	Potgieter	Cheryl-Ann	Applied Human Sciences
Professor	Singh	Shanta	Applied Human Sciences
Professor	Teer-Tomaselli	Ruth Elizabeth	Applied Human Sciences
Professor	Tomaselli	Keyan Gray	Applied Human Sciences
Professor	Ballantine	Christopher John	Arts
Professor	Wade	Jean-Philippe	Arts
Professor	Zeller	Jochen Klaus	Arts
Professor	Bond	Patrick Martin	Built Environment and Development Studies
Professor	Maharaj	Pranitha	Built Environment and Development Studies
Professor	Bansilal	Sarah	Education
Professor	Bhana	Deevia	Education
Dr	Bhengu	Thamsanqa Thulani	Education
Dr	Dempster	Edith Roslyn	Education
Dr	Govender	Desmond Wesley	Education
Professor	Kamwendo	Gregory Hankoni	Education
Dr	Khoza	Simon Bhekimuzi	Education
Professor	Maistry	Suriamurthee Moonsamy	Education
Dr	Manik	Sadhana	Education
Professor	Moletsane	Relebohile	Education
Dr	Naidoo	Jayaluxmi	Education
Dr	Pillay	Ansurie	Education
Professor	Samuel	Michael Anthony	Education
Professor	Teferra	Damtew	Education
Professor	Wassermann	Johannes Michiel	Education
Professor	Balcomb	Anthony Oswald	Religion, Philosophy and Classics
Professor	Decock	Paul Bernard	Religion, Philosophy and Classics
Professor	Denis	Philippe Marie Berthe Raoul	Religion, Philosophy and Classics
Professor	Draper	Jonathan Alfred	Religion, Philosophy and Classics
Professor	Hilton	John Laurence	Religion, Philosophy and Classics
Dr	Matolino	Bernard	Religion, Philosophy and Classics
Dr	Siwila	Cheelo Lillian	Religion, Philosophy and Classics
Professor	West	Gerald Oakley	Religion, Philosophy and Classics
Professor	Hoskins	Ruth Geraldine Melonie	Social Sciences
Professor	Khan	Sultan	Social Sciences
Dr	Mtshali	Khondlo Phillip Thabo	Social Sciences
Professor	Mutula	Stephen	Social Sciences
Dr	Naidu	Uma Mahesvari	Social Sciences
Dr	Narsiah	Inbersagran	Social Sciences
Professor	Ojong	Vivian Besem	Social Sciences
Professor	Singh	Anand	Social Sciences
Professor	Vahed	Goolam Hoosen Mohamed	Social Sciences

College of Law and Management Studies

Title	Surname	First Name	School/Research Unit
Mrs	Doorasamy	Mishelle	Accounting, Economics and Finance
Dr	Sibanda	Mabutho	Accounting, Economics and Finance
Dr	Bodhanya	Shamim Ahmed	Graduate School of Business and Leadership
Dr	Chasomeris	Mihalis Georgiou	Graduate School of Business and Leadership
Dr	Hoque	Muhammad Ehsanul	Graduate School of Business and Leadership
Professor	Migiro	Stephen Oseko	Graduate School of Business and Leadership
Professor	Pelser	Theunis Gert	Graduate School of Business and Leadership
Professor	Hocor	Shannon Vaughn	Law
Professor	McQuoid-Mason	David Jan	Law
Professor	Mubangizi	John Cantius	Law
Professor	Pete	Stephen Allister	Law
Ms	Strode	Ann Elaine	Law
Mrs	Whitear-Nel	Nicola Jane	Law
Dr	Fields	Ziska	Management, IT and Governance
Professor	Govender	Krishna Kistan	Management, IT and Governance
Dr	Mbhele	Thokozani Patmond	Management, IT and Governance
Professor	Mubangizi	Betty Claire	Management, IT and Governance
Professor	Naude	Micheline Juliana Alberta	Management, IT and Governance
Dr	Phiri	Maxwell Agabu	Management, IT and Governance



EMERGING RESEARCHERS

These are researchers at the University of KwaZulu-Natal who are below the Professorial level, and beginning to make a significant contribution in their field and who have the potential to become prolific researchers. They are 40 years and younger and have accumulated one or more author units in DHET accredited, peer-reviewed journals.

Reducing Poverty through Sustainable Livestock Farming

Professor Michael Chimonyo



Animal scientist Professor Michael Chimonyo has made it his life's mission to reduce poverty amongst the rural poor through research into sustainable livestock agriculture.

Chimonyo, who conducts some of his research at the Ukulinga Research farm at UKZN's Pietermaritzburg campus, believes in the importance of collaboration to promote the cross-pollination of ideas.

"We need a sustainable approach to rural farming," he says, "and along with my students and national and international collaborators, we are working directly with rural farmers in order to identify the resources that they can use to become more effective in their food production. The struggle is always to link our science with the direct experience of the people who work the land."

During 2015, Chimonyo completed 22 papers along with his team, concentrating on pig and poultry farming in order to devise appropriate technologies for poor rural farmers and beneficiaries of land restitution.

Keeping Indigenous Culture Alive

Dr Lauren Dyll

"There is this perception that indigenous culture is stuck in the past," says Dr Lauren Dyll of the School of Applied Human Sciences in the College of Humanities at UKZN. "The objective with our 'Rethinking Indigeneity' project is to debunk this idea and examine how indigenous culture is lived and practised today."

"We spent time with Bushmen research participants in the Kalahari, where we examined the perceptions imposed by media, researchers, lodge operators and tourists; and how the Bushmen negotiate these".

Another research project examined the popular Zulu soap opera *Uzalo*.

"*Uzalo* is unique in many ways" says Dyll. "It is the only locally-produced monolingual television programme that reflects contemporary Zulu culture in a township setting. We took two approaches to this research: firstly we analysed the soap opera itself, the setting and stories; but we also investigated how the production differed from the usual studio-produced telenovela. We explored the way in which both rural and urban viewers in KwaZulu-Natal responded to the drama, and how they relate it to their own experiences."

▼ *Lauren Dyll speaks to 'Dlomo – the policeman' on the Uzalo set.*



Masters Student Hot on the Trail of Leopard Tortoises

Mr Martyn Drabik-Hamshare

Research by master's student in the School of Life Sciences, Mr Martyn Drabik-Hamshare, on the home range and movement of threatened Leopard Tortoises (*Stigmochelys pardalis*) in the Western Cape led him on an adventurous search during his most recent data-collecting venture.

Drabik-Hamshare's research is significant since much of the tortoises' historical habitat is now used by humans for farming, leading to habitat loss and threatening their survival. In addition, roads and fencing divide their habitats, and electric fencing can decimate populations.

He returns to the five commercial farms where the tortoises roam every two to three months to download data collected by GPS transmitters placed on the tortoises. On his three visits this year, eight of the tortoises were easy to find, however two proved elusive.

After hours of driving around the sites, one tortoise was found by chance.

The second tortoise remained evasive and Drabik-Hamshare asked Chief Flying Instructor Mr Ronny Johnson from the international flying school in Beaufort West to assist with the search. This was at the suggestion of Mr Victor Hugo of animaltrackem, who provided the transmitters for the study.

After several hours of searching, eventually, to Drabik-Hamshare's immense relief, the tortoise was located and nine months of vital data were downloaded!

So far, Drabik-Hamshare has established that Leopard Tortoises seem to be moving much further than expected with some covering up to 3km in just two or three weeks. Furthermore, despite large dams in the area, the tortoises do not seem to need these to supplement their water, probably getting it from food sources.



Creating Awareness of the Vaccine for Cervical Cancer

Dr Muhammad Ehsanul Hoque

“Very few people, even educated people, are aware that there is a vaccine for cervical cancer,” says Dr Muhammad Hoque, Academic Leader of Higher Degrees and Research at the Graduate School of Business and Leadership at UKZN, with a PhD in Medical Science.

“They have tended to resist the vaccine as they had concerns because it was new and largely unknown. There were also cultural practices and beliefs that made people hesitant. Once they were informed, they were more than 50% more likely to agree to vaccinate their adolescent girls”.

Hoque found, through a number of behavioural studies, that it was important that information regarding human papillomavirus vaccine be given to people from a credible source, such as a health professional. The findings have been presented to international experts and the Department of Health, South Africa, with the intention that health care workers should be educated to advise parents of young girls about this simple and effective vaccine.



Changing Rural Schools from Inside Out

Dr Phumlani Myende

Recipient of the Emerging Researcher Award in 2014, Dr Phumlani Myende completed three sets of research in 2015. Two of them looked at ways to better integrate rural schools into their communities.

“Researchers in the context of South Africa continue to pathologize rurality and leadership in rural schools,” he says, “forgetting the unquestionable reality that urban spaces, for a very long time, continue to survive due to the ‘brain drain’ that has left rural communities sometimes helpless.”

“School leaders in rural areas need to reconsider their context as resourceful and start to change their schools from inside-out. Partnerships with their local communities are not a panacea to problem solving but they are a starting point in order to draw from untapped local resources,” Myende continues.

Coming from a rural community himself, Myende believes that rural schools need to maximise their social capital which has been proved to be present in many rural communities.



Investigating Biomarkers of Alzheimer’s Disease for Early Diagnosis

Mr Ernest Dalle

Because Alzheimer’s is a non-curable neurodegenerative disease, a constant search for novel therapies is imperative, says eminent young researcher at UKZN’s School of Laboratory Medicine and Medical Sciences (LMMS), Mr Ernest Dalle.

The masters candidate has successfully completed a pilot study conducted jointly at the School of LMMS and the Department of Electronic Engineering, which found that normal blood plasma changed its electric properties compared to the blood plasma of patients with Alzheimer’s disease.

Co-supervised by the Dean and Head of LMMS, Professor William Daniels, together with the Schools’ Academic Leader for Research, Dr Musa Mabandla, Dalle conducted his pre-clinical laboratory experiments on animal models using behavioural tests, stereotaxic surgery and autopsy.

The aim of the study was to use an animal model to search for a novel biomarker that reflected the cognitive impairment of Alzheimer’s disease.

Dalle said: “The lack of reliable biomarkers has made the evaluation of new treatments difficult.”

He explained that cognitive impairment is not a stand-alone disease. “Alzheimer’s disease is an age-related disease that leads to cognitive impairment or dementia. The disease is characterised by a loss of neurons and cells within the brain (Hippocampus). Alzheimer’s disease is therefore a neurodegenerative disease.”

Because neurodegeneration is irreversible, the study set out to investigate biological markers (biomarkers) of Alzheimer’s disease for an early diagnosis of the disease. “In so doing, we knew that it could give us a chance to discover how to predict the disease or even to specify the population at risk of developing the disease later on in their life.”

Dalle won R15 000 towards attending a conference of his choice when he presented the study at the College of Health Sciences Research Symposium in 2014. He holds a Bachelors degree in Animal Physiology, Honours in Medical Sciences (Human Physiology) and intends to convert his masters to a PhD. UKZN was his institution of choice because of its “infrastructure and equipment that provides a perfect environment for researchers to produce good results at international level”.



Converting Petroleum-based Raw Materials into Valuable Products

Dr Stephen Ojwach

Dr Stephen Ojwach is a Senior Lecturer in Inorganic Chemistry and Academic Leader in Chemistry in the School of Chemistry and Physics on the Pietermaritzburg campus. His specialty, and research area focuses on transition metal complexes and their role as catalysts for various organic transformations. These mainly involved the conversion of petrochemical-based raw materials into valuable industrial and domestic products, such as fuel, lubricants, detergents, polymers, fragrances, food additives and pharmaceutical products.

“South Africa is rich in petroleum, derived from low-grade coal,” he says, “and this can be converted into a number of useful and valuable products.”

Ojwach has published about 50 research articles in high impact factor international journals such *Dalton Transactions*, *Organometallics* with an h-index of 12. He has received several international research grants such as one from the International Foundation for Science and Third World Academy of Sciences. He was awarded a National Research Foundation (NRF) grant in 2015 worth R700 000 to cover research expenses and postgraduate bursaries. Ojwach is also a reviewer of several Inorganic Chemistry journals and an external examiner for a number of universities.



Keeping Patients Safe

Dr Reitze Nils Rodseth

Surgery puts the body under strain. An already-weakened heart can suffer strokes or heart attacks. Research Fellow in the School of Clinical Medicine at UKZN, Dr Reitze Nils Rodseth is researching ways to predict risk from complications after non-cardiac surgery.

“There is a hormone called BNP (B-type natriuretic peptide) that acts on blood vessels, causing them to dilate,” says Rodseth. “This is the hormone I have been studying, because it is a very good indicator of heart-strength.”

Previously, patients were evaluated through a series of external tests known as clinical risk stratification. But a more reliable marker was sought.

“We use blood tests to find the level of this hormone,” says Rodseth. “We test before, during, and after the operation. It is crucial to know what levels of medication are acceptable to stabilise a patient to prevent post-operative complications.”

Rodseth has worked with Dr Bruce Biccadd of the University of Cape Town, as well as researchers from Cleveland University in Ohio, USA, and McMasters University in Ontario, Canada.

Tackling Disease

Professor Benn Sartorius

Associate professor in the School of Nursing and Public Health at UKZN, Professor Benn Sartorius is an experienced bio-statistician. Until 2014 he worked at UKZN in a biostatistical support capacity, assisting staff and students in the College of Health Sciences with a wide variety of research projects. In 2015 his focus changed to setting up a prospective cancer research platform to investigate incident cancer in KwaZulu-Natal in the context of high underlying viral etiologies such as HIV, Hepatitis B and Human Papilloma Virus. The Gastro-Intestinal Cancer Research Centre (GICRC) linked to the Inkosi Albert Luthuli Hospital Oncology Centre has been formed under the directorship of Professor Thandinkosi Madiba with a special focus on gastrointestinal cancer in particular in the context of the province's high HIV burden.

During 2015, Sartorius also joined the Global Burden of Disease Group as a collaborator, a global think-tank funded by the Bill & Melinda Gates Foundation that aims to track the disease and risk factor burden around the world by reviewing data on key indicators on an all-encompassing range of diseases and associated risk factors. The overall objective is to estimate the extent of the disease and risk factor burden in each country for policy guidance.



Tracking Investment Trends

Dr Mabutho Sibanda



Dr Mabutho Sibanda, of the School of Accounting, Economics and Finance in the College of Law and Management Studies at UKZN, spent a profitable 2015 examining financial markets and personal investments.

"I studied how institutional investment activities create wealth and lead economic development," he says. "I also looked at aspects of personal finance, and the impact of financial behaviours and individuals' attitudes towards money."

"There is a world-wide trend in investing, that people want big returns in a hurry. There is scarcity of patient capital in the financial markets. With changes in pension schemes from defined benefit to defined contribution schemes, trustees wield enormous power and put pressure on investment managers to get high returns – at least to outperform the benchmark returns. Consequently, investment is now generally short-term and characterised by highly volatile returns. This is further driven by 'hot' money arising from the global surplus funds that lead to highly volatile financial markets. This is problematic."

Dr Sibanda is passionate about mentoring young academics and transferring skills.

"I am also interested in how SMMEs manage their money," he says, "and how personal financial management skills translate to the entrepreneurs' ability to run their businesses."

Emerging Researchers

College of Agriculture, Engineering and Science			
Title	Surname	First Name	School/Research Unit
Dr	Chivenge	Pauline Paidamoyo	Agricultural, Earth and Environmental Sciences
Dr	Green	Andrew Noel	Agricultural, Earth and Environmental Sciences
Dr	Ismail	Riyad Abdool Hak	Agricultural, Earth and Environmental Sciences
Dr	Kolanisi	Unathi	Agricultural, Earth and Environmental Sciences
Dr	Magwaza	Lembe Samukelo	Agricultural, Earth and Environmental Sciences
Dr	Nel	Adrian	Agricultural, Earth and Environmental Sciences
Dr	Birungi	Grace	Chemistry and Physics
Dr	Booyesen	Irvin Noel	Chemistry and Physics
Dr	Chetty	Naven	Chemistry and Physics
Dr	Ma	Yin-Zhe	Chemistry and Physics
Dr	Sinayskiy	Ilya	Chemistry and Physics
Dr	Di Minin	Enrico	College Admin Office
Dr	Bengesai	Annah Vimbai	Engineering
Dr	Coquelet	Christophe Daniel Gerard	Engineering
Dr	Harinarain	Nishani	Engineering
Dr	Kumarasamy	Muthukrishnavellaisamy	Engineering
Dr	Loggia	Claudia	Engineering
Dr	Lokhat	David	Engineering
Dr	Nelson	Wayne Michael	Engineering
Mr	Pitot De La Beaujardiere	Jean-Francois Philippe	Engineering
Dr	Bownes	Angela	Life Sciences
Dr	Brown	Mark	Life Sciences
Dr	Carrasco	Nicola Kim	Life Sciences
Dr	Jachowski	David	Life Sciences
Dr	Joshi	Meenu	Life Sciences
Dr	Macdonald	Angus Hector Harold	Life Sciences
Dr	Naidoo	Sershen	Life Sciences
Dr	Ramdhani	Syd	Life Sciences
Dr	Ryan	Sadie	Life Sciences
Dr	Shaik	Shakira	Life Sciences
Dr	Willows-Munro	Sandi	Life Sciences
Dr	Goswami	Rituparno	Mathematics, Statistics and Computer Science
Dr	Hilton	Matthew James	Mathematics, Statistics and Computer Science

College of Humanities			
Title	Surname	First Name	School/Research Unit
Dr	Dyll -Myklebust	Lauren Eva	Applied Human Sciences
Dr	Rossmann	Jean	Arts
Dr	Maposa	Marshall Tamuka	Education
Professor	Msibi	Thabo Perceviarence	Education
Dr	Myende	Phumlani Erasmus	Education
Mr	Maraganedzha	Mutshidzi	Religion, Philosophy and Classics
Ms	Mazibuko	Nokubonga Nokwanda	Social Sciences
Dr	Moore	Candice Eleanor	Social Sciences
Dr	Noble	Vanessa	Social Sciences
Dr	Pillay	Kathryn	Social Sciences
Mr	Rieker	Mark Ivan	Social Sciences

College of Health Sciences			
Title	Surname	First Name	School
Dr	Allorto	Nikki Leigh	Clinical Medicine
Dr	Bishop	David Gray	Clinical Medicine
Dr	De Vasconcellos	Kim	Clinical Medicine
Dr	Ferreira	Nando	Clinical Medicine
Dr	Laing	Grant Llewellyn	Clinical Medicine
Mr	Moodley	Yoshan	Clinical Medicine
Dr	Wise	Robert Deon	Clinical Medicine
Mrs	Bangalee	Varsha	Health Sciences
Mrs	Chetty	Verusia	Health Sciences
Dr	Govender	Pragashnie	Health Sciences
Dr	Honarparvar	Bahareh	Health Sciences
Dr	Naicker	Tricia	Health Sciences
Dr	Ormsbee	Michael	Health Sciences
Miss	Rampersad	Nishanee	Health Sciences
Dr	Reddy	Preshani	Health Sciences
Dr	Skelton	Adam Arnold	Health Sciences
Dr	Azu	Onyemaechi Okpara	Laboratory Medicine and Medical Sciences
Dr	Moshabela	Matlagolo Mosa	Nursing and Public Health
Dr	Naidoo	Joanne Rachel	Nursing and Public Health
Ms	Werner	Lise	Nursing and Public Health

College of Law and Management Studies			
Title	Surname	First Name	School
Dr	Crankshaw	Tamaryn Lee	Accounting, Economics and Finance
Mr	Dhai	Riaz Ahmed	Accounting, Economics and Finance
Dr	George	Gavin Lloyd	Accounting, Economics and Finance
Dr	Gibbs	Andrew Robert	Accounting, Economics and Finance
Dr	Kwenda	Farai	Accounting, Economics and Finance
Dr	Muller	Colette Lynn	Accounting, Economics and Finance
Miss	Peerbhai	Faezah	Accounting, Economics and Finance
Dr	Pillay	Surendran Subrayan	Accounting, Economics and Finance
Dr	Proches	Cecile Naomi	Graduate School of Business and Leadership
Mrs	Holness	Willene Audri	Law
Mr	Subramanien	Darren Cavell	Law
Mr	Swales	Lee Jay Edwin	Law
Dr	Swanepoel	Paul Arthur Albertus	Law
Mrs	Beharry-Ramraj	Andrisha	Management, IT and Governance
Mr	Chiweshe	Nigel Tawanda Farayi	Management, IT and Governance
Mrs	Derera	Evelyn	Management, IT and Governance
Dr	Ruggunan	Shaun Denvor	Management, IT and Governance
Dr	Van Niekerk	Brett	Management, IT and Governance

Postdoctoral Studies Booming at the College of Law and Management Studies

Professor Marita Carnelley

Having started small in 2013, the Postdoctoral Programme in UKZN's College of Law and Management Studies has boomed.

College Dean of Research Professor Marita Carnelley says that it was initially thought that it might prove difficult to attract postdocs to the College because it focuses on Law and Business. "It is after all something only the 'sciences' did was the reaction." This was proven wrong as there has been exponential annual growth and the

number now stands at 30. Indeed, there is a waiting list and the only barrier is funding. There is one National Research Foundation (NRF) postdoc, with all the others funded from College strategic funding generously provided by the Deputy Vice-Chancellor, Professor J. Mubangizi.

The postdocs are spread over the four Schools in the College, although Management, Information Technology and Governance (MIG) hosts the most. Their topics range from gender issues to workplace experiences (also in Higher Education), business leadership, governmental accountability and economics. Carnelley notes that while their value obviously lies in their publications, postdocs also mentor non-credentialed students and academics. Although they are encouraged to teach and supervise, the focus should remain the development of their academics career through publication of their research. Their success is evident from the number of postdocs that have become full-time academics at UKZN and other institutions.

The College has put several initiatives in place to assist with the logistical process and to make the postdocs feel part of the College 'family'. There are regular meetings throughout the year. The Schools within the College, supervisors (hosts) and the International Office also provide invaluable support. There is also a good informal peer support system between the postdocs and when a new postdoc arrives, an experienced postdoc is asked to mentor him/her.

Carnelley describes the postdoc programme as "a great initiative that builds the capacity of both individuals and the various Schools."

Carnelley describes the postdoc programme as "a great initiative that builds the capacity of both individuals and the various Schools."





DOCTORAL GRADUATES

Doctoral Graduates

College of Agriculture, Engineering and Science			
Surname	First Name	Qualification Name	Thesis Title
Adebisi	Abimbola Augustine	Doctor of Philosophy (Science)	Ruthenium (II) and -(III) Compounds with Biologically Relevant N-Donor Heterocyclic Chelators: Synthesis, Structural Elucidations, Electrochemistry, ESR and Radical Scavenging Studies
Awolola	Gbonjubola Victoria	Doctor of Philosophy (Science)	Phytochemical Analyses and Biological Activities of Four South African <i>Ficus</i> Species (Moraceae)
Babaee	Saeideh	Doctor of Philosophy in Engineering	Hydrate Phase Equilibrium Studies for Xe, Ar, Kr, and CF ₄ in the Presence of TBAB Aqueous Solutions
Bahaa-el-din	Laila	Doctor of Philosophy (Science)	Ecology and Conservation of the African Golden Cat <i>Caracal aurata</i>
Balcha	Fekadu Gurmu	Doctor of Philosophy (Science)	Breeding of Sweetpotato for Improvement of Root Dry Matter and β -Carotene Contents in Ethiopia
Bejaichund	Mayshree	Doctor of Philosophy in Engineering	Seismic Sources, Seismotectonics and Earthquake Recurrence for the KZN Coastal Regions
Betaw	Hirut Getinet	Doctor of Philosophy (Science)	Genetic Analyses of Drought Tolerance and Resistance to Late Blight Among Potato Genotypes
Biggs	Chara	Doctor of Philosophy (Science)	A Randomized Double Blind Placebo Controlled Trial to Determine the Effect of Soluble Dietary Fibre on Disease Progression and Body Composition of HIV Positive ARV Naïve Adults Attending a Wellness Clinic in KwaZulu-Natal, South Africa
Bowd	Rebecca	Doctor of Philosophy (Science)	Risk, Resilience and Social-Ecological Systems in Natural Resource-Based Development in South Africa
Brijmohan	Yarish	Doctor of Philosophy in Engineering	3D Modelling, Segmentation, Quantification and Visualisation of Cardiovascular Magnetic Resonance Images
Buthelezi	Nokubekezela Makhosi	Doctor of Philosophy (Science)	Investigations into the Incidence and Ecology of <i>Bilobata subsecivella</i> (Zeller) (Lepidoptera:Gelechiidae), a New Pest of Groundnut in South Africa
Butler	Louwrens Johannes	Doctor of Philosophy in Engineering	Manufacturing Planning and Operations Optimisation for Mass Customisation Manufacturing Using Computational Intelligence
Chetty	Nevendra Krishniah	Doctor of Philosophy in Engineering	DC Corona Electroporation
Chimonyo	Vimbayi Grace Petrova	Doctor of Philosophy (Science)	Quantifying Productivity and Water Use of Sorghum Intercrop Systems
Chinheya	Cleopas Chenai	Doctor of Philosophy (Science)	Use of <i>Trichoderma</i> and <i>Bacillus</i> Isolates as Seed Treatments Against a Root Knot Nematode, <i>Meloidogyne javanica</i> (Chitwood)
Clulow	Alistair David	Doctor of Philosophy (Science)	Quantification of the Water-Use Dynamics of the Dominant Plant Communities of the Eastern Shores in the Isimangaliso Wetland Park for Improved Water Resource Management
Coetzer	Willem Gabriël	Doctor of Philosophy (Science)	Systematics and Phylogeography of the Cape Parrot (<i>Poicephalus robustus</i>)
Cwele	Thandanani	Doctor of Philosophy (Science)	Total and Preferential CO Oxidation Over Solid -Solution and Supported Gold Catalysts
Davrajh	Shaniel	Doctor of Philosophy in Engineering	Optimal Allocation of Reconfigurable Inspection Resources for Minimisation of the Cost of Quality Metric for Factories of the Future
Desta	Ermias Abate	Doctor of Philosophy (Science)	Pre-Breeding of Tef [<i>Eragrostis tef</i> (Zucc.) Trotter] for Tolerance to Aluminium Toxicity
Dlamini	Nkosinathi Bongumusa	Doctor of Philosophy (Science)	Numerical Simulation of Quantum Spins in a Dissipative Environment
Duba	Chuene Thama	Doctor of Philosophy (Science)	Wind-Wave Interactions, Density Stratification and Double Diffusive Convection in Rotating Flows
Dube	Timothy	Doctor of Philosophy (Science)	Optical Remote Sensing of Aboveground Forest Biomass and Carbon Stocks in Resource-Constrained African Environments
Dukhi	Veresha	Doctor of Philosophy (Science)	Chemical Factors that Contribute to Ageing and Failure of Insulation Materials in Liquid-filled Transformers

College of Agriculture, Engineering and Science			
Surname	First Name	Qualification Name	Thesis Title
Faloye	Funmilayo Dorcas	Doctor of Philosophy (Science)	Optimization of Biohydrogen Production Inoculum Development via Hybrid Pretreatment Techniques – Semi Pilot Scale Production Assessment on Agro-Waste (Potato Peels)
Frank	Reevin Robert	Doctor of Philosophy in Engineering	Assessment of Sustainable Approaches to Improve Waste Degradation, Landfill Gas Production and Leachate Bionitrification in Bioreactor Landfills
Gakuba	Emmanuel	Doctor of Philosophy (Science)	Analysis and Monitoring of Persistent Organic Pollutants in the Umgeni River, KwaZulu-Natal, South Africa
Ganguly	Apratim	Doctor of Philosophy (Science)	Gravity Theories, Black Holes and Compact Objects
Gericke	Ockert Jacobus	Doctor of Philosophy in Engineering	Estimation of Catchment Response Time in Medium to Large catchments in South Africa
Grech	Nigel Mark	Doctor of Philosophy (Science)	Studies on Guava Wilt Disease
Gumede	Phiwayinkosi Richmond	Doctor of Philosophy (Science)	The Respiratory Health Effects Associated with Particulate Matter Exposure in Children Residing near a Landfill Site: A Case Study of eThekweni Municipality
Habyarimana	Faustin	Doctor of Philosophy (Science)	Measuring Poverty and Child Malnutrition with their Determinants from Household Survey Data
Hadebe	Sandile Thamsanqa	Doctor of Philosophy (Science)	Water Use of Selected Sorghum (<i>Sorghum bicolor</i> L. Moench) Genotypes
Hannweg	Karin Fiona	Doctor of Philosophy (Science)	Induced Polyploidy as a Tool for the Development of Novel South African Indigenous Crops
Hashemi	Hamed	Doctor of Philosophy in Engineering	Application of Gas Hydrates in Cold Storage Technology: Experimental Study and Thermodynamic Modeling
Hendry	Gillian Margaret	Doctor of Philosophy (Science)	The Management of Missing Categorical Data: Comparison of Multiple Imputation and Subset Correspondence Analysis
Hitayezu	Patrick	Doctor of Philosophy (Science)	Climate Change Perceptions, Crop Diversification and Land Use Change Among Small-Scale Farmers in the Midlands Region of KwaZulu-Natal, South Africa: Behavioural and Microeconomics Analyses
Hoyer	Lauren	Doctor of Philosophy (Science)	Rock Fabric of Karoo Dolerite Sills along the KwaZulu-Natal North Coast, South Africa: Implications for the Magma Source
Ilani-Kashkouli	Poorandokht	Doctor of Philosophy in Engineering	Thermodynamic Studies on CO ₂ Capture through Gas Hydrate Formation Technology
Jiri	Obert	Doctor of Philosophy (Science)	Climate Change and Variability Impacts on Crop Production in the Low Potential Smallholder Farming Regions of Zimbabwe
Kaniki Tumba	Armel	Doctor of Philosophy in Engineering	Application of Gas Hydrates to the Separation of Close-Boiling Components in Petroleum Streams
Kelly	Thavamoney	Doctor of Philosophy in Engineering	An Investigation into the Reduction of Greenhouse Gases Associated with the Disposal of Municipal Solid Waste for the Development of an Institutional Framework in Developing Countries.
Keru	Godfrey Kamitha	Doctor of Philosophy (Science)	Baron-and Nitrogen-doped Carbon Nanotubes, Synthesis, Characterization and Application in Solar Cells
Knowles	Kenda Leigh	Doctor of Philosophy (Science)	Observational Probes of Merging Galaxy Clusters
Koetle	Motselisi Jane	Doctor of Philosophy (Science)	Organogenesis and Genetic Transformation in <i>Dierama erectum</i> Hilliard
Kubheka	Bongani Petros	Doctor of Philosophy (Science)	Integrating Microdosing of Fertilizers with Biological Control Agents for Maize Production in the Eastern Cape, South Africa
Lawal	Isiaka Ayobamidele	Doctor of Philosophy (Science)	Studies of Ionic Liquid Modified Materials for Adsorption of Organic Pollutants from Aqueous Media
Makanda	Gilbert	Doctor of Philosophy (Science)	Numerical Study of Convective Fluid Flow in Porous and Non-Porous Media
Malinzi	Joseph	Doctor of Philosophy (Science)	Mathematical Modelling of Cancer Treatments and the Role of the Immune System Response to Tumor Invasion
Mapayi	Temitope	Doctor of Philosophy (Science)	Detection and Characterization of Vessels in Retinal Images

College of Agriculture, Engineering and Science

Surname	First Name	Qualification Name	Thesis Title
Marambanyika	Thomas	Doctor of Philosophy (Science)	An Analysis of the Impacts of Human Activities and Management Strategies on Wetland Processes in Southern Zimbabwe
Masere	Tirivashe Phillip	Doctor of Philosophy (Science)	An Evaluation of the Role of Extension in Technology Adoption by Small-Scale Resource-Constrained Farmers: A Case of Lower Gweru Communal Area, Zimbabwe
McPherson	Shane Cameron	Doctor of Philosophy (Science)	Urban Ecology of the Crowned Eagle (<i>Stephanoaetus coronatus</i>) in KwaZulu-Natal, South Africa
Megnidio-Tchoukouegno	Mireille Merlise	Doctor of Philosophy (Science)	Computational & Experimental Study of Thin Films of Polymers Blends
Mfuamba Mulumba	Jean-Pierre	Doctor of Philosophy (Science)	Analytic Comparison of Tropospheric Ozone Climatology over Southern Africa using Retrieved Remote Sensing and Ground Based Measurement Data for the Period 1991-2010
Mgobhozi	Sivuyile Wiseman	Doctor of Philosophy (Science)	Combined Impulse Control and Optimal Stopping in Insurance and Interest Rate Theory
Mkenyeleye	Maombi Daud	Doctor of Philosophy (Science)	Investigation of Gravitational Collapse of Generalized Vaidya Spacetimes
Mkhize	Zimbili	Doctor of Philosophy (Science)	Structure and Synthesis of Bioactive Natural Products
Mlipha	Mandla	Doctor of Philosophy (Science)	Sustainable Agriculture Among Subsistence Farmers in Swaziland: A Study of Adoption and Practice of Conservation Agriculture at Shewula
Mofokeng	Maletsema Alina	Doctor of Philosophy (Science)	Diversity Analysis of South African Sorghum Genotypes Using Agronomic Traits, SSR Markers and Protein Content and Amino Acid Composition
Mohamed	Ziyaad	Doctor of Philosophy (Science)	Final stage CO removal by oxidation or hydrogenation using supported PGM catalysts for fuel cell applications
Mohammed	Aminu	Doctor of Philosophy (Science)	Antioxidative and Antidiabetic Effects of Some African Medicinal Plants
Mohammed	Muna Balla Elshareef	Doctor of Philosophy (Science)	Statistical Methods to Evaluate Disease Outcome Diagnostic Accuracy of Multiple Biomarkers with Application to HIV and TB Research
Mokhele	Tholang Alfred	Doctor of Philosophy (Science)	Development of Census Output Areas in South Africa
Mongi	Rose John	Doctor of Philosophy (Science)	Breeding for Resistance Against Angular Leaf Spot Disease of Common Bean in the Southern Highlands of Tanzania
Moodley	Kodylan	Doctor of Philosophy (Science)	Defeasible Reasoning for Description Logic Ontologies
Moodley	Thrineshen	Doctor of Philosophy (Science)	The Synthesis and Characterization of Coumarinyl Chalcone Hybrids and their Antibacterial Activity
Mosisi	Moleka Pange	Doctor of Philosophy (Science)	Chiefdom Development Plan: Implications for Food Security in Swaziland
Mpendulo	Conference Thando	Doctor of Philosophy (Science)	Influence of Water Stress on Intake, Growth Performance and Nutritional Status of Nguni Goats
Mshengu	Bongiwe Pridesworth	Doctor of Philosophy (Science)	Chemical Constituents from <i>Elytropappus rhinocerotis</i> and <i>Rhoicissus tridentate</i> : Structural and Activity Studies
Mulbah	Quaqua Sumo	Doctor of Philosophy (Science)	Integrating Genetic Resistance with Biocontrol against Rice Blast and Drought
Mupenzi	Mutimura	Doctor of Philosophy (Science)	Evaluation of Ecological Benefits of Brachiaria Grasses in Integrated Crop-Livestock Production System in Rwanda
Murugani	Vongai Gillian	Doctor of Philosophy (Science)	Women Empowerment in Agriculture: Agency & Institutions for Improved Market Access and Household Food Security in Limpopo Province
Musila	Ruth Nzisa	Doctor of Philosophy (Science)	Genetic Analysis for Drought Tolerance and Yield Stability in Interspecific and <i>Oryza sativa</i> L. Rice Germplasm
Mutema	Macdex	Doctor of Philosophy (Science)	Water, Sediment, Organic Carbon and Nutrient Fluxes from Headwaters to River Basin: Main Factors of Control in Thukela River, South Africa
Mvubu	Nontobeko Eunice	Doctor of Philosophy (Science)	Clinical Strains of <i>Mycobacterium tuberculosis</i> Induce Strain-specific Patterns of Cytokine Production, Gene Expression and Pathway Changes in Pulmonary Alveolar Epithelial Cells

College of Agriculture, Engineering and Science			
Surname	First Name	Qualification Name	Thesis Title
Mzozoyana	Vuyisa	Doctor of Philosophy (Science)	Synthesis of Fluorinated Benzophenones and Phenylcoumarins
Naicker	Dunesha	Doctor of Philosophy (Science)	The Application of “PNP” Aminodiphosphine Complexes in the Oxidation of n-octane and Styrene
Naidoo	Samantha	Doctor of Philosophy (Science)	The Effect of Wastewater Treatment Works on Foraging Ecology, Haematology, Detoxification Organs and Reproduction in an Urban Adapter, the Banana Bat (<i>Neoromicia nana</i>)
Naidoo	Krishnaveni	Doctor of Philosophy (Science)	The Effects of Petroleum Hydrocarbon Contamination on Selected Intertidal Macrophytes and Meiofauna
Negash	Asnake Worku	Doctor of Philosophy (Science)	Application of Mixed Model and Spatial Analysis Methods in Multi-Environmental and Agricultural Field Trials
Ngailo	Stephan Eliuth	Doctor of Philosophy (Science)	Breeding Sweetpotato for Improved Yield and Related Traits and Resistance to Sweetpotato Virus Disease (SPVD) in Eastern Tanzania
Nongqwenga	Nqaba	Doctor of Philosophy (Science)	Evaluation of Extraction Based Fertilizer Recommendation
Nyamato	George Simba	Doctor of Philosophy (Science)	Nitrogen-Donor Late Transition Metal Complexes as Ethylene Oligomerization Catalysts
Nyete	Abraham Mutunga	Doctor of Philosophy in Engineering	A Flexible Statistical Framework for the Characterization and Modelling of Noise in Powerline Communication Channels
Obaga	Emmanuel Omboga	Doctor of Philosophy (Science)	Simulating Thermal Fluctuations in Soft Matter Models
Odunitan-Wayas	Feyisayo Adeola	Doctor of Philosophy (Science)	Utilisation of Provitamin A Biofortified Maize in Ovambo Chickens to Improve Food and Nutrition Security
Ogweno	Aloice Omondi	Doctor of Philosophy (Science)	Nitrogen and Phosphine-Donor Ruthenium(II/III) and Palladium(II) Complexes: Synthesis and Catalytic Hydrogenation of Ketones, Alkenes and Alkynes
Oseghe	Ekemena Oghevovoh	Doctor of Philosophy (Science)	Studies on the Photodegradation of Selected Organic Pollutants using Heterogenous Catalysts
Osman Abdelaziz	Nadir Shams Eldin	Doctor of Philosophy (Science)	Synthesis, Structural and Magnetic Characterization Spinel Nanoparticle Ferrites with Applications for Electrochemical Sensors
Oyetade	Oluwaseun Akinwale	Doctor of Philosophy (Science)	Adsorption of Selected Pollutants from Aqueous Solutions onto Modified Multiwalled Carbon Nanotubes
Padayachee	Jared	Doctor of Philosophy in Engineering	The Development of Methods for the Design and Evolution of Reconfigurable Cellular Manufacturing Systems.
Pawar	Sunayna Sachin	Doctor of Philosophy (Science)	Synthesis and Biological Studies of Novel Pyranochromene Derivatives
Phepa	Patrick Biyason	Doctor of Philosophy (Science)	Using Epidemiological Mathematical Models to Understand the Transmission Dynamics of Bovine Tuberculosis in Buffalo and Cattle Populations
Phiri	Nathan	Doctor of Philosophy (Science)	Genetic Analysis of Common Bean (<i>Phaseolus vulgaris</i> L.) Genotypes for Tolerance to Drought and Heat Stress in Zambia
Pringle	Justin James	Doctor of Philosophy in Engineering	On Weather and Waves: Applications to Coastal Engineering
Qwabe	Lindelani Qalukubona	Doctor of Philosophy (Science)	CO Oxidation in a Hydrogen Rich Feed – Stream for Use in Fuel Cells
Ralph	Taryn Marietta Cecilia	Doctor of Philosophy (Science)	Aspects of the Molecular Systematics, Taxonomy and Population Genetics of <i>Otomops</i> (Chiroptera: Molossidae) in Africa and Madagascar
Rukundo	Placide	Doctor of Philosophy (Science)	Breeding of Sweetpotato (<i>Ipomoea batatas</i> (L.) Lam.) for Drought Tolerance and High Dry Matter Content in Rwanda
Scholtz	Rheinhardt	Doctor of Philosophy (Science)	A Spatio-temporal Analysis of Woody Vegetation Structure within a Semi-arid Savanna: Insights to Environmental Drivers, Distribution and Dynamics
Selier	Sarah-Anne Jeanetta	Doctor of Philosophy (Science)	The Challenges and Opportunities in Conserving Wide-ranging Cross Border Species: A Case Study of the Greater Mapungubwe Transfrontier Conservation Area Elephant Population
Semina	Iuliia	Doctor of Philosophy (Science)	Stochastic Schrodinger Equations Approach to Open Quantum Systems
Sharaunga	Stanley	Doctor of Philosophy (Science)	The Significance of Women Empowerment in Improving Rural Livelihood Outcomes: The Case of Irrigating and Dry-Land Women Farmers in Msinga, South Africa

College of Agriculture, Engineering and Science

Surname	First Name	Qualification Name	Thesis Title
Shimaponda	Nzooa Munkwangu	Doctor of Philosophy (Science)	Socio-Economic and Eco-Environmental Determinants of Malaria in Four Malaria Endemic Provinces of Zambia
Sinyolo	Sikhulumile	Doctor of Philosophy (Science)	The Impact of Social Grants on Rural Households' Incentives to Farm, Market Participation and Farm Entrepreneurship: Evidence from KwaZulu-Natal, South Africa
Siti	Willy Mkwanga	Doctor of Philosophy in Engineering	Optimal Energy Control of a Grid Connected Solar-Wind based Electric Power Plant
Strachan	Kate Leigh	Doctor of Philosophy (Science)	Intertidal Salt-Marsh Foraminifera as Sea-Level Indicators: Lessons from the South African Coastline
Tella	Toluani Adebayo Jedidiah	Doctor of Philosophy (Science)	Investigation of Anti-diabetic Properties of <i>Psidium guajava</i> Leaf in Streptozotocin Induced Diabetic Rats
Tembo	Batiseba	Doctor of Philosophy (Science)	Breeding Investigations and Validation of Molecular Markers Linked with Spot Blotch Disease Resistance in Wheat (<i>Triticum aestivum</i> L.) Germplasm for the Rain-Fed Conditions of Zambia
van Deventer	Heidi	Doctor of Philosophy (Science)	Remote Sensing of Wetland Tree Species in the iSimangaliso Wetland Park, KwaZulu-Natal, South Africa
Walker	Nicholas Lee	Doctor of Philosophy (Science)	Extracellular Matrix Factors Influence Myoblast Activation, Differentiation and Fusion
Warner	Jonathan Kirk	Doctor of Philosophy (Science)	Morphometrics, Ectotoxicology and Stable Isotope Ecology of Nile Crocodiles (<i>Crocodylus niloticus</i>) in KwaZulu-Natal, South Africa
Widdows	Craig David	Doctor of Philosophy (Science)	The Ecology of Large-Spotted Genets within an Urban Landscape
Williams-Wynn	Mark Duncan	Doctor of Philosophy in Engineering	Applications of Fluorocarbons for Supercritical Extraction in the Petroleum Industry
Woldetsadik	Berhanu Aragie	Doctor of Philosophy (Science)	Statistical Mechanical Models for Electron Hopping in a Semiconductor Layer
Zaake	Tamukedde Benon	Doctor of Philosophy in Engineering	Development and Application of Decision Support Systems for Improved Planning and Operation of Large Dams along the White Nile
Zulu	Xolelwa Cecilia	Doctor of Philosophy (Science)	Heterogenisation of Selective Homogeneous Ethylene Oligomerisation Catalysts

College of Health Sciences

Surname	First Name	Qualification Name	Thesis Title
Achema	Godwin	Doctor of Philosophy in Nursing	A grounded theory analysis of the philosophy of care for children with HIV/AIDS in Nigeria
Adebiyi	Oluwafeyisetan Olubolade	Doctor of Philosophy (Health Sciences)	The antioxidant effect of Naringin in modifying the components of the NRTI – induced mitochondrial dysfunction
Adebiyi	Olubunmi Adeniyi	Doctor of Philosophy (Health Sciences)	The putative role of Naringin in the modification of oxidative stress in diabetic cardiomyopathy
Ajith	Anushka	Doctor of Philosophy (Medicine)	The role of peripheral natural killer cells in immune compromised pre-eclamptic and normotensive pregnant Black South Africans
Ally	Fazila	Doctor of Philosophy (Health Sciences)	A morphological and morphometric analysis of the development of the calcaneus, talus and first metatarsal bone in KwaZulu-Natal population group: Newborn to early adulthood
Chetty	Verusia	Doctor of Philosophy (Health Sciences)	Development of a model of care for rehabilitation of people living with HIV in a semi-rural setting in KwaZulu-Natal, South Africa
Dlamini	Nonhlanhla	Doctor of Philosophy (Medicine)	An investigation of African Traditional Medicines used in the treatment of Kaposi's sarcoma (an AIDS defining cancer)
Dookie	Navisha	Doctor of Philosophy (Medicine)	Antibiotic resistance in Mycobacterium tuberculosis: The role of genetic mutations in resistance conferring genes and efflux transporters
Dookie	Sunitha	Doctor of Philosophy (Health Sciences)	A critical analysis of the impact of primary health care philosophy on district oral health services in KwaZulu-Natal
Dube	Faith Nana	Doctor of Philosophy in Nursing	The outcomes of implementing the South African Department of Health (DoH) mental health clinical guidelines for the management of psychiatric patients at Primary Health Care Clinics

College of Health Sciences			
Surname	First Name	Qualification Name	Thesis Title
Dukhi	Natisha	Doctor of Philosophy (Medicine)	Burden of malnutrition in children aged 0-59 months in iLembe district, KwaZulu-Natal
Ferreira	Nando	Doctor of Philosophy (Medicine)	The outcome of tibial non-unions using a revised definition, classification system and management strategy
Gounden	Shivona	Doctor of Philosophy (Health Sciences)	Hyperglycaemic-induced regulation of SIRT3 and downstream antioxidant profile
Govender	Pragashnie	Doctor of Philosophy (Health Sciences)	A clinical algorithm for the assessment of hypotonia in children under 5 years
Gunda	Resign	Doctor of Philosophy (Medicine)	Mixed infection from soil transmitted Helminths and Schistosomes in disadvantaged communities in KwaZulu-Natal (KZN), South Africa.
Gwetu	Thando Patience	Doctor of Philosophy (Medicine)	Anaemia and its relation to intellectual, cognitive and growth impairment in children from KwaZulu-Natal, South Africa
Hamid	Shaista	Doctor of Philosophy (Medicine)	Investigating the role of fortigenic factors in enhancing academic success and coping mechanisms in Health Science students
Hazemba	Alice Ngoma	Doctor of Philosophy in Nursing	Infant feeding and HIV: choices and decisions outcomes on prevention of mother to child transmission; a qualitative inquiry of experiences of HIV positive mothers
Jeena	Prakash Mohan	Doctor of Philosophy (Medicine)	The impact and management of viral infections in the lungs of HIV infected and uninfected children
Koofhethile	Catherine Kegakilwe	Doctor of Philosophy (Medicine)	Protective HLA class I alleles: Investigation of viral control and lack of control in chronic HIV-1 subtype C infection
Korb	Vanessa Claire	Doctor of Philosophy (Health Sciences)	An investigation into TB/HIV manipulation of the T-cell immune response
Kumar	Santosh	Doctor of Philosophy (Medicine)	Improving the efficacy of bacillus calmette guerin vaccine by concomitant inhibition of T regulatory and T helper 2 cells
Kyei	Samuel	Doctor of Philosophy (Health Sciences)	Ocular-antiinflammatory, anti-cataract, hypotensive effect and safety assessment of aqueous extracts of heliotropium indicum and stem juice of hypselodelphys violacea in rodents
Macherera	Margaret	Doctor of Philosophy (Medicine)	Indigenous knowledge systems on malaria in Gwanda district, Zimbabwe
Maharaj	Niren Ray	Doctor of Philosophy (Health Sciences)	An investigation into the clinical, biochemical, immunological and epigenetic factors in Black South African women with preeclampsia and HIV
Mahomed	Ozayr Haroon	Doctor of Philosophy (Medicine)	The Impact and sustainability of an integrated chronic disease management model at primary care level in South Africa
Manyangadze	Tawanda	Doctor of Philosophy (Medicine)	Spatial and temporal modelling of Schistosomiasis transmission at micro-scale in Southern Africa: A case of Ndumo area in uMkhanyakude health district in KwaZulu-Natal, South Africa
Marais	Leonard Charles	Doctor of Philosophy (Medicine)	An integrated approach to adult chronic osteomyelitis
Mazorodze	James Hove	Doctor of Philosophy (Medicine)	Reprogrammed host energy metabolism during Mycobacterium tuberculosis infection: Mechanistic insights
Mhlongo	Ndumiso Nhlakanipho	Doctor of Philosophy (Health Sciences)	Insight into glycosidases using bioinformatics and molecular modeling tools
Moodley	Yoshan	Doctor of Philosophy (Medicine)	Perioperative studies of hypertension
Moodley	Kogilambal	Doctor of Philosophy (Health Sciences)	The biological effects of Tulbaghia violacea in a salt-sensitive, hypertensive and diabetic rat model
Mpofana	Thabisile	Doctor of Philosophy (Health Sciences)	The effects of caffeine on a maternally separated Parkinson rat model
Mulol	Helen Margaret Alison	Doctor of Philosophy (Medicine)	A longitudinal study of breast milk intake volumes in African infants in a typical urban disadvantaged South African community
Nagiah	Savania	Doctor of Philosophy (Health Sciences)	A biochemical assessment of stress response following acute and prolonged exposure to antiretroviral drugs (nucleoside reverse transcriptase inhibitors) in vitro
Naidoo	Kogieleum	Doctor of Philosophy (Medicine)	Challenges in the integration of TB and HIV care: Evidence for improving patient management and health care policy

College of Health Sciences			
Surname	First Name	Qualification Name	Thesis Title
Naidoo	Charissa Camille	Doctor of Philosophy (Medicine)	Fitness of multi- and extensively drug-resistant Mycobacterium tuberculosis clinical strains
Ngcapu	Sinaye	Doctor of Philosophy (Medicine)	Impact of injectable hormone contraceptives on the innate immune environment in the genital tract in women at high risk for HIV infection
Ngwale	Matthews	Doctor of Philosophy (Health Sciences)	The development of a predictive model on the factors affecting survival times and AIDS related events in HIV/AIDS patients on HAART in rural and urban Southern Malawi
Nlooto	Manimbulu	Doctor of Philosophy (Health Sciences)	An investigation into Traditional, complementary and alternative medicines utilisation and health outcomes amongst HIV/AIDS patients attending public health facilities in different communities of KwaZulu-Natal
Onkoba	Wycliffe Nyamongo	Doctor of Philosophy (Medicine)	Host immune responses to Palsmodium berghei ANKA and trichinella Zimbabweensis infection in BALB/c mice
Osei Sekyere	John	Doctor of Philosophy (Health Sciences)	Phenotypic and genotypic characterisation of carbapenemases from carbapenem resistant enterobacteriaceae (CREs) isolated from the private health sector in Durban, South Africa
Padayatchi	Nesri	Doctor of Philosophy (Medicine)	Factors influencing treatment outcomes in multi and extensively drug resistant tuberculosis [M(X)DR-TB] patients co-infected with HIV in KwaZulu-Natal
Paruk	Saeeda	Doctor of Philosophy (Medicine)	Risk factors for adolescent onset psychosis in KwaZulu-Natal, South Africa
Phili	Rogério	Doctor of Philosophy (Medicine)	A pilot study to assess the feasibility and acceptability of introducing medical male circumcision in public sector health facility users in KwaZulu-Natal as part of a comprehensive HIV risk reduction package
Pillay	Pavitra	Doctor of Philosophy (Medicine)	Female Genital Schistosomiasis (FGS) as risk factor for squamous cell atypia in an epidemiological longitudinal cohort of young women in KwaZulu-Natal
Qulu	Lihle	Doctor of Philosophy (Health Sciences)	Exposure to early life stressors enhances the prevalence of febrile seizures in young rats
Ramkaran	Prithiksha	Doctor of Philosophy (Health Sciences)	Genetic and microRNA polymorphisms in young South African Indians with coronary artery disease
Rasheed	Saifaldeen Hassan Hassab Alrasol	Doctor of Philosophy (Health Sciences)	Prevalence of visual impairment and development of a child eye care plan in South Darfur State of Sudan
Reddy	Moganavelli	Doctor of Philosophy (Health Sciences)	A model of care for integrated school oral health promotion within the health promoting schools initiative in KwaZulu-Natal
Schaan	Michelle Marian	Doctor of Philosophy (Medicine)	HIV Positive and Pregnant : contributing factors and outcomes
Shaikh	Mahamad Hanif Sikander	Doctor of Philosophy (Health Sciences)	A novel class of carbazole, indole and benzimidazole derivatives as potential enoyl-acp reductase (inhib) inhibitors of mycobacterium tuberculosis or other pathogenic microorganism, design, synthesis and biological evaluation
Shobo	Adeola Obafemi	Doctor of Philosophy (Health Sciences)	Mass spectrometric investigations on antiretroviral drug activities
Singh	Urisha	Doctor of Philosophy (Medicine)	Acquired and transmitted drug resistance in HIV-1 subtype C: Implications of novel mutations on replication capacity, cleavage and drug susceptibility
Sobia	Parveen	Doctor of Philosophy (Medicine)	TlyA has an essential virulence role in Mycobacterium tuberculosis pathogenesis
Sookan	Takshita	Doctor of Philosophy (Health Sciences)	Effects of combined resistance training and whey protein intake on body composition, immunity and chronic disease risk in HIV infected individuals receiving antiretroviral therapy
Tiloke	Charlette	Doctor of Philosophy (Health Sciences)	The antiproliferative and apoptosis inducing effects of Moringa oleifera aqueous leaf extract and its synthesised gold nanoparticles – modulation of oncogenes and tumor suppressor genes in human cancer cell lines
Wajuihian	Samuel Otabor	Doctor of Philosophy (Health Sciences)	Towards the development of strategies to address near vision anomalies in Black high school children in South Africa
Yota	Bereket Yakob	Doctor of Philosophy (Medicine)	Provider-initiated HIV testing and counseling services accessibility, feasibility, acceptance, effectiveness and future implications in Ethiopia

College of Humanities			
Surname	First Name	Qualification Name	Thesis Title
Abbas	Kabiru Dahiru	Doctor of Philosophy (Human Sciences)	Knowledge management strategies and practices in Nigerian Agricultural Research Institutes
Affiku	Monday Engom	Doctor of Philosophy (Human Sciences)	A pastoral critique of the Evangelical Reformed Church of Christ (ERCC) methods of bereavement counselling: Retrieving the Eggon indigenous <i>Awhiku</i> concepts of bereavement management
Agbomeji	Ayinde Mojeed Oladele	Doctor of Philosophy (Education)	A Socio-cultural Perspective to Education Retention in Multicultural Contexts of Rural Secondary Schools in Lagos State, Nigeria: Exploring Inviting Classroom Pedagogies
Akpan	Louis Okon	Doctor of Philosophy (Education)	An investigation into the history of nomadic education policies in Nigeria, 1986-2009
Alabi	Adefunke Olanike	Doctor of Philosophy (Human Sciences)	Adoption and use of electronic instructional media among academics in selected universities in South West Nigeria
Alfers	Laura Corrigan	Doctor of Philosophy (Human Sciences)	Workers, Citizens, and Health Policy: A Gendered Political and Economic History of Social Citizenship in ex-British Colonies, with a Focus on Ghana and India
Amla	Fahrial	Doctor of Philosophy (Human Sciences)	The psychological strengths of Muslim women as leaders in the workplace
Ani	Ndubuisi Christian	Doctor of Philosophy (Human Sciences)	African solutions to African problems: Assessing the African Union's application of endogenous conflict resolution approaches
Anwar	Thamina	Doctor of Philosophy (Human Sciences)	Islamic Gift Economy: Awqaf (Endowment) A Vehicle for Social Entrepreneurship in Muslim Minority Countries (A case study of Australia, New Zealand and South Africa)
Arzul	Jean Philippe	Doctor of Philosophy (Human Sciences)	Factors in Treatment-refractory Obsessive Compulsive Disorder
Babatunji	Foluso Olugbenga	Doctor of Philosophy (Human Sciences)	The effect of semitic primal religion on Israelite religion: A pattern for a contextual biblical interpretation in Nigerian Christianity
Bangalu	Ezekiel Arfo	Doctor of Philosophy (Education)	A comparative analysis of Technical and Vocational Education and Training Policy in selected African countries
Bayeni	Sibusiso Douglas	Doctor of Philosophy (Education)	Examining school principals' mediation in policy implementation process: A case study of six secondary schools
Bharath	Pranitha	Doctor of Philosophy (Education)	An investigation of progression in historical thinking in South African history textbooks
Bhoola	Sheetal	Doctor of Philosophy (Human Sciences)	Towards Developing a Culinary Tourism Destination: A Case Study of the Durban Region
Brooke-Sumner	Carolyn Ashleigh	Doctor of Philosophy (Human Sciences)	Psychological Rehabilitation for Schizophrenia: Developing a Community-Based Approach to Promote Recovery in Dr Kenneth Kaunda District, North West Province
Budaloo	Vishamlal Ramtahal	Doctor of Philosophy (Education)	The use of visual reasoning by successful mathematics teachers: A case study
Buthelezi	Zanele Gladness	Doctor of Philosophy (Education)	At the policy-practice interface: Exploring Technical Vocational Education and Training lecturers' Post-Apartheid reform experiences
Chibambo	Lucy Thokozile	Doctor of Philosophy (Human Sciences)	Pastoral care for bereaved elderly women in the context of HIV and AIDS: A case study of Dzenza Congregation Women's Guild members of the Church of Central Africa Presbyterian (CCAP) Lilongwe – Malawi
Chikoko	Rita	Doctor of Philosophy (Education)	Emerging professional teacher identity of Early Childhood Development/ Foundation phase pre-service teachers: An interplay of dispositions
Chipila	Rajabu Adamu	Doctor of Philosophy (Human Sciences)	Tanzanian University Students' Motivation for Studying Kiswahili as an Academic Subject
Chirume	Clever	Doctor of Philosophy (Human Sciences)	Spectrum Management in the Global Age: Negotiating Zimbabwe's Transition from Analogue to Digital Broadcasting
Chitsulo	Takuze Saul Gedeon	Doctor of Philosophy (Human Sciences)	Internal and external imperial dynamics in Habakkuk: A contextual study of the Book of Habakkuk from a Malawi socio-economic and political viewpoint
Cowden	Richard Gregory	Doctor of Philosophy (Human Sciences)	Mental Toughness among Competitive South African Tennis Players: The Role of Resilience, Self-Awareness, and Stress
Dawood	Quraisha	Doctor of Philosophy (Human Sciences)	An Emerging Profession: Investigating the Development of Mechatronics Engineers in South Africa

College of Humanities			
Surname	First Name	Qualification Name	Thesis Title
Dlamini	Siphetfo Nicholas Bonginkosi	Doctor of Philosophy (Human Sciences)	The theory and application of consociational democracy in South Africa: A case study of KwaZulu-Natal
Dlamini	Phindile Dorothy	Doctor of Philosophy (Human Sciences)	Lost in translation? An exploration of conceptual integrity in the translation of graded readers from English into IsiZulu
Dube	Zanele Heavy-Girl Winnie	Doctor of Philosophy (Education)	Curriculum decision-making in the selection of new subjects in schools: A qualitative study of the adoption of Tourism as an elective in selected KwaZulu-Natal High Schools
Ezekiel	Lesmore Gibson	Doctor of Philosophy (Human Sciences)	A missiological critique of the World Council of Churches' notion of just peace: Its implication and contextual relevance for overcoming violence and peacebuilding in the multi-religious community of Jos, Nigeria
Fagbadebo	Omololu Michael	Doctor of Philosophy (Human Sciences)	Exploring the Politics of Impeachment in Nigeria's Presidential System: Insights from Selected States in the Fourth Republic, 1999-2007
Goddard	Allen James	Doctor of Philosophy (Human Sciences)	Invitations to prophetic integrity in the Evangelical spirituality of the Students' Christian Association discipleship tradition: 1965-1979
Hadebe	Sakhile	Doctor of Philosophy (Human Sciences)	South Africa's Post-Apartheid foreign policy towards Southern Africa, 1994-2014: Partner or hegemon?
Hamusokwe	Basil Nchimunya	Doctor of Philosophy (Human Sciences)	The Sustainability of a Free Press in Zambia's Third Republic: A case of the Zambia Daily Mail and The Post Newspapers
Hangulu	Lydia	Doctor of Philosophy (Human Sciences)	Policy and Practice of Health Care Waste Management in Home and Community-based Care in Durban Metropolis, South Africa
Haselau	Catherine Mary	Doctor of Philosophy (Human Sciences)	Marriage in contemporary Zulu society: Implications for couple counselling
Hoosen	Fatema	Doctor of Philosophy (Human Sciences)	The Practice of Female Circumcision in African and Muslim Societies in Africa
Husselmann	Karel Francois	Doctor of Philosophy (Human Sciences)	Policy Knowledge and Bureaucratic Management Perceptions Towards Effective and Efficient Fuel Usage in the South African Police Services
Idoniboye-Obu	Sakiemi Abbey	Doctor of Philosophy (Human Sciences)	Corruption in higher education in Nigeria: Prevalence, structures, and patterns among students of higher education institutions in Nigeria
Isike	Efe Mary	Doctor of Philosophy (Human Sciences)	Ties that Bind: A Network Analysis of Relationships Between Nigerian Migrants and South Africans in Umhlathuze
Iwata	John Jackson	Doctor of Philosophy (Human Sciences)	Management of indigenous human health knowledge in Tanzania
Jiboku	Peace Akudo	Doctor of Philosophy (Human Sciences)	The quest for African economic integration: An assessment of NEPAD's African Peer Review Mechanism
Kanguha	Ephraim Mudave	Doctor of Philosophy (Human Sciences)	Information literacy learning experiences of fourth-year Psychology students in Kenyan universities
Kasirye	Stella Nagitta	Doctor of Philosophy (Human Sciences)	Beyond compassion towards just engagement: Exploring the moral exclusion of people living with HIV in local church contexts in Chitipa District of Malawi
Kehdinga	George Fomunyam	Doctor of Philosophy (Education)	Content and ideology in Literature modules taught in a Cameroonian University
Khuzwayo	Qaphelisani Obed	Doctor of Philosophy (Education)	Exploring what sustainable school-community partnership entails: A case study of four rural primary schools in Ndwedwe.
Kiarie	Geoge Kuria	Doctor of Philosophy (Human Sciences)	An inculturative critique of Holy Communion symbols within the Anglican Community of the Diocese of Thika Kenya
Kilemba	Lucas Matata	Doctor of Philosophy (Human Sciences)	The role of academic libraries in supporting distance education in Kenya
Kolawole	Ibukun Olorunisola	Doctor of Philosophy (Human Sciences)	Labour Reforms and their Impacts on Employment Security in Shell Petroleum Development Company in Nigeria
Kolawole	Priscilla Ayooluwa	Doctor of Philosophy (Human Sciences)	Use of Web 2.0 technologies for teaching and learning in selected federal universities in Southwest Nigeria
Konkol	Brian Edward	Doctor of Philosophy (Human Sciences)	From anesthetic to advocacy through mission as accompaniment: Towards a more effective response from the Evangelical Lutheran Church in America's Global Mission to mechanistic dehumanization

College of Humanities			
Surname	First Name	Qualification Name	Thesis Title
Krishnannair	Anilkumar	Doctor of Philosophy (Education)	An Exploration of the Design and Development of a Semi-integrated Curriculum for a Mathematical Literacy Course Offered in a B.Ed Programme at a South African University
Lentoor	Antonio	Doctor of Philosophy (Human Sciences)	The Relationship Between Psychosocial Factors and Poor Neurocognitive and Socio-Emotional Development in Children Perinatally Infected with HIV in South Africa
Lesia	Lelokoana Eric	Doctor of Philosophy (Human Sciences)	Policy Formulation in the Ministry of Development Planning in the Government of Lesotho
Mabuluki	Kangwa	Doctor of Philosophy (Human Sciences)	The role of the churches in educating people for the development of democracy: The case of the United Church of Zambia
Madukasi	Francis Chuks	Doctor of Philosophy (Human Sciences)	<i>Ikolo</i> : An Igbo idiophone of indigenous religious sacred sound among the Aguleri people of Anambra State, Nigeria
Magidimisha	Hangwelani Hope	Doctor of Philosophy (Human Sciences)	Spatial Inequalities and Service Delivery: The Case of Vhembe District Municipality in Limpopo Province in South Africa
Maimane	Ketlalemang Clement	Doctor of Philosophy (Human Sciences)	Confluences of Lithoko, Religious and Traditional Beliefs and Western Poetry in Modern Sesotho Poetry (MSP); An Intertextual Perspective
Makhathini	Bheka Adolphus	Doctor of Philosophy (Education)	Trampoline trajectories: A dialectical analysis of the correlation between the teaching of reading and the learner-academic performance in a South African rural primary school
Makoe	Sebueng Aloysia	Doctor of Philosophy (Human Sciences)	Textual Analysis and Interpretation of the Metaphorical Expressions of the Sesotho Catholic Church Hymnbook, Lifela TSA Bakriste
Manyatsi	David Mkhumbuzi	Doctor of Philosophy (Education)	The teaching of sustainable development in geography in an environment of curriculum responsiveness: The case of the Lubombo region of Swaziland
Manyerere	Juliana James	Doctor of Philosophy (Human Sciences)	Information behaviour of rural women involved in Small and Medium Enterprise (SMEs) in Chamwino and Manyoni District of Central Tanzania
Martin	Melanie Yvette	Doctor of Philosophy (Education)	Performing social justice in South African education: How teachers negotiate the complexity of teaching in an unequal world
Masebo	Wilfred Gilbert Burton	Doctor of Philosophy (Human Sciences)	Circular labour migration networks and HIV and AIDS in Malawi
Mbokazi	Sandile Sam	Doctor of Philosophy (Education)	The Role of Traditional Leaders in School Governance: Learning from two communities in KwaZulu-Natal
McArthur	Brian Walter	Doctor of Philosophy (Education)	Information Systems Research Methodology Curricula
Mchunu	Bongani Sibusiso	Doctor of Philosophy (Education)	Examining the use of Systems Thinking Approach to School Development: A case study of Five Schools in the Umgungundlovu District
McNamee	Lakshini Sandhya	Doctor of Philosophy (Education)	Learning processes and identity construction of newly qualified doctors: a narrative study
Mkhabela	Nokuphiwa Delisile	Doctor of Philosophy (Education)	Exploring foundation phase teachers' use of instructional strategies to teach data handling
Mkhize	Zamambo Valentine	Doctor of Philosophy (Human Sciences)	Polygyny and Gender: The Gendered Narratives of Adults who were Raised in Polygenous Families
Mkhize	Sazelo Michael	Doctor of Philosophy (Human Sciences)	A cross-sectional study of traditional police culture themes amongst experienced SAPS officials
Mkhize	Msizi Vitalis	Doctor of Philosophy (Education)	The influence of attitudes towards mathematics on learning accounting amongst pre-service accounting teachers
Moodley	Subeshini	Doctor of Philosophy (Human Sciences)	Narrative possibilities in a postcolonial context: Exploring self-reflexive film as a critical articulation of the stories of South African Hindu women
Mosala-Bryant	Nthabiseng Nteboheng	Doctor of Philosophy (Human Sciences)	Knowledge sharing in public service: A case study of the KwaZulu-Natal Provincial Human Resource Development Forum
Moshood	Abdul-Wasi Babatunde	Doctor of Philosophy (Human Sciences)	Amnesty as a mechanism for conflict resolution: A study of the Niger Delta conflict in Nigeria
Motshetshane	Albert Stephen	Doctor of Philosophy (Human Sciences)	Culture and conflict in Pentecostalism: From Nicholas Bhengu and Edgar Pettenger, to the International Assemblies of God (1917-1964)

College of Humanities			
Surname	First Name	Qualification Name	Thesis Title
Moyo	Lois Rudo	Doctor of Philosophy (Human Sciences)	Faith and resilience in child or youth-headed households in KwaZulu-Natal, South Africa
Mpofu	Buhle	Doctor of Philosophy (Human Sciences)	"When the people move, the Church moves": A critical exploration of the interface between migration and theology through a Missiological study of selected congregations within the Uniting Presbyterian Church of Southern Africa in Johannesburg
Muchaonyerwa	Ndakasharwa	Doctor of Philosophy (Human Sciences)	Knowledge sharing strategies in university libraries in KwaZulu-Natal Province of South Africa
Muhammed	Sanni Morufu	Doctor of Philosophy (Human Sciences)	Policy Pathways for Eco-innovation in the Manufacturing Sector of Nigeria
Muna	Wilson Kamau	Doctor of Philosophy (Human Sciences)	Fiscal decentralization in Kenya: An analysis of the implementation of the Constituency Development Fund in the Naivasha and Gatanga constituencies
Muribwathoho	Henry Nkhanedzeni	Doctor of Philosophy (Education)	The state of psychological services in secondary schools: Experiences of principals, school counsellors, educators and learners
Murray	Amy Jo	Doctor of Philosophy (Human Sciences)	Maintaining inequality through 'being silent about': A dyadic daily diary study establishing the presence of absence in domestic labour relationships
Mutsiwa	Andrew	Doctor of Philosophy (Human Sciences)	Precedent, Policy and Possibility: A Victimological Orientation Towards the Protection of Traditional Knowledge in Africa
Naguran	Lerisa Ansuya	Doctor of Philosophy (Human Sciences)	Theatre for Social Capital: A case study of Mangaliso' Child and Youth Care Centre, Durban KwaZulu-Natal
Naidoo	Paulette Tasnim Denise	Doctor of Philosophy (Human Sciences)	The Psychologist as "Student Counsellor": An Interpretative Phenomenological Analysis of professional identity in the South African student counselling context
Narain	Anil Pravesh	Doctor of Philosophy (Education)	The role of management and leadership in addressing learner discipline: A case of three secondary schools in the Pinetown Education District
Ndlazi	Nokwethemba Jubilee	Doctor of Philosophy (Education)	First-Year Engineering students' concept development of integral calculus at a South African University of Technology
Ndumbaro	Faraja	Doctor of Philosophy (Human Sciences)	Collaborative Information Behaviour (CIB) of undergraduates in selected universities in Tanzania
Ngcobo	Nokukhanya Yvonne	Doctor of Philosophy (Education)	Adolescent readers' response to gender representation in isiZulu texts dealing with HIV and AIDS: A case study in a secondary school in KwaZulu-Natal Province
Ngcobo	Sikhulekile General	Doctor of Philosophy (Education)	Exploring the role of principal-cum teachers in a multi-grade school context: Evidence from five principals in one district of KwaZulu-Natal
Ngonyama	Thulile Lillian	Doctor of Philosophy (Human Sciences)	Skills and challenges and employment of foreign nationals in KwaZulu-Natal Higher Education institutions
Ngqila	Kholekile Hazel	Doctor of Philosophy (Human Sciences)	An Investigation of Methods used by the Southern Nguni in Healing Ukuhanjwa Illness
Ngubane	Mlungisi	Doctor of Philosophy (Human Sciences)	A Comparative Analysis: Contestation of Two Systems of Political Representation: Isiphakanyiswa and Ngcolosi Traditional Communities
Nyarko	Jacob	Doctor of Philosophy (Human Sciences)	Media Independence in Ghana: The Case of the Fourth Republic
Okem	Andrew Emmanuel	Doctor of Philosophy (Human Sciences)	The implementation of Cooperative Policy: Perceptions from cooperatives in the uMgungundlovu District Municipality (KwaZulu-Natal, South Africa)
Omopupa	Kamal Tunde	Doctor of Philosophy (Human Sciences)	Information behaviour of medical faculty in the tertiary health institutions in Kwara State Nigeria
Onen	Margaret Aber	Doctor of Philosophy (Human Sciences)	Information literacy integration strategies into the curriculum of senior secondary schools in Botswana
Onor	Kester Chukwuma	Doctor of Philosophy (Human Sciences)	United States Africa Command and human security in Africa
Palm	Selina Hazel	Doctor of Philosophy (Human Sciences)	Reimagining the human? The role of the churches in building a liberatory human rights culture in South Africa today
Penning	Susan Louise	Doctor of Philosophy (Human Sciences)	Traumatic re-enactment of childhood and adolescent trauma: A complex development trauma perspective in a non-clinical sample of South African school-going adolescents

College of Humanities			
Surname	First Name	Qualification Name	Thesis Title
Pillay	Devika	Doctor of Philosophy (Education)	In search of a sustainability marketing curriculum: A critical exploration
Pillay	Sivanandani	Doctor of Philosophy (Education)	Leading successfully against the odds in highly functional disadvantaged schools
Pitcher	Sandra Jane	Doctor of Philosophy (Human Sciences)	Deviant doodling: Contextualising the discourses of Zapiro in a socially responsible press
Pitikoe	Selloane Florence	Doctor of Philosophy (Education)	Male herders in Lesotho: Life history, identities and educational ambitions
Pokol	Benjamin Junnang	Doctor of Philosophy (Human Sciences)	Peace-building in Nigeria: A missio-political critique of the Church of Christ in Nations (COCIN)'s relationship with the Plateau State within the context of violent conflicts in Jos, Nigeria (2001-2010)
Preethlall	Prithum	Doctor of Philosophy (Education)	The relationship between Life Sciences Teachers' knowledge and beliefs about Science Education and the Teaching and Learning of investigative practical work
Ramdan	Shamitha	Doctor of Philosophy (Education)	Exploring literacy practices: A case study of a Peri-Urban Primary School in the Pinetown District; KwaZulu-Natal
Rees	Athanasia	Doctor of Philosophy (Human Sciences)	Eat your Heart Out: A narrative approach to understanding anorexia nervosa
Robinson	Carin	Doctor of Philosophy (Human Sciences)	Against a Priori Knowledge of Non-Trivial Truths
Scholtz	Roger John	Doctor of Philosophy (Human Sciences)	"Now my eyes have seen you": Re-visioning Job's wife in the Book of Job
Sevnarayan	Kershnee	Doctor of Philosophy (Education)	Pedagogic practices and discourse communities: A case study of English Literary Studies and English Education at the University of the Witwatersrand
Sewchurran	Anusharani	Doctor of Philosophy (Human Sciences)	Dissonant discourses: an exploration of the political economy of mobile telephony in South Africa
Singh	Vanessa	Doctor of Philosophy (Education)	Pedagogical practices of lecturers in Pharmacy Education
Svosve	Evangelista	Doctor of Philosophy (Education)	Examining the remote rural Early Childhood Development schools' responses to the challenges of resource demand in Zimbabwe: A multiple site case study
Thabane	Botsoa Sophia	Doctor of Philosophy (Human Sciences)	Psychosocial, Religious and Traditional Framework for Intervention in Addressing Challenges Faced by Adoptive Families in Developing Countries: The Case of Lesotho
Weihs	Martin Erich	Doctor of Philosophy (Human Sciences)	The Influence of the Lottery Incentives on WorkPlace HIV Testing in the Automotive Industry in the Nelson Mandela Bay Municipality
Winters	Yvonne Elizabeth	Doctor of Philosophy (Human Sciences)	A social and cultural theoretical appraisal and contextualisation of the visual and symbolic language of beadwork and dress from southern KwaZulu-Natal

College of Law and Management Studies			
Surname	First Name	Qualification Name	Thesis Title
Abdulla	Mohamed Irshad	Doctor of Philosophy (Management Studies)	Challenges of Government-to-Government e-Government: A Case Study of KwaZulu-Natal Department of Transport
Abe	Isaac Idowu	Doctor of Philosophy (Management Studies)	The linkage between individual interpersonal relationships and work performance in the South African retail sector
Abe	Ethel Ndidiamaka	Doctor of Philosophy (Management Studies)	The connection between work-life balance (WLB) and a sense of coherence (SOC) at a municipality in the South African Public Sector
Akbar	Khalida	Doctor of Philosophy (Management Studies)	A Phenomenological study of the employment experiences of persons affected by Acquired Brain Injuries (ABI's) in South Africa
Amolo	John	Doctor of Philosophy (Management Studies)	Institutional and learning impact on student entrepreneurial inclination at University of KwaZulu-Natal
Brannan	Craig Alexander	Doctor of Philosophy (Management Studies)	Shame within the Family of origin as a dominant scheme to developing effective therapeutic thinkers as servant leadership in the workplace

College of Law and Management Studies			
Surname	First Name	Qualification Name	Thesis Title
Chivasa	Norman	Doctor of Philosophy (Management Studies)	Peacebuilding among Shona communities in transition in Zimbabwe: A Participatory Action Research
Derera	Evelyn	Doctor of Philosophy (Management Studies)	Women's Economic Empowerment and Entrepreneurship in Agriculture: A Case of Mashonaland West Province in Zimbabwe
Dzuke	Abel	Doctor of Philosophy (Management Studies)	Public Procurement: Panacea or Fallacy – A Case of Public Service Delivery in Zimbabwe
Farisani	Dorothy Mmakgwale	Doctor of Philosophy (Law)	A Comparative Study of Corporate Criminal Liability- Advancing an argument for the Reform of Corporate Criminal Liability in South Africa by introducing a new offence of corporate homicide
Hlongwane	Nkululeko Terrence	Doctor of Business Administration	Municipal Distress: Towards a Municipal infrastructure and Finance Model
Jere	Ntabeni	Doctor of Philosophy (Management Studies)	The Role of Information and Communications Technology in Improving Food Security in KwaZulu-Natal
Majola	Brian Kwazi	Doctor of Philosophy (Management Studies)	Women's Representation and Participation in the Era of Decentralisation
Makasi	Africa	Doctor of Philosophy (Management Studies)	Globalization and Marketing Strategy Implications: A Case Study of Zimbabwe's Clothing and Textile Sector
Martins	Busiwana Winnie	Doctor of Administration	Access to Justice: The Role of Community-Based Paralegals in Community Restorative Justice in Rural KwaZulu-Natal
Masuku	Trust	Doctor of Philosophy (Management Studies)	Toilet-Care Product Brand Switching Behaviour: A Case Study of Consumers of Cosmo City, Gauteng Province, South Africa
Mnculwane	Vikinduku Victor	Doctor of Administration	A Phenomenological Investigation into the Use of Incentives to Solicit Community Participation in Heritage Policy Implementation in Post 1994 South Africa
Moodley	Kenneth	Doctor of Business Administration	A system dynamics model to explore the impact of S&OP process within an FMCG organisation
Moshikaro	Asaph Mongwegela	Doctor of Administration	The Association of Political Will with Performance of Selected Municipalities in South Africa
Mouton	Johleen	Doctor of Administration	Learner Support in Open Distance Learning at UNISA, KwaZulu-Natal: A Developmental State Perspective
Mpungose	Bongumenzi Emmanuel	Doctor of Public Administration	Exploring Public Policy implementation in a decentralized state: The case of the Language Policy implementation in KwaZulu-Natal
Mubango	Phineas	Doctor of Philosophy (Management Studies)	Business to Business Dimensions of Relationship Marketing in the South African Cement Manufacturing Industry
Mudzana	Taurayi	Doctor of Philosophy (Management Studies)	Business Intelligence Information Systems Success: A South African Study
Mukonoweshuro	Jeskinus Ziwenge	Doctor of Business Administration	Exploring the role of an Integrated Servant leadership and Emotional Intelligence Skills Programme in enhancing Leadership Performance in Zimbabwe's Commercial Banking Sector
Mushi	Restituta Thadeus	Doctor of Philosophy (Management Studies)	The Role of Information and Communication Technologies (ICTs) in Achieving the Millennium Development Goals (MDGs) in Tanzania from the Perspective of the Education and Health Ministries
Musyoka	Jason Muthama	Doctor of Philosophy (Management Studies)	Perspectives on emerging wealth distribution in South Africa's Previously Disadvantaged Households: A Systems Thinking Approach
Ngqele	Sandile Wiseman	Doctor of Administration	Integrated Development Planning as means to facilitate public participation in George Municipality
Ntuli	Mbuyiseni Goodlife	Doctor of Business Administration	An analysis of systemic thinking in decision-making processes in the Municipalities within the Province of KwaZulu-Natal
Nyide	Celani John	Doctor of Business Administration	A critical evaluation of the environmental management accounting (EMA) tools used by the 3-5 star hotels in KwaZulu-Natal
Omar	Fayzel Errol	Doctor of Business Administration	Maximizing retail bank branch profitability through world class customer service: a comparative study (Nedbank retail case study)

College of Law and Management Studies			
Surname	First Name	Qualification Name	Thesis Title
Oodith	Pravina Devpersadh	Doctor of Philosophy (Management Studies)	Bottom of the Pyramid: Opportunity and Feasibility Analysis and Strategy Formulation
Parbanath	Steven	Doctor of Philosophy (Management Studies)	Computer-based Productivity Estimation of Academic staff using the Fuzzy Analytic Hierarchy Process and Fuzzy TOPSIS method
Patrick	Harold	Doctor of Philosophy (Management Studies)	Security Information flow in the Public Sector: KZN Health and Education
Peté	Stephen Allister	Doctor of Philosophy (Law)	Penal Discourse and Imprisonment in South Africa: An Examination of the Evolving Discourse Surrounding Imprisonment in South Africa, from the Colonial Period to the Post-Apartheid Era, and its effects on the Human Rights of Prisoners
Rampersad	Dhanesh	Doctor of Business Administration	Analysis of Global Competitiveness in the light motor vehicle component industry of South Africa
Singh	Annette	Doctor of Philosophy (Law)	The impact of the Constitution on Transforming the Process of Statutory Interpretation and the Law in South Africa
Singh	Nikita	Doctor of Philosophy (Management Studies)	A Systems Dynamics Perspective of the Non-Profit Organization's Quest for Sustainability: A Case Study
Sivnarain	Ranesh	Doctor of Philosophy (Management Studies)	Employee Fraud and Prevention Strategies at Universities in KwaZulu-Natal
Soni	Sanjay Shantilal	Doctor of Philosophy (Management Studies)	Service Quality, Student Satisfaction and Brand Equity: A Case Study of Select South African Universities
Sugudhav-Sewpersadh	Prenisha	Doctor of Philosophy (Law)	Corruption and the Law: An Evaluation of the Legislative Framework for Combating Public Procurement Corruption in South Africa
Van Der Westhuizen	Thea	Doctor of Philosophy (Management Studies)	Developing individual entrepreneurial orientation: A systemic approach through the lens of Theory U
Veerasamy	Dayaneethie	Doctor of Philosophy (Management Studies)	The Influence of e-Communications on Relationship Marketing: A Case of the Mobile Telecommunications Industry in KwaZulu-Natal
Zondi	Sakhile Isaac	Doctor of Administration	Public Participation and Service Delivery with Particular Reference to ILembe District Municipality



INQUBATE

Promoting Innovation, Commercialisation and Entrepreneurship

The specialised unit under the Research Portfolio, InQubate, continued its work of patenting technologies and inventions in 2015.

Thirteen patents were filed, the total cost being approximately R910 000. Two of the projects which had multiple filings in different countries were the Insulin Patch and the Powerline Inspection Robot.

Two patents were granted in 2015. One of the patents registered in the USA for the Gas Phase Epoxidation of HFP to HFPO is currently being used to build a pilot plant in Pelindaba, and the prospects for full scale commercialisation of the patent are highly likely if the piloting studies go smoothly.

We continued our good relationship with the Technology Innovation Agency (TIA) and as at the end of 2015 had 10 projects funded through the TIA Seed Fund, totalling approximately R4.24 million. These include the Powerline Inspection Robot, Quantum Random Number Generator, and Aquaculture Feed Enhancement.

One of the projects which was spun-off as a company, Rare Earth Recycling Technologies (Pty) Ltd, is at an advanced stage of commercialisation and received R1 million from the KwaZulu-Natal Department of Economic Development, Tourism, and Environmental Affairs for the final push towards full commercialisation.

InQubate continued to support researchers and academics in bidding for large research projects, as well as with the administration of the grants awarded. During the course of 2015, the unit assisted with the processing of 37 proposals with a combined potential funding if awarded of approximately R234.4 million. Twenty-nine proposals which had been processed were successful and total funds administered for these proposals were approximately R71.5 million.

We also sought to grow the number of large consultancy projects at UKZN. During 2015, bids were submitted for three large projects to the KwaZulu-Natal Department of Economic Development, Tourism, and Environmental Affairs, the KZN SMME Masterplan Development, KZN SMME Academy, and the Aerotropolis Institute.

In summary, UKZN-InQubate is making steady headway in establishing innovation, commercialisation, and entrepreneurship at the Institution.

Professor Deresh Ramjugernath
Pro-Vice-Chancellor for Innovation,
Commercialisation and
Entrepreneurship



UKZN to Develop an Aerotropolis Institute

UKZN is to create an Institute – the first of its kind in Africa – to assist in the development of an aerotropolis close to Durban's King Shaka International Airport.

An aerotropolis is an economic hub developed for the benefit of a region.

The KZN Aerotropolis Institute, to be housed within UKZN InQubate, will bring together various organisations including Airports Company South Africa (ACSA), eThekweni Municipality, and the Durban Chamber of Commerce to leverage funding from Government.

The KZN Department of Economic Development, Tourism and Environmental Affairs will inject about R10 million to create the first phase of the Institute.

UKZN would also establish a sustainability model to look at how to further fund the Institute.

The Institute will play a major role in developing the aerotropolis by drawing on the University's academics and developing a large national and international consortium.

UKZN's Deputy Vice-Chancellor: Research, Professor Jonathan Blackledge said: "An aerotropolis is a bit like a metropolis, but it's centred around a honeypot of an airport."

Blackledge likened the development of an aerotropolis to the way countries developed ports and harbours over the past 300 years. "Wherever you get a port, you get business. In this way, wherever you get an airport, you get business."

Dubai, Heathrow and JFK in New York are examples of the world's leading aerotropolis.

The KZN aerotropolis is expected to be located in the precinct around King Shaka International Airport, anywhere from 50 to 100km around the airport.

UKZN's Pro-Vice-Chancellor for Innovation, Commercialisation and Entrepreneurship, Professor Deresh Ramjugernath, explained the role

UKZN would play in the mammoth project. "What we are proposing is an aerotropolis institute which studies everything there is to know about the whole aerotropolis concept.

"At the moment, there are limited resources to train flight traffic controllers in Africa. We'll be creating a site at which training can take place for air traffic controllers."

Ramjugernath said the Institute would be the first of its kind in Africa.

"It's about developing economic and commercial opportunities that are related to the infrastructure that you would normally find around an airport."

"When people think about InQubate or when they think about innovation, they think purely about enterprise opportunities. But this is an opportunity where the University is going to be working in partnership with provincial government, the city and various other stakeholders in impacting the society and the economy of a region."

Ramjugernath said InQubate was looking for opportunities where the University could play an integral part, not just in education, but in the development of the province and the nation. "There's tremendous potential, not just for our graduates but for creating job opportunities in the region."

According to Blackledge, the Institute plans to develop partnerships with other Higher Education Institutions, including Mangosuthu University of Technology, the Durban University of Technology and the University of Zululand.

A major partner in developing and submitting the bid has been TSE Consulting, a team made up of South African experts on aerotropolis and an expert from the United States regarded as the father of aerotropolis, Professor John Kasarda, who pioneered the aerotropolis concept in the late 1990s.

Ramjugernath and Blackledge are also exploring the use of helium airships in KZN's ecotourism sector.



Image source: John D Kasarda and Taoyuan Aerotropolis

Power Line Inspection Robot Runner-up in Newton Fund Competition

The Power Line Inspection Robot developed by engineers in UKZN's Discipline of Electrical Engineering was a runner-up in the Newton Fund Video Competition thanks in part to a video created by one of the developers of the robot, Mr Trevor Lorimer.

Using footage gathered over four years, Lorimer created a video that showcases the robot's development and design. He will attend the Council of Academies of Engineering and Technological Sciences (CAETS) Engineering a Better World Conference in London to present the video. The prize also provides marketing funding to publicise this innovation so Lorimer will use the trip to meet industry leaders in the United Kingdom who are interested in using the technology on their lines.

The robot was developed by the University in collaboration with Eskom, with Lorimer and Mr Timothy Rowell completing Masters research on the project. Lorimer is now spearheading the third prototype robot. Professor Ed Boje, now at the University of Cape Town, has managed the project since inception. Since Boje's departure from UKZN, Dr Andrew Swanson has played a direct role in managing the project, with Boje contributing expertise.

The project received seed funding from the Technology Innovation Agency through UKZN InQubate, which manages the project's intellectual property (co-owned by the University and Eskom). Inventors benefit from the profits of successful commercialisation of the technology.

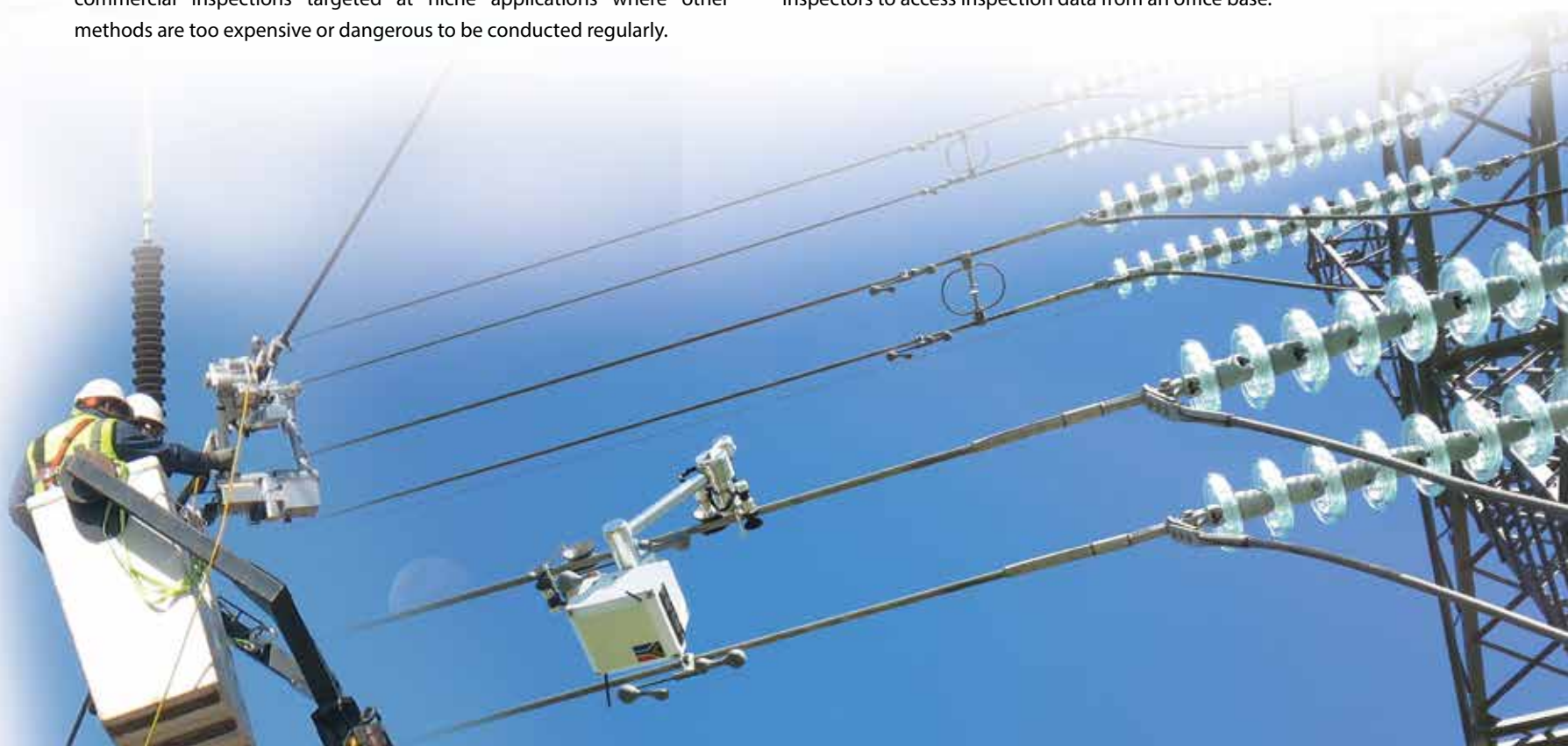
The team hopes to begin the final phase of primary development by testing the third generation prototype, preceding the start of limited commercial inspections targeted at niche applications where other methods are too expensive or dangerous to be conducted regularly.

"If you distil the problem of power line maintenance, the value here is in the inspection data itself, and the challenge is to deliver this data to the inspector efficiently," explained Lorimer. "Instead of transporting tons of equipment across thousands of kilometres, we'll send out robotic vehicles to transport the cameras."

The robot performs detailed power line inspections at reduced cost to contribute to well-informed maintenance decisions, in order to ensure the quality of electrical supply. Inspections, important for statutory compliance and asset maintenance, are currently limited to foot and aerial patrols.

The lightweight robot is a platform, controlled from a ground station, to transport inspection sensors, and will comprise instrumentation from a multi-spectral camera to acoustic sensors to resistance and temperature measures. The device uses smaller line crews and could be instrumental in inspecting lines in numerous countries.

Lorimer hopes that the video will generate more publicity for innovations in Engineering at UKZN, and also gather more support for entrepreneurial activities, especially at the University. He envisages the development of technology allowing the device to be recharged by the power lines themselves, using machine vision to detect hardware so the robot can self-navigate, and connect to high-speed networks to allow inspectors to access inspection data from an office base.



UKZN Scientists Develop a Pectin Insulin-containing Skin Patch

In 2010, UKZN's Professor Cephas Musabayane and Mr Mark Tufts reported the discovery of a new method to administer insulin into the bloodstream via a skin patch. Musabayane and his team built on the previous study and developed insulin-containing dermal patches capable of sustained controlled delivery of insulin into the bloodstream.

The study, conducted by scientists in UKZN's Discipline of Human Physiology with Musabayane as Principal Investigator, was designed to establish whether the application of pectin insulin (PI)-containing dermal patches sustains controlled release of insulin into the bloodstream of streptozotocin (STZ) induced diabetic rats and alleviates some diabetic symptoms.

It was found that after five weeks of daily treatment with insulin-containing dermal patches, neither inflammation nor necrosis was detected in the skin of the rats. The density of phosphorylated insulin receptor substrates (IRS) in skin tissues by immunohistochemical staining was also investigated. The widespread localisation of IRS in cell bodies of the dermis, collagen and subcutaneous layer evoked by PI-containing dermal patches

suggested that the pectin hydrogel insulin patch has the potential to deliver insulin across the skin and into the blood stream.

These findings are of considerable importance because insulin-containing dermal patches would free diabetic patients from daily bolus injections to maintain a constant insulin concentration. They would also provide patients with pain-free self-administration of insulin, thereby improving compliance.

Musabayane said, "A PI hydrogel matrix patch formulation will be easy to use and will not require elaborate devices to prevent drug leakage as in solution formulations. ... We believe that our findings are significant and pave the way for diabetic patients to control their insulin levels in a pain-free manner with reduced negative side effects."



▲ The late Professor Cephas Musabayane (top left) with his PhD students, Ms Happiness Sibiya, Mr Phikelelani S. Ngubane, and Dr Silindile I. Hadebe.

Quantum Walks

Random walks have found many applications in science: from Brownian motion to the modelling of stock markets.

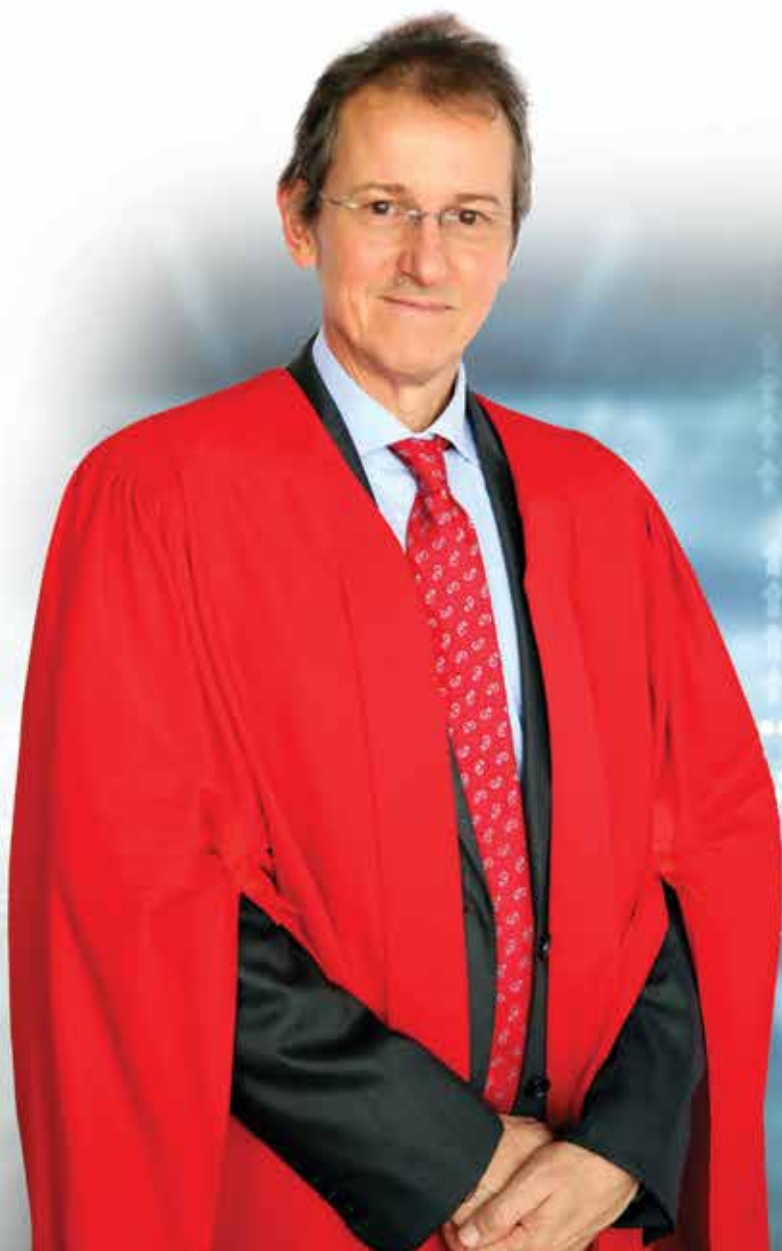
In recent years, quantum walks have been proposed, that generalise these walks to the microscopic world of atoms and molecules. At the same time exciting new quantum technologies are emerging: quantum computing, quantum communication, quantum metrology, just to name a few. Amazingly, quantum walks turn out to be a useful tool in the formulation of algorithms for quantum computers.

Professor Francesco Petruccione, Professor of Theoretical Physics and head of the Centre for Quantum Technology at UKZN is a critical part of

this new era of quantum technology, engaging and collaborating with quantum specialists the world over.

Currently in his research basket are a number of intriguing possibilities, including the study of open quantum walks (OQWs), a new type of quantum walk, purely driven by dissipation. Think of a game of snakes and ladders or any other game whose moves are determined entirely by a quantum dice. Petruccione's research is focused on the dynamic properties of the OQWs and the role that heat plays in the evolving equation.

OQWs have been shown to play a role in the understanding of quantum effects in biological systems. This new tool could lead to a better understanding of photosynthesis.



◀ Professor Francesco Petruccione.

UKZN Library – a 21st Century Approach

Things are changing fast in the world of academic librarianship. The classic library with row upon row of bookshelves and a bespectacled woman sitting behind a desk is an image that may soon belong in the history books.

“Today we have to think very differently,” explains UKZN’s Library and Special Collections Director Ms Joyce Myeza. “Now the emphasis is on digitalisation, electronic downloading of material and data and the transportation of knowledge across Internet platforms.”

Transforming UKZN’s libraries across the University’s five campuses has been an on-going process, she says. This expanded and modernised service will be available on all five campuses as well as outside for students preferring to use a digitalised system.

“When you have 46 485 students requiring information and only seating for 4 600, one has to look at new ways to accommodate their needs in a way that suits the Institution and assists students with their studies.”

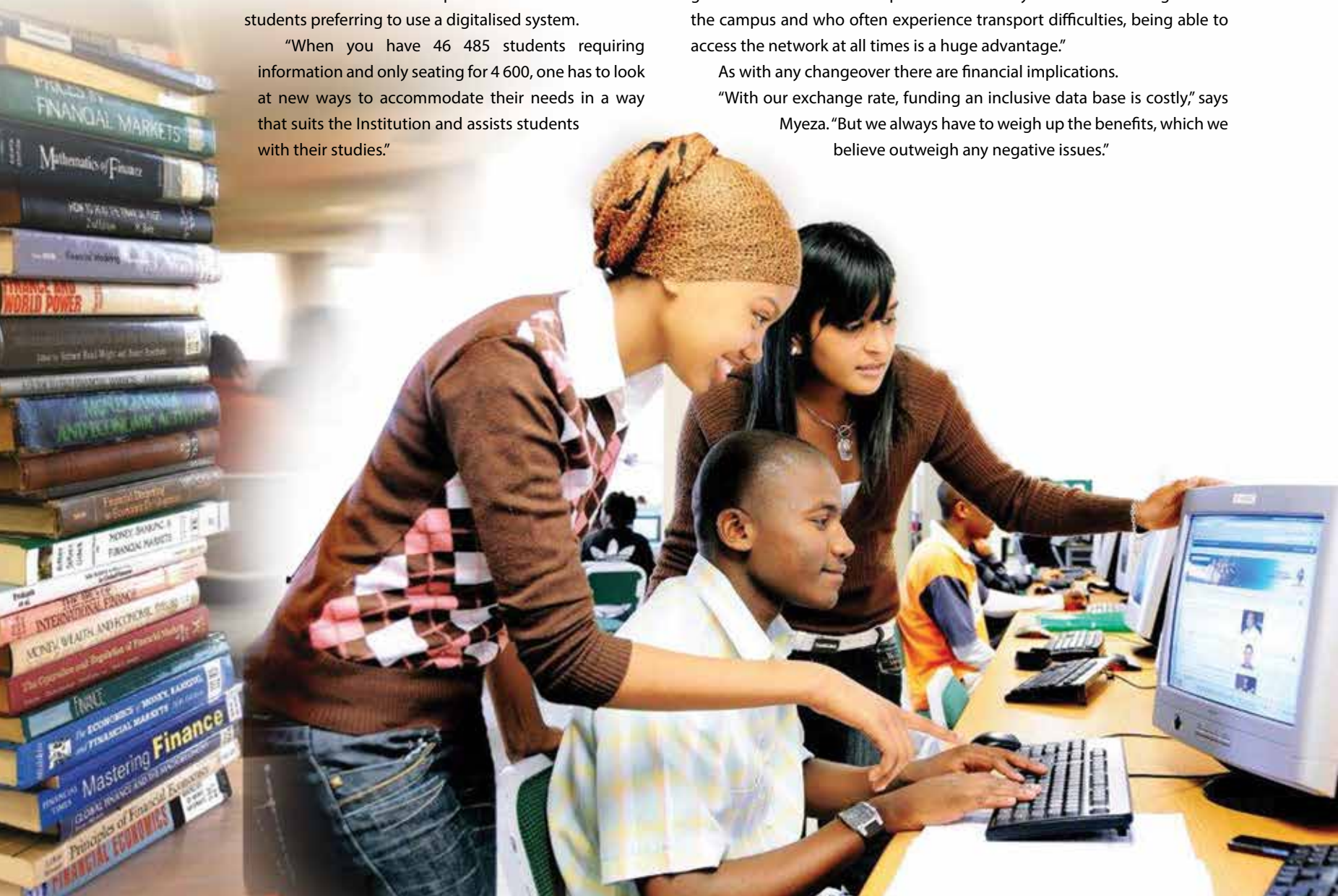
Flexibility and ease of accessing information are the two prime aims of UKZN’s 21st century approach to library facilities. It includes the concept of ‘super librarians’ who, in similar manner to private bankers, are able to advise and direct students in their search for knowledge.

Myeza points out that once a student has registered with the library and has a valid log on they are able to download exactly what they require, whether it is in the form of tutorials or journals.

“They don’t have to be in the library premises, although we do have a general WiFi network to help with connectivity. For students living outside the campus and who often experience transport difficulties, being able to access the network at all times is a huge advantage.”

As with any changeover there are financial implications.

“With our exchange rate, funding an inclusive data base is costly,” says Myeza. “But we always have to weigh up the benefits, which we believe outweigh any negative issues.”



Research Grants and Contracts 2015

1 January 2015 to 31 December 2015

College of Agriculture, Engineering and Science			
Principal Investigator	Project Title	Funder	Amount Awarded
Buckley, Christopher	Amendment to existing contract: Equipment and health and safety modifications required for developing the capacity to support grantee field testing in Durban, South Africa	Bill & Melinda Gates Foundation	11 855 969,71
Trois, Cristina	Deep rural homestead bio-energy project	National Lottery Distribution Trust Fund	7 686 569,00
Buckley, Christopher	Memorandum of Agreement regarding the development of research capacity and the conduct of research into water and sanitations	eThekwini Municipality	6 930 000,00
Moodley, Kavilan	Observational and experimental cosmology research	Square Kilometre Array Africa	4 916 000,00
Jewitt, Graham	Uncertainty reduction in models of understanding development application (UMFULA project)	Natural Environment Research Council, United Kingdom	4 088 032,48
Modi, Albert	Water use of crops and nutritional water productivity for food production, nutrition and health in poor rural communities	Water Research Commission	4 000 000,00
Kunz, Richard	Water use of strategic biofuels crop	Water Research Commission	4 000 000,00
Laing, Mark	Breeding and agronomic studies of Sweet Stem Sorghum for South African conditions	Technology Innovation Agency	3 700 007,00
Stretch, Derek	The Ethekewini Municipality Chair of Urban Infrastructure	Ethekewini Municipality	3 000 000,00
Toucher, Michele	Resetting the baseline land cover against which streamflow reduction activities and the hydrological impacts of land use change are assessed	Water Research Commission	2 500 000,00
Stark, Annegret	Biorefinery modelling and new product development	Sugar Milling Research Institute	2 038 888,89
Naidoo, Paramespri	Assessment of energy use reduction and monitoring opportunities in sugar factories	Sugar Milling Research Institute	2 017 139,00
Thornton-Dibb, Sean	Implementation of adaptive operational governance dashboard (AOGD) for the Inkomati Catchment Management Area	Water Research Commission	1 788 000,00
Laing, Mark	Production and evaluation of novel cassava varieties	Agricultural Research Council	1 715 246,53
Trois, Christina	Research and consulting services on the project "City partnerships for urban sanitation services in eThekwini Municipality"	Khanyisa Projects	1 166 980,33
Mutanga, Onesimo	Land cover change and adaptation to climate change impacts in Southern Africa	Council for Scientific and Industrial Research	1 070 000,00
Workneh, Tilahun	Evaluation of quality losses in a South African tomato supply chain due to transportation and handling effect	Die Tamatieprodusente-Organisasie	1 024 337,25
Schulze, Roland	Handbook for Farmers, officials and stakeholders on adaptation to climate change in the agriculture sector within SA	Department of Agriculture, Forestry and Fisheries (DAFF)	940 000,00
Jewitt, Graham	Waste impoundment water and solute balance research study	Palabora Copper (Pty) Ltd	830 000,00
Laing, Mark	Investigating alternative methods such as bacteriophages and bacteriocins to control mastitis organisms	Milk South Africa	771 294,00
Everson, Colin	Application of cosmic ray probes for validation of hydrometeorological and remote sensing models	National Academy of Sciences	715 792,24
Muchaonyerwa, Pardon	Memorandum of Agreement for research on the long term impacts of sugarcane mono-cultivation on soil quality and crop productivity on alfisols and vertisols in Southern Eastern Zimbabwe	Zimbabwe Sugar Association Experiment Station	561 230,44
Naidoo, Paramespri	Technologies for recovering value from vinasse and managing distillery residues	Sugar Milling Research Institute	499 097,00

College of Agriculture, Engineering and Science			
Principal Investigator	Project Title	Funder	Amount Awarded
Buckley, Christopher	Increased reach of faecal sludge management education	Stichting IHE Delft, Netherlands	452 217,19
Stopforth, Riaan	Autonomous robotics	Council for Scientific and Industrial Research	452 000,00
Friedrich, Holger	Synthesis, characterisation and application of solid-solution catalysts (PdxCe1-xO2-d, CuxCe1-xO2-d, and PdxPtyCe1-x-yO2-d)	Mintek	370 000,00
Magwaza, Lembe	Non-destructive prediction and monitoring of postharvest rind quality of citrus fruit	Citrus Research International (Pty) Ltd	335 550,00
Venkataraman, Sivakumar	South African National Space Agency High Frequency Radar Experiment	South African National Space Agency	277 800,00
Sithole, Bruce	Laser irradiation of dissolving wood pulps	Council for Scientific and Industrial Research	257 800,00
Pillay, Nelisha	Automated intelligent design support using hyper-heuristics	The Royal Society, United Kingdom	250 525,55
Mutanga, Onesimo	The 17th Habitable Planet Workshop	Council for Scientific and Industrial Research	210 526,31
Buckley, Christopher	Sanitation technology assessment and evaluation	Isidima Design and Development (Pty) Ltd	200 000,00
Mudhara, Maxwell	Assessment on the potential viability and effectiveness of small mechanised tillage units under smallholder farming conditions in South Africa	Andreas Stihl (Pty) Ltd	158 625,00
Tame, Mark	Laser and equipment rental	Council for Scientific and Industrial Research	156 600,00
Rodda, Nicola	The effect of human and plant pathogens on food safety and plant health algae, EDCs and POPs as water quality constituents of concern, and the effect of organic compounds on irrigation water quality.	University of Pretoria	139 400,00
Odindo, Alfred	Developing a multidisciplinary approach in sanitation provision in peri-urban communities	University College London	138 246,67
Mercer, Susan	Consolidation of sanitation innovation challenge reviews	Water Resource Commission	132 000,00
Venkataraman, Sivakumar	LIDAR developments for atmosphere studies in South Africa and Algeria (LISAA)	Council for Scientific and Industrial Research (CSIR)	113 500,00
Jewitt, Graham	Amendment to: Investing in ecological infrastructure to enhance water security in the Umngeni River catchment	South African National Biodiversity Institute	112 760,00
Lockat, David	Highly dispersed zinc-based sorbents for coal gas desulphurisation: synthesis and application	Organisation for the Prohibition of Chemical Weapons, The Netherlands	105 835,45
Downs, Colleen	The populations status and impact of anthropogenic threats on Serval (<i>Leptailurus serval</i>)	South African National Biodiversity Institute	84 985,00
Tesfay, Samson	The efficacy of combined application of edible coating and moringa extract in enhancing fruit quality in avocado (<i>Persea Americana</i> Mill.)	South African Avocado Growers' Association	70 000,00
Murray, Michael	Directed research in risk analytics	North-West University	70 000,00
Loubser, Richard	Effects of fretting marks induced during strand winding on the fatigue performance of overhead transmission line conductors	Aberdare Cables	65 000,00
Bejaichund, Mayshree	Review of the 2014 Orkney Seismic Event: Impact on Socio-economic standing as well as on the Housing of the Reconstruction and Development Program	University of Pretoria	60 000,00
Laing, Mark	Soybean Elite Cultivar Trial 2015/2016	Protein Research Foundation	56 916,00
Naidoo, Paramespri	Optimisation of waste crude oil processing plant	Enviroshote Trade and Logistics	50 000,00
Jamal-Ally, Sumaiya	Investigation of the antifungal effects of antifungal additives in silicone rubber used in the manufacture of polymer insulators	Pfisterer Pty Ltd	13 338,00
TOTAL			R 72 148 209,04

College of Health Sciences			
Principal Investigator	Project Title	Funder	Amount Awarded
Pillay, Deenan	Award for a costed extension of the core support to Africa Centre	Wellcome Trust, United Kingdom	60 053 281,00
Pillay, Deenan	Africa Centre Estate Plans	Wellcome Trust	18 776 068,00
Ndung'u, Thumbi	Mechanisms of HIV non-pathogenicity and cure revealed in paediatric HIV infection	University of Oxford	9 823 969,95
Moshabela, Mosa	The impact of medical pluralism on the care for people living with HIV and AIDS in rural South Africa	Wellcome Trust	8 516 035,00
Ndung'u, Thumbi	Establishment of cohorts to support studies of HIV antigens and immune responses	International AIDS Vaccine Initiative	7 213 296,99
Ndung'u, Thumbi	Development of broadly neutralising antibodies in HIV infection and following immunisation	Massachusetts General Hospital	6 395 360,80
Coutsoudis, Anna	Effect of feeding buddies on adherence to World Health Organisation Prevention of Mother To Child Transmission guidelines in South Africa	Program for Appropriate Technology in Health, USA	5 815 442,19
Ndung'u, Thumbi	Pathogenesis of Clade C HIV infection	Massachusetts General Hospital	4 115 806,41
Ndung'u, Thumbi	Development of broadly neutralising antibodies in HIV infection and following immunisation	Massachusetts General Hospital	3 366 148,77
Pillay, Deenan	Establishment of the Africa Centre Paediatric Cohort Research Programme	Fondazione PENTA ONLUS, Italy	3 189 984,61
Horwood, Christiane	Improvement of integrated maternal, child health and nutrition services in KZN	United Nations Children's Fund	2 556 416,00
de Oliveira, Tulio	Research Collaboration Agreement for Newton Fund	Genome Research Limited, United Kingdom	2 346 502,14
Tanser, Frank	An epidemic in retreat? Establishing the population impact of combination prevention strategies in a resource-poor, hyper-endemic rural African population	The Academy of Medical Sciences, United Kingdom	2 235 033,31
de Oliveira, Tulio	A phylo-epidemic analysis of a rural hyperepidemic HIV setting in South Africa in an era of widespread use of antiretroviral therapy	The Royal Society, United Kingdom	2 222 423,46
Ndung'u, Thumbi	Doctoral awards to strengthen sub-Saharan African leadership in HIV prevention research	International Development Research Centre	2 097 661,53
de Oliveira, Tulio	Virus discovery and epidemic tracing from high throughput metagenomics sequencing	European Union	1 940 843,15
Pillay, Deenan	A cluster randomised trial comparing the impact of immediate versus World Health Organisation recommendation guided anti-retroviral initiation on HIV evidence	ANRS/France Research North & South SIDA-VIH Hepatitis	1 914 963,32
Rochat, Tamsen	Insika Yomama – a feasibility study of behavioural activation therapy for HIV positive women with depression during the peri-natal period in Southern Africa	University of Oxford, United Kingdom	1 794 234,08
Moodley, Indrhasen	Research and development of natural ingredients based on South African biodiversity	University of Pretoria	1 709 752,62
de Oliveira, Tulio	Subcontract Agreement between the Centre for the AIDS Programme of Research in South Africa and the University of KwaZulu-Natal	Centre for the AIDS Programme of Research in South Africa	1 592 764,23
Saman, Yougan	Amajuba newborn hearing screening programme	The Presidency of South Africa	1 441 775,00
Visser, Linda	A randomised, double-masked, placebo-controlled study of the safety and efficacy of Gevokizumab in the treatment of subjects with non-infectious intermediate, posterior, or pan-uveitis currently controlled with systemic treatment. The EYEGUARD – C Study	ADIR and Institut de Recherches Internationales Servier	1 353 178,41
Ndung'u, Thumbi	Investigating patterns of behavioural and biomedical risk for HIV acquisition and vaccine trial preparedness among adolescent and young adults in a priority setting	Simon Fraser University, Canada	1 219 546,65
Ndung'u, Thumbi	Immune responses in lymphoid tissues of HIV positive individuals	Massachusetts General Hospital	1 015 271,94

College of Health Sciences			
Principal Investigator	Project Title	Funder	Amount Awarded
Seeley, Janet	Study on global ageing and adult health – wellbeing of older persons – wave 3	World Health Organization, Malaysia	734 327,00
Pillay, Deenan	Death among HIV infected adults	London School of Hygiene and Tropical Medicine	703 222,07
Thobakgale, Christina	Duffy-null trait, neutrophil and NK cell interaction in HIV-1 infection	Massachusetts General Hospital	667 784,72
Mann, Jaclyn	Functional consequences of mutations in the HIV-1 Nef protein	Massachusetts General Hospital	667 784,72
Tanser, Frank	International Epidemiological Databases to Evaluate AIDS – The observational antiretroviral studies in Southern Africa (OASIS)	University of Bern, Germany	646 905,96
Herbst, Jacobus	Parity clinical trial	McMaster University, Canada	624 220,38
Pillay, Deenan	Open Access Award for publishing costs	Wellcome Trust	590 665,00
Madiba, Thandinkosi	Gastrointestinal Cancer Research Centre (GICRC)	Medical Research Council	500 000,00
Mubaiwa, Lawrence	A two-year, double-blind, randomised, multicentre, active-controlled study to evaluate the safety and efficacy of fingolimod vs. interferon in muscular sclerosis	Novartis South Africa (PTY) LTD	480 000,00
Motala, Ayesha	Durban Diabetes Study	University of Cambridge	444 005,00
Ndung'u, Thumbi	Consortium Agreement: Paediatric and adolescent HIV-transition care	Massachusetts General Hospital	438 397,36
Mlisana, Koleka	Centres of Excellence in HIV Prevention – UKZN Collaborative Partner Funding Subcontract Agreement	Centre for the AIDS Programme of Research in South Africa	400 000,00
Voce, Anna	Assessing the use of midwife obstetric units and maternity waiting homes in five districts in the Province of KwaZulu-Natal	United Nations Population Fund	384 212,00
Chimbari, Moses	Social environmental and climate change impacts on vector-borne diseases in arid areas of Southern Africa	University of Botswana	380 880,00
Motala, Ayesha	Burden spectrum and aetiology of type II diabetes in sub-Saharan Africa	University of Cambridge, United Kingdom	375 000,00
Ndung'u, Thumbi	Antiretroviral treatment and risk of pre-term delivery in a rural high HIV prevalence area	University of Southampton	288 460,78
Coutsoudis, Anna	Effect of feeding buddies on adherence to World Health Organisation prevention of mother to child transmission guidelines in South Africa	Program for Appropriate Technology in Health, USA	283 994,70
Herbst, Jacobus	Feasibility of field-based automated rapid HIV test interpretation using mobile phones	University College London, UK	257 761,71
de Oliveira, Tulio	Ethical issues in the use of molecular epidemiological techniques, a literature review and expert opinion analysis	University of Oxford	186 340,43
Rochat, Tamsen	Saving brains cohort collaborators meeting	DST NRF Centre of Excellence in Human Development	149 246,00
Ndung'u, Thumbi	Development of broadly neutralising antibodies in HIV infection and following immunisation	Massachusetts General Hospital	140 992,89
Rochat, Tamsen	ANRS 12249 TasP trial – qualitative data analysis	Human Sciences Research Council	88 050,58
Treffry-Goatly, Astrid Jane	Food across the ages: South African reflections	Wellcome Trust	53 700,00
Biccard, Bruce	Transfusion requirements in cardiac surgery (TRICS III)	St Michael's Hospital, Canada	16 029,16
TOTAL			R 162 207 740,02

College of Law and Management Studies

Principal Investigator	Project Title	Funder	Amount Awarded
Gormley, Samuel	Research co-operation between Swedish International Development Co-operation Agency and University of KwaZulu-Natal on support to the Health Economics and HIV and Aids Research Division's Strategic Plan 2011-2015	Swedish International Development Co-operation Agency	57 198 543,24
Poku, Nana	South Africa school-based sexuality and HIV prevention education activity	Education Development Center, Inc.	26 281 267,13
Poku, Nana	Evaluation of PACT REACH III project of adolescent HIV prevention and impact mitigation	PACT Swaziland	2 855 694,95
Gibbs, Andrew	Applied research services in inter-linkages between gender based violence and HIV	United Nations Programme on HIV/ AIDS	2 164 170,88
Willan, Samantha	Applied research services on inter-linkages between gender based violence and HIV	United Nations Programme on HIV/ AIDS	1 748 504,21
George, Gavin	Mapping BAS to National Health Accounts – second phase	World Health Organization, South Africa	474 889,00
Poku, Nana	Development of a compendium of effective practices for adolescent/ youth-friendly sexual and reproductive health services in Eastern and Southern Africa	AIDS Foundation South Africa	332 074,00
Govender, Kaymarlin	A randomized, controlled trial to evaluate adding self-administered oral HIV testing as a choice in clinic and non-clinic setting to increase HIV testing uptake among truck drivers in Kenya	Research Foundation, CUNY	271 927,64
George, Gavin	Mapping BAS to National Health Accounts	World Health Organization	218 040,00
Gibbs, Andrew	Conducting qualitative research on young people living with HIV	Regional Psychosocial Support Initiative	153 021,98
Hoque, Muhammad	Doctoral and Post Doctoral Research Programmes for the 2015/2016 academic year	Bank Sector Education and Training Authority	150 000,00
Govender, Kaymarlin	Supporting economic interventions to address gender-based violence	United Nations Development Programme (UNDP)	69 283,51
Ndlovu, Matshediso	The impact of human resources governance in the success of micro finance sector in South Africa	Bank Sector Education and Training Authority	36 000,00
Gibbs, Andrew	What works for violence against women and girls research	Medical Research Council	30 000,00
Hoque, Muhammad	Doctoral and Post Doctoral Research Programmes for the 2015/2016 academic year	Bank Sector Education and Training Authority	25 000,00
TOTAL			R 92 008 416,54

Research Office

Principal Investigator	Project Title	Funder	Amount Awarded
Masinga, Zodwa	Collection, recording and documentation of indigenous knowledge	Department of Science and Technology	500 000,00
Kaya, Hassan	Socio-economic profile of households and identification of Indigenous Knowledge Systems eradicate poverty in KwaZulu-Natal	KwaZulu-Natal Provincial Government – Department of Social Development	498 608,34
Kaya, Hassan	Assessment of food security and nutrition situational analysis in the province of KwaZulu-Natal	KwaZulu-Natal Provincial Government – Department of Social Development	410 780,00
Bob, Urmilla	Spatial analysis for the Amaqamu Community claim	Dludlu Attorneys	396 800,00
Kaya, Hassan	Incorporation of Food Insecurity Experience Scale into the ongoing baseline study on the food security situation of rural KwaZulu-Natal	Food and Agriculture Organization of the United Nations	244 000,00
TOTAL			R 2 050 188,34

Statutory Income from the National Research Foundation in 2015

COLLEGE	AOPR	BS	CPRR	SANAP	CSUR	ERSA	GCG	HCDMA	IFRR	IKS AND COE IKS	STA	KIC	FDIP	NEP/NNEP	
Agriculture, Engineering and Sciences	592 702,97	2 175 948,00	7 616 697,67	100 400,07	1 192 784,03	238 866,02	76 276,00	286 918,41	242 077,55	183 335,23	-	1 039 260,84	6 665,51	1 073 000,00	
Health Sciences			3 137 369,83		236 648,48	208 277,54		-	997 640,34	335 106,00	-	684 574,84		-	
Humanities			974 554,48		365 245,94	1 053 095,28		-	2 247 789,47	-	-	309 416,53		-	
Law and Management Studies			241 858,75		-			-	432 513,06	-	-	43 345,48		-	
Research Office			-		352 735,71			-	250 444,43	8 000 000,00	70 694,30	19 996,00		940 048,00	
	592 702,97	2 175 948,00	11 970 480,73	100 400,07	2 147 414,16	1 503 238,84	76 276,00	286 918,41	9 170 464,85	8 518 441,23	70 694,30	2 096 593,69	6 665,51	2 013 048,00	

Statutory Income from the Medical Research Council in 2015

COLLEGE	SIR
Agriculture, Engineering and Sciences	R180 000,00
Health Sciences	R12 137 194,00
Humanities	
Law and Management Studies	
TOTAL	R12 317 194,00

	RTF	SARCHI	REP	SGD	TTK	THRIP	ISTA	KFD	HSDD	IRG/SA TUNISIA	IRG/UK	ASP	RDG	VD	TOTAL
	41 208,31	18 002 664,30	30 900,00	168 070,71	2 538 666,58	1 750 138,73	1 731 903,69			247 905,72	114 960,00	100 000,00			44 551 350,34
	-	3 175 183,84		531 106,74	926 846,08	80 000,00	277 369,79	13 030,98					678 176,70	140 000,00	11 421 331,16
	-	6 217 811,73		-	124 633,24		319 580,90		142 620,00		12 652,72		115 637,84		11 883 038,13
	-	-		365 256,09	293 551,50										1 376 524,88
	-	-													9 633 918,44
	41 208,31	27 395 659,87	30 900,00	1 064 433,54	3 883 697,40	830 138,73	328 854,38	13 030,98	142 620,00	47 905,72	127 612,72	100 000,00	793 814,54	140 000,00	78 866 162,95

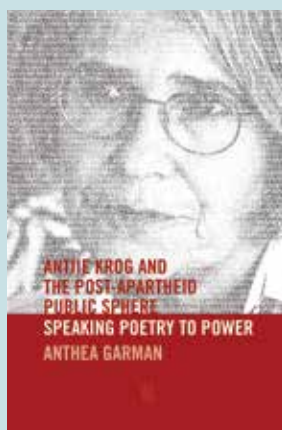
Abbreviations

AOPR	African Origins Platforms – Research
BS	Blue Skies Research Programme
CPRR	Competitive Programme for Rated Researchers
SANAP	SA National Antarctic Programme
CSUR	Competitive Programme for Unrated Researchers
ERSA	Education Research in South Africa
GCG	Global Change Grand Challenge
HCDMA	Human Capital Development for Multiwave-Length Astronomy
IFRR	Incentive Funding for Rated Researchers
IKS	Indigenous Knowledge Systems and Centre of Excellence
STA	Special Transformation Awards
KIC	Knowledge Interchange and Collaborations
FDIP	Foundational Biodiversity Information Programme
NEP/NNP	National Equipment Programme/ National Nanotechnology Programme

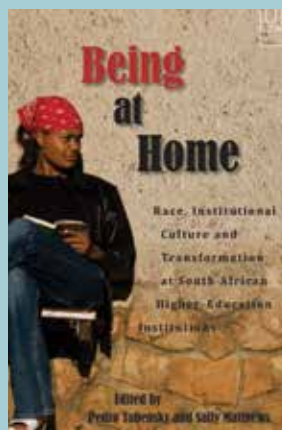
RTF	Research and Technology Fund
SARCHI	South African Research Chairs Initiatives
REP	Research Equipment Programme
SGD	Sabbatical Grant to Complete Doctoral Degrees
TTK	Thuthuka
THRIP	Technology and Human Resources for Industry Programme
ISTA	International Science and Technology Agreements
KFD	Knowledge Fields Development Grant
HSDD	Human and Social Dynamics in Development
IRG/SA	IRG South Africa/Tunisia Research Co-operation Programme
IRG/UK	IRG – UK/South Africa Researcher Links Grants for Travel and Hosting of Scientific Events
ASP	Academic Statistics Programme
RDG	Research Development Grants for Y-Rated Researchers
VD	Vulnerable Disciplines – Developing Health Sciences Research

Titles Published by UKZN Press

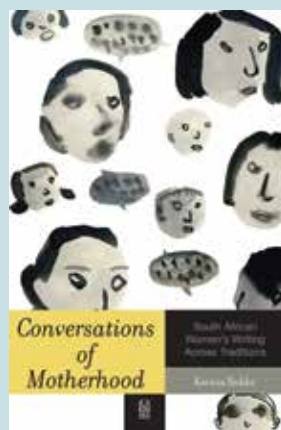
Title	Author/Editor	ISBN
<i>Antjie Krog and the Post-Apartheid Public Sphere: Speaking Poetry to Power</i> * Vice Chancellor's Award – Rhodes University, 2015	Garman, Anthea	978 1 86914 293 3
<i>Being at Home: Race, Institutional Culture and Transformation at South African Higher Education Institutions</i>	Matthews, Sally & Tabensky, Pedro (eds)	978 1 86914 290 2
<i>Conversations of Motherhood: South African Women's Writing across Traditions</i>	Robbe, Ksenia	978 1 86914 288 9
<i>Creating Africas: Struggles over Nature, Conservation and Land</i>	Nustad, Knut G	978 1 86914 308 4
<i>Dams, Displacement, and the Delusion of Development: Cahora Bassa and Its Legacies in Mozambique, 1965–2007</i>	Isaacman, Allen F. & Isaacman, Barbara S.	978 1 86914 291 9
<i>D.L.P. Yali-Manisi: limbali zamanyange: Historical poems</i>	Opland, Jeff & Maseko, Pamela (eds)	978 1 86914 283 4
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<i>Race, Class and Power: Harold Wolpe and the Radical Critique of Apartheid</i>	Friedman, Steven	978 1 86914 286 5
<i>Schooling Muslims in Natal: Identity, State and the Orient Islamic Educational Institute</i>	Vahed, Goolam & Waetjen, Thembisa	978 1 86914 292 6
<i>Ubugqi Beentsomi Zethu</i>	Mhlophe, Gcina. Translated by Sindiwe Magona	978 1 86914 272 8
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<i>Urban Governance in Post-apartheid Cities: Modes of Engagement in South Africa's Metropolises</i>	Huchzermeyer, Marie & Haferburg, Christoph (eds)	978 1 86914 259 9
<i>William Wellington Gqoba: Isizwe esinembali: Xhosa histories and poetry (1873–1888)</i>	Opland, J., Kuse, W., Maseko, P. (eds & translators)	978 1 86914 282 7
<i>Zimnandi Ngokuphindwa</i>	Mhlophe, Gcina	978 1 86914 266 7
<i>Zulu Plant Names</i>	Koopman, Adrian	978 1 86914 281 0



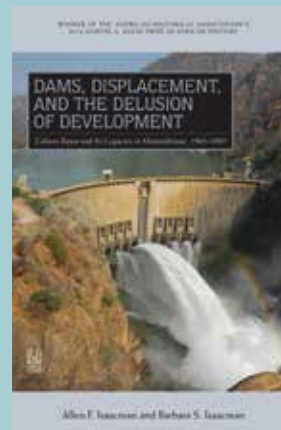
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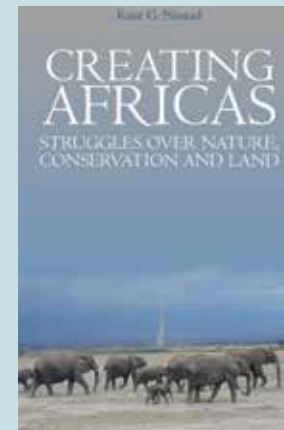
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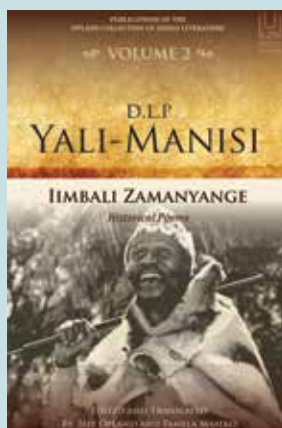
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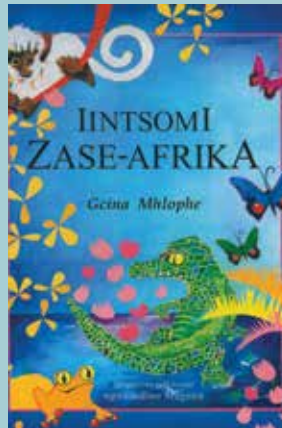
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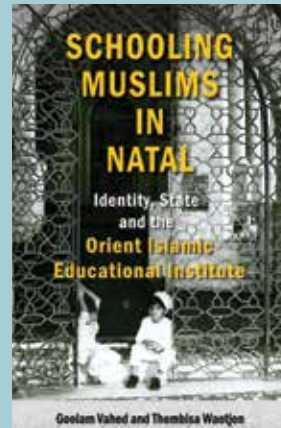
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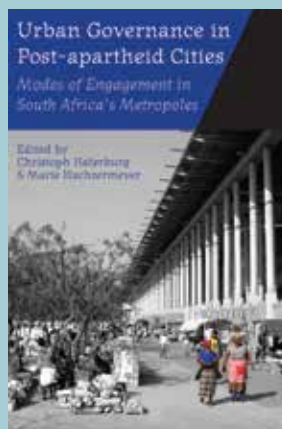
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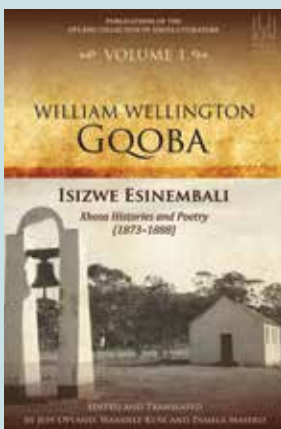
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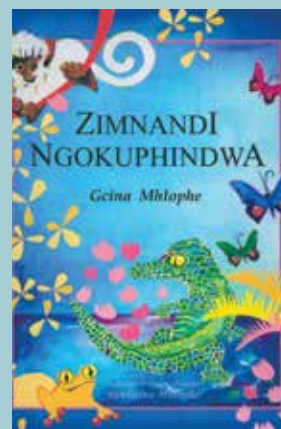
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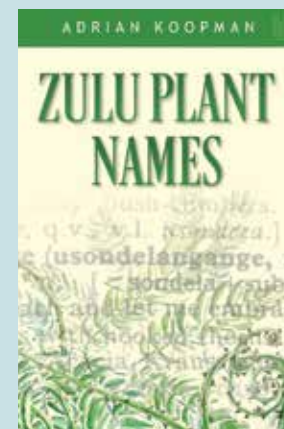
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May Your Soul Rest in Peace

*"And when the stream that overflows has passed, a consciousness
remains upon the silent shore of memory; images and precious
thoughts that shall not be and cannot be destroyed."*

– William Wordsworth



Professor Hendrika Cornelia Swart

Joined the former University of Natal in Durban in 1962 to lecture Mathematics and Applied Mathematics. She was awarded the first DSc in Mathematics ever awarded by the University of Stellenbosch in 1971 and rose through the ranks to retire as a full Professor more than 40 years later. Professor Swart continued lecturing at UKZN until 2013, and also briefly at the University of Cape Town.



Honorary Professor Sam Moyo

Honorary Professor at UKZN's Centre for Civil Society Sam Moyo died in New Delhi, India following a car accident after attending a conference. Admired by rural scholars across the world, Moyo was a genuine Pan-African scholar. He presided over the Council for the Development of Social Science Research in Africa (2008-11) and built the Harare-based African Institute for Agrarian Studies as a leading site for research and teaching.



Professor Peter Elvor Matthews

An expert in the structural geology of northern KwaZulu-Natal and highly respected in his field, Professor Peter Elvor Matthews joined the former University of Natal in 1954 as a Lecturer in the Department of Geology, and retired as a Professor in 1989. After his retirement, from 1990-98, he was an Honorary Research Associate at UND, and a temporary lecturer at the University of Durban-Westville.



Dr Gan Govender

Dr Gan Govender of UKZN's Medical School served the medical profession and the community for close to four decades in the fields of general practice, HIV medicine, medical education and family medicine. He was one of the longest serving doctors in the teaching of clinical skills. He will be remembered for his unwavering commitment to students who could always call on him for support even after office hours.



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