



RANKED No1
UNIVERSITY IN SOUTH
AFRICA IN RESPECT OF
RESEARCH OUTPUTS

2014 **RESEARCH REPORT**

INSPIRING GREATNESS



UNIVERSITY OF
KWAZULU-NATAL TM

INYUVESI
YAKWAZULU-NATALI

**NO 1 IN SOUTH AFRICA
FOR THE SECOND CONSECUTIVE YEAR IN
RESPECT OF TOTAL RESEARCH OUTPUTS**

The year 2014 saw UKZN academics produce a total of 1627.21 publication units, which represents an impressive 14.25 % increase on the previous year.

Foreword from the Vice-Chancellor and Principal	2
Message from the Deputy Vice-Chancellor for Research	4
Research Portfolio Organogram	6
Research Productivity	7 - 9
Research Focus Areas	10
UKZN Foundation	20
Research Centres	22
SARChI Chairs	37
NRF A-Rated Researchers	47
Fellows of UKZN	58
Department of Science and Technology Women In Science	61
Prolific Researchers	64
Top Published Researchers	70
Established Researchers	74
Emerging Researchers	80
Postdoctoral Programme	90
Doctoral Graduates	92
InQubate	104
Research Grants and Contracts 2014	106
Statutory Income	114
UKZN Library	116
Titles Published by UKZN Press	118



EDITORIAL TEAM
Professor Jonathan Blackledge, Professor Urmilla Bob, Dr Thoko Mnisi, Mr Lesiba Seshoka, Ms Thembekile Simelane, Ms Sithembile Shabangu, Ms Raylene Captain-Hasthibeer, Ms Sunayna Bhagwandin, Mr Greg Dardagan.

DESIGN AND LAYOUT
www.lightship.co.za
PHOTOGRAPHY
Mr Errol Douwes, Lightship Stock, The Image Factor and UKZN archives.

PRINTING
Colour Planet

Foreword from the Vice-Chancellor and Principal
Professor Malegapuru Makgoba

UKZN – setting the bar for research

UKZN's 2014 research achievements were top notch, earning it not only the highly envied No 1 ranking for research productivity in South Africa but also – for the first time – recognition as the most cited university in the country.

The road to this elevated research position was a long one with the momentum gaining impetus after the merger in 2004 and continuing to this day as the Institution continually strives to improve its ranking and further cement its position as the Premier University of African Scholarship.

I am proud that UKZN features prominently in all local and international University rankings.

During my decade as Vice-Chancellor and Principal we made tremendous strides in the areas of transformation and equity in research. We treated the two issues as complementary rather than opposing factors, working on the principle that both are necessary.

Numbers of women and Black researchers increased significantly between 2004 and 2014. When I started there were no women Deans – all research was driven by men! Examining the situation today there's a very different picture – UKZN's University Dean of Research is a woman as are many of the College Deans of Research and of Teaching and Learning, and these people are the research drivers. They do the job efficiently because they have good track records in research.

So we have been able to change the dynamics of knowledge production but perhaps more importantly, the diversity of the leadership driving research at UKZN.

I am more than happy with the growth of research in the past 10 years. If you examine it, research at a university is related to four factors – qualifications held by researchers i.e. a PhD; knowledge production; supervision and research output. We did well in all these areas.

It has been proven that holding a doctorate correlates to the ability to conduct efficient and innovative research. In 2004 around 35% of staff had PhDs; today that figure is over 55%. That's fine progress but if you examine the Top 100 universities in the world, around 85% of staff have PhDs so there's still a way to go.

In the area of supervising candidates, at the time I started at UKZN we were graduating about 120 PhDs and now that figure is over 200, and we have also done exceptionally well in increasing the number of research articles published in peer-reviewed journals.

In 2004 only 40% of academic staff were research active, this year it's around 84%.

I have struggled and fought for UKZN to be a leading research intensive university in South Africa and the world and I believe it has been successful. I would like that status of being research intensive to improve and continue to grow. Imagine our output if all our academics were involved in research!

I would never want to see a future where things go backwards and transformation and equity at the University are viewed as opposition to progress.

It is important to maintain and improve transformation, equity and knowledge production. They are interlinked and complement each other at a research intensive institution and that is the culture now embedded at UKZN. It needs to be cultivated and encouraged to grow.

There are areas in research where UKZN has a competitive and comparative advantage i.e. HIV and AIDS and on Indigenous Knowledge Systems, but there are others which have enormous potential but are underdeveloped such as Marine Studies and Traditional Medicine.

The issue of introducing a compulsory isiZulu module a few years ago became heated and vociferous. We needed to take a firm leadership role as in KwaZulu-Natal there is one dominant language – isiZulu – which is spoken by about 90% of the population and it needed to be developed within UKZN to become part of the global knowledge system. Those sort of positions, sometimes controversial, need to be taken and history is proving it was the right stand to take.

UKZN has enormous potential to be the best research intensive university in the country and to be one of the best research-led universities in the world and it's in the hands of young academics which is very exciting. Many universities lament their aging academic core whereas nearly three-quarters of UKZN academics are under the age of 50. So there's a fantastic reservoir of young enthusiastic and energetic academics and staff members who are engaged and participating in innovative research. That's a huge future strength.

Also consider this. UKZN produces about 9 000 graduates every year of which about 65% are of African descent – multiply that over another decade and you will have close to 90 000 graduates coming out of UKZN of which about 67 500 will be African!

“

I am more than happy with the growth of research in the past 10 years... In 2004 around 35% of staff had PhDs; today that figure is over 55%... examine the Top 100 universities in the world, around 85% of staff have PhDs – so there's still a way to go.”

So nationally, continentally and globally, UKZN has great potential to showcase African talent and to create new role models who are young, confident, and excellent, and who are prepared to take on the world.

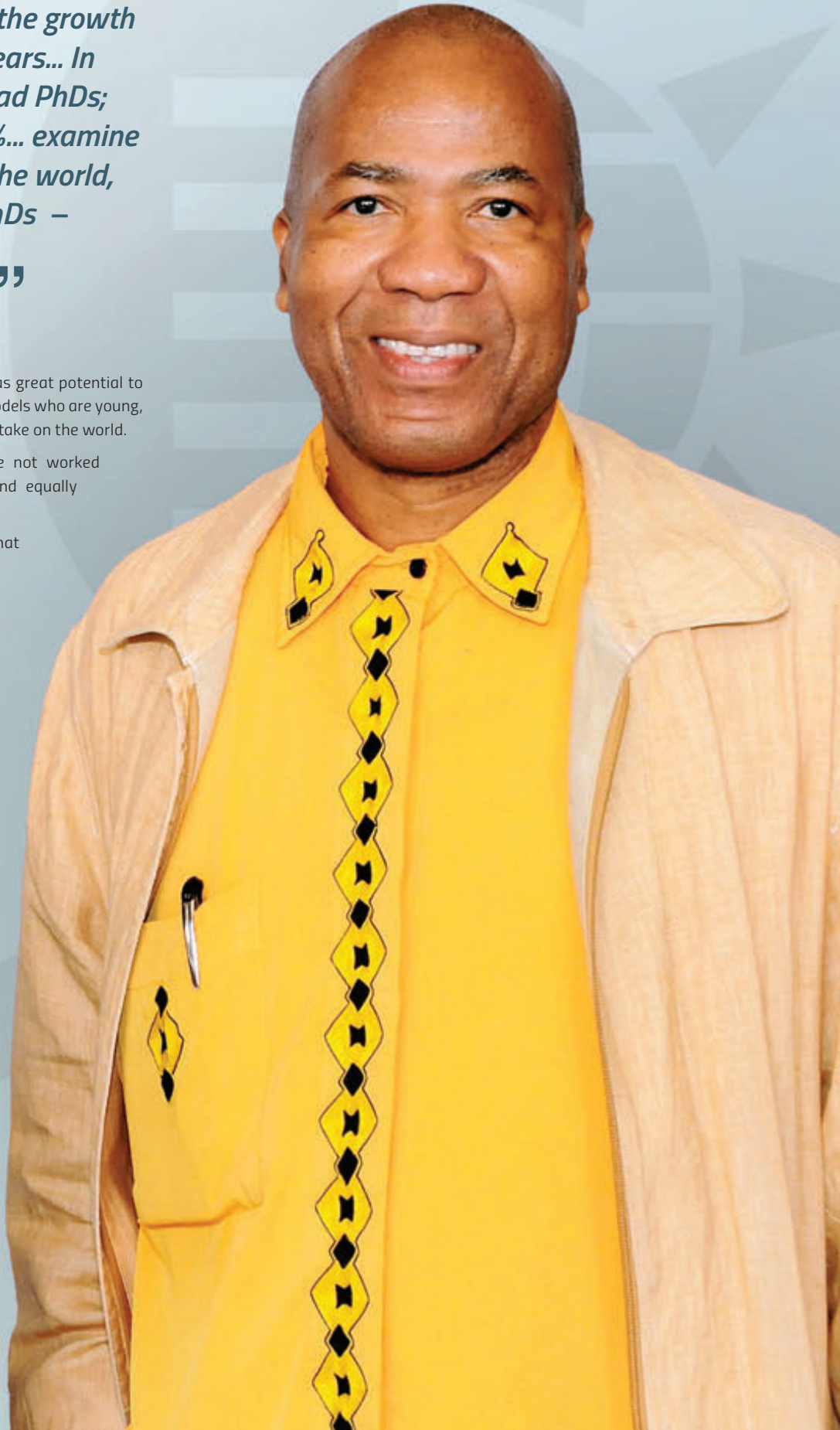
I have worked in many institutions but I have not worked anywhere that is so alive, dynamic, exciting and equally challenging as UKZN.

I told my successor, Dr Albert van Jaarsveld, that the rewards of being here far outstrip the little flare-ups that occur from time to time. If he remembers to sing Frank Sinatra's *New York, New York* on his way to the office every day he'll be successful because – borrowing from the classic song's lyrics – if you can make it at UKZN, you can make it anywhere!

I feel honoured and privileged to have been Vice-Chancellor and Principal during the historic moment of UKZN's birth and all through its impressive development. However, I could never have done this work without the commitment and support of my diverse executive team, the staff, and the UKZN Council.

Professor Malegapuru Makgoba
Vice-Chancellor and Principal

Professor Makgoba served the University of KwaZulu-Natal from 2004-2014 with distinction. ►



Message from the Deputy Vice-Chancellor for Research

Professor Jonathan Blackledge

Cutting-edge research thriving at UKZN

The 2014 *Research Report* is a reflection of the continued and steady growth in research activities at UKZN covering all aspects of the University's portfolio. It is a trend we want to sustain and increase with gusto into the future.

UKZN is very proud to have maintained its position as the top university in South Africa in terms of research productivity while we continue to make research breakthroughs in a variety of fields.

I am very pleased with our research output in 2014. The total number of research Productivity Units (PUs) increased by 9,6% from 116 475 in 2013 to 127 664 in 2014. Perhaps more impressive is that the number of PUs attained by UKZN researchers has increased by 55,5% over the five-year period from 2010 to 2014!

More than 60% of our academic staff are now publishing their research and I'd like to see that rise quickly to around 70%.

An analysis of the profile of publishing staff shows continued involvement of women and Black researchers. The proportion of women researchers increased from 37,8% in 2013 to 39% in 2014 while the proportion of Black researchers increased from 38,3% to 40%, of which 14% are African.

We look forward to significantly increasing the number of active and high quality Black and women researchers in all disciplines.

We are engaging with the National Research Foundation with regard to women South African Research Chairs and five have been awarded to start in 2016.

UKZN needs to continue to strive to achieve an academic core which is representative of the South African and KwaZulu-Natal society as that will determine the type of education we should be providing. Positive discrimination is healthy as strength always comes from diversity.

By 2020 the Government wants 6 000 PhDs to be coming out of the Higher Education system every year. At present the figure is the order of 1 700 of which UKZN produced 261 in 2014.

So the university sector as a whole is quite some way off to achieving government targets. There is pressure and emphasis to get more South African postgraduates entering the workplace.

We are also proud that UKZN has the second highest number of postdoctoral students on its books of all universities in South Africa. There were 302 across the four Colleges in 2014 with the highest number of 161 being in the College of Agriculture, Engineering and Science, followed by the College of Health Sciences with 67, the College of Humanities with 51, the College of Law and Management Studies with 17 and 6 from the Research Office.

Of the total 302, 79% are South African and the remainder are international.

UKZN places great emphasis on giving total support to Postdoctorals and goes out of its way to encourage them to become academics.

Governments worldwide recognise that research intensive universities with commercially realisable outputs are crucial national assets. They want Higher Education Institutions that provide excellent teaching and learning to produce undergraduates and postgraduates who are academically excellent but also fit for purpose when they enter the workplace. And in addition they want people who do research.

At UKZN we need to continue to work hard on getting as much of our research as possible used in industry because so often great ideas and findings collect PUs and are recorded in peer-reviewed journals but it then takes time before industry catches up with them.

I am delighted that in 2014 through InQubate we processed nine invention disclosures, registered spin-off companies and our Consultancy Office assisted researchers to successfully secure two consultancy contracts.

InQubate also processed 52 research proposals to the value of R289 million of which 32, worth R166 million, were successfully awarded.

The award-winning prosthetic hand and the development of a solar powered car were two standout successes during the year.

On a personal level, I was glad to have had direct involvement in the reconciliation of the Africa Centre which now has a sound partnership with the Wellcome Trust and the University College of London.

“

The proportion of women researchers increased from 37,8% in 2013 to 39% in 2014 while the proportion of Black researchers increased from 38,3% to 40%, of which 14% are African. We look forward to significantly increasing the number of active and high quality Black and women researchers in all disciplines.

”

I am confident UKZN will improve its world rankings in the year ahead while maintaining its pole position in South Africa for research. There are a number of very exciting developments taking place and I look forward to some of our research centres becoming nationally recognised centres of excellence.

After having completed a year at UKZN in my position as Deputy Vice-Chancellor for Research, I can confidently say it is one of the finest higher education institutions I have been privileged to work at in my career. Its breadth and depth are considerable and it fully deserves its national and world rankings.

I have no doubt it will progress rapidly into the future, thanks in part to the sterling efforts to make it a top research-led university over the past decade by the outgoing Vice-Chancellor and Principal, Professor Malegapuru Makgoba.

Professor Jonathan Blackledge
Deputy Vice-Chancellor for Research

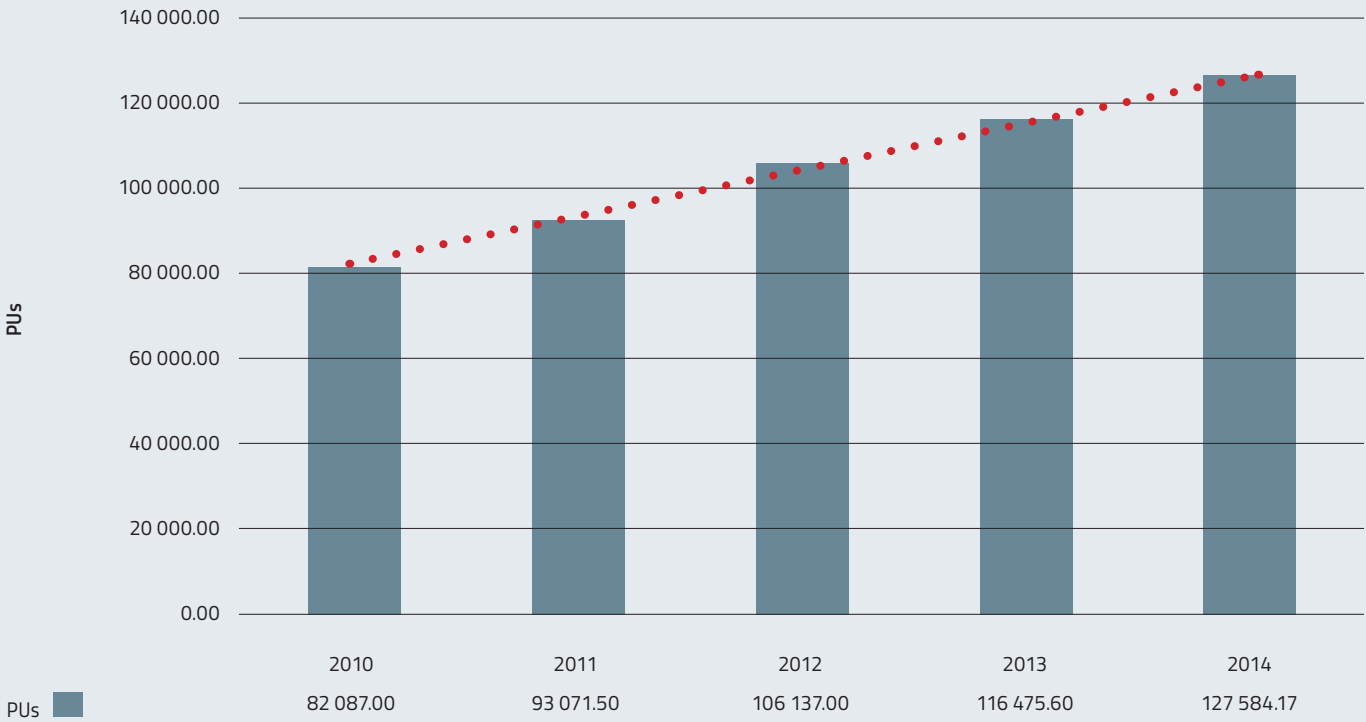
UNIVERSITY OF KWAZULU-NATAL
RESEARCH PORTFOLIO ORGANOGRAM



RESEARCH PRODUCTIVITY

Productivity Units (PUs)

Productivity Units (PUs) refer to the units that are allocated to staff at UKZN following the processing and evaluation of all the research outputs, inclusive of national research productivity, supervision, NRF rating, journal editorials, creative contributions, patents and staff who graduated with PhDs. A PU is a weighted value allocated to different categories of research outputs as per the Senate norms and is aligned to Author Units (AUs). The AUs accrued by student publications are allocated to their supervisors. The PU model is specific to UKZN and seeks to holistically evaluate research outputs. PUs per staff member is calculated by multiplying the AU by the value of the respective research output. The table showing the weighted value of each accredited research output is published on the Research Office website.



The yearly increase in productivity units (PUs) was 13.4%, 14.0%, 9.7% and 9.6% respectively from 2010 to 2014. Overall, the increase in the number of PUs attained by UKZN researchers increased by 55.4% over the 5 year period, from 82 087 in 2010 to 127 584.17 in 2014.



9 Research Focus Areas

Biotechnology

Agriculture and Food
Security

Energy and Technology for
Sustainable Development

Gender, Race and Identity
Studies

HIV/AIDS, Tuberculosis and
Health Promotion

Indigenous African
Knowledge System

Maritime Studies

Social Development and
Economic Studies

Water, Environment
and Biodiversity

10 SARCHI Chairs

Gravitating Systems

Evolutionary Biology

Systems Biology of
HIV and AIDS

Quantum Information
Processing and
Communication

Fluorine Process Engineering
and Separation Technology

Indigenous Health Care
Systems Research

Economic Development

Applied Poverty Reduction
Assessment

Land Use Planning and
Management

Rural Agronomy and
Development

PRODUCTIVITY UNITS

127 584,17

9.6%

INCREASE ON THE PREVIOUS YEAR



24

UKZN
PRESS PUBLISHED

1

NUMBER OF PATENTS

SUBMITTED JOURNAL ARTICLES TO DHET

2 240

PUBLISHING RESEARCH STAFF

1 489

NUMBER OF BLACK RESEARCHERS

598

NUMBER OF AFRICAN RESEARCHERS

208

NUMBER OF WOMEN RESEARCHERS

584

NUMBER OF NRF-RATED RESEARCHERS

260

NRF A-RATED RESEARCHERS

7



956
MASTERS
DEGREES
AWARDED



261
DOCTORAL
DEGREES
AWARDED



302
POSTDOCTORAL
FELLOWS



85
EMERGING
RESEARCHERS



149
PROLIFIC
RESEARCHERS

RESEARCH FOCUS AREAS

Nine research focus areas have been identified by the University of KwaZulu-Natal which it believes are critical to supporting its vision, not only as a notable centre of African Scholarship in South Africa but also as an integral player in the global partnership embodied in the Millennium Development Goals which seek to restore a sense of meaningful development to some of the world's poorest countries.

Research focus areas not only characterise institutional research direction but are critical to how the University is perceived in its engagement in multidisciplinary partnerships to address scientific and societal agendas.

Through crossborder collaboration and sustained research, the University's efforts are pushing research boundaries, impacting international research trends, and drawing South Africa into a global network of knowledge production and academic excellence.

RESEARCH FOCUS AREAS

Illicit drug use and school violence

Youngsters turn to drugs because they are bored, frustrated, without hope or trapped in a sociological setting that puts pressure on them to "conform". This is despite the fact that drugs can lead to health damage and even death.

But UKZN researcher Dr Nirmala Devi Gopal is also concerned about the ripple effect of drug use and the disruptive influence it has on an individual, the community and broader society. There is interconnectedness between the psychological, biological and social domains for the user and Gopal wants to find it through research.

'Heroin has been identified as the leading drug of abuse in Chatsworth and there is concern about its association with a number of adverse health conditions such as sexually-transmitted diseases as well as numerous psycho-social problems among adolescents and adults,' said Gopal.

'Some of my research findings have shown that drug users behave in ways that have disastrous effects on families and communities. For instance, they threaten their mothers for money, steal items from their homes to sell for drugs, and get violent towards their immediate family if they are thwarted from getting the resources to feed their habit. They are manipulative and lie convincingly. Mothers are usually left with the emotional burden of taking care of the user and their needs.'

A drug user cannot hold down a stable job because of the physiological effect of the drugs, she said. With a drug such as 'sugars', users say they need a fix every four hours so it is impossible for them to stick to a formal programme of work or study.

Some families have had to resort to extreme measures to keep their children away from drugs, going as far as chaining them up, handcuffing them or watching their every move, in a desperate hope that this will act as a deterrent. 'This is a huge emotional drain on the family but it seldom makes any difference as the drug user is able to manipulate his or her way out of a situation that prevents them from accessing the drugs.'

'The emotional impact of drug use on families is dire,' said Gopal. 'The whole family becomes prone to mental health problems. Given the increase in users we can only predict that the number of families seeking mental health intervention will also rise. A further prediction from my research is that drug use will become a major public health burden for South Africa as the effects of the drug are seen on the body's organs.'

Of particular concern to Gopal is that children - as young as nine - are abusing drugs. Drugs are freely available in schools, out of schools, and through many avenues in the community. This means that, alarmingly, the use of drugs is becoming normalised, which will reduce the effectiveness of intervention or the promotion of a drug-free society.

'Most users are not violent people but will become violent if they have to take desperate measures to obtain the drug. So the correlation between violent behaviour and drug use is not straight forward.'

Another huge problem identified by Gopal in her research is the fact that multiple drug use is on the increase. Her research is ongoing.

Dr Nirmala Devi Gopal ▼



Making tracks in the country's poorest wards

A team from the School of Built Environment and Development Studies is advising a government project trying to improve service delivery to the poor.

'It's a funny animal,' said Dr Mvuselelo Ngcoya about Project Mikondzo, a government service delivery improvement initiative that a team of UKZN academics are involved with.

The project was initiated in 2011 by Minister of Social Development, Ms Bathabile Dlamini, and is being run by the Department, including its subsidiary structures the South African Social Security Agency (SASSA) and the National Development Agency (NDA).

The name Mikondzo, meaning 'footprint' in Xitsonga, refers to the Department's initial aim to expand and leave a positive service delivery footprint in 23 of the most impoverished municipal districts in the country, comprising 1 300 wards. The project is now in its second phase and is planning to expand its reach to 1 700 wards.

According to Ngcoya, Project Mikondzo came about because Minister Dlamini said 'she wanted senior officials in her department to make critical decisions from an informed position. That's why she insisted it was important for them to go into communities to do primary research, conducting interviews with ordinary people and their leaders, and find out about the provision of social services in their communities and their concerns and perceptions of the Department etc'.

Ngcoya recently assumed leadership of the team from Professor Pearl Sithole who recently left UKZN. All the team members are from the School of Built Environment and Development Studies and include Professor Thokozani Xaba, Ms Nompumelelo Nzimande and Mr Sandile Mbokazi.

Ngcoya described Project Mikondzo as 'a funny animal' because of the role the UKZN team has. 'We're not doing research. The Department wanted us to help them think through the process, to be a reflective mirror for them. They call us their reflective partner. We provide the Department with our analysis of what they are doing.'

He said the Department's data collecting only started in 2013 and the number of officials involved varied between 230 and 300.

'Once data is collected we look at it,' he said. 'The data is limited. It's hard to collect all the reports and there are some problems in terms of converting civil servants into researchers. But the project is a good thing. It's producing data that has an impact on the ground.'

'For us it's amazing and we're hoping to produce a book based on our reflections in 2016.'

The UKZN team put forward recommendations for improving service delivery in the second phase of Project Mikondzo, which would see it extended to 1 700 wards countrywide.

Their report said the recommendations included a need for improved co-ordination in developing an inclusive and responsive social protection system.

Stressed was the need to find ways to instil awareness of social development approaches in local government in line with their spatial realities, as spatiality issues have a bearing on infrastructure and economic development.

◀ From left: Ms Nompumelelo Nzimande, Mr Sandile Mbokazi and Dr Mvuselelo Ngcoya of UKZN's School of Built Environment and Development Studies.

News for the mobile generation

The Department of African Journalism and Mass Media is examining how mobile technology and a shift away from traditional Western journalism are reshaping the local media landscape.

Journalism in South Africa is changing rapidly, providing academics with rich research material.

The main drivers are mobile phone technology and the accompanying explosion of social media, as well as local cultural influences that are reshaping the traditional western journalism model used by mainstream media in this country.

Dr Nicola Jones, Academic Leader for Research in the Department of African Journalism and Mass Media (formerly Media and Cultural Studies) on the Pietermaritzburg campus, said departmental research had been looking at African media ethics and how they were different to those found in traditional western journalism.

'The journalism tradition in SA is very western ... and is rooted in the capitalist system,' she said. 'Mainstream media are in competition with everyone else and profit trumps everything. African ethics are more community-based and this is also the way media houses in SA are moving. There's been a huge growth in community newspapers.'

'We started thinking we need an exclusive African perspective. It's also interesting trying to find a sense of what is truly African. For example, with the concept of *Inhlonipho* or respect, I'm looking at how it flows into journalism, where sometimes there's a clash of cultural values, for example over (President Jacob) Zuma's wives,' said Jones.

At the same time, new mobile technology is also helping to drive change. 'An especially interesting project I'm involved in is looking at the impact of digital technology on news gathering. The project, which is funded by the NRF, started in 2014 and will take about five years to complete.'

Jones said the use of social media by local journalists really took off with the Oscar Pistorius trial, and the ensuing media frenzy had raised a number of questions.

'For example, are new forms of censorship appearing because of social media? Do journalists think about the same lines of etiquette when they use a platform like Twitter? And is social media changing the ways South Africans consume news?'

Along with PhD student Ms Sandra Pitcher, Jones presented a paper in 2014 that argued that Twitter is creating opportunities for media organisations to connect with audiences in new ways.

She also presented a paper on Oscar Pistorius that examined the coverage by three South African publications of the alleged murder of Reeve Steenkamp, in the context of SA crime and court reporting.

'It was a very South African piece of research, looking at local print media - *Sunday Times*, *City Press* and *You Magazine*,' she said.

The concept of identity in various media was also examined by two PhD students who have since been awarded doctorates.

Dr Subeshini Moodley's thesis looked at South African Hindu women and identity in the Indian diaspora, and had a strong autoethnographic component, using the medium of film to articulate the stories of Moodley and her subjects.

Dr Yves Vanderhaeghen's research examined self othering and the construction of Afrikaner identity in Afrikaans newspapers.

Jones said the content of these theses was relevant to the Department's focus on African journalism.

Dr Nicola Jones, Academic Leader for Research in the Department of African Journalism and Mass Media. ▶

Researching challenges faced by students at SA universities

Transformation in universities is a question vexing academic administrators, political decision-makers, educators and students alike. In almost every field of study there are questions about what transformation actually is, how far it should go, what kind of education should be offered, and who is responsible for change.

The JL Dube Chair in Rural Education, Professor Relebohile Moletsane, decided to research university students themselves to find out what kind of social background led to what kind of challenges they faced in their university lives.

‘We did a survey across 18 universities in order to find out what was needed to make universities more inclusive,’ said Moletsane. ‘We set up a list of questions directed at first year students, where we investigated their backgrounds. We examined obvious things such as which high school they had gone to, the facilities their high school had, what access they had at home to things like computers and books. We looked at the students’ socio-economic backgrounds, including their income group, and what resources they had access to. There were also questions about the influence of their mother-tongue and the extent of their literacy.’

Once the initial round of interviews and surveys had been done, the results were given to the Human Sciences Research Council, who followed the same students through their second year. The idea is to track students throughout their university career to assess correlations between their primary and secondary schooling, socio-economic circumstances and language background to establish what kind of impact this has on tertiary success.

The survey will be concluded in 2016 and will be used to ascertain which aspects of academic institutions need revision.

‘Transformation in our universities is make-or-break,’ said Moletsane. ‘We need to change our universities in several ways to deal with people who come from rural backgrounds, people who come from different language backgrounds, and those who have had interruptions in their primary education. And transformation cuts both ways - the universities, the students and the government need to meet up somewhere because transformation does not only depend on one group of people. This is not an either/or scenario.’

The survey results will be used to decide what interventions are required during a student’s entire journey at university, right from first year. It will also give a good indication of what other interventions are required from government or the private sector perspective.

Never before has the world of Higher Education in South Africa been under such intense spotlight, and any research that can lead the way towards a better quality student experience is vital.

‘This set of results, which will be released in 2016, is aimed at making universities more inclusive,’ said Moletsane. ‘There is a difficult road ahead in many aspects, such as the availability of different-language text-books and the cultural experiences of students. We are just going to have to accept that for many fields of study the language of instruction has to be English. We have to accept that some students will face difficulty. But every little bit of information about the student experience - from first year to third year - will help.’

*The JL Dube Chair in Rural Education,
Professor Relebohile Moletsane ▼*



UKZN helping preserve South Africa's forests

Forestry is one of the most important industries in South Africa, but millions of rands worth of viable timber is lost every year through pests that attack the trees. Early warning and treatment is vital, but with the vast size of the plantations across KwaZulu-Natal and Mpumalanga, it is difficult to keep a close watch for signs of trouble.

Professor Onesimo Mutanga of UKZN's School of Agricultural, Earth and Environmental Sciences heads a team using remote sensing to map the long-term health of environmental ecosystems, instead of relying on old-fashioned and limited visual inspection patrols.

Mutanga's expertise lies in Ecological Remote Sensing, with particular emphasis on vegetation pattern analysis and monitoring as well as agricultural land use mapping. His focus in recent years has been on the development of remote sensing techniques for mapping tropical vegetation quality and quantity to understand wildlife feeding patterns and distribution.

He has been involved in developing and applying satellite remote sensing based techniques (earth observation and geospatial technologies) to assess and monitor various environmental attributes in the light of land use and climate change.

Mutanga's research in 2014 involved analysing geo-spatial data captured using imaging (satellite and airborne data) and non-imaging systems.

'We collect information from a number of sources. For this project, we used satellite data from space. The satellite sensor records light reflected from objects on the ground, which is then analysed,' said Mutanga.

'These sensors record electromagnetic energy from different wavelengths. By analysing information from the different wavelengths, a forest for instance will look very different to grasslands and cultivated land will show up very different to veld. Even within a forest, diseased trees will show up clearly. We can even see where disease is only starting to take hold and this allows us to alert forestry management to take preventative action.'

A number of pests such as *Sirex noctilio*, *Cossid moth* and *Thaumastocoris peregrinus* are causing damage to commercial plantations around the world. The ability to remotely detect these pest infestations is crucial for monitoring the spread of the pests and stopping infestation.

We have developed an early-warning system, says Mutanga. 'Our imaging system can detect early signs of stress in plantations, and we can alert the plantation managers.'

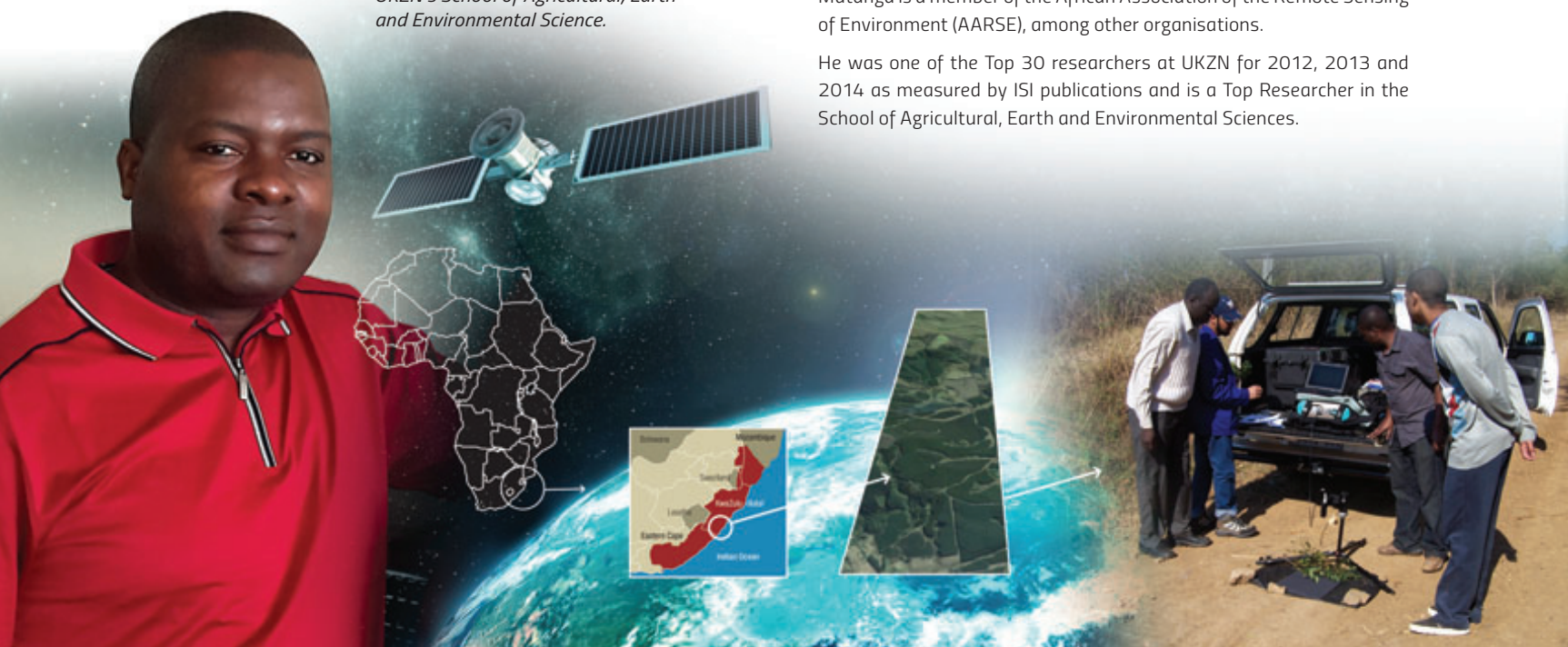
UKZN's School of Agricultural, Earth and Environmental Sciences provides this service to a range of public and private forestry role-players, such as Sappi Limited and the Department of Environmental Affairs, who are also partners in the projects. The information is also crucial for the protection of indigenous natural forests such as the Dukuduku Forest in the iSimangaliso Wetland Park.

The sophisticated analysis can detect where alien vegetation is invading natural forest, which helps conservation organisations such as Ezemvelo KZN Wildlife in conservation management.

Mutanga is a member of the African Association of the Remote Sensing of Environment (AARSE), among other organisations.

He was one of the Top 30 researchers at UKZN for 2012, 2013 and 2014 as measured by ISI publications and is a Top Researcher in the School of Agricultural, Earth and Environmental Sciences.

◀ Professor Onesimo Mutanga of UKZN's School of Agricultural, Earth and Environmental Science.



Creating good out of bad!

In days of old, alchemists spent their lives trying to turn lead into gold. Nowadays, modern scientists are busy with pretty much the same thing, although their efforts are less materialistic and more successful.

The UKZN Chemistry and Physics Department spent a great deal of 2014 researching catalysts that could convert harmful greenhouse pollutants into useful products.

Catalysts are very useful in chemistry, says Project Leader Professor Muhammad D. Bala, who is spearheading new research into catalytic conversions. 'In simple terms, many chemical changes that are essential to life would not be possible without the aid of catalysts. Without catalysts, most of the industrial processes that produce useful products we take for granted today - including pharmaceuticals, textiles and even electronics - would not be possible. More than 90% of all chemical products will encounter at least one catalyst during their course of production. It is indeed hard to imagine life in the 21st century without catalysts. Chemists all over the world are continually developing new catalysts and catalytic processes.'

Bala said in the past decade, three Nobel prize-winning chemists had been doing research in fields related to catalysis.

The UKZN team under Bala is actively involved in designing new soluble organometallic catalysts which involves the design of new ligands and complexes of common metals such as cobalt, iron and nickel aimed at discovering new environmentally benign ones.

'What we are doing differently is that much of current catalytic work is based on toxic materials such as heavy metals and we prefer to look at benign materials that nature itself uses as catalysts.'

'For instance, photosynthesis is a very powerful process: Nature uses sunlight to convert carbon dioxide (CO₂) into food for a plant. There is catalysis that takes place here. If we could find something as natural as chlorophyll or a common metal, and design a catalyst around it, we would be mimicking nature.'

'We are amongst a few researchers in the world actively pursuing strategies that use waste such as carbon dioxide (used to make fizzy drinks) and low value chemicals such as hydrocarbons (paraffins burnt as fuel in homes and cars) with the aim of converting them into more useful products,' said Bala.

The team has had considerable success in converting paraffins into oxygenated products that serve as building blocks for pharmaceutical and fine chemical manufacturing. 'Also, with funding from the power utility ESKOM, our team has initiated projects that aim to utilise CO₂ (a major exhaust of coal power plants and abundant greenhouse gas) and convert it into industrially useful cyclic carbonates and engineering polycarbonates.'

'This is value addition or product enrichment - an area where chemists are working hard in trying to find useful products out of waste or low value chemicals. In the near future, we want to find a catalyst that can turn carbon dioxide into something really useful. This will be our contribution towards global initiatives aimed at reining in global warming,' said Bala.

Not only is the team working on finding alternative uses for low value chemicals, but they are doing it in an environmentally-friendly way.

Bala's efforts have been crowned with many accolades. He was made a Fellow of the Royal Society of Chemistry (FRSC), in 2014 has published six papers with his group in high impact international journals, received more than 40 citations from researchers around the world, and presented work done in partnership with two other students at international conferences in Japan and Singapore.

Professor Muhammad D. Bala ▶



Golden touch

Hard work developing a better, more affordable prosthetic hand is paying off for the Mechanical Engineering Discipline.

After winning the Step-Up Innovation Competition in November 2013, the Touch Hand represented South Africa in June this year at a Swiss Entrepreneurial Exchange programme.

Work on the prosthesis, now in phase two of its development, began when Mr Drew van der Riet registered for his master's degree with the Discipline's Professor Riaan Stopforth. Van der Riet had completed his final-year undergraduate project in the medical technology field, while Stopforth was conducting research in bio-engineering robotic applications at the time.

Van der Riet's masters thesis outlined some of the difficulties of the project. 'The design of a fully functional robotic hand needs to be more complex than its human original.

'A prosthetic arm needs to have its own power supply internally, a control system and actuators, while still weighing the same as a human's hand, and providing the same dexterity and grip strength as a human hand,' said van der Riet.

Van der Riet's research objectives included:

- introducing a novel method of control, allowing for more than 14 grip-type and hand gesture options
- developing a novel sensory feedback system to communicate all sensory information simultaneously to the user
- to grip with a force of 15 Newton using a power/cylindrical grip type and to grip with a force of 3 Newton using a lateral/key grip (only using the thumb)
- to fully close the hand in three seconds
- achieving a multi-dexterous design, with individual actuation of each finger
- having a modular design allowing for use with a transradial or transhumeral amputee
- to achieve a low-cost design with the total material cost under US\$3 000 (R40 000).

'I produced a fully robotic hand for about R10 000,' he said. 'The cost of parts wasn't huge.'

When van der Riet attended a workshop in Switzerland for entrepreneurs, he was encouraged to explore the business end of his design. 'That's driven us forward and been a great learning experience,' he said. A company, Touch Prosthetics, has been formed through UKZN's InQubate, to produce it commercially at an affordable price.

In July 2014, masters student, Mr Greg Jones joined the team with the brief to refine the design of the Touch Hand. The objectives for the Touch Hand II are to improve on its predecessor in the following areas:

- aesthetics – by creating a compact mechanical hand design with self-contained electronics
- grasp – by incorporating an adaptable finger grasping design
- a low-cost, novel grip force control design
- performance – such as reducing the hand closing time, increasing the gripping forces, and increasing the maximum loads
- modularity – by enabling the hand to measure a number of senses including temperature, vibration, grip force, finger position for future feedback and control strategies
- cost – by keeping the total manufacturing cost below US\$1 000.

The Touch Hand II will be controlled by electromyography, which involves electrodes attached to the skin of the arm with the amputation. These electrodes measure voltage created when muscles flex under them. Eventually the hand will support a sensory feedback system.

The relation of all things

Using mathematical equations to figure out hidden structures in the world around us.

Professor Kesh Govinder, Dean and Head of School of Mathematics, Statistics and Computer Science, didn't set out to pursue a career in Applied Mathematics.

Growing up in Umzinto, this son of a school teacher was very interested in science, especially physics. After starting his studies at UKZN in 1988, however, he 'soon realised that what I really liked was the maths underlying the physics. With the help of my mentor, Professor Manfred Hellberg, I figured out that my interest lay in applied mathematics'.

He went on to get a PhD in Applied Mathematics, focusing on group theory applied to differential equations.

'A differential equation relates quantities and the rate at which they change,' he explained. 'Rates of change are intrinsic to everyday life. For example, speed is the rate of change of distance (how distance changes with time). Thus differential equations are useful to model many physical phenomena. To gain a proper understanding of the behaviour of these phenomena, the equations need to be solved.'

He classifies equations, extends existing ones, and develops new solution techniques, while looking at applications in a variety of areas. Historically, his interest has been in applications in general relativity. More recently he has been working in applications in financial mathematics and mathematical biology – the latter being an exciting interplay of mathematical modelling and biosciences.

In 2014 he was involved in projects ranging from models of radiating stars in relativistic astrophysics, to modelling exotic options in financial markets.

His recent focus on mathematical biology has led to a number of different projects including cancer modelling (at the genetic level), chemotaxis and epidemiological modelling (water borne diseases, HIV and bovine tuberculosis).

He was also the first to attempt to use Mathematics to monitor the success of transformation via the Equity Index. While this did not involve differential equations (his first love), he noted 'ironically, people know me more through this work than my other research'.

As Dean, Govinder also facilitated several projects, including one involving the first high performance cluster at UKZN. This computing platform provides the means to undertake intensive, complex calculations in a variety of fields. Researchers throughout UKZN - including those in Mathematics, Physics, Computer Science, Chemistry, Engineering and Health Sciences - now have access to a powerful facility to support their research.

Govinder was proud to contribute to a School which generates research of the highest calibre.

The Disciplines of Mathematics and Applied Mathematics have the greatest impact among all disciplines at UKZN. The impact of the research in the School far surpasses that of all research universities in South Africa for the period 2005 to 2014.



Professor Kesh Govinder, Dean and Head of School of Mathematics, Statistics and Computer Science ►

Powerhouse of possibilities

Philanthropic donations raised by the UKZN Foundation are vital for research and enriched learning at the University.

A powerhouse generating light, learning – and freedom. That's one possible way to describe the work done by the University of KwaZulu-Natal's Foundation, which through its fundraising makes possible many of the 'nice-to-haves' and essentials of university life.

Executive Director Mrs Jane Meyerowitz said the UKZN Foundation did this by carefully nurturing relationships with Corporates, Trusts and individual donors and encouraging philanthropic donations to UKZN. 'We're trying to sell the University and the excellent work done here to the outside world.'

The sales drive works very well with excellent support being received. Last year, the Foundation, a registered charitable Trust, raised R108 million to support students and programmes in fields ranging from entrepreneurship to health care and theatre refurbishment. It also helps that donations to the Foundation are tax deductible under Section 18A of the SA Tax Act and may also qualify for BBEEE points.

Eighty percent of the funding comes from foreign donors, mainly foundations and trusts, with the business sector and philanthropic foundations being the main contributors in South Africa. 'We need to reach out to individual donors more,' said Meyerowitz, adding that bursaries and scholarships were a critical need for students. Some corporate donors provided funding for students while others funded community outreach or research projects.

Philanthropic research funding is vital for academic freedom because 'it allows researchers to take risks and be innovative. It gives them some freedom to research areas that have real benefit for society, without having the more focused agenda of a research contract.'

Meyerowitz said funding provided support in many other ways, such as enabling postgraduate students to stay on at university when there might be pressure at home and take a job to contribute financially. It made travel for emerging researchers possible and helped grow the knowledge agenda of the country, thereby contributing to National Development Plan goals.

'We also get funding for Research Chairs and Professorships,' said Meyerowitz, explaining that some organisations provided funding for a Research Chair in their field of interest. When necessary the UKZN Foundation sourced funding for specific research, and was currently trying to raise money for Chairs in Maritime Studies and Engineering.

'The Foundation also supports university involvement in communities. The Farmers' Support Group, for example, shares research and best practices with farmers in poor communities, while info4africa disseminates health information to communities and the Community Development Association (CDA) works with youth to develop leadership skills.'

Inevitably, raising the money to make all this possible is challenging. 'A lot of funding that was available post-1994 is drying up because funders now perceive SA to not be a priority. We need to start partnering with Africa. For example, European Union (EU) funding is available in partnership with the rest of Africa.'

She said while student unrests caused difficulties for fund raising, 'the more funding we can provide to help students who need it, the less grounds there are for agitation'.

Meyerowitz, who comes from a computer science background and was Registrar before joining the Foundation, said her work there has been very fulfilling. 'For me it's an opportunity to give back. I've been at UKZN for a long time. Working for the Foundation I see a different side of the University.'

- For more about the work done by the UKZN Foundation visit www.ukznfoundation.org



“ Philanthropic research funding is vital for academic freedom because 'it allows researchers to take risks and be innovative. It gives them some freedom to research areas that have real benefit for society, without having the more focused agenda of a research contract.' ”



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.

“ During 2014, apart from publishing more than 100 peer-reviewed papers in scientific and medical journals, researchers at the Africa Centre completed the first phase of a study into ‘treatment as prevention’ (TasP). ”

RESEARCH CENTRES

AFRICA CENTRE FOR POPULATION HEALTH

UKZN’s Africa Centre – at the core of the fight against HIV and AIDS

The Africa Centre for Population Health is based in the uMkhanyakude District in rural northern KwaZulu-Natal and also at the Doris Duke Medical Research Institute on UKZN’s Medical Campus in Durban.

The Centre receives core funding from the United Kingdom-based biomedical research charity the Wellcome Trust and is mandated to conduct research to understand the epidemiology of HIV, implement interventions to prevent HIV transmission and improve treatment outcomes among the mostly rural and largely poor communities.

‘It’s very important to note that we are a research and observation Centre only,’ said Africa Centre’s Director, Professor Deenan Pillay. ‘Our 400 staff, who include fieldworkers, data clerks, administrative staff and more than 20 scientists, do research among the surrounding population to find determinants in behaviour, family relationships, education and other socio-economic factors that can influence the spread of HIV and AIDS. Our strength lies in the fact that we are based at Somkhele, right in the middle of the rural area of uMkhanyakude and therefore have on-the-ground access to information into the population dynamics.’

During 2014, apart from publishing more than 100 peer-reviewed papers in scientific and medical journals, researchers at the Africa Centre completed the first phase of a study into ‘treatment as prevention’ (TasP). This is an ongoing, cluster-randomised study conducted among 28 000 members of the community who had been offered home-based HIV testing and counselling. ‘If they tested positive, they were put on a course of ARV (Anti-Retroviral) treatment straight away, to see if this reduced the rate of new infections,’ said Pillay.

At the moment, national guidelines recommend that ARV treatment for HIV positive patients begins only after a patient’s CD4 count reaches 500 – in other words, after the patient has already begun to show significant immune compromise.

‘It seems counter-intuitive to only start treatment when a patient gets really sick, instead of straight away, but it must be remembered that until very recently ARVs were quite toxic and had severe side-effects. Treatment was also quite complicated – there was a cocktail of drugs that needed to be taken. So there was a history of delaying treatment until absolutely necessary. However, drugs have now become easier to take and much safer. And we now have evidence that the earlier the regime of treatment begins, the more beneficial it is,’ said Pillay.

The World Health Organization has recently changed its own guidelines regarding when treatment should start, and the research from the Africa Centre should provide the evidence required to prove that earlier treatment not only reduces the virus, but also diminishes the spread of infection within the population, he said.

Pillay, appointed Head of the Africa Centre for Population Health in 2013 after several years as Head of the Division of Infection and Immunity and Professor of Virology at the University College London, has steered the Centre in a slightly different direction since his appointment.

‘We are changing in order to do interventional studies,’ said Pillay. ‘We are starting to look at pre-exposure trials, to see perhaps if the treatment with ARVs can be used as prophylaxis.’

‘The US government is looking into this, and the Africa Centre is one of only two places in South Africa where this research will take place.’

Professor Deenan Pillay, Head of the Africa Centre for Population Health ►

Globally relevant and locally responsive research

The Centre for the AIDS Programme of Research in South Africa (CAPRISA), based at UKZN's Nelson R Mandela School of Medicine, was established in 2002 as a multi-institutional collaboration through the National Institutes of Health's (NIH) Comprehensive International Programme of Research on AIDS (CIPRA) as a centre of excellence in HIV prevention and treatment research.

The five major partner institutions are: UKZN, the University of Cape Town, the University of the Western Cape, the National Institute for Communicable Diseases, and Columbia University in New York.

Led by eminent scientist and internationally respected AIDS expert, Professor Salim Abdool Karim, CAPRISA's principal goal is to undertake globally relevant and locally responsive research on HIV and TB prevention and treatment.

CAPRISA's research programmes centre on four critical areas: prevention and epidemiology, microbicides, vaccine and pathogenesis and HIV and TB treatment.

The Centre's research team has in recent years made several major scientific contributions that have influenced the microbicide and vaccine fields as well as international TB-HIV treatment guidelines at a global level.



Research directly addresses two critical issues relating to the HIV epidemic in South Africa - 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,' said Abdool Karim, who is the Director of the Centre.

'With 37 million people living with HIV infection globally, of which only 15 million have been able to access treatment and two million new infections in 2014 alone, the HIV epidemic is one of the biggest threats facing the current and future generations. Young women aged 15-24 years have a disproportionately high burden of HIV infection in Africa with about 380 000 new infections each year,' said Abdool Karim.

Associate Scientific Director, Professor Quarraisha Abdool Karim says: Our research aims to empower women to protect themselves from acquiring HIV infection, thereby slowing, and eventually stopping, the spread of HIV in young women in Africa.

CAPRISA's presence in the Vulindlela community is at the invitation of the local Chief iNkosi Zondi and has become the Institution's flagship site for community-based and clinical research. Located in a deep rural area about 90 minutes from Durban, it provides a context for research that is a closer reflection to conditions in Africa. The setting is a poor rural community where HIV prevalence in pregnant women is higher than 40% and where HIV incidence in young women is 6.5 per 100 women years.

The Centre is studying young women's vulnerability and risk factors for HIV infection, including the role of genital tract immunity in influencing the risk of HIV transmission in young women.

There is an urgent need for safe and effective technology that women can use to reduce their risk of HIV acquisition. In this regard, CAPRISA is also conducting trials of long-acting antiretroviral-formulations.

South Africa's Minister of Science and Technology Naledi Pandor, said: 'Through organisations like CAPRISA we believe that we can conduct world class research to help the world end this epidemic, as a global health threat, by 2030.'

◀ Professor Salim Abdool Karim, Director, CAPRISA.



KwaZulu-Natal Research Institute for Tuberculosis and HIV (K-RITH)

Tuberculosis (TB) is the most common illness among HIV-positive people, including those taking anti-retroviral treatment and is the biggest cause of HIV-related deaths. It thus makes sense for intensive research to take place into both the illnesses.

What makes this most relevant to UKZN is that sub-Saharan Africa bears the brunt of this dual epidemic, accounting for more than two-thirds of the 2013 infection statistics.

And this is where the KwaZulu-Natal Research Institute for Tuberculosis and HIV (K-RITH) plays such a vital role.

Situated at UKZN's Nelson R Mandela School of Medicine, K-RITH conducts research into the relationship between TB and HIV and translates any findings into new tools to control the twin pandemics. The Institute also has a strong focus on motivating young scientists across Africa to expand and strengthen their research.

“
Dr Dennis McKearin, team leader at K-RITH, envisions creating a Pan-African research institute, partnering with scientific and medical communities across the continent.
”

Dr Dennis McKearin, team leader at K-RITH, envisions creating a Pan-African research institute, partnering with scientific and medical communities across the continent. McKearin has been leading K-RITH in an acting capacity since 2013 after being on the senior faculty of several leading universities in the United States as a Biochemist and he is proud of K-RITH's progress as a leading-edge research institution.

'In 2014, K-RITH continued to build its research resources and develop projects that will be the basis of its success for years to come. We are especially proud of our collaboration with Dr Rajh Madesein from UKZN and the Inkosi Albert Luthuli Hospital,' he said.

McKearin says 2014 was a year of significant progress with K-RITH researchers publishing papers spanning several disciplines. The unique resource of a clean room for the manufacture of microfluidic chips made possible novel applications in TB drug sensitivity testing and PCR-based DNA analysis.

K-RITH Investigator Dr Frederick Balagadde registered the Institute's first patent in the form of a microdialysis device; a tiny yet powerful tool that has the potential to provide the basis for a rapid diagnostic unit. The availability of sophisticated analytical instruments produced new insights into the dynamics of TB infection, the cellular bioenergetics of TB infection and into the evolution of drug resistance.

'We have ongoing collaborations with Durban-based clinical teams at the King Dinuzulu Hospital Complex, Inkosi Albert Luthuli Central Hospital, UKZN and the Africa Centre in Zululand,' said McKearin. 'They provide us with TB and HIV-infected tissues that are being used to address questions about selection pressure on HIV viruses in TB-infected and uninfected hosts, and the nature of cellular immune responses to TB infection in human lungs and intestines.'

As part of its mission to help train the next generation of African scientists, K-RITH hosts regular free courses. This training is open to scientists from across Africa, and includes travel scholarships.

K-RITH also continued with its commitment to grassroots maths and science education through its support of the Umkhumbane Schools Project, which facilitates a variety of interventions aimed at improving maths and science teaching and learning at under-resourced schools in the Durban area.

Dr Dennis McKearin, team leader at K-RITH ►



Taking local wisdom to the next level

Research is being done on how to incorporate Indigenous Knowledge Systems into work done by the KZN Provincial Government.

How can the wisdom of Indigenous Knowledge Systems (IKS) be used in poverty alleviation and the implementation of government policy?

This question drove preliminary research in 2014 in two studies at the DST-NRF Centre in Indigenous Knowledge Systems, which has its hub at UKZN.

‘KZN is a predominantly rural province and a large proportion of the people, especially rural women, depend on IKS for their livelihood. Therefore, any development strategy for poverty eradication cannot ignore IKS,’ said Director and Research Leader, Professor Hassan Kaya.

The United Nations Population Fund (UNFP), in collaboration with the KwaZulu-Natal Provincial Government’s Department of Social Development, is planning a major intervention for promoting rural livelihood opportunities – including poverty eradication – in KZN, using IKS.

A baseline study on the socio-economic profile of households was carried out, the objective being to explore the prospects and challenges of using IKS for poverty eradication in KZN.

‘The Provincial Growth and Development Strategy (PGDS) recognises the relevance of IKS in areas such as agriculture, animal husbandry, use and management of natural resources, primary health care, health and medicine, saving and lending, community development and poverty eradication,’ said Kaya. ‘The holistic, community-based and comprehensive nature of IKS is also in line with the National Development Plan (NDP) and national IKS policy.’

An exploratory study and public awareness initiative was also conducted by the Centre at UKZN in collaboration with the Moses Kotane Institute and the KZN Department of Economic Development, Tourism and Environmental Affairs, as part of the integration of IKS and Ubuntu into the provincial knowledge economy.

‘The NDP proposes a move away from a passive citizenry to a self-reliant one, using its own local knowledge systems and resources for sustainable livelihood,’ said Kaya.

‘Therefore, KZN is expected to implement the NDP according to its own socio-economic, environmental and cultural realities. This includes recognition of the rich indigenous knowledge and skills base of the province.’

Kaya said the provincial IKS strategy was an interface with modern knowledge and technology systems, guided by the African philosophy and value system of Ubuntu.

The Centre was also delighted to see three of its Masters students winning Women in Science awards. They were: Ms Tlhompho Gaoshebe, whose research work focused on indigenous food security strategies for climate change adaptation; Ms Mamy Hlabe, whose thesis focused on community perceptions towards the use of traditional and western medical services in North West province, and Ms Nompilo Bridgette Dlamini, whose research examined knowledge and perceptions of learners in former Model C schools towards African indigenous languages in South Africa.

Dr Mayashree Chinsamy, Research Manager assisting Professor Hassan Kaya, Director, IKS. ▶



What is CIKS?

The Department of Science and Technology (DST)-National Research Foundation (NRF) Centre in Indigenous Knowledge Systems (CIKS) is a virtual centre made up of five partner institutions: UKZN, North-West University, UNISA, and the Universities of Limpopo and Venda. Its objective is to promote IKS research, postgraduate training, knowledge brokerage, networking and community engagement.

Focus areas are food security, traditional medicine; bio-diversity and environment, IKS curriculum studies and development with an emphasis on non-Eurocentric paradigms.

HEARD – making a difference across Africa

The Health Economics and HIV and AIDS Research Division at UKZN (HEARD), headed by Professor Nana Poku, studies the effect chronic diseases, particularly HIV and AIDS, have on micro and macro economies, and does research in the process from which economic considerations can be turned into practical policies.

‘We work in the field of the political economy of health across Africa,’ said Poku. ‘From the time of our formation we have examined the economic case for some of Africa’s most enduring health conditions, including HIV and AIDS, gender vulnerabilities, adolescent health, intimate partner violence, and health disabilities, particularly those related to medication for chronic diseases.

‘We have studied the effectiveness of public health campaigns targeting HIV preventions and adolescent sexual health issues, examined health systems and ways of strengthening them, and compared the costs and benefits of hundreds of health-related interventions to influence policy. In the process we have partnered with a range of actors to leverage comparative advantages in advancing health equity in Africa.’

Poku said one of HEARD’s most significant research projects in 2014 had been a series of longitudinal studies which were part of a global

commission to reclassify countries’ economies. Countries were classified into three groups: upper-income, middle-income and lower-income. ‘This classification was done 30 years ago, and has never been changed. Countries are ranked according to their GDP, and their ranking has a huge influence on their access to financing, loans, grants and aid.’

The problem is that such a simplistic categorisation does not give the full story, he says. A country like Kenya, for instance, would be classed as a middle-income country severely limiting the country’s ability to raise funds or grants for something such as disease intervention or health care. ‘But Kenya’s entire population is not middle class or middle income: the ranking is skewed. This is because the wealth of the country, while significant, is not evenly spread throughout the population. It is concentrated in a small group of people, and is mainly driven by the commodities-boom. So while Kenya itself, as a whole,

might have the GDP of a middle-income country, many of its population will live in the conditions of a lower-income country.

‘It is important that these simplistic rankings are challenged and redefined, as many countries in Africa have risen from lower to middle-income countries, while their population remains largely poor and unable to sustain their own development.’

The studies looked thoroughly at an entire range of factors, not just the GDP, in order to create a new economic algorithm for countries in Africa.

Poku says the results of this survey, due to be completed early in 2016, will have a major impact on global economic rankings, and would give countries grounds to lobby for fairness with regard to access to concessionary financing.

‘While the Centre undertakes some pure research for the advancement of knowledge and practical understanding, notably the doctoral training programme, it is through our applied and evaluative research that HEARD seeks to make the greatest contribution to efforts in overcoming health inequalities in Africa.’



Professor Nana Poku, Executive Director and Professor of Health Economics ►

Productive year at Socio-Legal Studies Centre

It was a busy year at the Centre for Socio-Legal Studies with its Professor of Law, David McQuoid-Mason, having six South African Post-Secondary Education (SAPSE,) articles published.

Mc Quoid-Mason also completed a book on Street Law and has seven chapters in books in the process of being published or accepted for publication. In addition he delivered eight papers at international conferences and conducted eleven international workshops.

‘My life’s mission has always been to bring Law to the people,’ said McQuoid-Mason.

‘Thirty years ago we at UKZN - or Natal University as it was known - introduced a course called “Street Law” which I adapted from the United States. The idea was to bring Law, which can be extremely intimidating for the ordinary person, to the level of the person in the street.’

‘We wanted to make people aware of the law, show them how to use the law to protect or advance their rights, and how they can use law to help themselves – even under apartheid. However, we did not want to legitimise the apartheid system, so we also asked learners to consider what kind of legal system they would like to have in the future.’

‘Today, we want people to appreciate that knowing the law and using it correctly, means that they do not have to resort to violence to get what they want,’ said McQuoid-Mason.

‘Street Law is law in action. It is about bringing law to the people so that they can use it in [their] everyday life’.

McQuoid-Mason’s books and teaching of Street Law have changed the thinking about law and democracy education in some of the countries where he has worked. The South African Street Law manuals on ‘Human Rights for All’ and ‘Democracy for All’ have been adapted by a number of countries, including the United States, Mongolia, Croatia, Romania, Haiti, the Middle East.

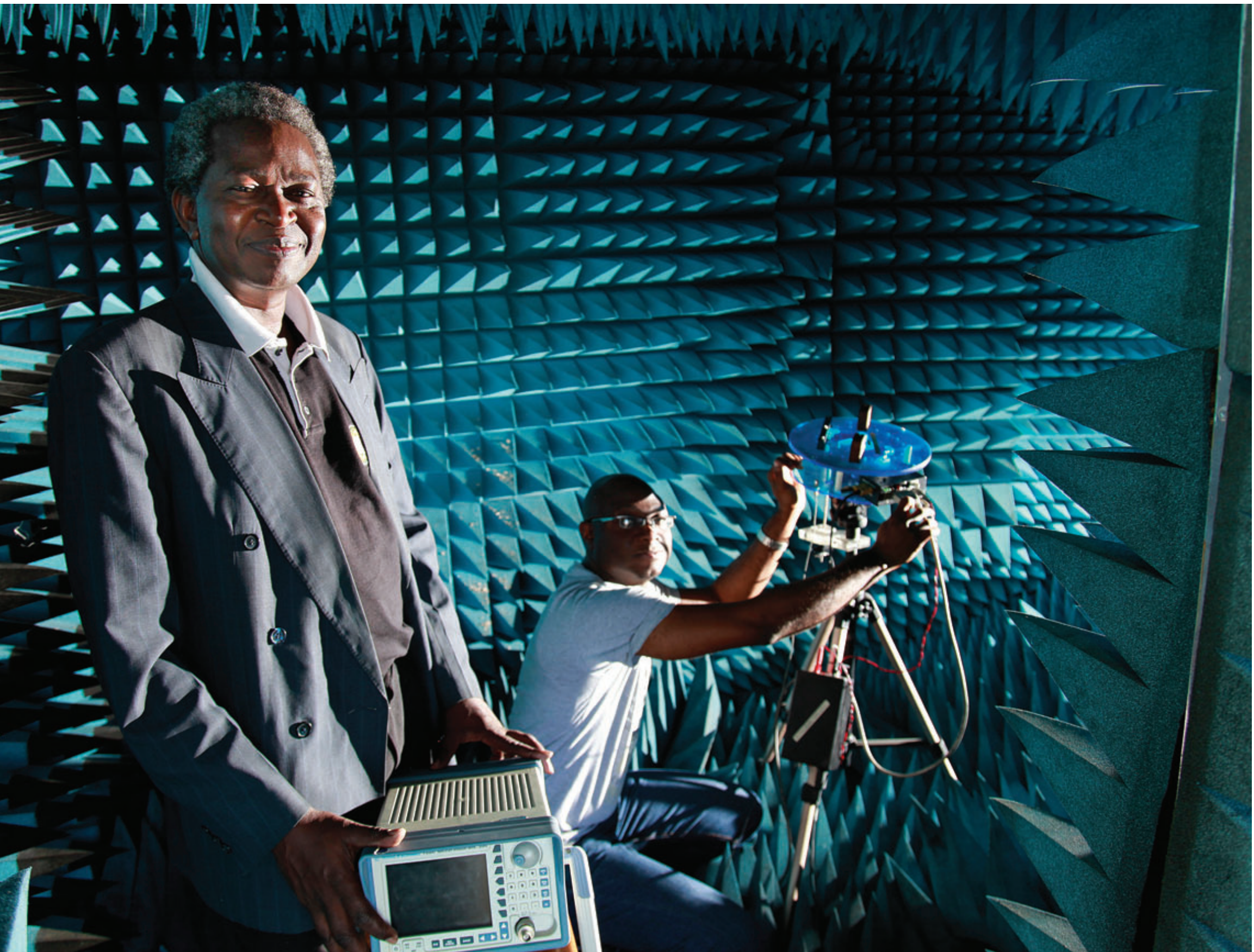
‘Non-governmental Organisations and the Independent Electoral Commission tend to train people on how to vote, but not to interrogate what is democracy, how government works in a democracy, how human rights underpin democracy and how citizens participate in a democracy. The Street law programme developed the ‘Democracy for All’ manual in the run up to South Africa’s first democratic elections so that citizens were not only being trained how to vote, but also to understand why voting responsibly is so important,’ said McQuoid-Mason.

The articles in the *South African Medical Journal* were on:

- Withholding or withdrawal of treatment and palliative treatment hastening death: The real reason why doctors are not held legally liable for murder
- The Teddy Bear Clinic Constitutional Court case: Sexual conduct between adolescent consenting children under 16 years decriminalised and a moratorium on the reporting duties of doctors and others
- Can children aged 12 years or more refuse life-saving treatment without consent or assistance from anyone else?
- Overturning the refusal of a hospital to terminate life support for a brain dead mother until the fetus was born: What is the law in South Africa?
- Interference with the clinical independence of doctors in hospitals faced with a shortage of resources: What should doctors do?
- The article in the *South African Journal of Bioethics and Law* was on: Terminating the pregnancy of a brain-dead mother: does a fetus have a right to life? The law in South Africa.

David McQuoid-Mason, Professor of Law,
Centre for Socio-Legal Studies ►





Making waves

Research being done by the Centre for Radio Access and Rural Technology is helping to drive the communication revolution.

Few technologies have made a bigger impact on life in recent years than wireless and satellite communication. At UKZN, research done by the Centre for Radio Access and Rural Technology (CRART) is contributing to the on-going evolution of these technologies.

Housed in the School of Engineering’s Electrical Engineering Building, the primary function of CRART is to conduct research in radio communication systems and networks, to train engineers in advanced communication techniques, to offer MSc and PhD degrees, and to run courses specifically designed for the telecommunications industry. Topics being researched include wireless sensor networks, high-speed digital communications, cooperative communication networks, network protocol design and radio propagation.

CRART currently receives annual funding totalling R880 000 from Telkom-SA, Alcatel-Lucent, and the National Research Foundation. The academic staff in the Centre include three professors, an associate professor, two senior lecturers, and five lecturers. In addition, it has three post doctoral researchers, and 60 PhD and masters students, of which 20 are South African and the rest international.

‘The postgraduate students focus on research in wireless communication,’ said Professor Thomas Afullo, Academic Leader in the Discipline of Electrical, Electronic & Computer Engineering. ‘This is the form of network access used for mobile phones and fixed lines beyond the exchange. They also look at satellite communication, which is another form of wireless communication.’

Afullo was born in Kenya and obtained his PhD in Applied Sciences from Vrije Universiteit Brussel, and an MSc in Electronic Engineering from West Virginia University on a Fulbright-Hays Scholarship.

He said in 2014 researchers at CRART had done ‘commendable work in the area of coding theory and microwave and millimetric wave propagation under precipitation and clear-air conditions. Optimal coding makes it possible to recover data if there are errors in a noisy transmission channel.’

Another area of research was in Orthogonal Frequency-Division Multiplexing (OFDM). This is a method of encoding digital data on multiple carrier frequencies, and is used in applications such as digital television and audio broadcasting, DSL (Digital Subscriber Line) Internet access, wireless networks, power line networks, and 4G mobile communications. Afullo described OFDM as ‘another way of interleaving multiple sub-carriers onto a single carrier frequency and minimising the effect of noise and interference’.

In 2014, the CRART centre graduated three PhD and eight MSc students, while researchers produced more than 30 journal papers and 20 refereed conference publications.

◀ Professor Thomas Afullo, Academic Leader in the Discipline of Electrical, Electronic & Computer Engineering (far left) with Dr Akintunde Alonge, Postdoctoral Researcher, in the anechoic chamber.

SABC – winning hearts and minds through the years

The South African Broadcasting Corporation (SABC) has been a part of South African life since the 1930s. For more than 80 years the programming, politics and prevalence of our state broadcaster has had an immeasurable impact on our society.

Professor Ruth Teer-Tomaselli of the Centre for Communication Media and Society decided to research the role the SABC played in shaping South Africa over the decades, and spent 2013 and 2014 writing up chapters and papers for publication on the history of the Corporation.

'I started my research looking at the era before the Broadcasting Act of 1936 when the SABC collaborated with four independent radio stations in Durban, Johannesburg, Bloemfontein and Cape Town, eventually absorbing them into the organisation,' said Teer-Tomaselli. 'It was fascinating to see how the SABC and the BBC in London took similar routes but went in different directions. Radio in the three British Dominions – Australia, Canada and South Africa – was supposed to be the same but ended up being completely different!'

Teer-Tomaselli then examined the period around World War II when the SABC sent a mobile recording unit into the firing line of the conflict 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 and brought the war into the homes of people throughout the world.'

'The real change in the SABC took place at the beginning of 1950, when the broadcaster reflected on what was happening in South African society as a whole. There was the introduction of Springbok Radio, the very first of the public broadcasters to be commercialised. This resulted in a strange duality of being a public service broadcaster but a commercial radio station at the same time.'

'The final section of my research was around the introduction of television in the 1970s. Interestingly, the SABC was technologically ready to introduce television in the 1950s, but there was political opposition.'

Teer-Tomaselli, whose doctoral thesis is about how the SABC was used as propaganda, says it is ironic that broadcasting and politics were always intertwined. 'Broadcasting is a powerful form of the media, it has enormous reach and influence. The enormous popularity of a soap opera such as Uzalo (an isiZulu-language programme set in Durban) has shown that people want to watch something that is close to them, something that will touch them.'

Her research will soon be published as chapters in books. 'The broadcaster was used to frame the way we think about events. At the moment there is a huge push for Africanisation of study, because African students say they don't see themselves in the works they read, but they see themselves in the television they watch.'

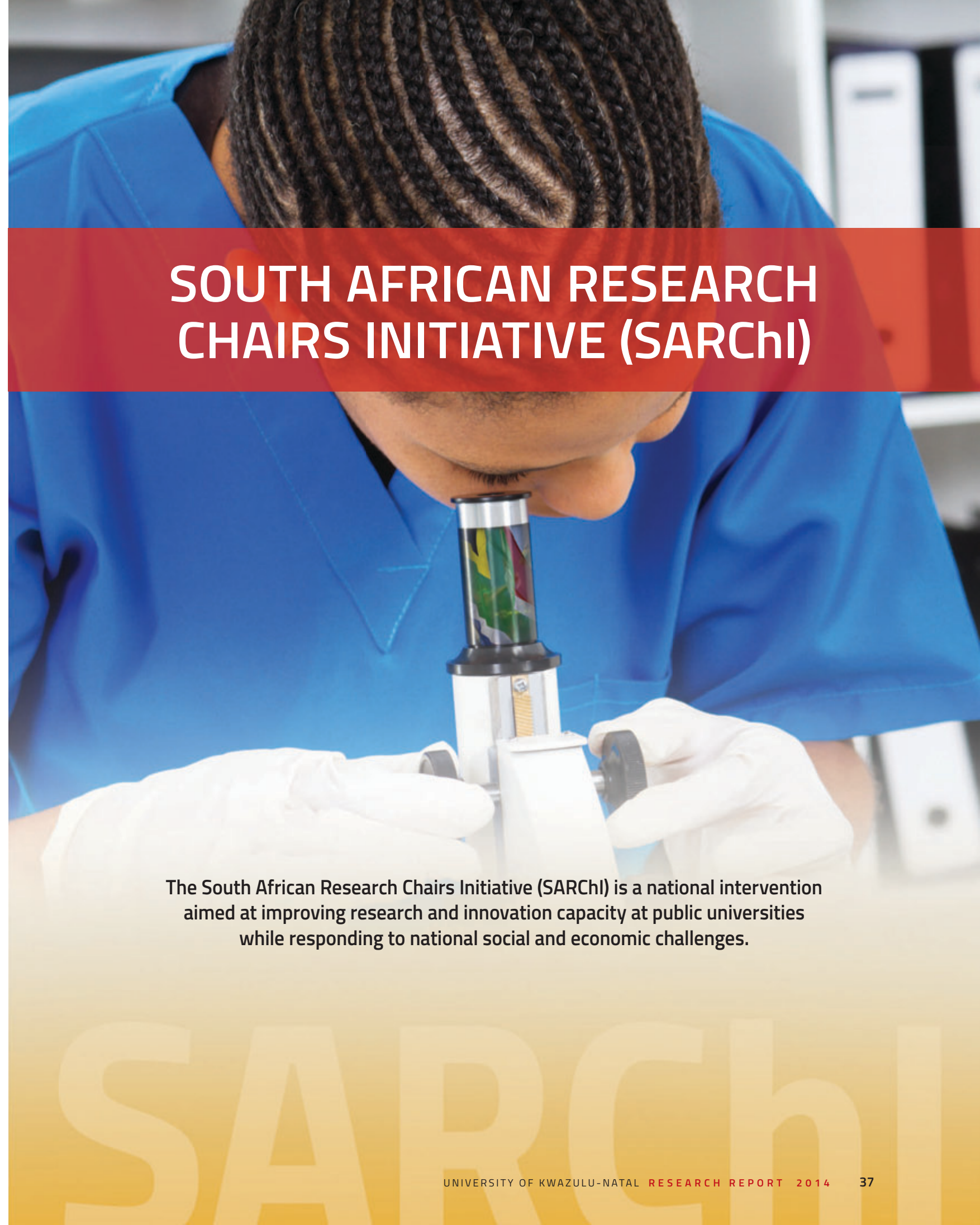
A highlight in 2014 for Teer-Tomaselli was a Honorary Lifelong Scholarship from SACOMM (the South African Communication Association), awarded jointly to her and her husband, Professor Keyan Tomaselli. She was the first woman to receive the award.



◀ Professor Ruth Teer-Tomaselli of the Centre for Communication Media and Society

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.



Applied Poverty Reduction Assessment

Professor Sarah Bracking

Professor Sarah Bracking currently holds UKZN's SARCHI Chair in Applied Poverty Reduction Assessment, under which a programme of research is being implemented to help reduce the scale and scope of South Africa's poverty by designing better means to assess policy intervention and implementation.

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

Bracking graduated from York University in the United Kingdom (BA Hons Politics), then Leeds University (MA, International Resources and Development; PhD on Structural Adjustment, Business and the State in Zimbabwe 1991-7).

She worked as a Research Fellow at the Centre for Democratisation Studies at Leeds University, principally on the International IDEA State of Democracy Project, before moving to the University of Manchester where she was a member of the Chronic Poverty Research Centre (2001-2006) and Global Poverty Research Group (2001 - 2007).

She held numerous research grants and was promoted to Professor in International Development in the School of Environment and Development, and is the Research Director of the Leverhulme Centre for the Study of Value at www.thestudyofvalue.org.

Her most recent work has focused specifically on the developmental co-benefits of climate finance designated for adaptation projects, moving from a 20-year career of research in development finance generically. Research on this is ongoing in the Leverhulme Centre for the Study of Value, funded from a major programme grant award from the Leverhulme Trust (RP2012-V-041).

This research is critically exploring the social articulation of valuation in the development, environment and conservation domains. Bracking also has ongoing theoretical and field research on private sector development and corruption in the extractive industries and infrastructural build projects in South Africa, funded by the Michelsen Institute.

From 2009 to 2012, Bracking worked as principle investigator on a number of research grants: on reform of European development finance institutions (DFIs) and their use of tax havens, funded by the Ministry of Foreign Affairs in Norway (2010); on development and environmental impact assessment in development finance institutions funded by Norwegian Church Aid (2011), and on a community-based system for the treatment of HIV, funded by the European Union and ACP (since 2008).

She was invited as an expert witness to the UK Parliamentary Committee on International Development in December 2010 because of her research work on the CDC Group, the UK's development finance institution. She has also worked with ZIMCODD on debt write-off (2008); Counter Balance on Reform of the European Investment Bank (2009) and Advocates for International Development (A4ID) as a trainer (2006).

Bracking is editor of *Corruption and Development* (Palgrave, 2007) and author of *Money and Power* (Pluto, 2009), and is currently completing a book on *The Financialisation of Power in Africa* (Routledge). She is also a columnist at *The Africa Report*.

Economic Development

Professor Dorrit Posel

Professor Dorrit (Dori) Posel is an economist specialising in the micro-econometric analysis of household survey data. The overall research objective of her Chair in Economic Development is to explore the interface between households and labour markets in South Africa, advancing knowledge across a range of socio-economic areas including those relating to union formation, mobility, child care, labour force participation and measures of well-being.

The research is integral to evaluating the experiences of economic development among individual South Africans and to assessing economic and social policy seeking to reduce poverty and increase well-being.

Posel has also used the opportunities afforded by the Research Chair both to strengthen quantitative research skills in the analysis of South African micro datasets and to foster inter-institutional research on socio-economic issues. In 2011 she introduced the first micro-econometric analysis of South Africa (MASA) data conference. MASA brings together national and international researchers working with South African micro data and the conference provides a forum for presenting new and ongoing micro-econometric research. The fifth MASA conference will be held in 2015.

Posel is currently a member of the Steering Committee for the South African National Treasury's Project on Employment, Income Distribution and Inclusive Growth, the DataFirst External Advisory Board and the Organising Committee for the African Social Research Initiative, as well as being a lead investigator in the DST-NRF Centre of Excellence in Human Development.

Evolutionary Biology

Professor Steven Johnson

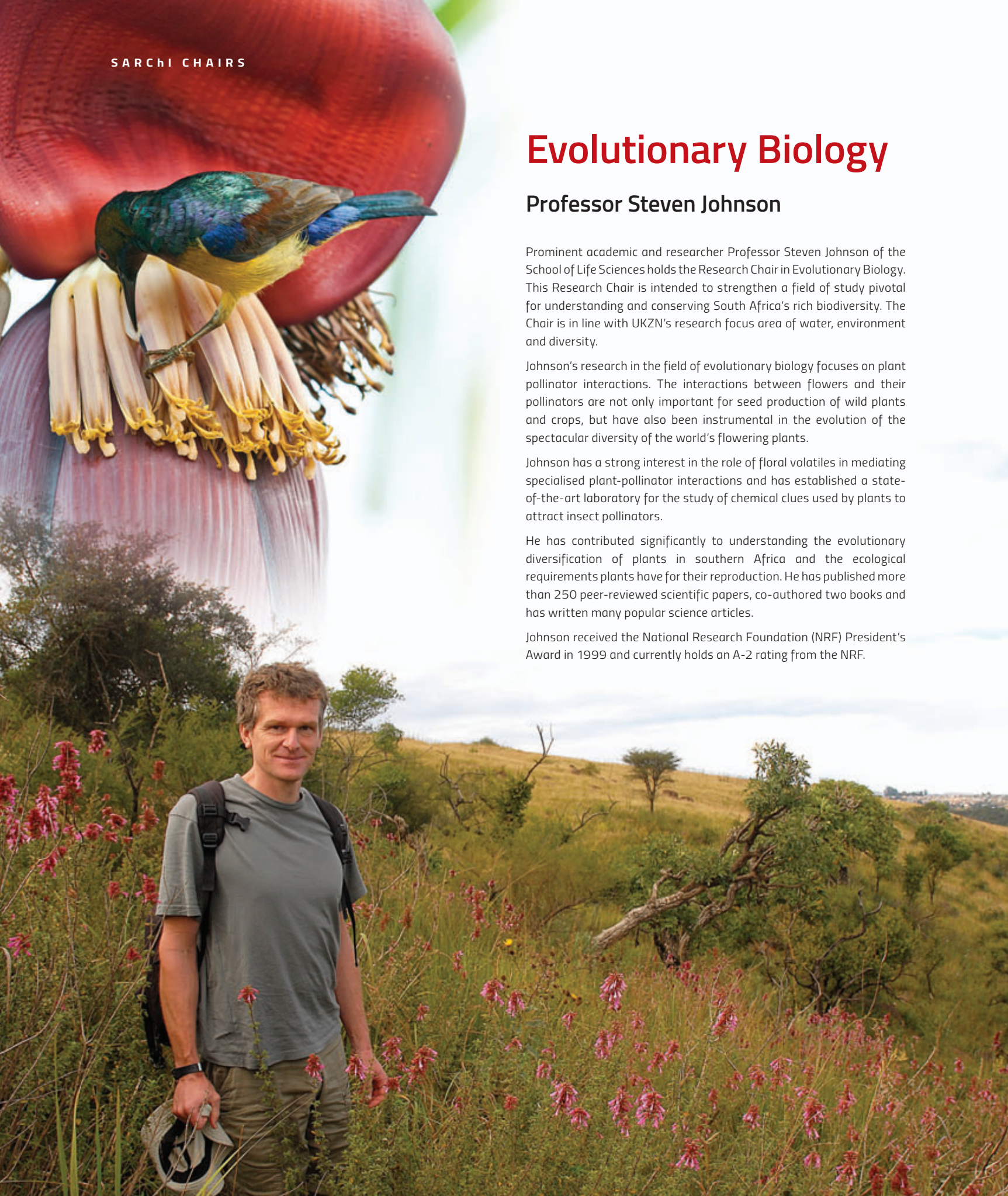
Prominent academic and researcher Professor Steven Johnson of the School of Life Sciences holds the Research Chair in Evolutionary Biology. This Research Chair is intended to strengthen a field of study pivotal for understanding and conserving South Africa's rich biodiversity. The Chair is in line with UKZN's research focus area of water, environment and diversity.

Johnson's research in the field of evolutionary biology focuses on plant pollinator interactions. The interactions between flowers and their pollinators are not only important for seed production of wild plants and crops, but have also been instrumental in the evolution of the spectacular diversity of the world's flowering plants.

Johnson has a strong interest in the role of floral volatiles in mediating specialised plant-pollinator interactions and has established a state-of-the-art laboratory for the study of chemical clues used by plants to attract insect pollinators.

He has contributed significantly to understanding the evolutionary diversification of plants in southern Africa and the ecological requirements plants have for their reproduction. He has published more than 250 peer-reviewed scientific papers, co-authored two books and has written many popular science articles.

Johnson received the National Research Foundation (NRF) President's Award in 1999 and currently holds an A-2 rating from the NRF.



Gravitating Systems

Professor Sunil Maharaj

Professor Sunil Maharaj, who holds the prestigious South African Research Chair in Gravitating Systems, was made a Fellow of the Royal Society of South Africa in 2012 for his research contributions.

Maharaj is Director of the Astrophysics and Cosmology Research Unit in the School of Mathematics, Statistics and Computer Science. His primary research focuses on the modelling of astrophysical processes in relativistic stars and the mathematics related to strong gravity.

Models of gravitating systems are necessary for the description of phenomena that arise in astrophysical and cosmological scenarios. Principal applications include gravitational collapse and black holes; the formation of singularities; physical processes such as accretion in the evolution of relativistic stars; the thermodynamics of matter under strong gravitational fields; super-dense relativistic stars with high core densities, and radiating relativistic stars.

His contribution, in collaboration with many MSc and PhD students, and postdoctoral fellows, to science and technology is manifest in his work on gravitational forces within the context provided by Einstein's Theory of General Relativity and modified gravity theories.

Maharaj and his team have found several new solutions to the Einstein equations in this context by using a variety of advanced mathematical techniques including Lie algebras and contact transformations. These new models will help to obtain a deeper insight into the behaviour of gravity and the underlying geometry of space-time.



Fluorine Process Engineering and Separation Technology

Professor Deresh Ramjugernath

Pro Vice-Chancellor for Innovation Commercialisation & Entrepreneurship

2nd most Productive Researcher at UKZN for two years in a row

Professor Deresh Ramjugernath is the DST/NRF South African Research Chair for Fluorine Process Engineering and Separation Technology and a UKZN Thermodynamics Research Unit Director. He leads a large team of postgraduate students and researchers in arguably one of the leading research groups in its field globally.

The group carries out cutting-edge research contributing to chemical process development and optimisation in South Africa and abroad and actively contributes to the government's Fluorochemical Expansion Initiative (FEI) by researching and developing the country's fluorinated products.

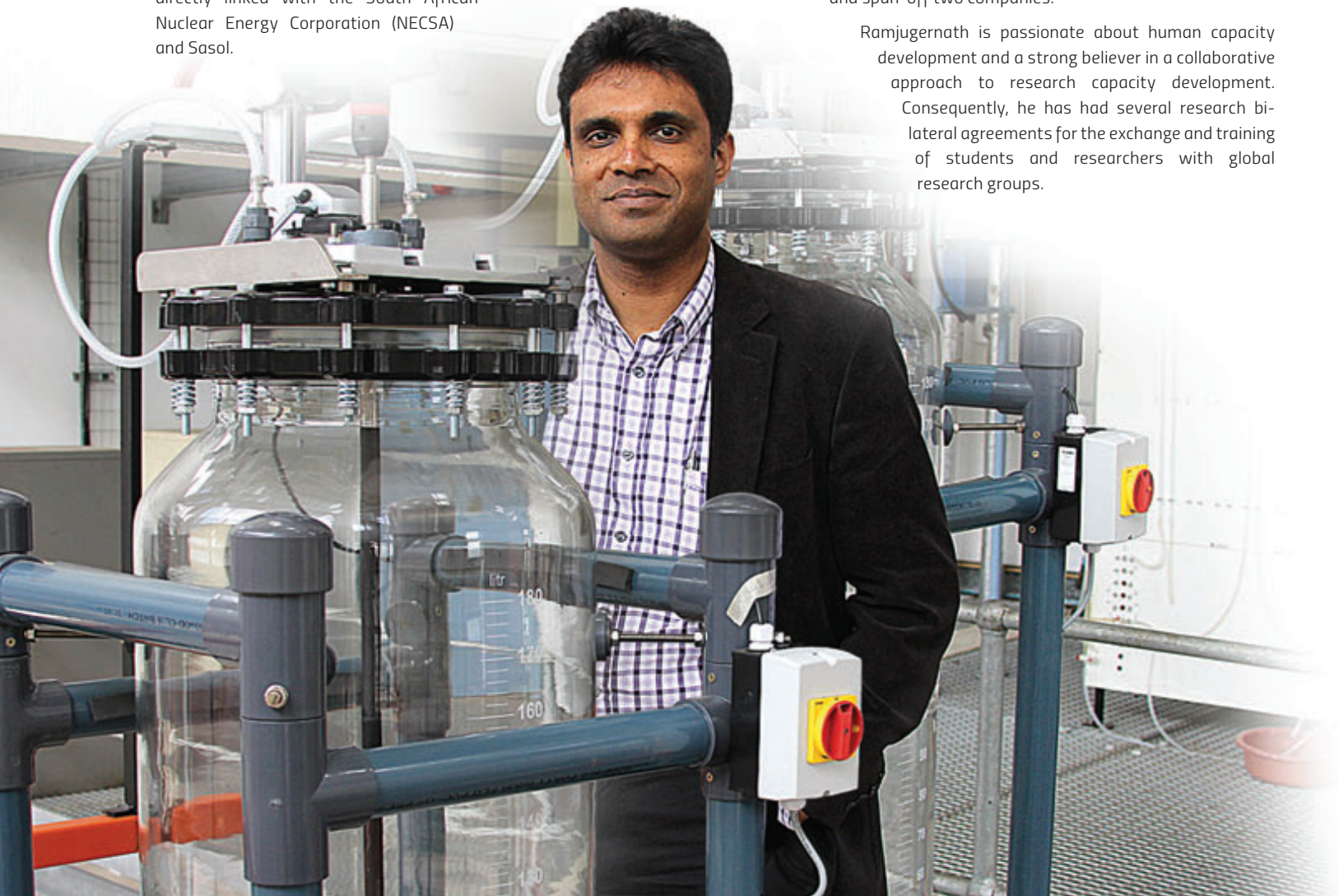
Their activities are integral to developing South Africa's fluorochromicals industry and are directly linked with the South African Nuclear Energy Corporation (NECSA) and Sasol.

Ramjugernath has received numerous institutional and national awards. He received the National Science and Technology Forum (NSTF) Award in 2005 and 2010; a National Research Foundation (NRF) President's Award in 2005; the 2010 UKZN Vice-Chancellor's Research Award and a UKZN Top 30 Researcher on multiple occasions.

He recently received the South African Institute of Chemical Engineer's gold medal and the Innovation Award.

Ramjugernath has successfully graduated over 90 Masters and PhD students and is currently supervising or co-supervising more than 40 postgraduate and postdoctoral students. Together with his research team, he has produced more than 500 conference and journal papers, while he and his co-workers have developed numerous patents and spun-off two companies.

Ramjugernath is passionate about human capacity development and a strong believer in a collaborative approach to research capacity development. Consequently, he has had several research bi-lateral agreements for the exchange and training of students and researchers with global research groups.



Land Use Planning and Management

Professor Mathieu Rouget

The Research Chair in Land Use Planning and Management falls under UKZN's Water, Environment and Biodiversity Research Focus Area.

Professor Mathieu Rouget was appointed as the SARCHI Chair in Land Use Planning and Management in 2013. Rouget is an Ecologist and an internationally recognised expert in conservation planning.

His research work focuses on the interaction between biodiversity conservation and human activities in the areas of conservation planning, alien plant invasions, climate change and ecosystem services.

Identified focus areas of research for this Chair are:

- The protection and enhancement of environmental assets and natural resources
- The development of a systems and transdisciplinary approach to land use planning and management
- The integration of research into policy and management processes.

The Chair fits into the land use planning, land management and sustainable development strategic thrust, drawing the agricultural, earth, environmental and life sciences disciplines together in a new way that will unlock a step-change in research and human capital development capacity.

The Chair also forms a hub for interaction across private and public research institutions.

Major achievements include establishing a joint research partnership between UKZN and eThekweni to co-develop research and decision-making products in the field of biodiversity science, conservation planning and restoration ecology in the face of climate change.

The Chair currently supports two researchers, three postdoctoral fellows and six PhD and nine MSc students.



Rural Agronomy and Development

Professor Paramu Mafongoya

Professor Paramu Mafongoya was appointed the Research Chair in Rural Agronomy and Development in January 2014. Situated in the Energy and Technology for Sustainable Development Research focus area, the Chair has a high priority in terms of the strategic planning of the College of Agriculture, Engineering and Science.

The focus areas incorporate climate change and food and nutritional security; sustainable intensification of agricultural systems; agro-processing and value chains as well as policies, markets and institutions.

These are themes aligned to the key strategic thrusts of the South African National Agriculture and Development Strategy particularly human capital development; innovation and transfer of technology and collaboration and partnerships.

The disciplines cross the spectrum from agronomy to crop science and crop protection, agro-forestry and forestry, soil science, food security and agricultural development.

Mafongoya's work involves contributing to community development through research, agricultural innovation and agricultural extension and is done in partnership with public institutions and other agriculture-supporting bodies. Again it is aligned with the government's priorities of employment creation, food security, support for smallholder farmers and sustainable livelihoods, rural wealth creation and skills development.

Correspondingly, his work contributes to developing new technology to support smallholder farmers in agriculture and the broader agricultural industry. It also contributes to human capital development by training post-graduate students at MSc and PhD levels.

Mafongoya supervised a PhD student in food security and an MSc student in plant breeding, while recruiting two post doctoral students. He also recruited 10 MSc and five PhD students, while professionally boosting UKZN in presenting keynote papers to a host of international, national and regional conferences and workshops.

He has published nine journal papers and two book chapters since taking up the Chair. In his position, he has strong links with the existing centres of excellence such as the African Centre for Crop Improvement and the UKZN African Centre for Food Security.



Systems Biology of HIV and AIDS

Professor Thumbi Ndung'u

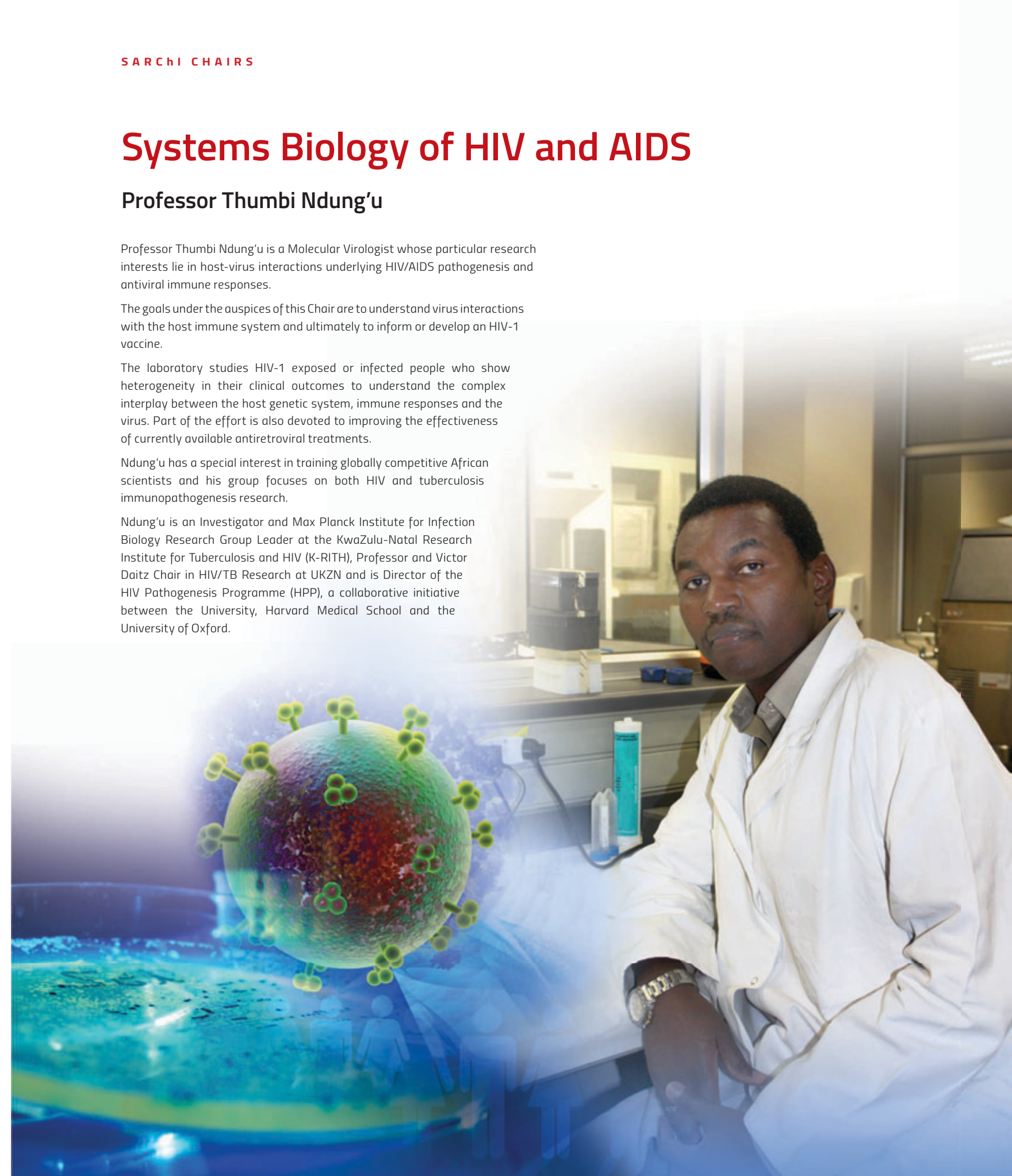
Professor Thumbi Ndung'u is a Molecular Virologist whose particular research interests lie in host-virus interactions underlying HIV/AIDS pathogenesis and antiviral immune responses.

The goals under the auspices of this Chair are to understand virus interactions with the host immune system and ultimately to inform or develop an HIV-1 vaccine.

The laboratory studies HIV-1 exposed or infected people who show heterogeneity in their clinical outcomes to understand the complex interplay between the host genetic system, immune responses and the virus. Part of the effort is also devoted to improving the effectiveness of currently available antiretroviral treatments.

Ndung'u has a special interest in training globally competitive African scientists and his group focuses on both HIV and tuberculosis immunopathogenesis research.

Ndung'u is an Investigator and Max Planck Institute for Infection Biology Research Group Leader at the KwaZulu-Natal Research Institute for Tuberculosis and HIV (K-RITH), Professor and Victor Daitz Chair in HIV/TB Research at UKZN and is Director of the HIV Pathogenesis Programme (HPP), a collaborative initiative between the University, Harvard Medical School and the University of Oxford.



Quantum Information Processing and Communication

Professor Francesco Petruccione

This Research Chair promotes an emerging area of research that can potentially revolutionise several areas of science and technology.

Quantum technology includes quantum computing, quantum communications (quantum cryptography and teleportation), quantum information science (quantum control, quantum simulations and quantum metrology) and quantum biology, all of which are pursued at the Centre as research areas.

Professor Francesco Petruccione, Professor of Theoretical Physics at the University of KwaZulu-Natal, was granted the South African Research Chair for Quantum Information Processing and Communication (QPIC) in 2007, after establishing a Centre for Quantum Technology (CQT) in 2005. The chair was renewed for a further five years in 2012.

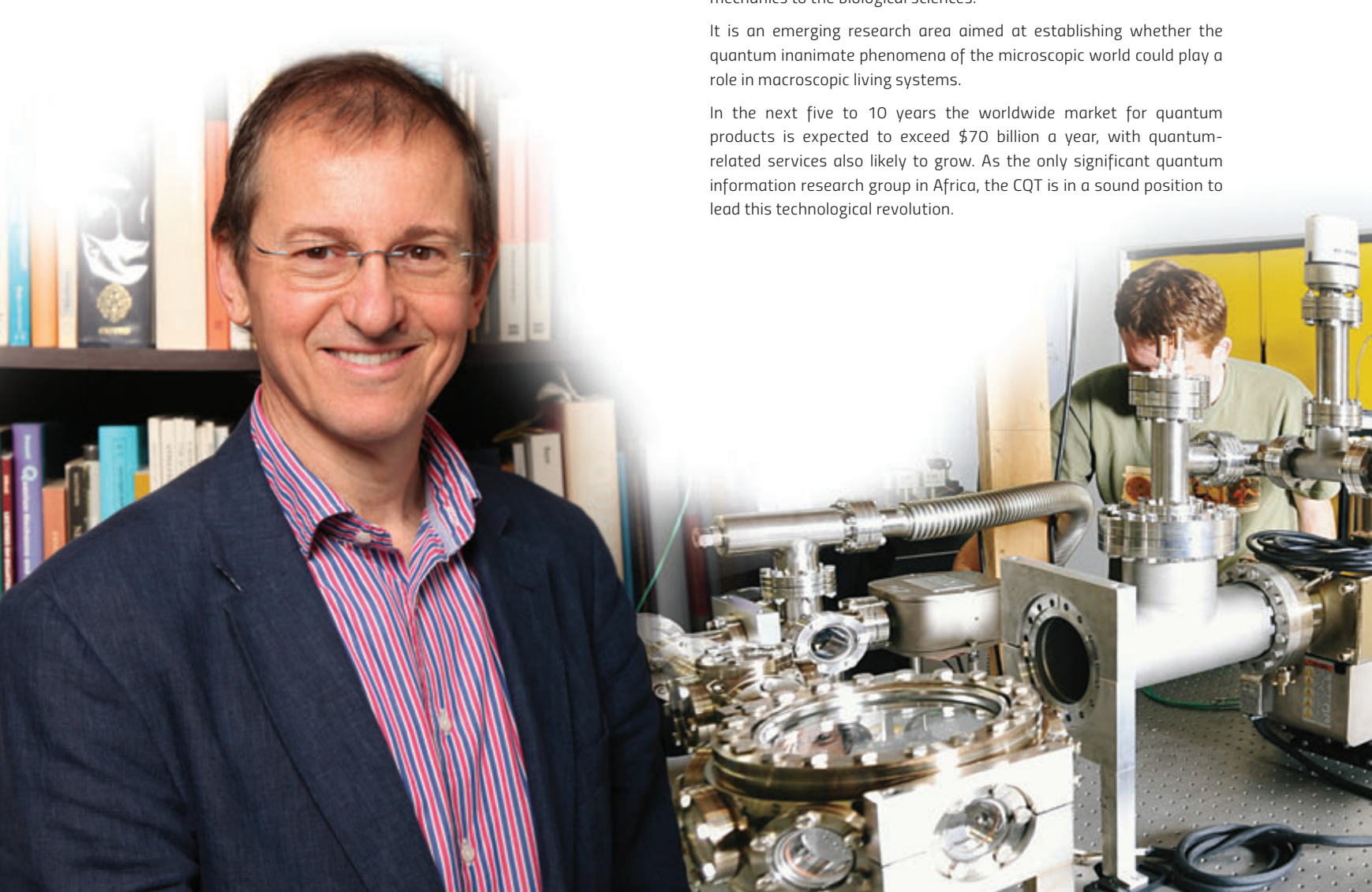
Petruccione, who is a Theoretical Physicist is working on the theory of open quantum systems, which is the basis of many recent quantum technological applications that were unthinkable within classical physics.

The miniaturisation of technological devices necessitates manipulating objects at the nanoscale level at which coherent quantum mechanical processes dominate the physical properties. Quantum computing promises immense computing power, while quantum key distribution guarantees completely secure communication.

Petruccione, who has recently applied the theoretical methods of open quantum systems and quantum information processing to quantum biology, defines quantum biology as the application of quantum mechanics to the biological sciences.

It is an emerging research area aimed at establishing whether the quantum inanimate phenomena of the microscopic world could play a role in macroscopic living systems.

In the next five to 10 years the worldwide market for quantum products is expected to exceed \$70 billion a year, with quantum-related services also likely to grow. As the only significant quantum information research group in Africa, the CQT is in a sound position to lead this technological revolution.



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.’



Professor Michael Chapman



Professor Rob Gous



Professor Linda Richter



Professor Fernando Albericio



Professor Steve Johnson

NRF-A rating for distinguished AIDS researcher

Professor Quarraisha Abdool Karim

Internationally respected scientist and academic Professor Quarraisha Abdool Karim became the first Black academic in the history of UKZN and the second Black woman academic in South Africa to receive a prestigious National Research Foundation (NRF) A-rating for research.

Abdool Karim, Associate Scientific Director at the Centre for the AIDS Programme of Research in South Africa (CAPRISA), was awarded the rating for her seminal scientific contributions in HIV prevention work.

Acting Chief Executive Officer of the NRF, Dr Beverley Damonse, explained that A-rated scientists were ‘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. Professor Abdool Karim’s research is outstanding and she is among the finest scientists in our country’.

“
Internationally respected scientist and academic Professor Quarraisha Abdool Karim became the first Black academic in the history of UKZN and the second black woman academic in South Africa to receive a prestigious National Research Foundation (NRF) A-rating for research.
”

Abdool Karim, a Professor of Clinical Epidemiology at the Mailman School of Public Health at Columbia University in New York and Honorary Professor in the School of Public Health and Nursing at UKZN, commented that she was ‘humbled by this recognition. I have been fortunate to be part of a great team of scientists in CAPRISA. I hope this achievement will inspire many more women to pursue careers in science.’

World-renowned for her scientific discoveries in HIV prevention, she has devoted the last 25 years to AIDS research, providing new insights into how the HIV epidemic spreads and impacts on young women in Africa.

She led the CAPRISA 004 research team that first showed that antiretroviral drugs could prevent the sexual transmission of HIV in women. This discovery was ranked as one of the Top 10 Scientific Breakthroughs of 2010 by the journal, *Science*.

Abdool Karim, a world leader in AIDS research, plays an active role in guiding the global response to the HIV epidemic. She serves as an Advisor on HIV infection to several United Nations agencies, including the World Health Organization (WHO), UNICEF and UNAIDS, and is a member of the UNAIDS Scientific Expert Panel and the WHO’s HIV Clinical Guidelines Committee that sets the international standards for treating HIV infection. She is also Scientific Advisor to the Executive Director of UNAIDS and serves on the Scientific Advisory Board of the US President’s Emergency Plan for AIDS Relief (PEPFAR).

She has published about 200 articles in medical journals, written several books and book chapters and mentored many young South African scientists.

She was awarded the South African Medical Research Council’s Gold Medal this year as well as the Science-for-Society Gold Medal for ‘outstanding achievement in scientific thinking to the benefit of society’ by the Academy of Science in South Africa. Last year, she was awarded the African Union’s Kwame Nkrumah Prize for Science and Technology and the TWAS-Lenovo Prize by The World Academy of Sciences (TWAS) ‘for her exceptional and distinguished contributions to HIV prevention and women’s health’.

In 2013, Abdool Karim received South Africa’s highest honour, the Order of Mapungubwe, from the President of South Africa for ‘outstanding work in the field of HIV and AIDS and Tuberculosis Research and Health Policy Development’. She is also a recipient of the ‘Distinguished Women in Science’ Award from the Department of Science and Technology.



Life’s work rewarded with NRF A-rating

Professor Jacques Grosset

Contracting tuberculosis (TB) as he was finishing his medical studies radically changed 86-year-old Professor Jacques Grosset’s career path.

Grosset - seconded from the John Hopkins University in the United States to UKZN’s KwaZulu-Natal Research Institute for Tuberculosis and HIV (K-RITH) as a scientist-in-residence in 2011 - had originally planned to be a surgeon, but, after suffering TB, has devoted 60 years of his life to eradicating the disease and other mycobacterial infections such as leprosy and Buruli ulcer.

Grosset obtained a National Research Foundation (NRF) A-rating this year, an honour he credits to his life-long professional dedication to research, adding it personally gave him ‘great pleasure’ to be so well appreciated by his South African colleagues.

Globally, Grosset is widely recognised for his role in shaping the modern TB and leprosy treatment regime and he has developed animal models to evaluate new drugs for these diseases. He has translated the scientific output of his laboratory - and of others - by shaping the policies controlling those diseases, most notably by leading the World Health Organization (WHO) committees overseeing them.

His 2014 research focused on improving TB treatment by repurposing the anti-leprosy drug clofazimine into an anti-TB drug. His team demonstrated by adding clofazimine to the standard treatment of drug-susceptible and multi-drug resistant TB, the treatment duration could be shortened.

This provided scientific justification for the clinical trials currently underway across Africa and China, all of which Grosset says have produced favourable results.

When Grosset began his medical studies, TB was the leading cause of death in industrialised countries. Despite the progress made in the past half-century, the disease still infects more than 1,7 billion people, causes disease in over eight million people and kills more than two million people annually.

‘My entire professional life has been involved in research to improve TB control mainly by improving treatment and preventing the development of drug resistance,’ he said.

In the past 45 years Grosset has developed virtually every new drug regime used for these mycobacterial diseases and directed developing the antibiotic regime that led to the first clinical trials demonstrating the efficacy of this treatment for Buruli ulcer.

Although he completed his K-RITH residency in August and has subsequently returned to the Johns Hopkins University, Grosset’s UKZN tenure will reverberate for years ahead.

He arrived intent on dedicating himself and his team to establishing an experimental chemotherapy programme.

‘As an ex-TB patient, my goal has always been to cure my fellow companions in suffering. That does not mean basic research in ivory towers is irrelevant - it provides Nobel prize advances in knowledge, but no immediate impact on public health!’

He has authored more than 300 papers and recently received a US National Institute of Health (NIH) grant to study clofazimine for treating drug-susceptible TB.

He continues mentoring young investigators both in South Africa and the US and retains contact with K-RITH through a Visiting Scientist Award.

NRF-RATED RESEARCHERS

COLLEGE OF AGRICULTURE, ENGINEERING AND SCIENCES			
Title	Surname	First Name	School/Research Unit
Professor	Pillay	Deenan	African centre for Health and Population studies
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	Travor	Agricultural, Earth and Environmental Sciences
Professor	Hughes	Jeffrey Charles	Agricultural, Earth and Environmental Sciences
Professor	Laing	Mark Delmege	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	Onesimo	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
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	Bharuth-Ram	Krishanlal	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 (Emeritus)	Hey	John Douglas	Chemistry and Physics
Professor	Jaganyi	Deogratius	Chemistry and Physics
Professor	Jonnalagadda	Sreekanth Babu	Chemistry and Physics
Professor	Konrad	Thomas	Chemistry and Physics
Professor	Mace	Richard Lester	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

COLLEGE OF AGRICULTURE, ENGINEERING AND SCIENCES			
Title	Surname	First Name	School/Research Unit
Professor	Nyamori	Vincent Onserio	Chemistry and Physics
Dr	Ojwach	Otieno Stephen	Chemistry and Physics
Dr	Owaga	Bernard Omond	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	Haupt	Theodore Conrad	Engineering
Professor	Jewitt	Graham Paul Wyndham	Engineering
Professor	Meikap	Bhim Charan	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
Professor	Workneh	Tilahun Seyoum	Engineering
Professor	Xu	Hongjun	Engineering
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

COLLEGE OF AGRICULTURE, ENGINEERING AND SCIENCES			
Title	Surname	First Name	School/Research Unit
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	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
Professor	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
Professor	Thandar	Ahmed Suleman	Life Sciences
Professor	Van Staden	Johannes	Life Sciences
Professor	Ward	David M	Life Sciences
Professor	Watt	Maria Paula Mousaco	Life Sciences
Dr	Willows-Munro	Sandi	Life Sciences
Professor	Baboolal	Dharmanand	Mathematics, Statistics and Computer Science
Professor	Banasiak	Jacek	Mathematics, Statistics and Computer Science
Professor	Bau	Sheng	Mathematics, Statistics and Computer Science
Dr	Chiang	Hsin Cynthia	Mathematics, Statistics and Computer Science
Dr	Goswami	Rituparno	Mathematics, Statistics and Computer Science
Professor	Govinder	Keshlan Sathasiva	Mathematics, Statistics and Computer Science
Dr	Hilton	Matthew James	Mathematics, Statistics and Computer Science
Professor	Maharaj	Sunil	Mathematics, Statistics and Computer Science
Professor	Massamba	Fortune	Mathematics, Statistics and Computer Science

COLLEGE OF AGRICULTURE, ENGINEERING AND SCIENCES			
Title	Surname	First Name	School/Research Unit
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

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 Courtney	Africa Centre
Dr	Rodseth	Reitze Nils	Anaesthetics
Professor	Abdool Karim	Quarraisha	CAPRISA
Professor	Singh	Jerome	CAPRISA
Dr	Azu	Onyemaechi Okpara	Clinical Anatomy/Laboratory Medicine & Medical Sciences
Professor	Bhimma	Rajendra	Clinical Medicine
Professor	Biccard	Bruce McClure	Clinical Medicine
Professor	Burns	Jonathan Kenneth	Clinical Medicine
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
Professor	Essack	Sabiha, Y	Health Sciences
Professor	Govender	Thavendran	Health Sciences
Professor	Govender	Thirumala	Health Sciences
Professor	Grosset	Jacques HE	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

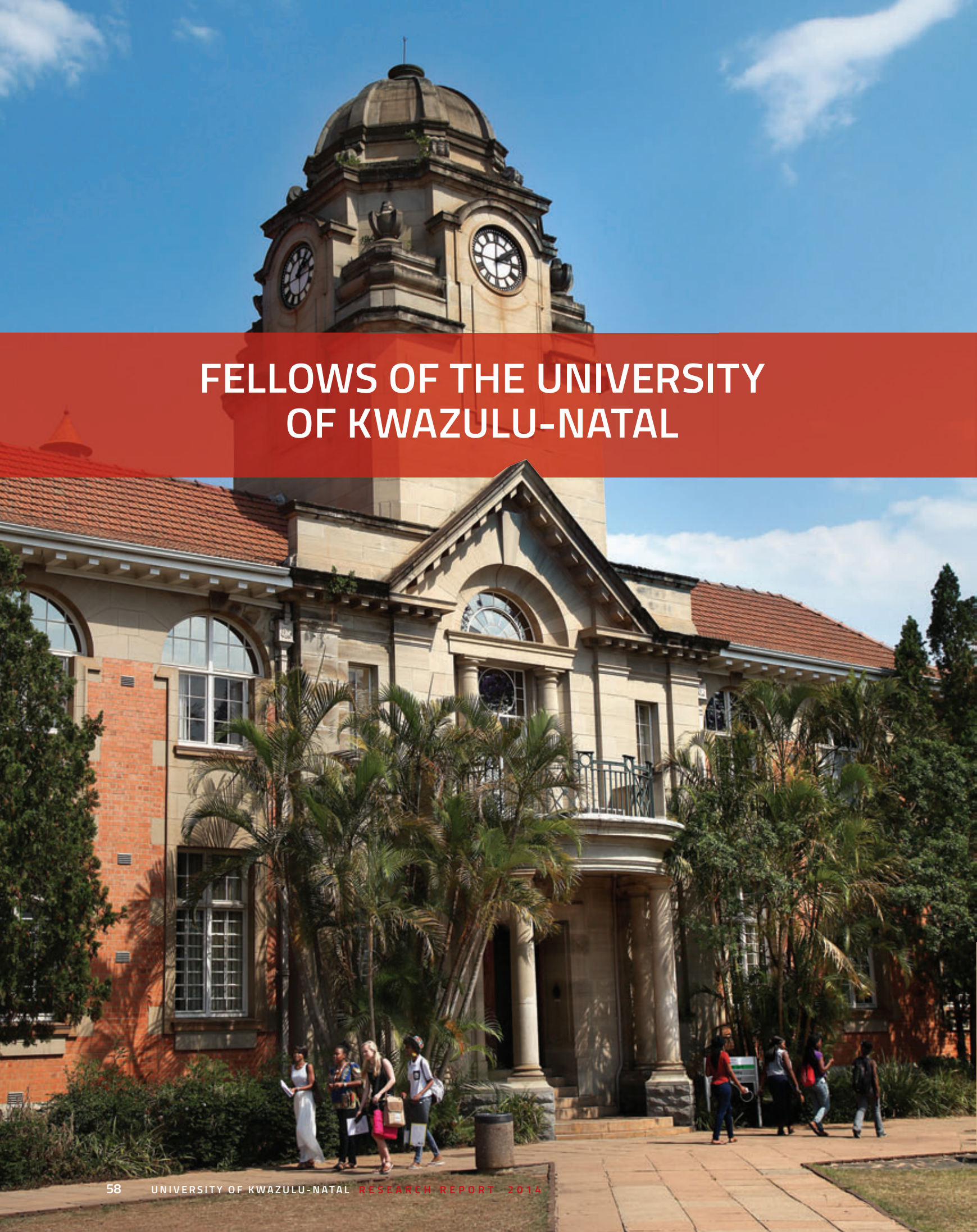
COLLEGE OF HEALTH SCIENCES			
Title	Surname	First Name	School/Research Unit
Professor	Daniels	William Mark Uren	Laboratory Medicine and Medical Sciences
Professor	Das	Gobardhan D	Laboratory Medicine and Medical Sciences
Dr	Mabandla	Musa Vuyisile	Laboratory Medicine and Medical Sciences
Professor	Mackraj	Irene	Laboratory Medicine and Medical Sciences
Dr	Mann	Jaclyn Wright	Laboratory Medicine and Medical Sciences
Professor	Musabayane	Cephas Tagumirwa	Laboratory Medicine and Medical Sciences
Professor	Naicker	Thajasvarie kisten	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	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

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	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

COLLEGE OF HUMANITIES			
Title	Surname	First Name	School/Research Unit
Professor	Zeller	Jochen Klaus	Arts
Professor	Bond	Patrick JP	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
Dr	Bertram	Carol Anne	Education
Professor	Bhana	Deevia	Education
Professor	Buthlezi	M Thabisile	Education
Professor	Chikoko	Vitallis	Education
Professor	De Villiers	Michael David	Education
Professor	Deacon	Roger A	Education
Professor	Maistry	Suriamurthee Moonsamy	Education
Professor	Moletsane	Relebohile	Education
Professor	Muthukrishna	Anbanithi	Education
Dr	Pillay	Guruvasagie (Daisy)	Education
Dr	Pithouse-Morgan	Kathleen Jane	Education
Professor	Preece	Julia	Education
Professor	Ramrathan	Prevanand/Labby	Education
Dr	Van Laren	Linda	Education
Professor	Hiralal	Kalpana	History
Dr	Ruggunan	Shaun Denvor	Management, IT and Governance
Professor	Bansilal	Sarah	Mathematics Education
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	Sorajini	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

COLLEGE OF HUMANITIES			
Title	Surname	First Name	School/Research Unit
Dr	Naidu	Maheshevari	Social Sciences
Dr	Narsiah	Inbersagran	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	Kidd	Michael Antony	Law
Professor	McQuoid-Mason	David Jan	Law
Professor	Mubangizi	John Cantius	Law
Professor	Williams	Robert C	Law
Professor	Brijball Parumasur	Sanjana	Management, IT and Governance
Professor	Mubangizi	Betty Claire	Management, IT and Governance
Professor	Reddy	Purshotta-Masivanar	Management, IT and Governance



FELLOWS OF THE UNIVERSITY OF KWAZULU-NATAL

FELLOWS OF THE UNIVERSITY OF KWAZULU-NATAL

Fellow of UKZN

Professor Jonathan Draper

Professor of New Testament at the School of Religion, Philosophy and Classics, Professor Jonathan Draper, says he is honoured and gratified by his appointment as a UKZN Fellow, viewing it as recognition for the 30 years he has spent in sustained research, graduate supervision and publication.

During his long and distinguished career he has co-edited or co-authored 10 books, published 71 book chapters and 64 journal articles, and graduated 18 PhD and 29 masters students.

He has also delivered more than 106 conference papers, mostly internationally.

‘My research has focused on Christian origins, particularly into the contours of the first Jewish Christian communities which were overshadowed - indeed partly discredited and marginalised - by the Gentile Christian majority that emerged from Paul’s mission,’ Draper says.

His Cambridge University doctorate drew on the first century Jewish Christian document known as the Greek Didache or Teaching of the Twelve Apostles, a document only rediscovered in 1883 and which has been pivotal to his further research.

‘It provides instructions for community life strikingly different in theology and practice from what now represents mainline Christianity,’ he says, indicating he has been recognised as an expert on this and other related texts.

Draper has also questioned the Bible’s reception in Africa during the early missionary period; the emergency of African initiated churches and African Biblical hermeneutics.

‘This continues to fascinate and occupy me, particularly given the insights this brings into African indigenous knowledge systems and their interaction with the empire and its domination of the cultural stage,’ he says.

During 2013/2014 Draper, alongside American colleague, Professor Clayton Jefford, edited *The Didache: A Missing Piece of the Puzzle in Early Christianity*, a new collection of papers by 23 internationally

recognised experts including himself. In 2016 he follows up that work with a critical text and commentary on the Didache.

While acknowledging historical studies were not usually known for their applications, Draper says his work on African contextual hermeneutics and the reception had made significant contributions to dialogue within the School and its graduate students.

He has used both historical method and embraced social scientific theories, especially anthropology, in his work - issues he believes are vital as most of his graduate students have worked in applied or contextual Biblical interpretation.

Draper believes research should have socially responsible goals and relevance, even if that relevance is not immediately evident outside academia.

‘Historical research into a first century Jewish Christian text, which most people have never heard of, may not appear relevant to ordinary lives, but it may make an important contribution to Jewish Christian relations to understand the contours of the first Jewish Christian communities and their engagement with their fellow Jews in the same field of play - not as outsiders and insiders, but as competing insiders to the broad spectrum of Jewish debate.’

He adds Christian misunderstanding, demeaning and persecution of Judaism is based partially on its failure to recognise common roots. Part of that failure results from misinterpretations of the Bible and our common history.



Veteran academic appointed UKZN Fellow

Professor Christine Stilwell

Emeritus Professor in the School of Social Sciences, Professor Christine Stilwell, counts her students among her greatest achievements. She has supervised or co-supervised 28 PhD candidates as well as nine research masters and 19 coursework masters candidates - many of whom graduated *cum laude* and one *summa cum laude*.

UKZN has honoured her dedication by appointing her a UKZN Fellow.

Stilwell has been a full professor of the University since 2003 after stints as an associate professor, senior lecturer and full and part-time lecturer spanning 25 years.

She worked as a practitioner in the public library sector and began part-time lecturing in the late 1970s. When she joined the Information Studies staff in 1986, her research focused on community libraries and the potential for public libraries in a post-apartheid South Africa.

She has published or co-authored 74 peer-reviewed international and local journal articles, co-edited two books, a directory, 21 chapters in books and conference proceedings, and written or co-authored 34 conference papers.

Her work expands to four journal editorships and four research reports, one of which was for the Bill & Melinda Gates Foundation through the International Network for the Availability of Scientific Publications.

A career highlight was her time at the Centre for African Literary Studies (CALS) where she has served as the centre's Acting Director between May 2011 and December 2013. It enabled Stilwell to extend her support to research students, international and local researchers and undergraduate students, especially of isiZulu, and she was among the staff instrumental in establishing the CALS isiZulu Literary Museum in 2012.

Her appointment as a Fellow recognises her supervisor record and published research, acknowledging she has taught generations of students, worked within her profession to develop younger colleagues and made a substantial contribution to building African journals by serving on editorial boards, and submitting and reviewing articles.

In 2012 she was the College of Humanities' and School of Social Sciences' Top Researcher and was among the University's Top 30 researchers - honours for which she received the College's Research Mentor 2012 award. Two years before, the UKZN Research Report listed Stilwell as a Prolific Researcher and she is a National Research Foundation (NRF)-Rated Researcher.

Currently, her interests embrace public libraries and their role in addressing poverty, social exclusion and information behaviour - and she has published several articles in this field and edited an issue of the journal *Innovation*.

In 2014 she had an article accepted in an international journal which Stilwell believes 'is my most significant one to date' and she is currently co-editing the international journal *Library Trends* with the title "*Libraries in the political process: benefits and risks of political visibility*".

'I am deeply honoured and humbled to be included in the Fellow ranks. Recognition from one's own institution can be hard to come by and I am grateful to my colleagues who supported me and to the University for this credit,' said Stilwell.



DEPARTMENT OF SCIENCE AND TECHNOLOGY (DST) WOMEN IN SCIENCE

Four UKZN women scientists received national awards in various categories at the prestigious Department of Science and Technology's Women in Science Awards (WISA) event. The awards were made to the women by the Minister of Science and Technology, Mr Derek Hanekom, for their outstanding scientific contributions to advance science and build the knowledge base in their respective disciplines.

The awards are made annually during National Women's Month in August to acknowledge the achievements of South African women scientists who serve as role models for younger scientists and researchers.



Ms Nontobeko Mvubu

Researchers studying Tuberculosis (TB) are dealing with a disease that is preventable and curable but also complicated and difficult to treat. Making it worse is that the number of TB cases worldwide has risen sharply because of the prevalence of HIV and AIDS.

Until now researchers have studied the effects of TB on a person's immune system – how the white cells and t-cells react and change in the presence of the different bacterial strains. But UKZN researcher Ms Nontobeko Mvubu decided in 2014 to try a different approach in the study of how ordinary cells respond to TB infection.

'The cells I am working on are not regarded as immune cells,' she explains. 'Previously we looked at traditional defences against disease but I decided to research the non-immune cells. These are the cells that line the airways and bronchial passages: the nose, the throat, the lungs. TB always starts there. I thought that the role that these cells played in immunity was underrated.'

Tuberculosis is caused by a number of air-borne bacterial strains that first enter the body through the nose and mouth. The progress of the disease through these cells is called a clinical pathway. Mvubu made some interesting conclusions through her research, which still need to be published.

'I found certain strains failed to invade some of the clinical pathways. It seemed that they did not want to provoke the body's defence mechanism - they were hiding from the body! This is a very interesting fact and it might give us some clue to the behaviour of the different strains of bacteria.'

'I am doing this research because many of my family members have been infected with TB and generally we have a serious problem in South Africa with the disease. I don't think I am going to change the world but if I can help find better ways to control the disease, then I will have changed a small corner of it.'



Ms Nompilo Dlamini

When young people enrol at former Model C schools, they are taught in English. While this is good grounding for an internationally-recognised education and a career in a multi-lingual country, they are – first and foremost – African.

This was an issue that captured teacher and former Model C school pupil Ms Nompilo Dlamini, who is studying Anthropology at UKZN. So she proposed to the University's Indigenous Knowledge System (IKS) discipline that she conducts research into why young people often abandon their indigenous languages at English-language schools.

'When young African people go to these [former Model C] schools, they tend to overlook the importance of their own indigenous home language and begin to prefer to speak English. Something changes them, and I wanted to find out what.'

Dlamini conducted research at Model C schools to discover what the learners' perceptions were about their own indigenous languages as they progressed through their school career.

'There is no problem if our children can speak English but they need to remember they are born African, and they should not neglect their roots. Language is not only language, it is bound up with culture and heritage. If you lose your language, you lose your cultural connection.'

Durban-born Dlamini is conducting her research in the city, concentrating on isiZulu, but she believes her research is relevant to all African indigenous languages.

'I am not just focusing on one language. My research examines perceptions of language and culture, so it is relevant to any African language. I hope to make learners who attend these [former Model C] schools aware that they do not need to neglect their own language in order to "fit in".'



Ms Tlhompho Gaosheba

Progress may require the process of looking back. In the case of indigenous knowledge, there are many customs and wisdoms embedded in older cultural practices that can be used to solve very modern problems.

Masters student at UKZN, Ms Tlhompho Gaoshebe, investigated the importance of documenting Indigenous Knowledge Systems (IKS) in order to find out if they held solutions to the current crisis of climate change. Part of the research was to identify gaps in this indigenous knowledge, and how to fill them using traditional agricultural methods.

'The younger generation don't know about things like this,' said Gaoshebe, referring to customary means of rainwater harvesting, seed conservation, soil enrichment, food preservation, animal husbandry and sustainable living. 'In the past, people did not have electricity, there was no television, and they did not have access to information available today. So they had to understand natural signs, and work with the natural processes in the world. Our earth is changing very fast, but there are old ways that are still very progressive,' said Gaoshebe.

Growing up in a small rural village she was required to help the women in the fields. They grew crops, drew water, and looked after their families. Gaoshebe felt that these practices still held lessons for modern day life.

She is keen to continue her studies and tackle a PhD as she feels climate change is presenting new environmental challenges that indigenous knowledge can perhaps address.

'It is important to preserve the old ways,' said Gaoshebe. 'Some of these customs are still relevant, and they make sense in a changing world. These old wisdoms and customs need to be shared with the younger generations. Elderly folk used their indigenous ways to deal with the world around them, and this is important knowledge that should not be lost.'



Ms Anna Hlabe

Understanding challenges the Coligny community in the North West province face on a daily basis is what led Ms Anna Hlabe to focus her research on uncovering the community's perceptions, especially those of women, on the use of traditional as opposed to conventional medicine.

Coligny - a predominantly rural community - is heavily dependent on traditional medicine and healing systems because of the limited availability of modern health and medical care services.

The strengths and limitations of traditional medical and health care systems need to be empirically investigated to inform policy and be improved through interface with other health and medical care systems.

Coligny-born Hlabe, who is currently doing a masters degree at UKZN's School of Social Sciences, said: 'I noticed there were a lot of misconceptions about the use of traditional medicine by those who only use Western-style medical service systems for healing purposes as well as those misinformed about traditional medicine and its benefits.'

'I detected a lot of shame, secrecy and stigma associated with the use of traditional medicine.'

Hlabe also found there was unhappiness in the community about Western-style medical services which resulted in increased dependence on traditional medicine because it was cheaper and people were accustomed to it.

'The lack of trust in traditional medicine is mainly because it is not scientifically validated or processed as its Western counterpart is,' she added.



PROLIFIC RESEARCHERS

COLLEGE OF AGRICULTURE, ENGINEERING AND SCIENCES			
Title	Surname	First Name	School
Dr	Baiyegunhi	Lloyd James Segun	Agricultural, Earth and Environmental Sciences
Professor	Bob	Urmilla	Agricultural, Earth and Environmental Sciences
Professor	Chimonyo	Michael	Agricultural, Earth and Environmental Sciences
Dr	Demlie	Molla Bekele	Agricultural, Earth and Environmental Sciences
Professor	Laing	Mark Delmege	Agricultural, Earth and Environmental Sciences
Professor	Maharaj	Bridgemohan	Agricultural, Earth and Environmental Sciences
Professor	Modi	Albert Thembinkosi	Agricultural, Earth and Environmental Sciences
Dr	Mudhara	Maxwell	Agricultural, Earth and Environmental Sciences
Professor	Mutanga	Onesimo	Agricultural, Earth and Environmental Sciences
Professor	Ortmann	Gerald Friedel	Agricultural, Earth and Environmental Sciences
Dr	Pillay	Srinivasan	Agricultural, Earth and Environmental Sciences
Dr	Akerman	Matthew Piers	Chemistry and Physics
Professor	Albericio	Fernando	Chemistry and Physics
Professor	Bala	Muhammad Dabai	Chemistry and Physics
Dr	Chetty	Naven	Chemistry and Physics
Professor	Ford	Thomas Anthony	Chemistry and Physics
Professor	Friedrich	Holger Bernhard	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	Mola	Genene Tessema	Chemistry and Physics
Dr	Ndung'u	Patrick Gathura	Chemistry and Physics
Dr	Ojwach	Stephen Otieno	Chemistry and Physics
Professor	Petrucione	Francesco	Chemistry and Physics
Professor	Venkataraman	Sivakumar	Chemistry and Physics
Professor	Verheest	Frank	Chemistry and Physics
Professor	Adali	Sarp	Engineering
Professor	Afullo	Thomas	Engineering
Professor	Domanska-Zelazna	Urszula	Engineering
Professor	Mohammadi	Amir Hossein	Engineering
Dr	Naidoo	Paramespri	Engineering
Professor	Ramjugernath	Deresh	Engineering

COLLEGE OF AGRICULTURE, ENGINEERING AND SCIENCES			
Title	Surname	First Name	School
Professor	Stretch	Derek Dewey	Engineering
Professor	Xu	Hongjun	Engineering
Professor	Downs	Colleen Thelma	Life Sciences
Professor	Finnie	Jeffrey Franklin	Life Sciences
Professor	Goldblatt	Peter	Life Sciences
Dr	Gueguim Kana	Evariste Bosco	Life Sciences
Dr	Islam	Shahidul	Life Sciences
Professor	Johnson	Steven Dene	Life Sciences
Professor	Kirkman	Kevin Peter	Life Sciences
Dr	Londt	Jason Gilbert Hayden	Life Sciences
Professor	Lovegrove	Barry Gordon	Life Sciences
Dr	Manning	John Charles	Life Sciences
Professor	Mukaratirwa	Samson	Life Sciences
Dr	Naidoo	Yougasphree	Life Sciences
Professor	Olaniran	Ademola Olufolahan	Life Sciences
Dr	Olckers	Terence	Life Sciences
Mr	Page	Bruce Richard	Life Sciences
Dr	Scharler	Ursula Michaela	Life Sciences
Professor	Slotow	Robert Hugh	Life Sciences
Professor	Van Staden	Johannes	Life Sciences
Professor	Ward	David Mercer	Life Sciences
Professor	Adewumi	Aderemi Oluyinka	Mathematics, Statistics and Computer Science
Professor	Banasiak	Jacek	Mathematics, Statistics and Computer Science
Professor	Ghosh	Sushant	Mathematics, Statistics and Computer Science
Dr	Goswami	Rituparno	Mathematics, Statistics and Computer Science
Professor	Govinder	Keshlan Sathasiva	Mathematics, Statistics and Computer Science
Professor	Maharaj	Sunil Dutt	Mathematics, Statistics and Computer Science
Professor	Motsa	Sandile Sydney	Mathematics, Statistics and Computer Science
Professor	Mukwembi	Simon	Mathematics, Statistics and Computer Science
Professor	Mwambi	Henry Godwell	Mathematics, Statistics and Computer Science
Professor	Ray	Subharthi	Mathematics, Statistics and Computer Science
Professor	Sibanda	Precious	Mathematics, Statistics and Computer Science
Dr	Tong-Viet	Hung	Mathematics, Statistics and Computer Science
Professor	Zewotir	Temesgen Tenaw	Mathematics, Statistics and Computer Science

COLLEGE OF HEALTH SCIENCES			
Title	Surname	First Name	School
Dr	Aldous	Colleen Michelle	Clinical Medicine
Professor	Biccard	Bruce McClure	Clinical Medicine
Professor	Burns	Jonathan Kenneth	Clinical Medicine
Dr	Clarke	Damian Luiz	Clinical Medicine
Professor	Madiba	Thandinkosi Enos	Clinical Medicine
Dr	Rodseth	Reitze Nils	Clinical Medicine
Professor	Abdool Karim	Quarraisha	Health Sciences
Dr	Ellapen	Terry Jeremy	Health Sciences
Professor	Govender	Thavendran	Health Sciences
Professor	Govender	Thirumala	Health Sciences
Dr	Karpoormath	Rajshekhar	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	Pillay	Manormoney	Laboratory Medicine and Medical Sciences
Professor	Satyapal	Kapil Sewsaran	Laboratory Medicine and Medical Sciences
Professor	Abdool Karim	Salim Safurdeen	Nursing and Public Health
Dr	Barnighausen	Till Winfried	Nursing and Public Health
Professor	Brysiewicz	Petra	Nursing and Public Health
Dr	Ross	Andrew John	Nursing and Public Health

COLLEGE OF HUMANITIES			
Title	Surname	First Name	School
Professor	Collings	Steven John	Applied Human Sciences
Dr	Gopal	Nirmala Devi	Applied Human Sciences
Professor	Meyer-Weitz	Anna	Applied Human Sciences
Professor	Petersen	Inge	Applied Human Sciences
Professor	Potgieter	Cheryl-Ann	Applied Human Sciences
Professor	Singh	Shanta	Applied Human Sciences
Professor	Tomaselli	Keyan Gray	Applied Human Sciences
Professor	Ballantine	Christopher John	Arts
Professor	Chapman	Michael James Faulds	Arts
Professor	De Meyer	Bernard Albert Marcel Sylvain	Arts

COLLEGE OF HUMANITIES			
Title	Surname	First Name	School
Professor	Hlongwa	Nobuhle Purity	Arts
Professor	Stobie	Cheryl	Arts
Dr	Wessels	Michael Anthony	Arts
Professor	Wildsmith-Cromarty	Rosemary	Arts
Professor	Bond	Patrick Martin	Built Environment and Development Studies
Dr	Amin	Nyna	Education
Professor	Bansilal	Sarah	Education
Professor	Bhana	Deevia	Education
Dr	Bhengu	Thamsanqa Thulani	Education
Professor	Kamwendo	Gregory Hankoni	Education
Professor	Maistry	Suriamurthee Moonsamy	Education
Dr	Manik	Sadhana	Education
Dr	Naicker	Inbanathan	Education
Professor	Samuel	Michael Anthony	Education
Professor	Denis	Philippe Marie Berthe Raoul	Religion, Philosophy and Classics
Professor	Hewitt	Roderick Raphael	Religion, Philosophy and Classics
Professor	Hilton	John Laurence	Religion, Philosophy and Classics
Professor	Kumalo	Simanga Raymond	Religion, Philosophy and Classics
Professor	Phiri	Isabel Apawo	Religion, Philosophy and Classics
Dr	Siwila	Cheelo Lillian	Religion, Philosophy and Classics
Professor	Spurrett	David Jon	Religion, Philosophy and Classics
Professor	West	Gerald Oakley	Religion, Philosophy and Classics
Dr	Francis	Suzanne	Social Sciences
Professor	Hiralal	Kalpana	Social Sciences
Professor	Hoskins	Ruth Geraldine Melonie	Social Sciences
Professor	Khan	Sultan	Social Sciences
Professor	Maart	Rozena Eliza	Social Sciences
Professor	Mutula	Stephen	Social Sciences
Dr	Naidu	Mahesvari	Social Sciences
Professor	Singh	Anand	Social Sciences
Professor	Sooryamoorthy	Radhamany	Social Sciences
Professor	Stilwell	Christine	Social Sciences
Professor	Thompson	Paul Singer	Social Sciences
Professor	Vahed	Goolam Hoosen Mohamed	Social Sciences

COLLEGE OF LAW AND MANAGEMENT STUDIES			
Title	Surname	First Name	School
Mrs	Hanass-Hancock	Jill	Accounting, Economics and Finance/HEARD
Dr	Ngalawa	Harold Phellix Emmanuel	Accounting, Economics and Finance
Dr	Sibanda	Mabutho	Accounting, Economics and Finance
Dr	Bodhanya	Shamim Ahmed	Graduate Business and Leadership
Professor	Cohen	Tamara Jodi-Ann	Law
Professor	McQuoid-Mason	David Jan	Law
Professor	Ntlama	Nomthandazo Patience	Law
Professor	Reddi	Managay	Law
Professor	Sharrock	Robert Douglas	Law
Mr	Subramanien	Darren Cavell	Law
Professor	Brijball Parumasur	Sanjana	Management, IT and Governance
Dr	Fields	Ziska	Management, IT and Governance
Professor	Govender	Krishna Kistan	Management, IT and Governance
Professor	Maharaj	Manoj Sewak	Management, IT and Governance
Professor	Mubangizi	Betty Claire	Management, IT and Governance
Professor	Wissink	Henry Frank	Management, IT and Governance

RESEARCH OFFICE		
Title	Surname	First Name
Professor	Kaya	Hassan Omari



TOP PUBLISHED RESEARCHERS

TOP PUBLISHED RESEARCHERS

Professor Colleen Downs

UKZN's Top Published Woman Researcher

While accelerated climate change is a biodiversity concern, - development, population growth, urbanisation and land use changes resulting in habitat loss more directly threaten mammal and bird populations, according to Biologist and Terrestrial Vertebrate Specialist, Professor Colleen Downs

Downs was named UKZN's Top Published woman researcher for 2014, an honour she wholeheartedly shares with her postgraduate students and collaborators.

In the past decade, she has consistently been recognised among UKZN's top researchers and was the Top Woman Researcher from 2009 to 2012.

She believes her field attracts a steady stream of students and partnerships as 'Africa offers enormous opportunity for biodiversity research'.

Among her research work in 2014 was a piece, carried in the *Ostrich: Journal of African Ornithology*, examining 15 years of the annual Cape parrot censuses. The annual national counting day unites birders, conservation bodies, conservancies and landowners in monitoring the birds from KwaZulu-Natal to the Eastern Cape.

When the research began in 1992, little was known about the bird including whether their numbers were declining. Downs believed the best way of accessing that knowledge was during their movement between forest patches, and today has assisted in reclassifying the Cape parrot *Poicephalus robustus* as a distinct species.

Downs has nearly 200 publications in peer-reviewed journals to her credit with her research featured in various forums including BBC Earth. Her broad, interdisciplinary research interests focus on the ecology, physiology, behaviour and conservation of terrestrial vertebrates, particularly in KwaZulu-Natal and the Eastern Cape.

Her work includes understanding the urban ecology of various species and their persistence and has contributed to understanding the relationships between the physiology, behaviour and ecology of a range of southern African terrestrial vertebrates, including leopard tortoises, Nile crocodiles, various bird species and small mammals.

Her research on the effects of changing land use and ecosystem health in KwaZulu-Natal has been done with relevance to Cape parrots, bushbuck, oribi, pelicans, Nile crocodiles, fruit bats, serval, genets, raptors, hadedas and feral cats.

Another recent notable study was her team's observation of the sleeping habits of Wahlberg's Epauletted Fruit Bat and how these related to surface body temperature, revealing key information about the effects of climate change on these bats.

'If we do not publish, the danger is our work is unseen by the larger research community. Even if the research is descriptive, publishing it gives other researchers a chance to access it and build on our findings,' she concludes.



Professor Johannes van Staden

UKZN’s Top Published Researcher

The Director of the Research Centre for Plant Growth and Development Professor Johannes van Staden is UKZN’s Top Published Researcher. It is a position he has held numerous times before through his years at the University, but the humble scientist still finds it ‘nice to be at the top’.

While van Staden’s initial research interests lay in plant hormones and biotechnology, his 50-year career has included studies on a broad range of subjects and made him a global authority on many of them.



Internationally renowned for his expertise in plant tissue culture, he has conducted pioneering research on smoke-stimulated seed germination, the results of which have commercial applications.

Van Staden is widely published on topics related to proteas, algal biotechnology, plant biotechnology, molecular biology, ethnobotany and ethnopharmacology.

A prolific writer, he published and co-published 49 papers during 2014 putting into the public domain data that can be used in academia, conservation, medicine and biotechnology.

In his career he has authored or co-authored 1 275 papers which have been published in Institute for Scientific Information-rated (ISI) journals and his published works have been cited well over 10 000 times since 1995. According to a recent Web of Science™ search, this has resulted in an h-index of 47 to place Van Staden among the world’s most cited scientists.

The h-index is an author-level metric that attempts to measure both the productivity and citation impact of publications of a scientist or scholar. The index is based on the set of the scientist’s most cited papers and the number of citations they have received in other publications.

Van Staden is also editor-in-chief of the *South African Journal of Botany* and an associate editor of *Plant Cell, Tissue and Organ Culture* and *Acta Physiologiae Plantarum*. He serves on the editorial board of six other journals.

He has received countless accolades and awards throughout his long career. In 1988 the South African Biological Society awarded him the Senior Captain Scott Memorial Medal and two years later he was elected a Fellow of the Royal Society of South Africa.

In 1992 he received the Havenga Prize for outstanding research in Biological Sciences and the silver medal from the South African Association of Botanists (SAAB). He was a founder member of the Academy of Science of South Africa in 1994 and received the SAAB gold medal, the association’s highest award given for Excellence in Botany.

He holds an honorary doctorate from the University of West Hungary and was elected an honorary member of the Hungarian Academy of Sciences in 2004. In 2007 he was awarded the gold medal for Technological Innovation of the Suid-Afrikaanse Akademie vir Wetenskap en Kuns.

He has been a Research Fellow at the University College of Wales, the University of California at Davis, the Hebrew University of Jerusalem, Broom’s Barn Experimental Station in the UK and the University of West-Hungary, where he was awarded an honorary DSc.

He was also a visiting lecturer at the National Australian University in Canberra.

TOP 30 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.

Position	Title	Surname	First Name	College
1	Professor	Van Staden	Johannes	Agriculture, Engineering and Sciences
2	Professor	Ramjugernath	Deresh	Agriculture, Engineering and Sciences
3	Professor	Mohammadi	Amir Hossein	Agriculture, Engineering and Sciences
4	Professor	Mutanga	Onisimo	Agriculture, Engineering and Sciences
5	Professor	Ballantine	Christopher John	Humanities
6	Professor	Friedrich	Holger Bernhard	Agriculture, Engineering and Sciences
7	Professor	Downs	Colleen Thelma	Agriculture, Engineering and Sciences
8	Professor	Motsa	Sandile Sydney	Agriculture, Engineering and Sciences
9	Professor	Vahed	Goolam Hoosen Mohamed	Humanities
10	Professor	Ward	David Mercer	Agriculture, Engineering and Sciences
11	Professor	Albericio	Fernando	Agriculture, Engineering and Sciences
12	Professor	Soliman	Mahmoud Elsayed Soliman	Health Sciences
13	Professor	Adewumi	Aderemi Oluyinka	Agriculture, Engineering and Sciences
14	Dr	Clarke	Damian Luiz	Health Sciences
15	Dr	Naidu	Mahesvari	Humanities
16	Professor	Sibanda	Precious	Agriculture, Engineering and Sciences
17	Professor	Maharaj	Sunil Dutt	Agriculture, Engineering and Sciences
18	Professor	Petrucione	Francesco	Agriculture, Engineering and Sciences
19	Professor	Chimonyo	Michael	Agriculture, Engineering and Sciences
20	Professor	Jonnalagadda	Sreekantha Babu	Agriculture, Engineering and Sciences
21	Professor	Bond	Patrick Martin	Humanities
22	Professor	Johnson	Steven Dene	Agriculture, Engineering and Sciences
23	Professor	Lovegrove	Barry Gordon	Agriculture, Engineering and Sciences
24	Dr	Aldous	Colleen Michelle	Health Sciences
25	Professor	Kruger	Hendrik Gerhardus	Health Sciences
26	Professor	Jaganyi	Deogratius	Agriculture, Engineering and Sciences
27	Professor	Bansilal	Sarah	Humanities
28	Dr	Manning	John Charles	Agriculture, Engineering and Sciences
29	Professor	Mutula	Stephen	Humanities
30	Professor	Abdool Karim	Salim Safurdeen	Health Sciences

ESTABLISHED RESEARCHERS

ESTABLISHED RESEARCHERS

It all adds up in the end

Professor Sarah Bansilal

Professor Sarah Bansilal of the School of Education has long been fascinated about what makes mathematics such a challenge for students.

A former Mathematics teacher and a mother of two, she enjoyed watching how her daughters learned mathematics and seeing them learn helped her in her research.

'It was especially helpful to see what they struggled with and what I needed to do to intervene to stimulate their own learning of mathematics,' said Bansilal.

Her research is on teaching mathematics, learning mathematics and assessing mathematics. She says that assessment is very important as it is all part of the learning.

However, for assessments to have an impact, children need to be given feedback about what they got wrong, why they got it wrong and how they can improve.

She explains that one of the main reasons for students' struggles is the way mathematics is taught. Another reason is because of the amount of practice needed to come to terms with the content.

She is continually researching how to better design instructional material and teaching strategies so that it can lead to more effective learning in mathematics.

'This leads us to continuously challenge our ways of working,' she says.

Bansilal and two colleagues devised a study this year producing results which created widespread media attention and concern.

Their study examined the knowledge of 253 matric maths teachers who were enrolled on an in-service course and asked to write a shortened form of a matric examination paper. The aim was to assess the teachers' knowledge of the maths they were teaching.

Previous research into what maths teachers knew had been focused on primary school teaching.

The teachers obtained on average 57 percent, while a quarter of them achieved below 39 percent, with the teachers scoring an average of just 29 percent on the hardest questions. The exercise raised concerns about the quality of instruction they would be able to provide their learners.

'The question is: How can learners possibly achieve great things when their teachers don't have the skills to teach the subject?' Bansilal and her fellow researchers wondered.

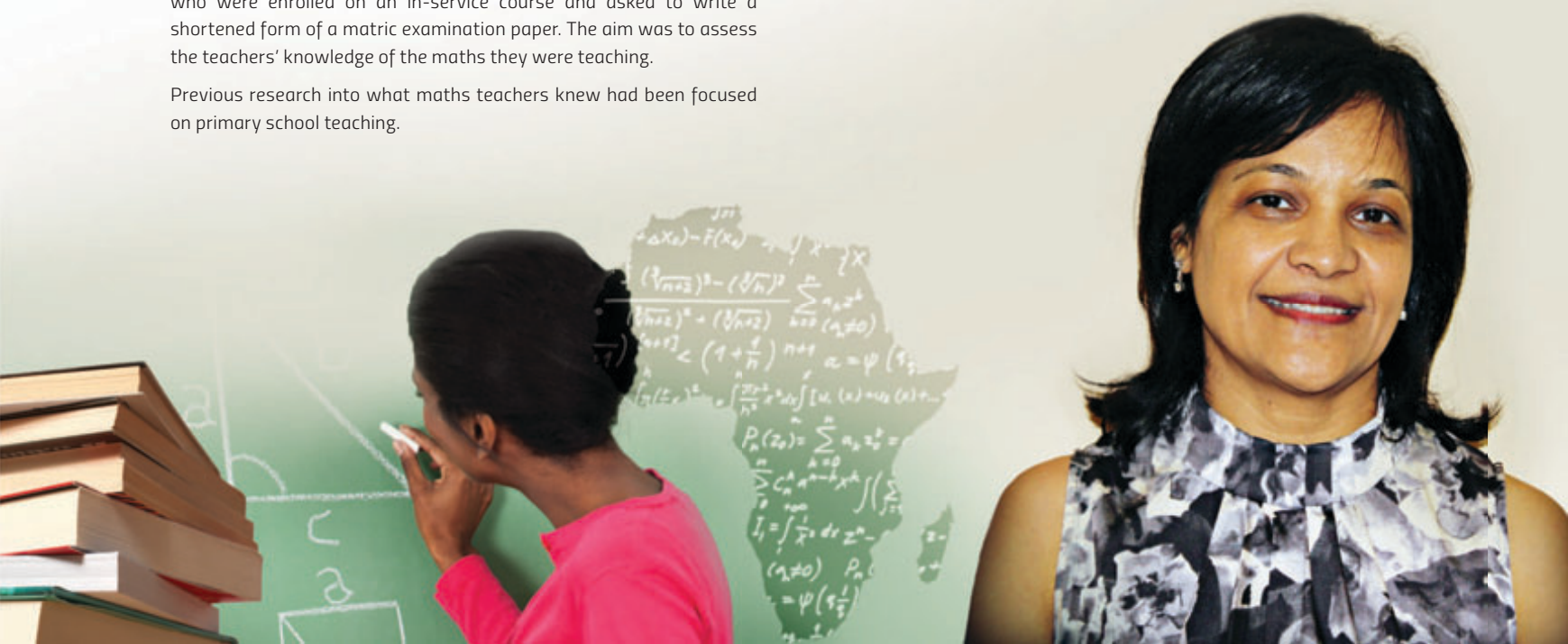
Some of Bansilal's work involves examining the validity of well-known assessments such as the Grade 12 Mathematics paper and the Grade 9 Mathematics Annual National Assessments (ANA).

She says that generally, the Grade 12 National Senior Certificate examinations which have been around for a long time, undergo a rigorous moderation process, so are quite robust and well designed.

There were some problems with the recently-introduced ANA as assessment instruments. They are more difficult than learners' internal examinations at Grade 9 level and some instructions are not as clear as they could be, she says.

Most of the multiple choice items do not work well as learners tend to guess the answers. However, Bansilal believes the programme will become more robust over time.

Bansilal has received more than R3 million in funding for her various projects and was in the top 30 published researchers at the University in 2012 and this year



Searching the seafloor for historic clues

Professor Andrew Green

Award-winning coastal and marine geologist, Dr Andrew Green, loves unlocking secrets from the seafloor.

He says because so little is known about the South African seafloor - his area of expertise - he finds any data from the ocean bottom exciting.

Green is a Senior Lecturer at UKZN and Academic Leader in the School of Agricultural, Earth and Environmental Sciences. His principal interest is in the geology of the continental shelf.

The bulk of his research in 2014 examined how the morphology and structure of the continental shelf and shallow marine environments are controlled by the agents of sea level change and climate variability over the last million years.

He is particularly interested in how very abrupt rises in sea level since the last Ice Age have acted to drown and almost wholly preserve old coastal landscapes on the seafloor.

This calls for a good understanding of the contemporary coastline, its morphology and behaviour, another of Green's research interests.

His love of the ocean dates back to the 1980s when he emigrated from Zimbabwe with his family as a young boy; one of his first memories of South Africa was the smell of the ocean as he approached Durban.

A keen surfer, he feels privileged that his passion and job overlap so much. He cannot imagine a life spent away from the coast 'so it has been natural to gravitate towards studies that embrace this'.

What makes the ocean and his research so fascinating to Green is the limitless opportunity for scientific discovery that the seafloor possesses.

Green published seven peer-reviewed papers in international journals last year. The highlight was a publication in *Geology*, the leading journal in Earth Science.

The paper - Geomorphic and Stratigraphic Signals of Postglacial Meltwater Pulses on Continental Shelves - examined the role extremely rapid rises in sea level (due to catastrophic melting of the ice sheets) may have on the structure and shape of continental shelves worldwide.

Green says his research indicated that the rates of sea level rise were as much as 6cm a year, extremely rapid when considered against the background of the Intergovernmental Panel on Climate Change's predicted rates of sea level rise of 1cm a year.

The hope is that the research results can provide some clues as to how future coastlines may respond to anthropogenic climate change.

In 2014, Green's research saw three MSc students graduate (two were awarded their degrees *cum laude*) and another three MSc students join, two of whom collected their field data over a month-long research cruise on the German Federal Ministry of Education and Research's principal research vessel, the RV Meteor.

This formed part of a large scale collaborative programme between climate scientists and geologists from around the world.

Having received the coveted South African Network for Coastal and Oceanographic Research's Emerging Scientists award, Green has been acknowledged as one of the new generation of marine scientists. The award recognises research excellence in the marine and coastal environment.



Does corporal punishment amount to torture?

Professor Patrick Lenta

With his research interests lying in the fields of jurisprudence and applied ethics, former lawyer Professor Patrick Lenta of the School of Religion, Philosophy and Classics, wrote three articles in 2014.

Two, due to be published early in 2015, are on punishment, while the other on conscience and personal integrity has been accepted for publication.

After qualifying as an attorney in KwaZulu-Natal, Lenta worked in London, first in the legal department of CNN and later in the legal department of a telecommunications company, Energis Communication.

He then decided 'to indulge my theoretical proclivities' and returned to South Africa to pursue postgraduate studies at UKZN.

After doing an MA in Philosophy and taking up a position in the Philosophy Department on UKZN's Pietermaritzburg campus, he read for his PhD in Constitutional Law and Theory through the Law Faculty at the University of Cambridge in the United Kingdom.

He was awarded his doctorate in 2006 and began working in UKZN's School of Religion, Philosophy and Classics on the Howard College campus of UKZN the following year.

One of his articles written during 2014 is titled: "Is Corporal Punishment Tortuous?", and will appear online in 2015 in the *Journal of Applied Philosophy*.

The aim of the article was to determine whether fixed courses of judicial corporal punishment (JCP) as well as non-abusive corporal punishment of children (CPC) amount to torture.

'In my article, I assess the reasons that have been offered for distinguishing fixed courses of JCP and argue that none is successful.

'I argue that non-consensual JCP that inflicts severe pain is appropriately classifiable as torture, but that JCP that inflicts mild pain and entirely consensual JCP are not torturous.'

He then considers whether any of the reasons offered for distinguishing JCP from torture can distinguish non-abusive CPC from torture given certain important differences between CPC and JCP.

'I submit that none of these reasons is successful. I conclude that fixed courses of non-consensual JCP which inflict severe pain and non-abusive CPC that inflicts severe pain are correctly classifiable as torture.'

Lenta's second article written in 2014 was titled: "The Lex Talionis, the Purgative Rationale and the Death Penalty". It appeared in the journal *Criminal Justice Ethics*.

In it he critiques a recent book on the death penalty, *The Ethics of Capital Punishment: A Philosophical Investigation of Evil and Its Consequences* by Matthew Kramer, who argues that none of the standard rationales used to justify capital punishment successfully vindicates it and that a new justification – the purgative rationale – justifies capital punishment for evil offenders.

Lenta writes: 'Even if it is true that the continued existence of an extravagantly evil offender represents an affront to humanity; a moral obligation to execute him does not follow.'

One of Lenta's forthcoming articles titled "Freedom of Conscience and the Value of Personal Integrity", will appear in *Ratio Juris*, a leading international journal of philosophy of law and general jurisprudence.



Durban street children and homeless youth worse off than those in Accra – research finding

Professor Anna Meyer-Weitz

Violence and drug use are endemic among the homeless youth of Durban, UKZN research into their health and psychological well-being has found.

The study also revealed that among the 149 youngsters who took part in a survey in another part of the research, about 99.3% used substances, which included alcohol, cigarettes and marijuana (74.3%, 43.6% and 50% respectively) and more than 84.2% had suicidal thoughts.

About 92.5% had been victims of violence, while 84.4% were the perpetrators of violence. The majority (85,4 percent) were sexually active and 52,1% did not use condoms.

There was a ‘significant, positive relationship’ between substance use and risky sexual behaviour, and researchers discovered that youth who used marijuana were four times more likely not to use condoms in their sexual engagements.

These findings were revealed in a study initiated by Professor Anna Meyer-Weitz of the School of Applied Human Sciences (Psychology). Meyer-Weitz, who has been interested in youth health and wellbeing since 1989, was the principle investigator.

The research was a comparative study between the homeless youth in Accra, Ghana and those in Durban and it involved three UKZN students, who found that street children and youth in Accra were better off than those in Durban where substance abuse was a problem. Violent related behaviours were also more prevalent among the Durban homeless youth.

While previous studies in Ghana and South Africa had described a range of issues relating to street youth, there was little research into their mental and behavioural health and well-being. The study further examined the protective factors that could be strengthened to promote their mental health and reduce risky health-related behaviour.

There was a need to examine how resilience was linked to mental health by using a mixed method of research, involving a combination of qualitative and quantitative techniques, according to the study.

Sixteen homeless youth in Accra, aged between nine -19, who had lived on the street for between six months and eight years were interviewed, with the results showing that they exhibited poor mental health and high levels of psychological distress, substance use and suicidal thoughts.

Their strong religious beliefs, engagement in meaningful activities, peer group support, adherence to cultural norms and support from community-based organisations were important resilience resources.

The quantitative findings among 227 youth, suggest that homeless youth in Accra are resilient, but susceptible to various mental health problems ‘with substance use acting as a gateway for sexual risk behaviours’.

The Durban study found that drug use and violence were endemic and there were also several allegations of ‘violence and harassment’ made against the police. Factors contributing to the group’s resilience were sport, religiosity/spirituality, help from peers, the public, and from organisations for street children.

Now the plan is to hold a feedback sessions with Durban shelters as well as with social and mental health services. On the agenda will be the need for multi-level health promotion interventions focusing on, among other suggestions, access to mental health services, substance use prevention and rehabilitation, and psychosocial support to develop effective coping strategies.

The research findings will also be sent to government structures which support the youth in Ghana.

Book exposes the role of Durban authorities in forced removals

Professor Goolam Vahed

A book which lifts the lid on ‘Durban’s role’ in forced removals was published this year by prolific author Professor Goolam Vahed, an Associate Professor in the Department of History.

Titled: *Dirty Linen. The “Other” Durban 1870-1980*, Vahed co-authored it with the co-ordinator, Mr Len Rosenberg of the Durban University of Technology (DUT).

The work was part of a trilogy that includes contributions by local community activists such as Phyllis Naidoo, Sam Pillay, and writer, Aziz Hassim, who came together to compile the history of the Warwick Avenue area, including the Curries Fountain Sports Ground and the markets, and forced removals.

The book airs the dirty linen ‘about the leading role played by Durban authorities in the creation of racial segregation and control during the colonial, segregation and apartheid eras’, Vahed explains.

An exhibition, with the focus on ‘silences of the government around the question of forced removals’, was set up in Warwick Avenue itself so that it was accessible to the public.

The exhibition highlighted the ‘city council’s shameful policy of forced removals which hounded established communities out of areas designated for Whites and relocated them to racially designated townships on the outskirts of the city’.

The photographs on display were taken in the late 1970s at what is now known as the Steve Biko campus of DUT and depicted the destruction of a once vibrant community and the urban decay that set in because of the area’s ‘frozen’ status once it was declared a ‘White’ Group Area in 1963.

‘Len and I aired this “dirty linen” as a way to acknowledge the destructive impact of forced removals and to help bring closure to the lives of former residents who experienced pain and trauma and a total destruction of a way of life,’ Vahed said.

Vahed’s research interests include the history of identity formation, citizenship, ethnicity, migration and transnationalism among Indian South Africans and the role of sport and culture in South African society.

He points out that generally history tends to be written about dominant groups and great figures from the perspective of those groups and individuals.

Part of his work focuses on groups and people who were neglected in the past, with the history of black sport, group areas removals and the story of indentured labour, being good examples.

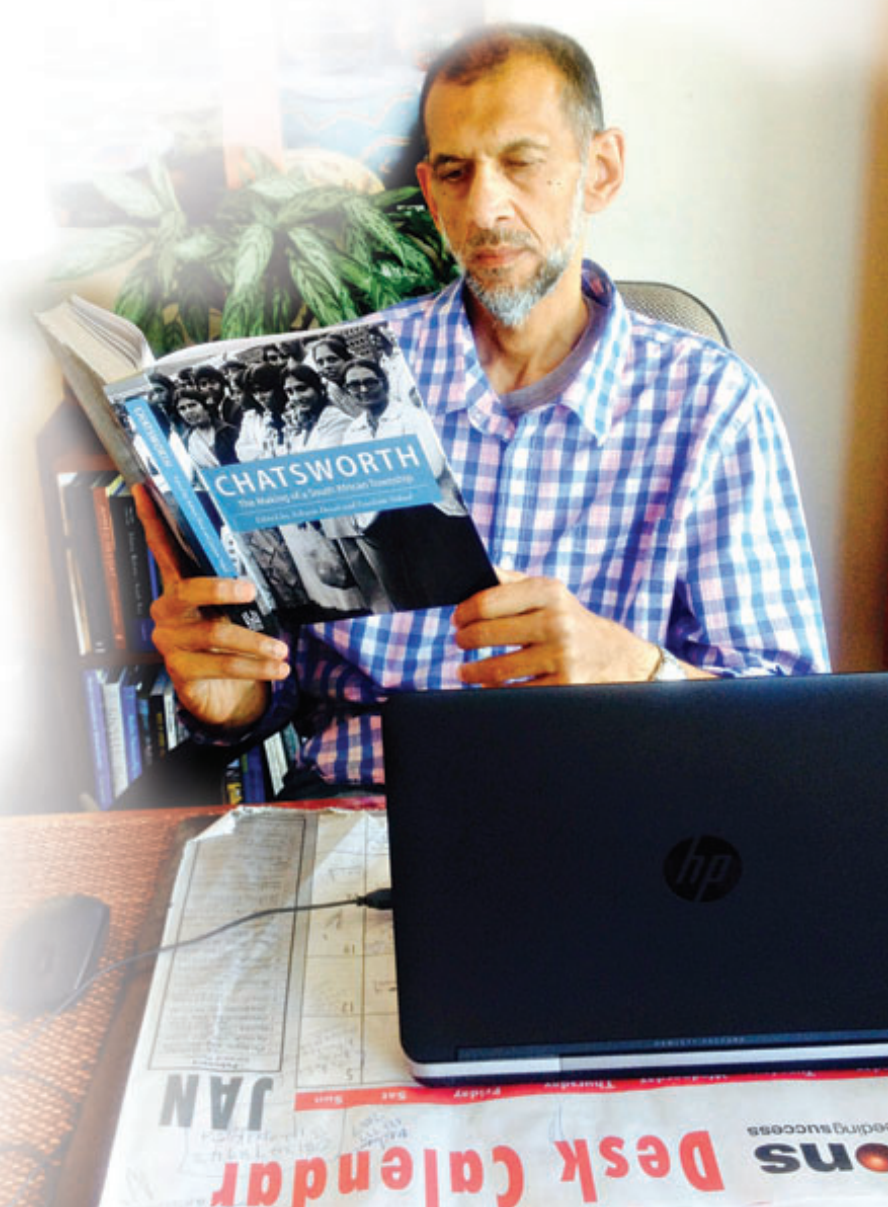
In 2014, Vahed also contributed to an international collection on indentured workers during the 19th and early 20th centuries which re-examined the notion of resistance.

He is also interested in cultural and religious practices ‘because people think that these practices are static but this is not so. They are fluid

and always transforming, as they both embrace and resist change. I am fascinated in tracing this change and resistance’.

His work on Muslims included the contestation over moon sightings to determine the celebration of festivals as well as gender to deconstruct the notion of a homogenous Muslim community.

The subjects of Vahed’s previous books have included Black cricketers in KwaZulu-Natal, Gandhi, indentured labourers, Monty Naicker and the Women’s Cultural Group, which was responsible for publishing the cookbook, *Indian Delights*.



EMERGING RESEARCHERS

To ensure UKZN remains one of most productive universities in South Africa in terms of research output, a priority is to nurture young academics. A large number of enthusiastic and energetic academics have undertaken outstanding research at UKZN and despite not being at the professional level of prolific researchers, they are beginning to make a significant contribution both nationally and globally.

Aged 40 and younger, they have achieved beyond the norm and accumulated one or more author units in Department of Higher Education and Training accredited peer-reviewed journals.

The Emerging Researchers continue to work hard in the fervent hope of making great discoveries and breakthroughs in the near future.

EMERGING RESEARCHERS

Dr Lembe Magwaza

Fruits of research could benefit SA citrus industry

Research being carried out by UKZN's Dr Lembe Magwaza is well on its way to making a major impact on the future fortunes of the South African citrus industry.

Trials are underway to prove that Magwaza's innovative research can work commercially. The industry is keen to back his research and the trials are being funded by the Citrus Growers Association of South Africa and Citrus Research International.

Magwaza, a Lecturer in the Department of Crop and Horticultural Science, has been interested in predicting the quality of fruit ever since he obtained his PhD on the subject from Stellenbosch University and the Cranfield University in the United Kingdom.

Having grown up in a rural area in KwaZulu-Natal, he often noticed the marked difference between the crops grown in his village and those in the markets. Visiting the then University of Natal as a schoolboy, he asked what could be done to prolong the shelf life of fruit and vegetables and how to prevent wastage. Inspired by his visit, he decided then and there that the subject could lead to a fascinating career.

Magwaza explains that the South African citrus industry has to export to survive. However, the overseas market is very competitive-and on top of that, there is one problem jeopardising the local industry's competitiveness. That is Rind Breakdown Disorder (RBD), and in a bad year, between 30 % and 40 % of citrus fruit can be affected.

The main problem is that it does not develop during packaging, but three to five weeks after the fruit is harvested, which coincides with the consignment arriving in the overseas market or when it is already on the shelf.

And that rind breakdown means significant financial losses for everyone in the food chain, from the packaging to the transport 'and all the way back to the farmer'.

Magwaza's research aims to establish what causes the disorder and what makes some fruit more susceptible than others.

He successfully determined that mandarins inside the canopy of the tree were more susceptible to RBD than that on the outside, and also that if the dry matter content of the fruit was low and less than 30 milligrams per gram, the fruit was more susceptible.

Current methods to determine the rind quality are expensive and are only carried out on representative samples of fruit. But as fruit can vary, it means that the sample fruit is not necessarily the same quality as that next to it in the packaging.

'What was needed was a non-destructive, inexpensive method to determine the quality,' Magwaza said.

By using a near infra-red (NIR) spectroscopy method, he was successfully able to predict what the quality of the rind would be well after harvesting. It is this research, due to end in 2015, which is now on trial. The work has already been well-received by his peers internationally.

'This could guarantee the future of the industry,' said Magwaza.

Similar research is also going on involving pomegranates, an increasingly popular fruit around the world. However, consumers have no guarantee how much of the fruit is edible and how much is not.

Again pomegranates were X-rayed, successfully predicting how much was edible. Now one of Magwaza's students is also taking the research further in a bid to detect the presence of pests.



Dr Bernard Matolino

Love for Africa steers research in area of personhood

Award-winning academic leader of Philosophy at the School of Religion, Philosophy and Classics, Dr Bernard Matolino, got interested in his area of African Philosophy through sheer curiosity and a fascination with Africa.

All his philosophical education from his undergraduate days to his masters, had been exclusively Western orientated and when he was presented with the opportunity to pursue anything of his choice and interest for his PhD studies, he decided to look into the status of African philosophy as a discipline or even a sub-discipline of what he thought was mainstream philosophy.

However, he then discovered a much more interesting topic in 'notions of the self' or personhood.

It is a subject which has gripped his imagination and occupied his research for the last 10 years, leading him to further and related questions on metaphysics and political theory.

Thus, the topic of his PhD study was about how the conception of a person as a communitarian entity had informed and substantiated the political theory of African socialism, which was largely defended by founding leaders of independent Africa.

He discovered during his research that the philosophical view of personhood was intensely debated and in need of independent investigation, so he set out to understand what the various differences, similarities, and philosophical insights and implications of the various interlocutors were.

His research culminated this year in the publication of his comprehensive book *Personhood in African Philosophy*, which is possibly the only work wholly dedicated to the concept of person in African philosophy.

The book is fairly technical and is targeted at people who are professionally trained in philosophy. He says the issues are of great philosophical significance and have been hotly contested by philosophers on the continent.

Matolino explains that his book charts the different themes on personhood in African philosophy and defends the idea that there are only two plausible themes: Metaphysics and Communitarian Theses.

The metaphysics concerns the physical and non-physical elements, while the communitarian, which is more dominant in African thinking, sees a person as an entity understood from a communal perspective.

Matolino argues that there are no philosophically compelling reasons for the prioritisation of the communitarian views, but does not want to discount the importance of the communal angle.

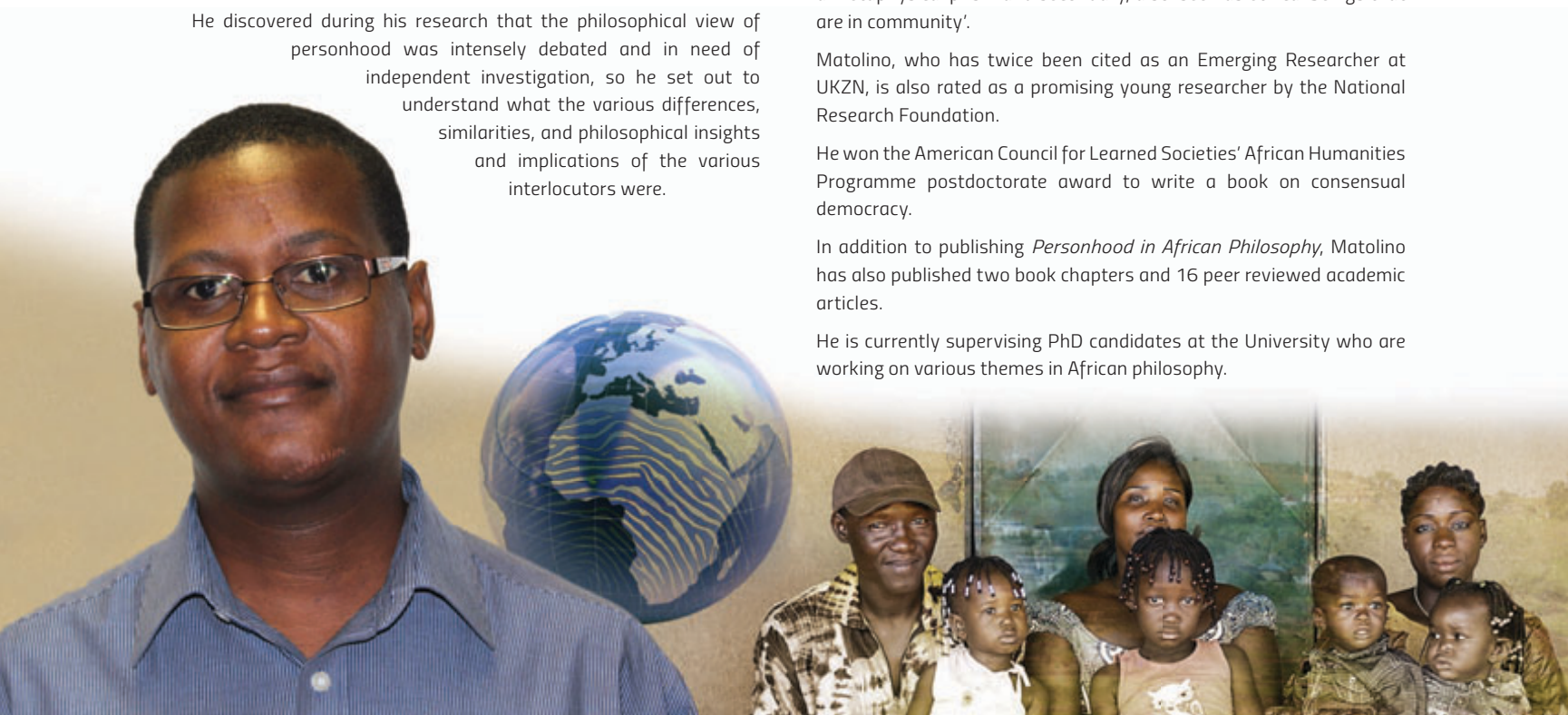
He has thus developed a new theory of limited communitarianism. This argues that people are to be understood first and foremost from a metaphysical prism and secondary, also 'seen as ethical beings that are in community'.

Matolino, who has twice been cited as an Emerging Researcher at UKZN, is also rated as a promising young researcher by the National Research Foundation.

He won the American Council for Learned Societies' African Humanities Programme postdoctorate award to write a book on consensual democracy.

In addition to publishing *Personhood in African Philosophy*, Matolino has also published two book chapters and 16 peer reviewed academic articles.

He is currently supervising PhD candidates at the University who are working on various themes in African philosophy.



Dr Thabo Msibi

Teaching about sexuality and diversity vital for rounded education

Internationally recognised as an emerging scholar in the field of Lesbian, Gay, Bisexual, Transgender and Intersex (LGBTI) rights, UKZN's Dr Thabo Msibi has a deep passion for seeing an inclusive South Africa.

That is why his work focuses on addressing homophobia at high schools and institutions of higher learning 'but it is also about creating inclusive learning places where everyone is accepted and where discrimination is addressed.

'It is not just about sexuality or gender diversity alone, it is about issues of transformation more broadly,' said Msibi, a Senior Lecturer in the Edgewood campus's School of Education, where he lectures in curriculum studies.

In 2014, he wrote a paper, along with two other colleagues, about the teaching of sexual and gender diversity issues to 800 student teachers and in-service teachers at UKZN.

The idea was how to integrate issues of gender and sexuality diversity in the classroom and how to best challenge homophobia/transphobia there.

Despite the fact that the Constitution and the Schools Act guarantees freedom from discrimination, research had found that pupils who identified with LGBTI were bullied.

Msibi says teachers cannot deliver a well-rounded education if they are not teaching about issues of sexuality and diversity. 'Often, teachers who are teaching the Life Orientation subject, deliberately skip the lessons about sexual diversity as they feel uncomfortable, choosing instead to focus on subjects they are more comfortable with.'

Msibi says the pattern is similar to when HIV and AIDS started in the country – no-one taught on that subject as they felt uncomfortable.

'It is not just because teachers feel uncomfortable about gender and diversity issues, it is that they don't know how to teach on the subject.'

This is where Msibi and his colleagues come in: they prepare teachers to be confident about teaching on the issues in the classroom.

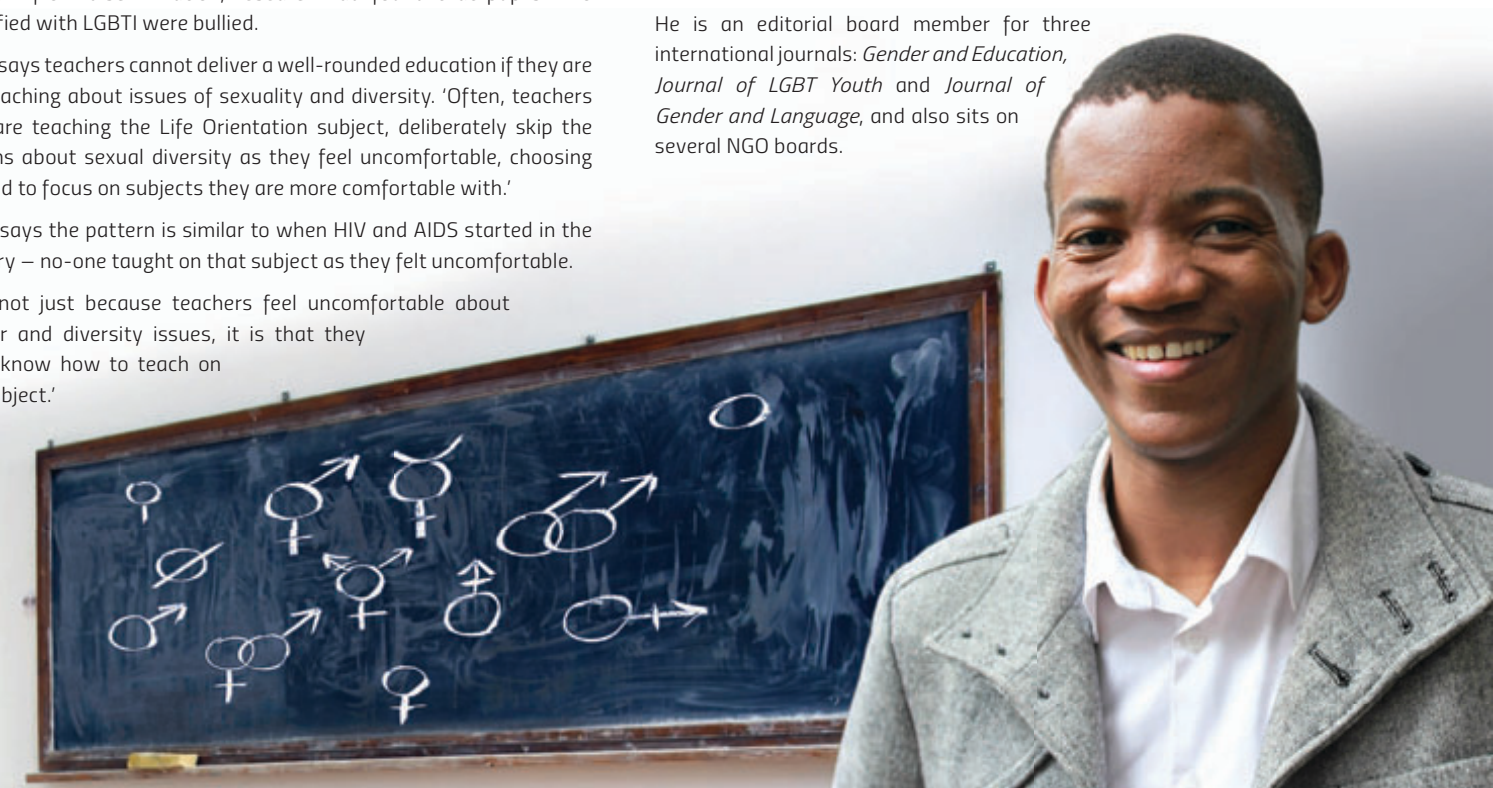
Responses from the 800 students and teachers suggested that deep learning about the subject had occurred, and that the students and teachers understood the complexity surrounding the teaching of same-sex issues.

The researchers concluded that, done sensitively, the teaching of controversial subjects such as same-sex identification and gender non-conformity can go some way towards empowering trainee teachers to be better informed and therefore able to support same-sex identifying students at school.

An outcome of the session with the 800 teachers and student teachers was a 30-page resource book to aid the teaching of sexual orientation and diversity to university students studying Education.

Msibi has had many articles and chapters published in local and international journals and books, and often reviews LGBTI-related essays for local and international journals. He has also presented at national and international conferences on the experiences of LGBTI youth and teachers.

He is an editorial board member for three international journals: *Gender and Education*, *Journal of LGBT Youth* and *Journal of Gender and Language*, and also sits on several NGO boards.



Professor Stephanie Rudwick

Speaking to her communities

Dr Stephanie Rudwick understands how language, ethnicity and race in South Africa are intertwined and why the area has assumed increasingly political overtures.

Already identified as being among UKZN's up-and-coming researchers, she was recognised in 2014 for her contributions in the field of Linguistic Anthropology.

She humbly acknowledges she could only have received the recognition through the contributions of others, yet also appreciates the honour personally and professionally as a milestone after the years of dedicated hard work she has undertaken at UKZN.

Linguistic Anthropology has been defined as an interdisciplinary study of how language influences social life. It is a branch of anthropology that originated from attempts and intentions to document the world's endangered languages and has grown over the past century to encompass almost any aspect of language structure and use.

'For me the relevance of linguistics anthropology in South Africa manifests itself in the fact that language and ethnicity and race are inextricably linked - and that's why it is so political. Look at the Open Stellenbosch campaign right now,' she said.

During 2014 Rudwick finalised the last study from the marriage and bridewealth project undertaken with colleague Professor Dori Posel, who is the South African Research Chair for Economic Development.

That work considers the contemporary functions of *ilobolo* (bridewealth) in urban South African Zulu society and was published in several international journals including the *African Studies Review*, the *Journal of Contemporary African Studies* and the *Journal of Asian and African Studies*.

Other publications in 2014 include articles about students' attitudes towards the isiZulu-English bilingualisation at UKZN published with Multilingual Matters and a chapter in a John Benjamin's volume entitled *Gendered Linguistic Choices among isiZulu-Speaking Women in Contemporary South Africa*.

Additionally, Rudwick's 2014 output comprised a comparative study undertaken with Hana Horakova, resulting in a book published with LiT Verlag, Berlin. This volume also has chapters by other UKZN scholars such as Mr Thabo Msibi and Mr Mvu Ngcoya.

Most recently Rudwick has worked on a project funded by the German Research Foundation (Deutsche Forschungsgesellschaft or DFG) located in the Afrikanistik Institute Leipzig. Following emails from people who have come across her work and found it relevant to their daily lives, Rudwick believes there are implications for the work she undertakes in the local communities in which she works.

'While in the field, I always try giving back somehow - either by telling people about my home country Germany or by providing things people require,' she says.

She also believes 'to some extent' research should be relevant to ordinary lives and not sustained in ivory towers - as is too often the argument levelled at universities. However, she pragmatically admits that realistically not all research could have relevance to people at a grassroots level of society and finds a science for a science's sake justifiable in certain disciplines.

Rudwick, who holds a PhD from UKZN, is currently working on her *Habilitation*, the German requirement to become a professor, and says 2014 ended almost with the 'last dongs of the year's bells'. She had interviews 'right up until December 27'.



Mr Darren Subramanien

Research improves teaching skills

School of Law Lecturer, Mr Darren Subramanien, is a firm believer that getting involved in research improves his teaching.

'There is no better way to keep my course material current than to peruse the latest research and update the material so that it reflects current understanding,' he said.

The understanding of recent legislation and legal principles continues to grow as new judgments emerge from the courts, and Subramanien has found that his students are more poised to make important contributions in lectures if they are well-versed in current developments in the law.

Subramanien, who is busy completing his PhD, lectures in Corporate, Commercial and Labour Law, fields in which he is doing research. He believes that research enriches his doctoral studies.

This year, he had three peer-reviewed articles published in *Obiter*, the highly respected academic Law journal, whose readership includes lawyers, company directors and chief executives, academics, researchers and anyone interested in the law and keen to find out about the latest legal developments in the commercial and corporate world.

His articles in the journal analyse recent Supreme Court of Appeal judgments, one of the three being the case headed: SARS Liable for Cheques Lost or Stolen in the Post, while the others involve decisions relating to the Companies Act.

Subramanien studies the court judgments, breaks them down, analyses them and compares them to previous judgments and what has been said previously. Then, taking them forward, he analyses if there are any loopholes or shortcomings.

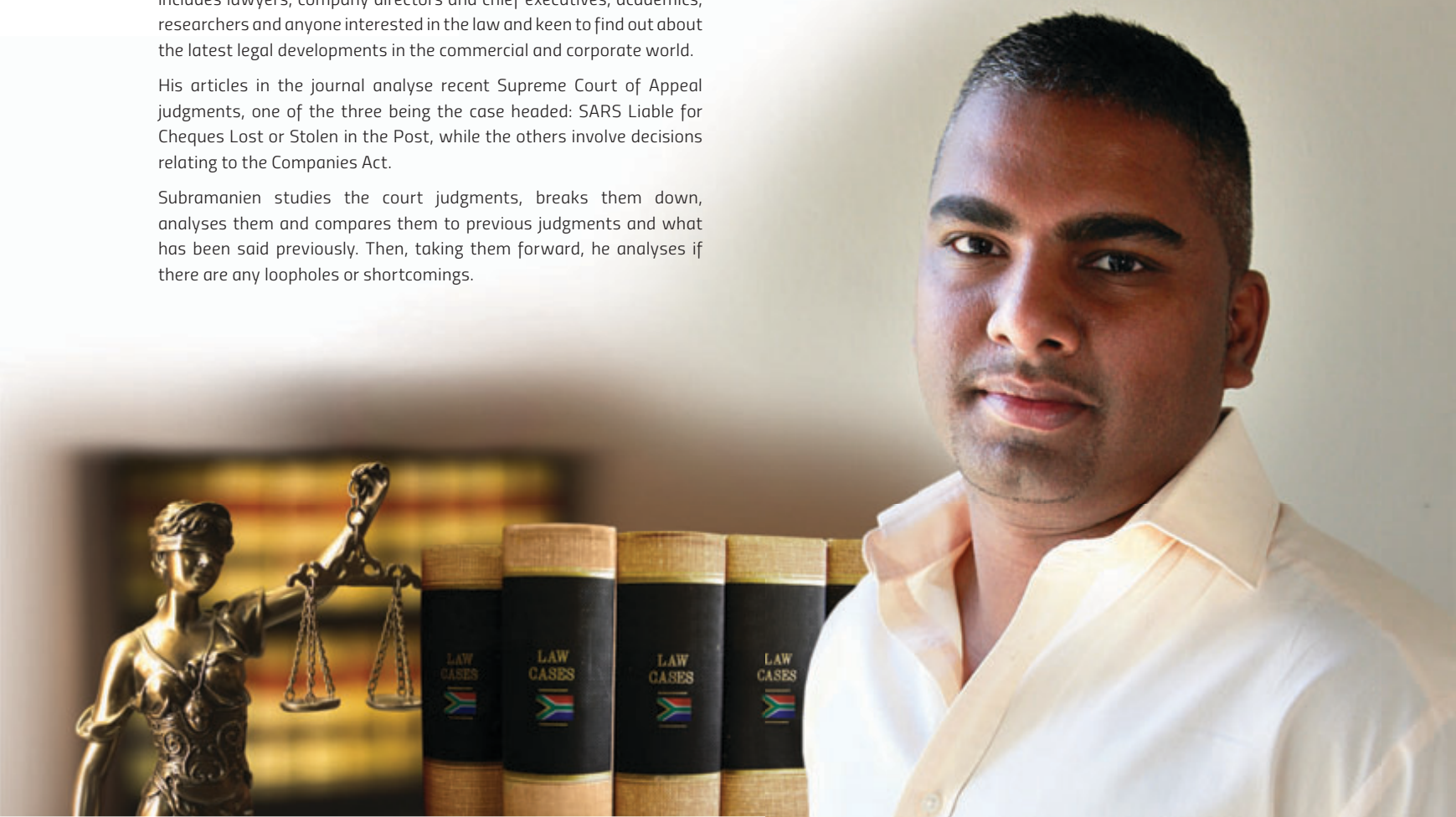
The pressure is on when he receives a judgment because he has just three weeks to read through the court's ruling, analyse and critique it and send his paper off to the quarterly *Law Journal* for publication, in time for his views to still be relevant.

'The Companies Act is quite new and lawyers and those in the business world need to be aware of the Act and how it is applied and what the legal developments are,' he explained.

There is a shortage of commercial and corporate lawyers and academics and Subramanien recognised the gap as an opportunity to research and establish himself in the speciality and be published.

Commercial, business and corporate law have a broader impact than perhaps other areas of society, he feels.

He believes education is an investment and says he is committed to research in the academic environment.



Dr Nomkhosi Xulu

Migration, livelihoods and hostels the focus of emerging researcher’s work

Ten KwaZulu-Natal (KZN) companies and a group of their unionised workers took part in a national survey in 2014 to discover views on unions and democracy.

Dr Nomkhosi Gama, a Lecturer in Industrial Organisational and Labour Studies at the School of Social Sciences on UKZN’s Howard College campus, was the KZN co-ordinator of the National Workers’ Survey.

Gama called in 12 fieldworkers, who were mostly industrial sociology postgraduate students at the University, to help with the research project which was titled: “Taking Democracy Seriously: Workers Survey 2014”.

UKZN was contracted by the University of Pretoria to do the research in KZN, which was also undertaken by universities in other provinces.

A similar study was started before the 1994 democratic elections, with the researchers producing rigorous and authoritative analyses every few years.

The researchers tried to get the same companies used during the previous research which was conducted in 2008, although the workers taking part in the survey were different in 2014.

The same questionnaire was used nationally, Gama said.

‘Initially, the study focused on unions in Cosatu, but the 2014 study incorporated unions outside Cosatu because of the dynamics currently taking place in the union,’ she explained.

As the research co-ordinator, Gama liaised with the union leaders or shop stewards as well as management, especially human resources and the industrial relations managers.

Further details about the findings cannot be made public until the results of the survey have been published.

Gama also started working on a book in 2014, which is due for publication in 2016.

It is titled *Spaces of Perplexity: Transformation of Hostels in the 21st Century*, a subject she has a specific interest in.

Her research interests are migration, livelihoods and hostels. She points out that hostels - created by the apartheid government - were and continue to be critical spaces for Black African families.

‘While hostels have gone through many changes as institutions as well as residential spaces over the years, many aspects continue to be the same, with migration and livelihoods being issues that cannot be separated from the hostel question.

‘People migrate to get to hostels as they can make a living from there,’ said Gama.

Gama’s PhD – which she read for at the University of Cape Town - was titled: *Changing Migrant Spaces and Livelihoods: Hostels as Community Residential Units, KwaZulu-Natal*.

She was also awarded a prestigious Fulbright Scholarship, allowing her to study at the University of California in the United States between 2009 and 2010 on a visiting scholarship programme.

Her latest publication about experiences of studying former single sex hotels for migrant workers has appeared in the *Loyola Journal of Social Sciences*.

Gama, who has lectured on the Howard College campus for four years, continues to work on migration, livelihoods and hostels.



EMERGING RESEARCHERS

These are researchers at the University of KwaZulu-Natal who are below the Professorial level, and are beginning to make a significant contribution in their field and 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.

COLLEGE OF AGRICULTURE, ENGINEERING AND SCIENCES			
Title	Surname	First Name	School
Dr	Chitja	Joyce Magoshi	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
Miss	Mdlalose	Bandile Felicity	Agricultural, Earth and Environmental Sciences
Mrs	Munien	Suveshnee	Agricultural, Earth and Environmental Sciences
Dr	Toucher	Michele Lynn	Agricultural, Earth and Environmental Sciences
Dr	Booyesen	Irvin Noel	Chemistry and Physics
Dr	Jeena	Vineet	Chemistry and Physics
Dr	Sinayskiy	Ilya	Chemistry and Physics
Dr	Singh	Parvesh	Chemistry and Physics
Dr	Brinkerhoff	Robert Joris	College Admin Office
Dr	Chetty	Leon	Engineering
Dr	Loggia	Claudia	Engineering
Dr	Lokhat	David	Engineering
Dr	Narasigadu	Caleb	Engineering
Dr	Pillay	Narushan	Engineering
Dr	Quazi	Tahmid Al-Mumit	Engineering
Professor	Stopforth	Riaan	Engineering
Dr	Tramontin	Vittorio	Engineering
Dr	Brown	Mark	Life Sciences
Dr	Carrasco	Nicola Kim	Life Sciences
Dr	Macdonald	Angus Hector Harold	Life Sciences
Dr	McConnachie	Suzanne	Life Sciences
Dr	Naidoo	Sershen	Life Sciences
Dr	Shaik	Shakira	Life Sciences
Dr	Vanak	Abi Tamim	Life Sciences
Dr	Chirove	Faraimunashe	Mathematics, Statistics and Computer Science
Dr	Hilton	Matthew James	Mathematics, Statistics and Computer Science
Mr	Huang	Chun-Kai Karl	Mathematics, Statistics and Computer Science
Dr	Mambili-Mamboundou	Hermane	Mathematics, Statistics and Computer Science
Dr	Shindin	Sergey	Mathematics, Statistics and Computer Science

COLLEGE OF HEALTH SCIENCES			
Title	Surname	First Name	School/Research Unit
Dr	Alexander	Gerard Roderick	Clinical Medicine
Dr	Bishop	David Gray	Clinical Medicine
Dr	Ferreira	Nando	Clinical Medicine
Dr	Laing	Grant Llewellyn	Clinical Medicine
Dr	Maharaj	Narisha	Clinical Medicine
Dr	Marais	Leonard Charles	Clinical Medicine
Dr	Padayachee	Lucelle	Clinical Medicine
Dr	Reddy	Darshan	Clinical Medicine
Dr	Skinner	David Lee	Clinical Medicine
Mrs	Chetty	Verusia	Health Sciences
Ms	Govender	Pragashnie	Health Sciences
Dr	Naicker	Tricia	Health Sciences
Ms	Paken	Jessica	Health Sciences
Mrs	De Gama	Brenda Zola	Laboratory Medicine and Medical Sciences
Ms	Lazarus	Lelika	Laboratory Medicine and Medical Sciences
Dr	Baxter	Cheryl	Nursing and Public Health
Mr	Evans	Dylan Jiva	Nursing and Public Health
Mrs	Kramers-Olen	Anne Louise	Nursing and Public Health
Dr	Mansoor	Leila Essop	Nursing and Public Health
Dr	Naidoo	Joanne Rachel	Nursing and Public Health
Ms	Werner	Lise	Nursing and Public Health

COLLEGE OF HUMANITIES			
Title	Surname	First Name	School/Research Unit
Dr	Dyll-Myklebust	Lauren Eva	Applied Human Sciences
Dr	Essack	Zaynab	Applied Human Sciences
Dr	Govender	Eliza Melissa	Applied Human Sciences
Dr	Rossmann	Jean	Arts
Dr	Rudwick	Stephanie Inge	Arts
Dr	Casale	Daniela Maria	Built Environment and Development Studies
Mr	Ngubane	China Melusi	Built Environment and Development Studies
Dr	Ngwenya	Pamela Ellen	Built Environment and Development Studies
Dr	Msibi	Thabo Perceviarence	Education
Dr	Matolino	Bernard	Religion, Philosophy and Classics
Dr	Xulu	Nomkhosi	Social Sciences

COLLEGE OF LAW AND MANAGEMENT STUDIES			
Title	Surname	First Name	School/Research Unit
Ms	Charteris	Ailie Heather	Accounting, Economics and Finance
Ms	Jimmyns	Candice Alexis	Accounting, Economics and Finance
Mr	Kwenda	Farai	Accounting, Economics and Finance
Dr	Mutinta	Given Chigaya	Accounting, Economics and Finance
Mr	George	Gavin Lloyd	Accounting, Economics and Finance /HEARD
Dr	Casale	Marisa Angela Judy	Accounting, Economics and Finance/HEARD
Dr	Hoque	Muhammad Ehsanul	Graduate Business and Leadership
Dr	Proches	Cecile Naomi	Graduate Business and Leadership
Ms	Bernard	Rowena Bronwen	Law
Dr	Bosch	Shannon Joy	Law
Mr	Buthelezi	Michael Celumusa	Law
Mrs	Donnelly	Dusty-Lee	Law
Mr	Gevers	Christopher Carl	Law
Mr	Holness	David Roy	Law
Mrs	Holness	Willene Audri	Law
Mr	Linscott	James Alfred	Law
Ms	Maqutu	Lindiwe Nomachezi	Law
Mrs	Singh	Priya Pravesh	Law
Adv	Thabane	Tebello Naphtali	Law
Mrs	Derera	Evelyn	Management, IT and Governance
Dr	Ruggunan	Shaun Denvor	Management, IT and Governance



Postdoc decision bearing fruit

A bold decision made in 2011 to launch a Postdoctoral (Postdoc) programme as a strategic initiative is beginning to bear fruit in the number and quality of postdoctoral students at UKZN.

This is, according to the Dean of Research, Professor Urmilla Bob, who speaks with obvious pride that the Institution boasts 302 postdocs in 2014.

‘We had postdocs before but not at the level at which UKZN is investing in them now, with the majority who have come on board funded by UKZN with fairly limited external contributions.’

‘The challenge we face now is to maintain and improve on what we have achieved in this field by attracting external funding,’ said Bob.

UKZN’s strategic plan was that by 2016 it needed to have 300 postdocs – with 302 that goal has been achieved in 2014!

“*A large number of our undergraduates, masters and PhDs have remained with us through the years and so they have not had the privilege to be exposed to different ways of thinking and mindsets. We can’t send all our students around the world but we can bring some of the world to them and that’s the benefit of internationalisation.*”

Bob, who is very happy with the trend, felt it was important to note that postdocs assisted the University with its internationalisation agenda. A significant number – about 21% – were from outside South Africa’s borders and this provided an important resource for students. ‘A large number of our undergraduates, masters and PhDs have remained with us through the years and so they have not had the privilege to be exposed to different ways of thinking and mindsets. We can’t send all our students around the world but we can bring some of the world to them and that’s the benefit of internationalisation.’

Postdocs are attracted to UKZN for a variety of reasons. A significant plus is the ranking of the University as the No 1 most productive research university in the country and the excellent research facilities provided, said Bob.

Add to that the fact that UKZN has a large number of top research supervisors, offers competitive remuneration and provides incredible support, there is little wonder why so many postdocs apply for posts.

Primarily universities worldwide invest in postdocs to increase research productivity and this is something UKZN invests in. Postdocs are also a key human resource asset from a research perspective.

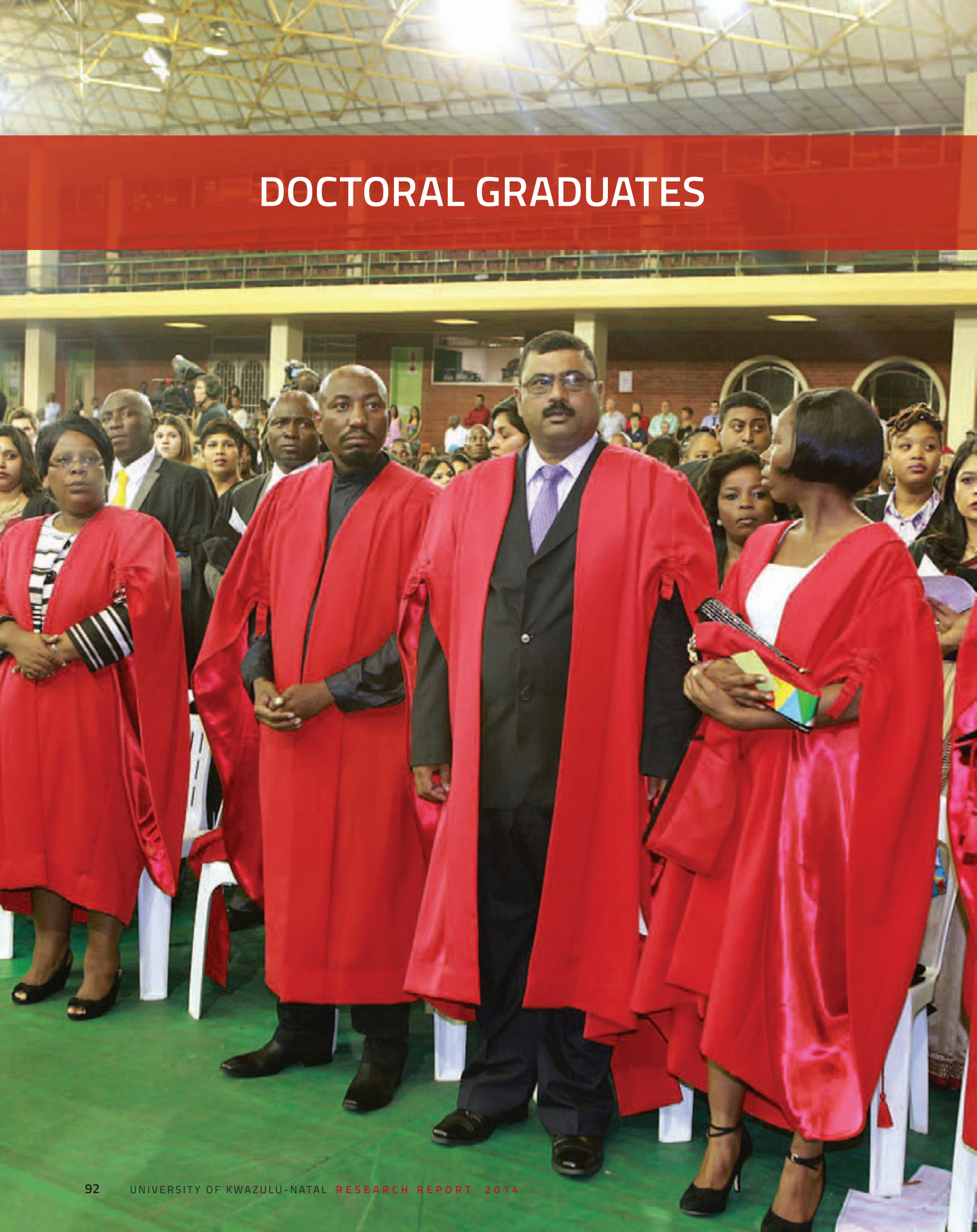
‘They are not lecturers but are scientists and researchers. They do handle teaching but it is limited and guided by policy. And because they are linked to supervisors, their prime responsibility is to do research,’ said Bob.

‘We want to attract good postdocs; just finishing a PhD is not sufficient for us – we want to know that candidates are capable of publishing because that is the real return on investment for us and for them.’

One of Bob’s success stories has been the College of Law and Management Studies. ‘Their research productivity is not at the level of our other Colleges and initially they struggled to attract postdocs.’

‘In 2011 they had one postdoc but that increased to eight in 2013 and the number increased again to 17 in 2014 which is testament to the vibe and research energy in that College.’

‘The Colleges have done an excellent job in driving UKZN’s postdoc project. To the postdocs at UKZN, we thank them for their efforts and support in being a critical part of our research family,’ added Bob.



DOCTORAL GRADUATES

DOCTORAL GRADUATES

COLLEGE OF AGRICULTURE, ENGINEERING AND SCIENCES			
Surname	First Name	Qualification	Thesis Title
Ababulgu	Demissew Abakemal	Doctor of Philosophy (Science)	Genetic Diversity and Combining Ability of Selected Quality Protein Maize (QPM) Inbred Lines Adapted to the Highland Agro-Ecology of Ethiopia
Abafe	Ovokeroye Akpojevwe	Doctor of Philosophy (Science)	Organic Flame Retardants in the Indoor Environment
Abdulkadir	Ibrahim	Doctor of Philosophy (Science)	Synthesis, Characterization, Magnetic and Photocatalytic Properties of Substituted Rare Earth Perovskite-like Ferrites
Adebowale	Adekunle	Doctor of Philosophy (Science)	Biosystematic Studies in Southern African Species of <i>Strychnos</i> L. (Loganiaceae)
Adesina	Joseph Ayodele	Doctor of Philosophy (Science)	Aerosol Characteristics over Different Regions of Southern Africa - using Sunphotometer and Satellite Measurements
Aiyetoro	Gbolahan Rilwan	Doctor of Philosophy in Engineering	Packet Scheduling in Satellite LTE Networks Employing MIMO Technology
Akankwasa	Kenneth	Doctor of Philosophy (Science)	Evaluating Farmers' and Consumers' Acceptance of New Cooking Banana Hybrids in Uganda: Micro-Economic Analysis and Policy Implications
Akuon	Peter Odero	Doctor of Philosophy in Engineering	Polar Codes-Aided Design of Mimo Antenna Systems with Spatial and Layered Baud-Space Modulation
Alonge	Akintunde Ayodeji	Doctor of Philosophy in Engineering	Queueing Theory Approach to Rain Fade Analysis at Microwave and Millimeter Bands in Tropical Africa
Audain	Keiron Arthur	Doctor of Philosophy (Science)	A Comparative Analysis of the Nutrition Status, Nutrition Knowledge and Food Frequency of Adolescents Attending an Urban Versus a Peri-Urban School in Hilton, KwaZulu-Natal
Babikir	Ali Basher Abdallah	Doctor of Philosophy (Science)	Combining Dynamic Factor Models and Artificial Neural Networks in Time Series Forecasting with Applications
Beswa	Daniso	Doctor of Philosophy (Science)	Nutritional and Sensory Properties of Provitamin A-Biofortified Maize Food Products
Beyene	Asnakech Tekalign	Doctor of Philosophy (Science)	Genetic Analysis and Characterization of Faba Bean (<i>Vicia faba</i>) for Chocolate Spot (<i>Botrytis fabae</i>) Disease Resistance and Yield in the Ethiopian Highlands
Botes	Zacheus Adriaan	Doctor of Philosophy (Science)	Flooding in KwaZulu-Natal: Modelling, History and Future Aspects
Cele	Mduduzi Nicholas	Doctor of Philosophy (Science)	Activation of n-octane and Cyclohexane to Oxygenates using Modified Zeolites
Chilambwe	Brian	Doctor of Philosophy (Science)	Exact Interior Solutions for a Perfect Fluid Sphere in Einstein-Gauss-Bonnet Gravity
Chinzila	Chuma Banji	Doctor of Philosophy (Science)	An Assesment of the Giba Gorge Special Rating Area as a Biodiversity Stewardship Practice
Combrink	Alexander Stanislou	Doctor of Philosophy (Science)	Spatial and Reproductive Ecology and Population Status of the Nile Crocodile (<i>Crocodylus niloticus</i>) in the Lake St Lucia Estuarine System, South Africa
Dlamini	Pshesheya Eugene	Doctor of Philosophy (Science)	Impact of Grassland Degradation and Rehabilitation on C and N Stocks
Dos Anjos	Filomena Rosa	Doctor of Philosophy (Science)	Improving the Nutritive Value and Utilization of Non-Conventional Protein Feed Resources in Smallholder Village Chicken Production System
Eloka-Eboka	Andrew Chukwudum	Doctor of Philosophy in Engineering	Production, Evaluation and Testing of Biodiesel Fuels: Case Studies of the use of Moringa Oleifera and Selected Tropical Seed Oils
Ezezew	Amanuel Assefa	Doctor of Philosophy (Science)	Agricultural Innovation in a Changing Ethiopian Context: The Case of Dairy Farming and Business in the Addis Ababa Milkshed Ethiopia
Fadlalla	Mohamed Islam	Doctor of Philosophy (Science)	Oxidative Dehydrogenation of n-octane over Molybdate Based Catalysts
Gardner	Robin Arthur William	Doctor of Philosophy (Science)	Optimization of Flower and Seed Crop Production in Temperate <i>Eucalyptus</i> Orchards in South Africa Through Site Selection and Environmental Manipulation
Gharagheizi	Farhad	Doctor of Philosophy in Engineering	Prediction of the Physical Properties of Pure Chemical Compounds through Different Computational Methods

COLLEGE OF AGRICULTURE, ENGINEERING AND SCIENCES			
Surname	First Name	Qualification	Thesis Title
Golandaj	Ajij Jahangeer	Doctor of Philosophy (Science)	Oxidation of <i>n</i> -octane over Molybdenum Oxide based Catalysts
Gorle	Sridevi	Doctor of Philosophy (Science)	Receptor Targeted Gene Delivery using Folate Ligand Conjugated Cationic Liposomes
Grobler	Anna Christina	Doctor of Philosophy (Science)	A Perspective on Incomplete Data in Longitudinal Multi-arm Clinical Trials, with Emphasis on Pattern-mixture-model based Methodology
Groenink	Shaun Reinder	Doctor of Philosophy (Science)	A Study of African Horse Sickness Virus Using High Resolution Melt, Multivariate and Phylogenetic Analyses for a Potential Serotyping Assay
Hei	Netsanet Bacha	Doctor of Philosophy (Science)	Genetic Analysis of Stem Rust Resistance Among Ethiopian Grown Wheat Lines
Henning	Farran Dominique	Doctor of Philosophy (Science)	L and R Mode Electromagnetic Instabilities in Space Plasmas Having Kappa Velocity Distributions
Ibrahim	Halliru	Doctor of Philosophy (Science)	Synthesis and Characterization of Chelating Hemilabile <i>N</i> -Heterocyclic Carbene Ligands: Applications of their Cobalt (II) and Nickel (II) Complexes as Catalysts for Aryl Amination
Ilupeju	Samuel Ayanrohunmu	Doctor of Philosophy in Engineering	Design, Modelling and Optimisation of an Isolated Small Hydropower Plant Using Pumped Storage Hydropower and Control Techniques
Ismail	Yaseera	Doctor of Philosophy (Science)	Development of Encoding and Entanglement for Free Space Quantum Key Distribution
Kadam	Pramod Nanasaheb	Doctor of Philosophy (Science)	Synthesis, Conformational Study and Antibacterial Evaluation of Novel Sugar Based (Glucose/Galactose) β-Lactams and β-Amino Acids
Kadwa	Muhammad	Doctor of Philosophy in Engineering	A Comprehensive Qualitative and Quantitative Assessment of Harvesting and Other Sugarcane Supply Chain Disruptions within the Mill Supply Area
Kajombo	Richard Jack	Doctor of Philosophy (Science)	Poverty and Food Security Analysis in KwaZulu-Natal Province of South Africa: Implications for Policy
Kimba Phongi	Eddy	Doctor of Philosophy (Science)	On Singularly Perturbed Problems and Exchange of Stabilities
Kollongei	Julius Kipkemboi	Doctor of Philosophy in Engineering	Non-Point Source Pollution Processes and Connectivity Modelling in the Mkabela Catchment, South Africa
Kunene	Phumelele Eleanor	Doctor of Philosophy (Science)	Identification of Opportunities for Organic Beef Production from Nguni Cattle to Enhance Food Security by Communal Farmers in KwaZulu-Natal, South Africa
Lasich	Matthew	Doctor of Philosophy in Engineering	Unlike Interactions in Simulated Methane Clathrate Hydrates
Laurie	Robert Naylor	Doctor of Philosophy (Science)	Biochemical, Physiological and Agronomic Response of Various Sweet Potato Cultivars/Varieties Subjected to Drought Stress in Rainout Shelters and Field Conditions
Lazarus	Geraldine Genevive	Doctor of Philosophy (Science)	The Design and Synthesis of Gold Nanoparticles and Its Interaction with Mammalian Cells in Culture
Lubadde	Geofrey	Doctor of Philosophy (Science)	Genetic Analysis and Improvement of Pearl Millet for Rust Resistance and Grain Yield in Uganda
Luwanda	Artz George	Doctor of Philosophy (Science)	Nonlinear Mixed Effects Models for Multivariate Longitudinal Data with Application to HIV Disease Dynamics
Mabuyaye	Gorden	Doctor of Philosophy (Science)	Breeding Investigations for Efficacy of the Doubled Haploid Technique for Improving Genetic Gains of the Tropical Maize Programme in Zimbabwe
Madikizela	Balungile	Doctor of Philosophy (Science)	Pharmacological Evaluation of South African Medicinal Plants Used for Treating Tuberculosis and Related Symptoms
Mahlanza	Tendekai	Doctor of Philosophy (Science)	The Interaction between Endophytic <i>Fusarium</i> Species and <i>Eldana saccharina</i> (Lepidoptera) following <i>in vitro</i> Mutagenesis for <i>F. sacchari</i> Tolerance to Control the Borer in Sugarcane
Marais	Adriana Rose	Doctor of Philosophy (Science)	Quantum Effects in Photosynthesis
Mariola	Marco	Doctor of Philosophy (Science)	Free-Space Communication in Quantum Key Distribution

COLLEGE OF AGRICULTURE, ENGINEERING AND SCIENCES			
Surname	First Name	Qualification	Thesis Title
Matewele	Macpherson Baxton	Doctor of Philosophy (Science)	Diversity Analysis and Breeding for Maize Weevil (<i>Sitophilus zeamais</i> Motschulsky) and Larger Grain Borer (<i>Prostephanus truncatus</i> Horn) Resistance in Productive Maize Germplasm in Malawi
Mavundza	Edison Johannes	Doctor of Philosophy (Science)	Mosquitocidal Activity Against <i>Anopheles arabiensis</i> of Plants Used as Mosquito Repellents in South Africa
Mbugua	Jane Muthoni	Doctor of Philosophy (Science)	Development of High Yielding Potato (<i>Solanum tuberosum</i> L.) Genotypes with Resistance to Bacterial Wilt (<i>Ralstonia solanacearum</i>) for the Kenyan Highlands
Melesse	Sileshi Fanta	Doctor of Philosophy (Science)	Covariates and Latents in Growth Modelling
Mkandawire	Burnet O'Brien	Doctor of Philosophy in Engineering	Modelling Physical Asset Risk Profile Using Systems Thinking Augmented by Stochastic and Probabilistic Inferences
Mmbando	Frank Elly	Doctor of Philosophy (Science)	Market Participation, Channel Choice and Impacts on Household Welfare: The Case of Smallholder Farmers in Tanzania
Moodley	Vasagie	Doctor of Philosophy (Science)	Triple Bottom Line Accounting for the Chemical Manufacturing Sector in South Africa
Moodley	Darell	Doctor of Philosophy (Science)	Optimisation of the Population Monte Carlo Algorithm: Application to Cosmology
Motsa	Nozipho Mgcibelo	Doctor of Philosophy (Science)	Agronomic and Physiological Approaches to Improving Productivity of Selected Sweet Potato (<i>Ipomoea batatas</i> L.) Cultivars in KwaZulu-Natal: A Focus on Drought Tolerance
Msumba	John Andrew	Doctor of Philosophy in Engineering	Cross-Layer Design for Multimedia Applications in Cognitive Radio Networks
Mtumela	Zolile	Doctor of Philosophy (Science)	An Investigation of the Nature of Pc5 Pulsations using SuperDARN and Magnetometer Data
Muchara	Binganidzo	Doctor of Philosophy (Science)	The Economics of Smallholder Irrigation Water Management: Institutions, Water-Use Values and Farmer Participation in KwaZulu-Natal, South Africa
Muhinyuza	Jean-Baptiste	Doctor of Philosophy (Science)	Breeding Potato (<i>Solanum tuberosum</i> L.) for High Yield and Resistance to Late Blight in Rwanda
Mutwiri	Robert Mathenge	Doctor of Philosophy (Science)	Statistical Distributions and Modelling of GPS-Telemetry Elephant Movement Data Including the Effect of Covariates
Mzumara	Tiwonge Ivy	Doctor of Philosophy (Science)	The Ecology and Conservation Biology of Lilians Lovebird <i>Agapornis lilianae</i> in Malawi
Ndoro	Jorine Tafadzwa	Doctor of Philosophy (Science)	Cattle Production, Commercialization and Marketing in Smallholder Farming Systems of South Africa: Impacts and Implications of Livestock Extension and Market Transaction Costs
Ngcobo	Sandile	Doctor of Philosophy (Science)	Applications of Digital Holograms for the Selection and Detection of Transverse Laser Modes
Ngesa	Oscar Owino	Doctor of Philosophy (Science)	Bayesian Spatial Models with Application to HIV, TB and STI Modelling in Kenya
Ngubelanga	Sifiso Allan	Doctor of Philosophy (Science)	Models in Isotropic Coordinates with Equation of State
Nyaligwa	Lameck Makoye	Doctor of Philosophy (Science)	Genetic Analysis, Combining Ability and Yield Stability of Maize Genotypes Under Maize Streak Virus Prone Environments
Nyawade	Eunice Adhiambo	Doctor of Philosophy (Science)	Synthesis, Characterization and Catalytic/Antibacterial Activity Studies of <i>n</i> 5-Cyclopentadienyl Dicarbonyl Ruthenium(II) Amine Complexes
Obagbuwa	Ibidun Christiana	Doctor of Philosophy (Science)	Improved Roach-based Algorithms for Global Optimization Problems
Ogunjobi	Olakunle	Doctor of Philosophy (Science)	Studies on the Influence of Magnetic Cloud, Stream Interface and Polar Mesospheric Summer Echoes in the Mesosphere and Lower Thermosphere (MLT) Region using Model Calculations and Observations
Ojoyi	Mercy Mwanikah	Doctor of Philosophy (Science)	Analysis of Vegetation Fragmentation and Impacts Using Remote Sensing Techniques in the Eastern Arc Mountains of Tanzania
Okem	Ambrose	Doctor of Philosophy (Science)	Heavy Metals in South African Medicinal Plants with Reference to Safety, Efficacy and Quality

COLLEGE OF AGRICULTURE, ENGINEERING AND SCIENCES			
Surname	First Name	Qualification	Thesis Title
Ollengo	Moses Abednego	Doctor of Philosophy (Science)	The Photochemistry and Photostabilization Potential of Plant Extracts on Sunscreen Absorbers
Olusanya	Micheal Olusoji	Doctor of Philosophy (Science)	Optimizing the Assignment of Blood in Blood Banking and Transfusion System
Ombaka	Lucy Mudiwo	Doctor of Philosophy (Science)	Nitrogen-doped Carbon Nanotubes: Controlled Synthesis, Physicochemical Characterization and Application as Pd Catalyst Supports in a Hydrogenation Reaction
Onunka	Chiemela	Doctor of Philosophy in Engineering	EEG Artifact Identification and Extraction in Autonomic Wireless Network for Future Coordination and Control of Semi-Autonomous Systems
Papenfus	Heino Benoni	Doctor of Philosophy (Science)	Investigations on the Biological Effects of Smoke-Water and Smoke-Derived Compounds in Agriculture and Horticulture
Peerbhay	Kabir Yunus	Doctor of Philosophy (Science)	Detecting and Mapping Plant Invaders in Commercial Forest Ecosystems: <i>Solanum mauritianum</i> in KwaZulu-Natal, South Africa
Plug	Bjorn Dirk	Doctor of Philosophy in Engineering	The Use of Commercial Garden Refuse at Different Degrees of Maturity as an Organic Carbon Source to Bio-denitrify Treated MSW Landfill Leachate
Rajpal	Deseree Alvika	Doctor of Philosophy (Science)	Soil Microbial Responses to Simulated Climate Change Drivers
Ramakuwela	Tshimangadzo	Doctor of Philosophy (Science)	<i>In vitro</i> Solid-Substrate Mass Production of Entomopathogenic Nematodes, with Special Reference to the Steinernematidae
Reddy	Kevin Poobalan	Doctor of Philosophy (Science)	Thermal Evolution of Radiating Spheres Undergoing Dissipative Gravitational Collapse
Rens	Gavin Brian	Doctor of Philosophy (Science)	Formalisms for Agents Reasoning with Stochastic Actions and Perceptions
Satola	Brian Joseph	Doctor of Philosophy in Engineering	Molecular Targeting of Refrigerant Mixtures
Sattari	Mehdi	Doctor of Philosophy in Engineering	Representation/Prediction of Physico-Chemical Properties of Ionic Liquids through Different Computational Methods
Sebetha	Erick Tshivetsi	Doctor of Philosophy (Science)	The Effect of Maize-Legume Cropping System and Nitrogen Fertilization on Yield, Soil Organic Carbon and Soil Moisture
Seutloali	Khoboso Elizabeth	Doctor of Philosophy (Science)	Assessing Soil Erosion Associated with Main Roads in South-Eastern South Africa
Sewbalas	Alisha	Doctor of Philosophy (Science)	Novel Epidermal Growth Factor Derived Cationic Lipoplexes Promote <i>in vitro</i> Hepatotropic Gene Targeting
Shisanya	Stephen Odede	Doctor of Philosophy (Science)	Rural Households Perception of the Effect of Climate Change on the Food Security in uMzinyathi District Municipality of KwaZulu-Natal, South Africa
Shozi	Mzamo Lungani	Doctor of Philosophy (Science)	The Continuous Flow Hydrogenolysis of Glycerol to Lower Alcohols over Supported Metal Oxide Catalysts
Sibomana	Milindi Sylver	Doctor of Philosophy in Engineering	An Assessment of the Feasibility of Quality Indicators for the Postharvest Deterioration of Sugarcane (<i>Saccharum Officinarum</i> L.)
Slabber	Cathryn Anne	Doctor of Philosophy (Science)	The War Against Pain: The Design, Synthesis and Testing of Potential COX-2 Selective Inhibitors
Stears	Keenan	Doctor of Philosophy (Science)	Key Factors Driving the Foraging Ecology of Oribi: Fear, Cattle and the Quality and Quantity of Food
Stuart-Hill	Sabine Ingrid	Doctor of Philosophy (Science)	Mainstreaming Adaptation to Climate Change into Decision Making in the Water Sector: Concepts and Case Studies from South Africa
Sunzu	Jefta Mvukaye	Doctor of Philosophy (Science)	New Models for Quark Stars with Charge and Anisotropy
Tchepmo Djomegni	Patrick Mimphis	Doctor of Philosophy (Science)	Generalized Travelling Wave Solutions for a Microscopic Chemotaxis Model
Thompson	Lindy Jane	Doctor of Philosophy (Science)	Flexibility in Metabolic Rate in a Small Afrotropical Bird <i>Zosterops virens</i>

COLLEGE OF AGRICULTURE, ENGINEERING AND SCIENCES			
Surname	First Name	Qualification	Thesis Title
Tjelele	Julius Tlou	Doctor of Philosophy (Science)	Do Herbivores Facilitate Seed Germination and Seedling Recruitment of Woody Plants?
van Wyk	Ernita	Doctor of Philosophy (Science)	Stakeholder Meanings and Robustness in Social-Ecological Systems: Implications for Managing Change
Venter	Jan Adriaan	Doctor of Philosophy (Science)	Intrinsic and Extrinsic Influences on African Large Herbivore Assemblages and Implications for their Conservation
Wiles	Errol Avern	Doctor of Philosophy (Science)	Tectonic History, Microtopography and Bottom Water Circulation of the Natal Valley and Mozambique Ridge, Southwest Indian Ocean
Wujuola	Olanrewaju Bola	Doctor of Philosophy in Engineering	Performance of Space-Time Coded Multicarrier CDMA System in Frequency-selective Rayleigh Channels
Zindove	Titus Jairus	Doctor of Philosophy (Science)	Relationship Between Linear Type Traits and Fertility in Nguni Cows

COLLEGE OF HEALTH SCIENCES			
Surname	First Name	Qualification	Thesis Title
Ajayi	Nasirudeen Oladipupo	Doctor of Philosophy (Health Sciences)	Anatomic and functional significance of the coronary collateral pathways in coronary arterial obstruction
Apalata	Teke	Doctor of Philosophy (Medicine)	Immunopathogenesis of vulvo vaginal candidiasis in HIV infected women
Baxter	Cheryl	Doctor of Philosophy (Medicine)	Impact of Intermittent Tenofovir 1% gel on Hepatitis B Virus (HBV) infection
Bhorat	Ismail Essop	Doctor of Philosophy (Medicine)	Fetal cardiac haemodynamics in normal and complicated pregnancies
Boadi-Kusi	Samuel Bert	Doctor of Philosophy (Health Sciences)	Ocular health of cocoa farmers in Ghana: An assessment and intervention study
Chuturgoon	Anil Amichund	Doctor of Philosophy (Health Sciences)	An investigation into the biochemical, molecular and epigenetic effects of fumonisin B1 in liver (HepG2) cells
Clarke	Damian Luiz	Doctor of Philosophy (Medicine)	Developing a multi faceted approach to uplifting and improving trauma care in the periphery
Dlamini	Colile Pertunia	Doctor of Philosophy in Nursing	Developing a clinical learning model for the integration of theory and practice in nursing education in Swaziland
Dlova	Ncoza	Doctor of Philosophy (Medicine)	Ethnic skin and hair disorders in KwaZulu Natal: A study of the spectrum of ethnic skin and hair disorder, and the composition and use of skin-lightening preparations, traditional cosmetics and sunscreen
Gengiah	Tanuja Narayansamy	Doctor of Philosophy (Health Sciences)	Integrating human immunodeficiency virus and tuberculosis drug treatment
Geyer	Nelouise-Marie	Doctor of Philosophy in Nursing	The influence of intrapersonal characteristics of individual nurses on their work performance: A predictive correlational study in a selected province in South Africa
Govender	Vineshree	Doctor of Philosophy (Medicine)	The role of Adiponectin, Leptin, TNF-a and Resistin in HIV associated pre-eclampsia
Gumede	Emelda Zandile	Doctor of Philosophy in Nursing	An analysis of the health behaviour of children from child headed households in a selected health district in KwaZulu-Natal: An ethnographic study
Hadebe	Silindile Innocentia	Doctor of Philosophy (Health Sciences)	Transdermal delivery of insulin and Syzygium aromaticum-derived oleanolic acid by dermal patches in streptozotocin-induced diabetic rats: Effects on some selected metabolic parameters
Jack	Caron Lee	Doctor of Philosophy (Medicine)	Telehealth / E-Health / mHealth : Transforming the client / physician relationships : The legal and ethical issues
Khan	Sajidah	Doctor of Philosophy (Medicine)	Telomere dynamics in Atherosclerosis

COLLEGE OF HEALTH SCIENCES			
Surname	First Name	Qualification	Thesis Title
Khathi	Andile	Doctor of Philosophy (Health Sciences)	Syzygium aromaticum-derived triterpenes modulate intestinal glucose handling of streptozotocin-induced diabetic rats
Kong	Victor	Doctor of Philosophy (Medicine)	The spectrum, outcome and cost of acute appendicitis at Edandale Hospital and its related catchment area.
Laing	Grant Llewellyn	Doctor of Philosophy (Medicine)	The construction, implementation and evaluation of surgical electronic medical record (EMR) systems within the Pietermartizburg Metropolitan Complex. A means of implementing clinical governance to audit and improve the quality of local services.
Loveday	Marian Patricia	Doctor of Philosophy (Medicine)	Decentralised treatment of multi-drug resistant tuberculosis (MDR-TB) in Kwazulu-Natal: Evaluation of a pilot project
Madlala	Hlengiwe Pretty	Doctor of Philosophy (Health Sciences)	Mechanisms of cardiovascular effects of oleanolic acid and related synthetic oleanane derivatives: An experimental study
Magula	Nombulelo Princess	Doctor of Philosophy (Medicine)	Metabolic Complications of ART in a South African Black Population
Maharajh	Ashok	Doctor of Philosophy (Health Sciences)	A comparative socio-economic impact analysis of the comrades marathon on the cities of Pietermaritzburg and Durban
Maistry	Tanya	Doctor of Philosophy (Medicine)	Genetic contribution to the risk for metabolic syndrome: an investigation of candidate gene polymorphisms related to lipid and carbohydrate metabolism in the South African population
Manasa	Justen	Doctor of Philosophy (Medicine)	Human immunodeficiency virus type 1 subtype C drug resistance analyses and bioinformatics resource development
Mkhwanazi	Blessing Nkazimulo	Doctor of Philosophy (Health Sciences)	The effects of maslinic acid and related triterpene derivatives on kidney function of male Sprague-Dawley rats
Mlisana	Koleka P	Doctor of Philosophy (Medicine)	The impact of sexually transmitted infections (STI) and genital tract inflammation on HIV-1 acquisition and rate of disease progression in subtype C infected women
Moonsamy	Suri	Doctor of Philosophy (Health Sciences)	Diverse computational tools towards the understanding of HIV targets and design of potential drug candidates
Muslim	Tufayl Ahmed	Doctor of Philosophy (Health Sciences)	A comparative analysis of oral healthcare policy development between a developed country (Australia) and a developing country (South Africa)
Naidoo	Mergan	Doctor of Philosophy (Medicine)	Improving obstetric surgical safety in Kwazulu-Natal
Naidoo	Sarita	Doctor of Philosophy (Medicine)	Antimicrobial susceptibility testing of Trichomonas vaginalis
Naidoo	Thinagrin Dhasarathun	Doctor of Philosophy (Medicine)	Post-Partum anal sphincter injury an altered faecal continence in a developing country: is there variation in incidence between Black Africans and Indians
Ndabarora	Eleazar	Doctor of Philosophy in Nursing	Development of an intervention model for data quality management and health information use at community and district levels in Rwanda
Ngubane	Phikelelani Siphosethu	Doctor of Philosophy (Health Sciences)	The effects of insulin and Syzygium aromaticum oleanolic acid containing dermal patches on kidney function and renal expression of glucose transporters in streptozotocin induced-diabetic rats
Ofili	Mary Isioma	Doctor of Philosophy in Nursing	An ethnographic study of predictors of hypertension and its preventive strategies in a rural community in Delta State Nigeria
Ojewole	Elizabeth Bolanle	Doctor of Philosophy (Health Sciences)	Exploring the buccal delivery potential of an antiretroviral drug
Orton	Penelope Margaret	Doctor of Philosophy in Nursing	Access to higher education in the health sciences- A policy implementation analysis
Paruk	Farhanah	Doctor of Philosophy (Medicine)	Hip fracture and osteoporosis: A comparison of the demographic profile, risk factors, outcomes and health care costs in geriatric patients with and without osteoporotic hip fractures in the public health sector in the eThekwin area
Radebe	Mopo Annah	Doctor of Philosophy (Medicine)	Patterns and features of HIV-1-specific CD8+ T-cell responses during acute HIV-1 infection and their association with viral control
Ramsugit	Saiyur	Doctor of Philosophy (Medicine)	The role of Mycobacterium tuberculosis pili as an adhesin

COLLEGE OF HUMANITIES			
Surname	First Name	Qualification	Thesis Title
Ade-Ibijola	Opeyemi Aderemi	Doctor of Philosophy (Human Sciences)	Nigeria and the politics of African decolonization in the United Nations, 1960-1994: Historical analysis and implications for Nigeria's contemporary political ambitions
Adeogun	Tolulope Jolaade	Doctor of Philosophy (Human Sciences)	Exploring the impact of women's organizations in peace building in Africa: A case study of women's organizations in South Sudan
Akinola	Adeoye Ologuntoye	Doctor of Philosophy (Human Sciences)	Globalisation, sustainable democracy and deregulation in Nigeria: A case study of the downstream oil sector
Akwanga	Ebenezer Derek Mbongo	Doctor of Philosophy (Human Sciences)	From autonomy to independence: The challenges of nation building in South Sudan
Amisi	Baruti Bahati	Doctor of Philosophy (Human Sciences)	Civil Society, Dams and Underdevelopment in the Democratic Republic of Congo: A study of Communities Affected by the Inga Hydropower Projects
Asale	Bruk Ayele	Doctor of Philosophy (Human Sciences)	<i>1 Enoch in Jude</i> and in the EOTC "Canon": Developing an adequate insight in Second Temple Literature (STL) in the various Ethiopian churches for a better understanding of each other and for the promotion of ecumenism and mutual cooperation
Auld	Sharon M	Doctor of Philosophy (Human Sciences)	Identity, PTSD, and psychotherapy with policemen in the transition from apartheid to post-apartheid South Africa.
Barnabas	Shanade Bianca	Doctor of Philosophy (Human Sciences)	Heritage-making at the Wildebeest Kuil Rock Art Tourism Centre, Northern Cape: An exploration
Beni	Saritha	Doctor of Philosophy (Education)	Foundation phase teachers' interpretation and implementation of the Natural Science Curriculum in the life skills learning programme: A case study.
Bhengu	Sithembiso	Doctor of Philosophy (Human Sciences)	Wage-Income, Migrant Labour and Livelihoods - Beyond the Urban-Rural Divide in Post-Apartheid South Africa: A Case of Dunlop Durban Factory Workers
Blewett	Craig Neville	Doctor of Philosophy (Education)	Learning in a Facebook environment: The writting is on the wall.
Burnett	Carolyn	Doctor of Philosophy (Human Sciences)	<i>When Granny went on the Internet</i> : The screenplay and the search for content and tone in South African screenwriting
Buthelezi	Sipho Bruce	Doctor of Philosophy (Human Sciences)	Inter-Organizational Relations for Effective Implementation: A case study of the KwaZulu-Natal Tourism Implementation Structure, between the years 2000 - 2010
Chigonda	Tanyaradzwa	Doctor of Philosophy (Human Sciences)	Biodiversity Conservation and Rural Livelihoods: A Comparative study of Selected Conservation Approaches in Zimbabwe
Chiponda	Annie Fatsireni	Doctor of Philosophy (Education)	An analysis of the portrayal of women in Junior secondary school History textbooks in Malawi.
Chipungu	Lovemore	Doctor of Philosophy (Human Sciences)	The Development of Land and Housing Delivery Systems in the Wake of the Fast Track Land Reform Programme in Zimbabwe: A case study of Harare
Chiwenga	Constantino Guveya	Doctor of Philosophy (Human Sciences)	The predominance of an ethic of double standards in the United Nations Security Council Humanitarian Intervention Missions: A critical study based on the ethical concepts of mutual aid and equal recognition
Dube	Godwin	Doctor of Philosophy (Human Sciences)	Informal Sector Taxation: The case of Zimbabwe
Essack	Zaynab	Doctor of Philosophy (Human Sciences)	An empirical study of standards of prevention in South African HIV vaccine trials: Norms, perspectives and practices
Ettang	Dorcas Oyebisi	Doctor of Philosophy (Human Sciences)	The state and ethno-religious violence in Plateau State: Developing a peace-building framework as a conflict prevention strategy
Fomunyam	Bilola Noline	Doctor of Philosophy (Human Sciences)	Brotherhood Solidarity and the (Re) Negotiation of Identity among Senegalese Migrants in Durban
Gatfield	Rowan Christopher	Doctor of Philosophy (Human Sciences)	Beadwork Identity as Brand Equity: An Analysis of Beadwork Conventions as the Basis of Craft Economies in KwaZulu-Natal, with Specific Emphasis on the Beadwork of amaNywswa
Getman	Elizabeth Jane	Doctor of Philosophy (Human Sciences)	South African Anglican clergywomen merging ministry and motherhood: Exploring presence, praxis and power
Gibbs	Andrew Robert	Doctor of Philosophy (Human Sciences)	Reconstructing Masculinities? A social-psychological approach to participation and masculinities in the context of HIV

COLLEGE OF HUMANITIES			
Surname	First Name	Qualification	Thesis Title
Govender	Subbalakshmi Deenadeyalan	Doctor of Philosophy (Education)	Students’ construction of academic success in Higher Education.
Gramanie	Pushpagandhi	Doctor of Philosophy (Education)	Access to schooling spaces for my child with Down Syndrome: An autoethnography.
Hamutumwa	Meameno Utuna Nampa	Doctor of Philosophy (Human Sciences)	Electronic resources use by distance learners at University of Namibia
Hara	Agness Chimangeni	Doctor of Philosophy (Human Sciences)	Text Comprehension in bilingual (Chichewa/English) children: Mental representation and narrative text structure
Hingston	Claudine Anita Cassandra	Doctor of Philosophy (Human Sciences)	Gender Contestations in the Migration Site: The case of Nigerian Migrants in Durban, South Africa
Ishaya	Edward Rokulegodo	Doctor of Philosophy (Human Sciences)	A historical analysis of the emergence of newer Pentecostal Churches in Adamawa State, Nigeria from 1975 to 2008
Jarvis	Brian John	Doctor of Philosophy (Education)	Whiteness and Education in Southern African spaces: An autoethnography.
Jennings	Karen	Doctor of Philosophy (Human Sciences)	Travels with my Father-placing the self: an original novel accompanied by an extended essay that investigates the localization of identity through its relationship to memory and place.
Juan	Andrea Liesel	Doctor of Philosophy (Human Sciences)	An analysis of governance in Further Education and Training Colleges in KwaZulu-Natal, South Africa
Jugoo	Vikash Ramanand	Doctor of Philosophy (Education)	Exploring Higher Education Engagement in Computer Programming within a Blended Learning Environment: An Action Research Approach.
Kanengoni	Herbert	Doctor of Philosophy (Human Sciences)	Psychological climate and psychological contract as antecedents of knowledge workers well-being and work adjustment
Kangwa	Jonathan	Doctor of Philosophy (Human Sciences)	In search of indigenous knowledge systems for ecological justice: A gendered ecological reading of Genesis 1-3 in the context of the Tonga people of Zambia
Kenge	Esther Lubunga	Doctor of Philosophy (Human Sciences)	Towards a theology of peace-building in the Democratic Republic of Congo (DRC): The contribution of Christian women
Kgosana	Makatipe Charles	Doctor of Philosophy (Human Sciences)	Organizational and individual determinants of career success: A study of a South African Municipality
Land	Sandra Jane	Doctor of Philosophy (Human Sciences)	Reading isiZulu: an investigation into reading processes in an agglunative language with a transparent orthography.
Lubombo	Musara	Doctor of Philosophy (Human Sciences)	Transcending GIPA: Towards an Ubuntu framework for mainstreaming participation of people living with HIV in social change communication for HIV prevention in South Africa
Lutaaya	Clement Nabutto	Doctor of Philosophy (Human Sciences)	Staff training and development in Ugandan private chartered university libraries
Machimbidza	Takawira	Doctor of Philosophy (Human Sciences)	The adoption and use of peer reviewed electronic journals by academics at selected Zimbabwean State Universities
Majola	Phumlani Lucky	Doctor of Philosophy (Human Sciences)	The relationship between eschatological hope and Christian mission in the theology of Jurgen Moltmann and its implications for Seventh-Day Adventist theology
Majyambere	Moise	Doctor of Philosophy (Human Sciences)	Information seeking behaviour of Humanities/Arts international postgraduate students in public universities in KwaZulu-Natal Province, South Africa
Makhasane	Sekitla Daniel	Doctor of Philosophy (Education)	The role of leadership in addressing school violence: A case study of two South African schools.
Makoro	Frank Tsotetsi	Doctor of Philosophy (Human Sciences)	A policy analysis of the consequences of the Lesotho Highlands Water Project for rural communities in Lesotho: A case study of communities affected by the construction of the Katse and Mohale Dams
Mamotte	Nicole	Doctor of Philosophy (Human Sciences)	Voluntariness of consent to HIV clinical research: A conceptual and empirical study
Mangwende	Silas Parowa	Doctor of Philosophy (Education)	The interface between non-governmental organisation intervention programmes and rural out of school youth entrepreneurship development in Zimbabwe.
Maposa	Marshall Tamuka	Doctor of Philosophy (Education)	An analysis of the construction of African consciousness in contemporary South African History textbooks.

COLLEGE OF HUMANITIES			
Surname	First Name	Qualification	Thesis Title
Maseh	Elsebah	Doctor of Philosophy (Human Sciences)	Records management readiness for Open Government in the Kenyan Judiciary
Mbereko	Alexio	Doctor of Philosophy (Human Sciences)	The Relationship between HIV and AIDS and Water Scarcity and Variability in the Nyamakate area, Zimbabwe: A Political Ecology Approach
Mistrey	Deepak	Doctor of Philosophy (Human Sciences)	Guilt and the Conscience in Nietzsche, Freud and Kafka
Mngomezulu	Samukelisiwe Dorothy	Doctor of Philosophy (Education)	Academic intervention experiences of ‘at risk’ students: A case of an undergraduate programme in a South African University.
Momo Lekane	Gillo	Doctor of Philosophy (Human Sciences)	Cafe de Malheur: Coping and Alternative Livelihoods Strategies of Coffee Farmers in Cameroon in a Liberalised Economy, 1987-2011
Moodley	Sarasvathy	Doctor of Philosophy (Education)	The role of leadership and management in school-based teacher professional development.
Moodley	Mogasuri	Doctor of Philosophy (Education)	Mathematics for future engineers: A case study of teaching and learning Mathematics in an Engineering Curriculum.
Moseti	Irene Moraa	Doctor of Philosophy (Human Sciences)	Strategies for managing scholarly content at universities in Kenya
Mtshali	Muntuwenkosi Abraham	Doctor of Philosophy (Education)	Student’s experiences of online-supported learning in Business Management Education.
Munyoro	Pedzisai	Doctor of Philosophy (Human Sciences)	Library and Information Science education and training in Zimbabwe and paradigm shift in the information industry
Mutereko	Sybert	Doctor of Philosophy (Human Sciences)	Analyzing accountability in street-level bureaucracy: Managing the implementation of National Curriculum Statements in the Umgungundlovu District in South Africa
Naicker	Dhanasagaran	Doctor of Philosophy (Education)	Piecing together the leadership puzzle: A self-study of practice.
Naicker	Rubandhree	Doctor of Philosophy (Education)	Critical Incidents in teachers lives: Understanding teacher be-ing
Naicker	Perumal	Doctor of Philosophy (Education)	The struggle for quality education in South Africa: The dynamics of intergrating learner drifters from rural and township contexts into suburban schools.
Naidoo	Linda Krishnavani	Doctor of Philosophy (Human Sciences)	Understanding child sex offenders: Implications for the protection of children in South Africa
Ncube	Lyton	Doctor of Philosophy (Human Sciences)	The beautiful game? Football, power, identities and development in Zimbabwe
Ndebele	Hloniphani	Doctor of Philosophy (Human Sciences)	The role of information and communication technology in the promotion and intellectualization of African Languages
Ndlovu	Annatoria Zanele	Doctor of Philosophy (Education)	Exploring pre-service teachers’ mental construction of concepts in matrix algebra: A South African case study.
Nduye	Gabriel Ezekia	Doctor of Philosophy (Human Sciences)	Sustainable agriculture in the context of climate change in Tanzania? On cultivating an African Christian ethic of care
Ngozwana	Nomazulu Alice	Doctor of Philosophy (Education)	Understandings of democracy and citizenship in Lesotho: Implications for civic education
Nkanyuza	Sylvia Nompucuko	Doctor of Philosophy (Education)	Leadership, managerial practices and politics in a historically Black University: A case study of the Vice-Chancellors at the former University of Transkei (UNITRA) from 1976 - 2005 with Post Script.
Nojiyeza	Innocent Simphiwe	Doctor of Philosophy (Human Sciences)	Integrated Water Resources Management and the Manufactured Scarcity of Water in Africa
North	Marc Philip	Doctor of Philosophy (Education)	The basis of legitimisation of Mathematical Literacy in South Africa
Nyawo	Sonene Margaret	Doctor of Philosophy (Human Sciences)	<i>Sowungumuntfukenyalo’ - “You are now a real person”</i> : A feminist analysis of how women's identities and personhood are constructed by societal perceptions on fertility in the Swazi patriarchal family
Ogana	Winifred	Doctor of Philosophy (Human Sciences)	Food Decisions and Cultural Perceptions of Overweight and Obesity: The case of Zulu Women in Durban, South Africa

COLLEGE OF HUMANITIES			
Surname	First Name	Qualification	Thesis Title
Onapajo	Hakeem Olakunle	Doctor of Philosophy (Human Sciences)	The State and Electoral Fraud in Nigeria, 2007-2011: Case studies from Ekiti State in the South-West
Oppong Asante	Kwaku	Doctor of Philosophy (Human Sciences)	Health and wellbeing of homeless youth in Ghana
Osondu	Chukwudi Solomon	Doctor of Philosophy (Human Sciences)	War and alliances: The transformative roles of external actors in the Somali conflict
Osungbeju	Samuel Adekunle Ola	Doctor of Philosophy (Human Sciences)	Friendship and betrayal: A narrative reading of Matthew 26:47-56 in the light of the concept of <i>Oreodale</i> of the Yoruba people in Nigeria
Pluke	Robert Hay	Doctor of Philosophy (Human Sciences)	Men's experiences of fathering sons: Encountering difference and disappointment
Ramakau	James Lenyora	Doctor of Philosophy (Human Sciences)	A study of happiness in the mining industry
Ramson	Shakti Manickchund	Doctor of Philosophy (Education)	Exploring doctoral students' theory choices in Education.
Rawatlal	Kamilla Varsha	Doctor of Philosophy (Human Sciences)	Counsellors perceptions of applying cognitive behavioural counseling approaches to intervention for HIV sexual risk reduction
Rossmann	Jean	Doctor of Philosophy (Human Sciences)	Orion, Ram's-horn and Labyrinth: Quest and creativity in Marlene van Niekerk's <i>Triomf, Agaat and Memorandum</i>
Sader	Saajidha Bibi	Doctor of Philosophy (Education)	A feminist analysis of women academics' experiences of restructuring in a South African university
Segopolo	Irene Minkie Mmalecha	Doctor of Philosophy (Human Sciences)	An examination of representations of HIV and AIDS in print prevention campaigns advocating the ABC approach and how they are created and negotiated by students of University of KwaZulu Natal(5 campuses), Durban University of Technology (Steve Biko Campus)and University of Zululand
Sifunda	Charity Thobile	Doctor of Philosophy (Human Sciences)	The schooling system and the reproduction of selves in the post-apartheid era in South Africa: A dialogic approach
Simura	Blessing	Doctor of Philosophy (Human Sciences)	Military Intervention and International Law: A Critical Analysis of the Role of the International Community in Political Uprisings in Libya and Syria
Skelly	Lara Michelle	Doctor of Philosophy (Human Sciences)	The public library's contribution to economic growth and development: A path analysis
Slack	Catherine May	Doctor of Philosophy (Human Sciences)	Exploring the ancillary-care experiences of stakeholders in South African HIV vaccine trials
St John-Ward	Maureen Inge	Doctor of Philosophy (Education)	Exploring digital storytelling: Towards HIV and AIDS knowledge production in an affluent girls' school
Tella	Oluwaseun Emmanuel	Doctor of Philosophy (Human Sciences)	Polarity in contemporary international politics: A uni-interpolar order
Twine	Hannington Bananuka	Doctor of Philosophy (Education)	Adult education for community development?: The case of a Ugandan non-governmental organization
Vanderhaeghen	Yves Nicholas	Doctor of Philosophy (Human Sciences)	Other than ourselves: An exploration of "self-othering" in Afrikaner identity construction in <i>Beeld</i> newspaper
Vilakazi	Mlungisi Johann	Doctor of Philosophy (Human Sciences)	Critical analysis of a large parochial structure model for black parishers in the Anglican Church of Southern Africa, with reference to the Diocese of Natal
Weir-Smith	Gezina	Doctor of Philosophy (Human Sciences)	Unemployment in South Africa: in Search of a Spatial Model
Wekulo	Patricia Kadzo	Doctor of Philosophy (Human Sciences)	Understanding variability in child development outcome in resource-constricted settings: the contribution of the home environment
Whetho	Ayo	Doctor of Philosophy (Human Sciences)	Natural resources, profit and peace: Multinational corporations and conflict transformation in the Democratic Republic of Congo

COLLEGE OF LAW AND MANAGEMENT STUDIES			
Surname	First Name	Qualification	Thesis Title
Adeoye	Abayomi Olarewaju	Doctor of Philosophy (Management Studies)	An Assessment of Compensation Management and Motivation on Organisational Performance in the Insurance Industry in Nigeria
Atiku	Sulaiman Olusegun	Doctor of Philosophy (Management Studies)	The Relationship between Organizational Culture and Performance: A Case of the Banking Sector in Nigeria
Gachie	Emily Wanjiru	Doctor of Administration	Sustainable Development in South Africa through Research in the National System of Innovation
George	Gavin Lloyd	Doctor of Philosophy (Management Studies)	Human Resources for Health (HRH) in South Africa: Identifying Challenges, Migration Intentions and Reviewing Policy Response
Kaupa	Stewart Peter	Doctor of Philosophy (Management Studies)	Developing a Competitive Marketing Strategy and Model for the Premium Beer Brands in South Africa
Kinnear	Lisa Caroline	Doctor of Philosophy (Management Studies)	A Critical Analysis of the Emerging Models of Power amongst South African Women Business Leaders
Kwenda	Farai	Doctor of Philosophy (Management Studies)	The Working Capital Management Practices of JSE-Listed Firms.
Maharaj	Ashika	Doctor of Philosophy (Management Studies)	Expatriate Academics and Expatriate Management in a South African Higher Education Institution
Makanyeza	Charles	Doctor of Philosophy (Management Studies)	Consumer Awareness, Ethnocentrism, Attitude and Purchase Behaviour toward Imported Poultry Products: A Zimbabwean Perspective
Mang'unyi	Eric Ernest	Doctor of Philosophy (Management Studies)	Service Quality and Customer Satisfaction: The Case of Private Universities in Kenya
Mncube	Liberty	Doctor of Philosophy (Management Studies)	Essays on Collusion in South Africa's Grain Industry: Remedies, Overcharges and Cartel Stability
Mohamed Sayeed	Cheryl Natasha	Doctor of Administration	Good Food Security Governance amongst Extension Workers in KZN: A Public Administration Perspective
Mukorera	Sophia Zivano Elixir	Doctor of Philosophy (Management Studies)	The Rise of Micro and Small-scale Entrepreneurship in a Melting Down Economy:Case of Zimbabwe
Mutukaa	Samuel Kimwele	Doctor of Public Administration	Project Implementation in a Decentralized State: Evaluation of the Constituency Development Fund projects for Food Security in Kenya
Ntshangase	Bhekabantu Alson	Doctor of Administration	The Role of Project Management Methodology in Municipal Service Delivery with particular reference to Metropolitan Municipalities in South Africa
Omolade	Adeleke	Doctor of Philosophy (Management Studies)	Monetary policy and manufacturing sector growth in Africa's oil exporting countries
Pillay	Rosetta	Doctor of Philosophy (Management Studies)	Business Driven Learning: A Systemic Model for Learning within a State Owned Company
Proches	Cecile Naomi	Doctor of Philosophy (Management Studies)	An Application of Systems Methodologies to Investigate Social Complexity at the Felixton Mill Area
Razkhaneh	Farhad	Doctor of Philosophy (Management Studies)	The Provision of Efficient Transport Services in the Iranian Maritime and Land Transport Interface
Salisbury	Roger Hans Theodore	Doctor of Philosophy (Management Studies)	An Analysis of Complementary Competence Co-branding Potential in the Beer Industry
Saruchera	Fanny	Doctor of Philosophy (Management Studies)	Determinants of Commercialization of Technological Innovations in Developing Economies: A Study of Zimbabwe's Research Institutes
Singh	Bhoowan Prakash	Doctor of Administration	Impact of Strategic Communication Policy on Service Delivery and Good Governance within KwaZulu-Natal Department of Sport and Recreation
Suknunan	Sachin	Doctor of Business Administration	The Strategic Role of Knowledge Management in African Universities
Zambara	Webster Martin	Doctor of Philosophy (Management Studies)	Non-Violence in Practice: Enhancing Churches' Effectiveness in Building a Peaceful Zimbabwe Through Alternatives to Violence Project (AVP).

2014 – a good year at InQubate for promoting innovation

InQubate, UKZN's specialised unit under the research portfolio which commercialises ideas, discoveries and inventions, enjoyed a highly successful year in 2014 in the area of patenting technologies and inventions.

The 15 staff at the Unit received nine technology disclosure forms from researchers compared to four in 2013.

An increase in the number of disclosures from researchers increases the chances of finding patentable inventions, says Ms Anne Gabathuse, InQubate's Technology Transfer Manager.

InQubate's role is to encourage, stimulate and reward a culture of innovation and entrepreneurship; encourage technology innovation from Research and Development (R&D) and to identify, protect and commercialise Intellectual Property (IP) that has been generated from R&D in accordance with the Intellectual Property Rights from Publicly Financed Research and Development Act of 2008.

The Unit also raises funds for the commercialisation of IP through public-private partnerships, venture capital and grants from agencies, such as the Industrial Development Corporation and the Technology Innovation Agency.

◀ *Mr Sipho Dlamini,
Director, InQubate.*

It also translates the University's intellectual capital into consultancy services and gives effective and efficient IP legal advice to clients.

InQubate's other roles involve identifying opportunities and assisting UKZN experts to tender and bid for research and consultancy projects and further, it promotes and assists with business development, such as spin-offs and start-ups.

The University owns the patents if public funds were used for the research, as stipulated in the IPR Act.

However, InQubate also has undergraduate students and individuals approaching it for patenting and IP services. While the office can provide advice, patenting resources cannot be used to file for patents for these people as the IP does not belong to the University, if the University's resources were not used in the development of the idea.

'If the IP is privately owned, the University doesn't have formal means to recoup the costs of the patent filing process as opposed to when the patent is university-owned,' said Gabathuse.

Filing a provisional patent application can take from one to four weeks, depending on the urgency, such as if the researcher is about to publish or speak at a conference.

The patenting process also depends on how long it takes for the researcher to provide patent attorneys with the information needed to draft the patent specification.

'Once the application is filed, researchers may publicly disclose their work,' said Gabathuse.

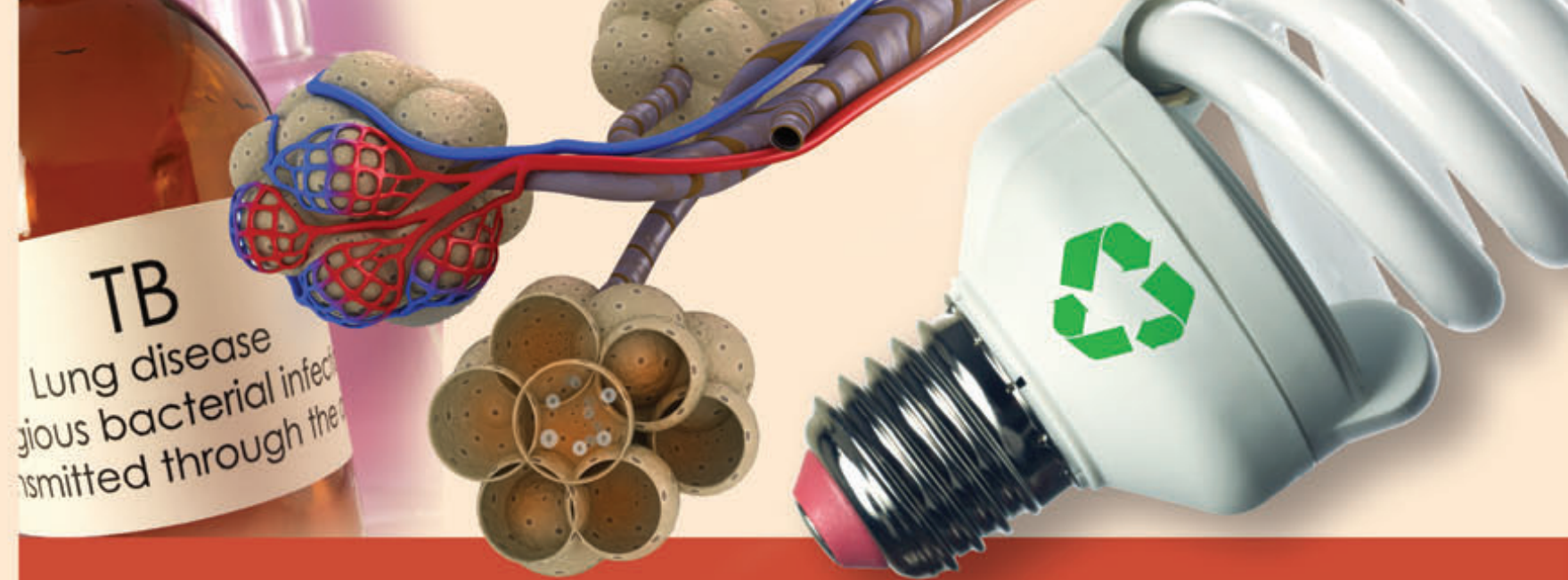
After 12 months of filing a provisional application, a complete patent application may be filed in South Africa, or other countries.

If researchers plan to patent their work internationally, the patent application will go through the Patent Co-operation Treaty system enabling them to file their patent in other countries.

The granting of a patent can take up to 10 years, depending on the countries the patents were filed in.

Gabathuse says the researcher has to be involved in every stage of the technology transfer process, from filing the patent to the commercialisation phase. 'If the researcher leaves out any information on the patent specification, it could impact on the commercial potential of the technology, as a competitor could file their own patent on a similar technology but different application, if this was not covered in the patent application.'

The commercialisation process depends on several factors, including the interest in the technology by industry and the negotiation process between the IP owners and the party acquiring the IP.



UKZN research projects get funding for commercial development

TWO UKZN projects which have the potential to improve lives have each received R500 000 in seed funding for further development from the Technology Innovation Agency (TIA).

The first project - developed through InQubate, the University's technology transfer office, by inventors Dr Mantha Makume and Professor A W Sturm - is an investigative laboratory procedure which has the potential to revolutionise TB detection by making it simpler, easier and cheaper, thus enabling patients to get treatment sooner.

Rapid detection of TB is imperative to curb transmission and as well as the need for the test to be quick, it also has to be inexpensive, sensitive and suitable for resource-constrained laboratories serving populations with high burdens of TB.

The technology which the team has developed will aid diagnosis and potentially provide drug resistant profiles of the infecting strain.

Preliminary results show it to be comparable to current gold standard methodologies at a fraction of the cost and time. Work is underway to develop the concept into a commercially viable product.

The second project, also funded through the InQubate unit, is an invention by student Mr Drew Van der Riet and his supervisor Professor Riaan Stopforth. It involves the development and manufacture of low cost, modular advanced prosthetic hands, the aim being to improve the lives of amputees around the world.

One of the main complaints made by amputees with advanced prosthesis is that control is difficult as they have no sensory feedback about how tightly they are gripping an object, resulting in them breaking delicate objects or dropping heavier ones. They also miss touching and feeling their environment and loved ones.

Many amputees still used hooks as they were unable to afford advanced prostheses or find them too difficult to use. The prosthetics arms now being developed at UKZN will be affordable and also have sensory feedback.

Meanwhile, two companies were registered during the year.

One-Rare Earth Recycling Technologies (Pty) Ltd is a UKZN spin-off company co-founded by Chemical Engineering's Professor Deresh Ramjugernath, based on technology to extract rare earth metals from recycled compact fluorescent light (CFLs) bulbs.

The sale of rare earth metals recovered from the CFL bulbs makes the recycling of the bulbs a viable business opportunity and a pilot plant has been constructed at the University's Howard College campus.

The Line Inspection Robot Company was also formed in 2014 by former UKZN staff member, Professor Edward Boje and two of his students, Mr Trevor Lorimer and Mr Timothy Rowell.

It aims to manufacture and sell cable-inspecting robots and also provide cable-monitoring services as cost saving measures to national and international organisations with thousands of kilometres of powerlines needing inspection.

In collaboration with Eskom, the University has developed an innovative and alternative method of power line inspection using a mobile robot as a sensor platform.

It is cheaper, safer, less intrusive and able to provide more details and enables stream camera feeds to a ground station where an operator can use the data for inspection.

Patents have been filed for the technology in numerous countries. Seed funding, totalling R485 000 from the TIA through UKZN InQubate, has been awarded to the project for the further development of the prototype.

RESEARCH GRANTS AND CONTRACTS 2014

1 JANUARY 2014 TO 31 DECEMBER 2014

COLLEGE OF AGRICULTURE, ENGINEERING AND SCIENCES			
Principal Investigator	Project Title	Funder	Amount Awarded
Derera, John	UKZN Plant Breeding MSc for Africa	Alliance for a Green Revolution in Africa	R29 931 477,55
Rouget, Mathieu	Collaborative research project in the area of reforestation within the municipality	eThekwini Municipality	R6 176 803,00
Jewitt, Graham	Demonstration of how healthy ecological infrastructure can be utilised to secure water for the benefit of society and the green economy through a programmatic research approach based on selected landscapes.	Water Research Commission	R5 000 000,00
Warburton, Michele	Southern African science service centre for climate change and adaptive land management	University of Stellenbosch	R3 000 000,00
Everson, Colin	Assessing the impact of erosion and sediment yield from different land uses in farming and forestry systems and their effect on water resources in selected catchments of South Africa.	Water Research Commission	R2 200 000,00
Derera, John	Agricultural Research Council-Universities Collaborative Centre on Smallholder farmer development	Agricultural Research Council	R1 875 000,00
Watkeys, Michael	Processing, analysing and interpreting marine geophysical data generated by the Alfred Wegener Institute	Alfred Wegener Institute	R1 114 232,28
Savage, Michael	Open water evaporation measurement using micrometeorological methods	Water Research Commission	R1 100 000,00
Stretch, Derek	Microstructure and mixing: Interactions of energetic flow and eddiws with complex topography in the Western Indian Ocean	Office of the Naval Research Global	R1 067 868,00
Laing, Mark	Sustainable control of pre and post-harvest diseases of citrus fruit in South Africa	Industrial Development Corporation of South Africa	R1 028 055,00
Stuart-Hill, Sabine	Lessons learnt from the establishment of catchment management agencies in South Africa	Water Research Commission	R1 000 000,00
Everson, Colin	Validation of the variable (evaporations and soil moisture) in Hydrometeorological Models: Phase II, application of cosmic ray probes for soil water measurement	Water Research Commission	R1 000 000,00
Jewitt, Graham	Waste impoundment water and solute balance research study	Palabora Copper (Pty) Ltd	R830 100,00
O'Brien, Gordon	River Health Programme for KwaZulu-Natal 2014/5	Umgeni Water	R713 206,80
Everson, Colin	Application of Cosmic Ray Probes for Validation of Hydrometeorological and Remote Sensing Models	National Academy of Sciences	R689 338,24
Kumarasamy, Muthukrishnasamy	Simulation of pollutant transport, sediment concentration and nutrient budget for uMgeni River Water	Water Research Commission	R667 000,00
Loubser, Richard	Measurements of conductor vibration	Electric Power Research Institute	R631 520,00
Mudhara, Maxwell	Research assistance in support of Department of Agriculture Forestry and Fisheries' Fetsa Tlala Food Production Initiative	Department of Agriculture Forestry and Fisheries	R600 000,00

COLLEGE OF AGRICULTURE, ENGINEERING AND SCIENCES			
Principal Investigator	Project Title	Funder	Amount Awarded
Rawatlal, Randhir	Model development, analysis and optimisation of methane oxidation monolith catalysed systems involving oxidation of methane	Johnson Matthey Research (Pty) Limited	R560 000,00
Lorentz, Simon	Investigate atmospheric deposition impacts on water resources and ecosystems on the Klip River	Eskom	R502 150,00
Buckley, Christopher	Round 1 Phase 2: Data acquisition and field support for sanitation projects	Bill and Melinda Gates Foundation	R466 727,15
Friedrich, Holger	Development of a fundamental understanding of the possible reaction mechanism for the catalytic activation of long chain paraffin molecules to higher value products such as oxygenates and olefins.	Sasol Technology (Pty) Ltd	R450 000,00
Trois, Christina	Durban Solid Waste Research & Development Projects for 2013-2014 - Three projects in one contract (Project 1 - Nitrate removal from treated leachate using garden refuse compost as a carbon source) (Project 2 & 3 - Waste management strategies for landfills)	Durban Solid Waste - Cleansing and Solid Waste	R450 000,00
McCreadie, Heather	South African National Arctic Exploration High Frequency Radar Experiment	South African National Space Agency	R411 000,00
Rouget, Mathieu	SA National Biodiversity Institute Post-doctoral Fellowship - Plant Invasions	South African National Biodiversity Institute	R400 000,00
Stopforth, Riaan	Memorandum of Agreement between Council for Scientific & Industrial Research (CSIR) and UKZN to provide research support and funding to Universities for building capability in areas of strategic importance to the Department of Defence	Council for Scientific and Industrial Research	R400 000,00
Friedrich, Holger	Preferential CO oxidation in excess H2 over Au/Pt catalysts	Mintek	R380 000,00
Chetty, Naven	Experimental verification of the turbulent effects on laser beam propogation in air	Council for Scientific and Industrial Research	R356 000,00
Kumarasamy, Muthukrishnavellaisamy	The effect of age on the friction of large diameter potable water cement mortar line pipelines	Water Research Commission	R354 000,00
Xu, Hongjun	Deed of Recordal Intellectual Rights: Polar code spatial modulations with precoding	Council for Scientific and Industrial Research	R350 000,00
Jarmain, Caren	Validation of satellite data processing and modeling using the SEBAL remote sensing technology	The Western Cape Government, via its Department of Agriculture	R325 100,00
Downs, Colleen	Effects of changing land use and urbanisation on biodiversity, particularly birds and mammals	Hans Hoheisen Charitable Trust	R300 000,00
MacDonald, Angus	Seakeys: Foundational biodiversity initiative	South African National Biodiversity Institute	R277 000,00
Moodley, Mathew	Temporal and spatial in situ optical emission spectroscopy of carbon nanotubes nucleation dynamics	Council for Scientific and Industrial Research, National Laser Centre	R256 300,00
Nieuwoudt, Wilhelmus	Financial and economic viability of irrigation farming following curtailment of water use rights in the Umhlatuze catchment	Water Research Commission	R200 000,00
Jewitt, Graham	Investigating in ecological infrastructure to enhance water security in the uMngeni River catchment	South African National Biodiversity Institute	R191 400,00
Petrucione, Francesco	Hybrid, two-way quantum key distribution system	Council for Scientific and Industrial Research, National Laser Centre	R175 000,00
Laing, Mark	Studies on the use of biocontrol agents on groundnuts to control of Aspergillus species and other soil pathogens	Oilseeds Advisory Committee	R164 500,00

COLLEGE OF AGRICULTURE, ENGINEERING AND SCIENCES			
Principal Investigator	Project Title	Funder	Amount Awarded
Demlie, Molla	The hydrology of groundwater Region 65: Northern Zululand coastal plain	North-West University	R152 000,00
Buckley, Christopher	Shear extrusion to treat faecal waste	Oklahoma State University	R149 610,82
Laing, Mark	Use of potassium silicate and biocontrol agents to reduce postharvest disease and chilling injury in citrus fruit.	Citrus Research International	R134 351,00
Jarvis, Leigh	An investigation and the production of a prototype Graphene electrode fuel cell for the detection of ethanol	PFK Electronics	R110 000,00
Yobo, Kwasi	Studies on Lecanicillium lecanii as a potential mycoparasite of the soybean rust fungus Phakoscora pachyrhizi and its use as a biological control agent against soybean rust	The Protein Research Foundation	R108 000,00
Downs, Colleen	Collaboration Agreement between University of KwaZulu-Natal and The Endangered Wildlife Trust	The Endangered Wildlife Trust	R100 000,00
Downs, Colleen	Research on the ranging behaviour of the Cape Vulture (Gyps coprotheres) in the Easternr Cape Province, South Africa, and its implications for wind turbine placement	Eastern Cape Parks and Tourism Agency	R95 875,00
Ramjugernath, Deresh	Bleaching earth studies	Unilever South Africa (Pty) Ltd	R75 200,00
Ramjugernath, Deresh	Desalination of industrial waste water using gas hydrate technology	Sasol Technology (Pty) Ltd	R75 000,00
Buckley, Christopher	Preparation of booklet on eThekwini Water & Sanitation for Stockholm Water Week	Water Research Commission	R60 000,00
Laing, Mark	Soybean Elite Cultivar Trial 2014/15	Protein Research Foundation	R52 536,00
Lumsden, Trevor	Mhlatuze water climate change adaptation study	WSP Environmental (Pty) Limited	R31 680,00
Mutanga, Onisimo	Rangeland quality and degradation	The Agricultural Research Council	R25 000,00
TOTAL			R66 763 030,84

COLLEGE OF HEALTH SCIENCES			
Principal Investigator	Project Title	Funder	Amount Awarded
Motala, Ayesha	Burden, spectrum and aetiology of Type II Diabetes in sub-Saharan Africa	Wellcome Trust	R49 409 873,52
Pillay, Deenan	A cluster, randomised trial comparing the impact of immediate versus WHO recommendations guide Anti-retroviral initiation on HIV incidence. (the TasP trial in Hlabisa)	Agence Nationale de recherches su le sida et les hepatites virales	R26 710 018,31
Barnighausen, Till	Optimising the integrated delivery of maternal and child health services to strengthen the primary health care system in rural South Africa.	European Union (South Africa office funding project)	R19 003 736,09
de Oliveira, Tulio	South African University Flagship Projects: A multi-disciplinary approach to understand the causes and consequences of HIV transmission and drug resistance in a hyper-epidemic setting in rural South Africa	South African Medical Research Council	R16 500 000,00
Horwood, Christiane	KwaZulu-Natal initiative for breastfeeding support	The ELMA Foundation	R14 250 000,00

COLLEGE OF HEALTH SCIENCES			
Principal Investigator	Project Title	Funder	Amount Awarded
Ndung'u, Thumbi	Development of broadly neutralising antibodies in HIV infection and following immunisation	Massachusetts General Hospital	R5 935 269,65
Ndung'u, Thumbi	Pathogenesis of Clade C HIV Infection	Massachusetts General Hospital	R5 124 675,09
Ndung'u, Thumbi	Impact of HLA class I alleles in immune control of adult and paediatric HIV infection	University of Oxford	R5 027 866,45
Ndung'u, Thumbi	Establishment of cohorts of support studies of HIV antigens and immune responses	International AIDS Vaccine Initiative	R4 226 970,57
Ndung'u, Thumbi	Pathogenesis of Clade C HIV infection	Massachusetts General Hospital	R3 946 194,01
Mlisana, Koleka	Impact of HIV, antiretroviral therapy and TB genotype on survival in MDR TB	Emory University	R3 214 159,28
Chimbari, Moses	Social, environment and climate change impacts of vector-borne diseases in arid areas of Southern Africa	World Health Organization	R3 136 000,00
Thobakgale, Christina	Natural killer cell mediated recognition of HIV-1 and adaptation to KIR and HLA	The Wellcome Trust	R2 773 405,00
Ndung'u, Thumbi	Optimising CD8+ T-cell responses against C Clade HIV infection in sub-Saharan Africa	University of Oxford	R2 381 366,65
Ndung'u, Thumbi	Optimising CD8+ T-cell responses against C Clade HIV infection in sub-Saharan Africa	University of Oxford	R2 283 508,92
Ndung'u, Thumbi	Development of broadly neutralising antibodies in HIV infection and following immunisation	Massachusetts General Hospital	R1 699 530,09
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	R1 694 723,63
Ndung'u, Thumbi	Innate immunity to HIV-1 infection	Massechusetts General Hospital	R1 429 457,89
Rapiti, Nadine	Optimal management of AIDS related Lymphoma	Roche Products (Pty) Ltd	R1 400 000,00
Ross, Andrew	Strengthening primary health care through primary care doctors and family physicians	Stellenbosch University	R1 075 318,01
Chhagan, Meera	Growing partnership for Higher Education and Research in Nutritional Epidemiology in Democratic Republic of Congo	University of Bergen	R974 208,57
Moshabela, Mosa	Scoping studies on research priorities for maternal, newborn and child health in sub-Saharan Africa	International Development Research Centre	R948 097,24
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	R812 890,26
Visser, Linda	A 12-month randomised, double-masked, sham-controlled, multicenter study to evaluate the efficacy and safety of 0.5mg of ranibizumab intravitreal injections in patients with visual impairment due to vascular endothelial growth factor (VEGF) driven choroidal neovascularisation (CNV)	Novartis South Africa	R800 000,00
Ndhlovu, Zaza	Elite controller collaborative study	Massachusetts General Hospital	R651 175,06
Motala, Ayesha	Durban Diabetes study	MSD (Pty) Ltd	R600 000,00
de Oliveira, Tulio	A context based knowledge resource integrating HIV and Mtb molecular biology with host-pathogen and drug resistance data	University of Cape Town	R599 399,20

COLLEGE OF HEALTH SCIENCES			
Principal Investigator	Project Title	Funder	Amount Awarded
Horwood, Christiane	Effectiveness of an HIV-adapted community integrated management of childhood illness and supervision program for community health workers	World Health Organisation	R526 380,00
Tanser, Frank	International epidemiological databases to evaluate AIDS - The Observational Antiretroviral Studies in Southern Africa	University of Bern	R520 592,82
Treffry-Goatly, Astrid	Public engagement with HIV drug adherence through audiovisual media	Wellcome Trust	R495 000,00
Coutsoudis, Anna	National Health Scholarship Programme PhD scholarship for Dr E. Spooner	South African Medical Research Council	R474 240,00
Ndung'u, Thumbi	Prevention and treatment of neo-natal HIV infection	Massachusetts General Hospital	R368 287,35
Mlisana, Koleka	Safety, pharmacogenetics and resistance to bedequiline in XDR TB and HIV	The Rollins School of Public Health of Emory University	R347 728,85
Visser, Linda	A 12-month randomised, double-masked, sham-controlled, multicenter study to evaluate the efficacy and safety of 0.5mg ranibizumab intravitreal injections in patients with visual impairment due to vascular endothelial growth factors (VEGF) driven choroidal neovascularisation (CNV)	Novartis	R250 000,00
Mosam, Anisa	Columbia-South Africa training program for research on HIV-associated malignancies	The Trustees of Columbia University in the City of New York	R244 680,32
Bobat, Raziya	A multicenter, open-label, non-comparative study for the international maternal, pediatric, adolescent AIDS clinical trials group to evaluate the safety, pharmacokinetics and antiretroviral activity of Raltegravir in HIV-1 infected children	Social and Scientific Systems, Inc	R223 961,64
Goga, Yasmin	An open-label, randomised, adaptive, two-arm, multi-center trial to evaluate pharmacokinetics and pharmacodynamics of two doses of Oseltamivir (Tamiflu) in the treatment of influenza in children, from 2 weeks to less than 13 years of age, with confirmed influenza infection.	F. Hoffmann-La Roche Ltd	R219 088,80
Barnighausen, Till	Representing and Intervening: The ethical and social dimensions of divergent forms of representation in the context of long-term biomedical research in South Africa	University of Oxford	R210 985,98
Mlisana, Koleka	To test the accuracy, sensitivity and specificity of loop-mediated Isothermal amplification assay for detection of pulmonary M. tuberculosis infection	South African Medical Research Council	R191 995,00
Naidoo, Nithiseelan	The mother and child in the environment study	AstraZeneca Pharmaceuticals (Pty) Ltd	R160 000,00
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	R121 002,12
Frolich, Janet	HIV Prevention Trials Network Leadership Group	Family Health International	R119 850,68
Mlisana, Koleka	Prevalence of inhA promoter mutations in patients with drug-resistant Tuberculosis in KwaZulu-Natal, South Africa	Yeshiva University - Albert Einstein College of Medicine	R88 752,34
Burns, Jonathan	Psychotic disorders in an African setting: Incidence, early course and treatment	Columbia University	R52 935,00
Singh, Sanil	Generating mice that have produced antibodies against an injected immunogen	Technology Innovation Agency	R42 245,85
TOTAL			R181 265 570,25

COLLEGE OF HUMANITIES			
Principal Investigator	Project Title	Funder	Amount Awarded
Moletsane, Relebohile	Networks for change and well-being: From the ground up policy-making to address sexual violence against girls	International Development Research Centre	R12 157 637,93
Zulu, Paulus	Conducting Evaluation and Impact Assessment Research on Specific Programmes Undertaken by the ETDP SETA and the Training of Interns	Sector Education and Training Authority	R4 842 000,00
Sutherland, Catherine	Climate change and urban water governance: pathways to social transformation	Norwegian Institute of Urban and Regional Research	R2 774 310,00
Moodley, Pravikrishnen	Transmission of HIV-associated Extreme Drug Resistant Tuberculosis (XDR TB) in South Africa - TRAX	Emory University	R2 455 512,43
Bhana, Arvin	VUKA Family Program: Supporting perinatally HIV-infected youth in South Africa	New York University	R2 331 972,02
Wassenaar, Douglas	Enhancing comprehension for informed consent	The Governing Council of the University of Toronto	R2 265 550,33
Govender, Kaymarlin	Evaluating prevention and treatment interventions targeting truck drivers, sex workers and migrant populations in the Republic of South Africa, Zimbabwe and Mozambique	South African Development Community Secretariat	R1 472 296,55
Slack, Catherine	Choices for adolescent methods of prevention in South Africa	Desmond Tutu HIV Foundation	R1 843 627,97
Zulu, Paulus	Tracking and tracing the Education, Training and Development Practices - Sector Education and Training Authority learners who were enrolled in the Education, Training and Development Practices - Sector Education and Training Authority funded skills development interventions in 2012-2014 under programmes 4 and 5	Sector Education and Training Authority	R768 590,00
Mazibuko, Gugulethu	Genealogies of African families in KwaZulu-Natal	The KwaZulu-Natal Office of the Premier	R558 700,00
Potgieter, Cheryl	Assessing the environment for social science research in developing countries: The case of South Africa	Global Development Network	R497 175,41
Khumalo, Vukile	Manuscript series on the Liberation Heritage Route in KwaZulu-Natal	KwaZulu-Natal Provincial Government in the Office of the Premier	R415 480,00
Bonnin, Deborah	Supply chain accounting and employment practices in the rising economies: global commodity chains, cost effectiveness and competitiveness.	University of Sheffield, United Kingdom	R353 484,13
Wedekind, Volker	Labour market intelligence partnership project	Human Sciences Research Council	R280 000,00
Petersen, Inge	Co-morbid affective disorders, AIDS/HIV and long-term health	Kings College London	R245 397,59
Sithole, Mpilenhle	Rapid assessment on children and people living in and off the streets of Durban, Cape Town and Johannesburg	The United Nations Children's Fund	R199 980,00
Posel, Dorrit	Data analysis to determine high-level trends in micro-economics in ethekwin Municipality	eThekwini Municipality	R176 814,00
Xulu, Nomkhosi	Taking democracy seriously workers' survey	University of Pretoria	R138 972,00
Moletsane, Relebohile	Literature review on girls' education and gender equality	University of London, Institute of Education	R117 857,03
Bracking, Sarah	Wealth accountability and political connectivity	The Institute for Security Studies	R61 335,00

COLLEGE OF HUMANITIES			
Principal Investigator	Project Title	Funder	Amount Awarded
Ngcoya, Mvuselelo	Top up bursary for Masters student Paul van Heerden	Council for Scientific and Industrial Research	R40 000,00
Ngcoya, Mvuselelo	Negotiation of knowledge for coastal governance	Council for Scientific and Industrial Research	R40 000,00
Posel, Dorrit	Job search and the measurement of unemployment in South Africa	University of Cape Town	R25 000,00
Bass, Orli	Geographers beyond Geography departments in South Africa	Society of South African Geographers	R20 000,00
TOTAL			R34 081 692,39

COLLEGE OF LAW AND MANAGEMENT STUDIES			
Principal Investigator	Project Title	Funder	Amount Awarded
Crankshaw, Tamaryn	Development of a parenting intervention to promote effective learning	South African Medical Research Council	R1 053 034,73
Govender, Kaymarlin	Sector initiative inclusion of persons with disabilities	Deutsche Gesellschaft fur Internationale Zusammenarbeit(GIZ) GmbH	R697 507,90
Hanass-Hancock, Jill	To prepare a report illustrating the effect of disability on the current and future livelihoods of people with disabilities	The United Nations Children's Fund	R481 310,00
Jones, Trevor	Is Durban's port expansion really necessary?	Trade and Industrial Policy Strategies	R18 500,00
TOTAL			R2 250 352,63

RESEARCH OFFICE			
Principal Investigator	Project Title	Funder	Amount Awarded
Bob, Urmilla	Research on the Amaqamu community land claim	Dludlu Attorneys	R155 400,00
Bob, Urmilla	Research to assess the origins of the community on selected farms in Thuthukani/Newstead	MC Ntshalintshali Attorneys	R135 994,50
Bob, Urmilla	Research to assess the origins of the community on selected farms in Entembeni community trust	MC Ntshalintshali Attorneys	R127 800,00
Liebetrau, Patricia	To collect and digitise research monographs for compilation in pharmacopoeia format	Department of Science and Technology	R70 000,00
TOTAL			R489 194,50



STATUTORY INCOME FROM THE NATIONAL RESEARCH FOUNDATION IN 2014

COLLEGE	THRIP	TTK	KIC	IST	SARChI	BS	CPRR	ERSA	IKS	IFRR		HCDMA	SEACChange	RTF	NEP/NNEP	CPT	SGD	SCUR	AOPR	SSFP	KFD	GCG	GRAND TOTAL
Agriculture, Engineering and Sciences	R2 440 982,00	R2 195 677,78	R402 420,55	R2 755 842,39	R18 552 268,00	R1 759 500,00	R6 749 698,31	R303 000,00		R4 880 000,00		R977 000,00	R280 217,35	R530 000,00	R4 365 240,00		R185 056,00	R1 064 064,00	R802 150,93	R3 469 528,00	R80 000,00	R88 200,00	R51 880 845,31
Humanities		R679 381,00	R177 982,00	R895 290,00	R6 399 661,35	R346 000,00	R978 739,95	R1 310 866,00	R481 531,95	R2 700 000,00							R240 531,85	R588 125,87		R245 000,00	R165 000,00		R15 208 109,97
Health Sciences		R1 051 704,97	R275 729,00	R459 070,00	R3 541 659,00		R3 295 411,34	R187 000,00	R274 720,18	R840 000,00						R825 000,00	R647 775,27	R276 000,00		R305 000,00			R11 979 069,76
Law and Management Studies		R187 050,00	R44 630,00				R263 771,00			R440 000,00							R68 237,24			R490 000,00			R1 493 688,24
TOTAL	R2 440 982,00	R4 113 813,75	R900 761,55	R4 110 202,39	R28 493 588,35	R2 105 500,00	R11 287 620,60	R1 800 866,00	R756 252,13	R8 860 000,00		R977 000,00	R280 217,35	R530 000,00	R4 365 240,00	R825 000,00	R1 141 600,36	R1 928 189,87	R802 150,93	R4 509 528,00	R245 000,00	R88 200,00	R80 561 713,28

STATUTORY INCOME FROM THE MEDICAL RESEARCH COUNCIL IN 2014

COLLEGE	SIR	LPG	GRAND TOTAL
Agriculture, Engineering and Sciences	R180 000,00		R180 000,00
Humanities			
Health Sciences	R1 242 079,00	R450 000,00	R1 692 079,00
Law and Management Studies			
TOTAL	R1 422 079,00	R450 000,00	R1 872 079,00

ABBREVIATIONS

AOPR	African Origins Platforms - Research	KIC	Knowledge Interchange and Collaborations
BS	Blue Skies Research Programme	LPG	Local Postgraduate Scholarship
CPRR	Competitive Programme for Rated Researcher	NEP/NNEP	National Equipment Programme/National Nanotechnology Programme
CPT	Collaborative Postgraduate Training	RTF	Research and Technology Fund
CSUR	Competitive Programme for Unrated Researcher	SARChI	South African Research Chairs Initiatives
ERSA	Education Research in South Africa	SEACChange	Society - Ecosystems and Change (SEACChange)
GCG	Global Change Grand Challenge	SGD	Sabbatical Grant to Complete Doctoral Degrees
HCDMA	Human Capital Development for Multiwave-length Astronomy	SIR	Self Initiated Research Grant (New and Renewals)
IFRR	Incentive Funding for Rated Researchers	SSFP	Postdoctoral Fellowship
IKS	Indigenous Knowledge Systems	THRIP	Technology and Human Resources for Industry Programme
IST	International Science and Technology Agreements	TTK	Thuthuka
KFD	Knowledge Fields Development Grant		

Reading into the future

The UKZN Library is evolving to suit the needs and preferences of today’s students.

Our users are changing, says Ms Joyce Myeza, UKZN Library Director, as she lists recent developments in the library system.

‘They want to have access to information 24/7 in a digital form. Our system has to accommodate gadgets and it talks to cell phones. You can access the library system on your phone.’

Myeza, who’s been a librarian for more than two decades, finds it ironic that as a devoted reader of printed fiction, she is now promoting an e-library. ‘In January we moved to a cloud-based system WorldShare Management Services from a company called OCLC in partnership with Sabinet,’ she explained.

Expanding into the digital universe makes sense for a library that has seating for only 4 093 students — less than 10% of the total student body of 45 529. In 2014, the Issue Desk processed a staggering 278 482 items, including books, journals and theses.

‘The e-library has many advantages for users. It exposes them to international collections, so that they have access to a wide range of material. If they see an individual article they want, we can buy it.

‘It’s like Google, more user-friendly than the old system. A single search will cover all repositories, including books, journals and theses,’ she said.

Another innovation that takes cognisance of changing habits among students is the establishment of a closed access system for students. ‘The main feature is security – we want our students to feel secure,’ said Myeza. ‘In the future this will facilitate 24/7 access with a card to a secure space in the Library.’

Postgraduate students, researchers and academic staff also have a dedicated space — known as a Research Commons Room— in the libraries of the Howard College, Westville, Pietermaritzburg and Edgewood campuses and soon the Medical School campus. These Research Commons rooms, which function as a combined work and social space, provide facilities such as computers, software and printers as well as support from a dedicated staff member, and are entered into with a swipe card.

While these signs of progress are all notable, Myeza still regards the University’s Special Collections as the highlight of the Library. ‘The Campbell Collection, the Alan Paton Centre and Struggle Archives, the Gandhi-Luthuli Documentation Centre and the University Archives — carry primary information and documents you won’t find anywhere else in the world.’

She said the Library organises several Public Lectures a year linked to these special collections, where people from outside are invited to speak on topics relevant to the content of the collections.

◀ Ms Joyce Myeza, Library Director.

UKZN LIBRARY WELCOMES RESEARCHES

With five branches and four special collections of regional and national interest, UKZN libraries offer the ideal environment for research.

Access more than 1.4 million volumes of journals, books, theses, reports, the audiovisual collection and electronic resources, including electronic books. Facilities include WiFi, network points and dedicated spaces such as Common rooms. Experienced library staff members are on hand to assist users and can arrange consultations with subject specialists as needed.

Non-UKZN patrons are welcome, and may join the Library for a fee.

<http://library.ukzn.ac.za>

LIBRARY NUMBERS IN 2014

Total number of students registered at UKZN: 45 529

Total number of seats in libraries: 4 093

Total number of circulated items: 278 482

Books lent out via Inter Library Loan: 2 805

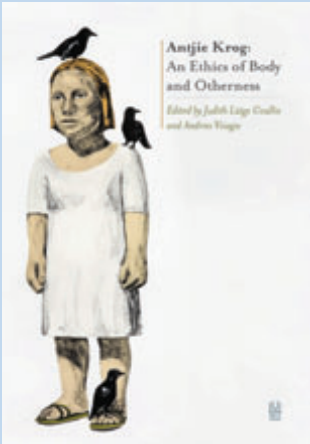
Book titles in print: 664 310

E-books: 14 827



TITLES PUBLISHED BY UKZN PRESS

2014 TITLES			
Title		Author/Editor	ISBN
1.	Antjie Krog: An Ethics of Body and Otherness	Coullie, Judith Lütge and Visagie, Andries (eds)	978 1 86914 253 7
2.	Conserved Spaces, Ancestral Places: Conservation, History and Identity among Farm Labourers in the Sundays River Valley, Souh Africa	Connor, Teresa	978 1 86914 285 8
3.	Ekhaya: The Politics of Home in KwaZulu-Natal	Healy-Clancy, Meghan and Hickel, Jason (eds)	978 1 86914 254 4
4.	The End of the Developmental State?	Williams, Michelle	978 1 86914 261 2
5.	Intellectual Traditions in South Africa: Ideas, Individuals and Institutions	Vale, Peter; Hamilton, Lawrence and Prinsloo, Estelle H.	978 1 86914 258 2
6.	Interviews with Neville Alexander: The Power of Language Against the Language of Power	Busch, Brigitta; Busch, Lucijan and Press, Karen	978 1 86914 277 3
7.	The James Stuart Archive Volume 6	Webb, Colin de B. and Wright, John	978 1 86914 264 3
8.	Jul'hoan Children's Picture Dictionary	Cwi, Tsemkgao Fanie and Jones, Kerry	978 1 86914 263 6
9.	The New South Africa at Twenty: Critical Perspectives	Vale, Peter and Prinsloo, Estelle H. (eds)	978 1 96914 289 6
10.	A Report on Ubuntu	Praeg, Leonhard	978 1 86914 256 8
11.	Rusty Bell	Mohlele, Nthikeng	978 1 86914 287 2
12.	The Solidarity Economy Alternative: Emerging Theory and Practice	Satgar, Vishwas	978 1 86914 257 5
13.	Ubuntu: Curating the Archive	Praeg, Leonhard and Magadla, Siphokazi (eds)	978 1 86914 265 0
14.	Violence in/and the Great Lakes: The Thought of V-Y Mudimbe and Beyond	Farred, Grant, Kavwahirehi, Kasereka and Praeg, Leonhard	978 1 86914 284 1
15.	The Violent Gestures of Life	Mukwevho, Given Tshifhiwa	978 1 86914 278 0
16.	War in Worcester: Youth and the Apartheid State	Reynolds, Pamela	978 1 86914 276 6
17.	Winelands, Wealth and Work: Transformations in the Dwars River Valley, Stellenbosch	Van der Waal, Kees (C.S.) (ed)	978 1 86914 260 5
18.	World of Letters: Literary Criticism and Cultural Debate in Early Apartheid South Africa	Sandwith, Corinne	978 1 86914 262 9
19.	Switori Swa Afrika	Mhlophe, Gcina	978 1 86914 270 4
20.	Zwitori Zwa Afrika	Mhlophe, Gcina	978 1 86914 268 1
21.	Dikanegelo Tša Afrika	Mhlophe, Gcina	978 1 86914 269 8
22.	Xitori Xa Hina Xa Mahlори	Mhlophe, Gcina	978 1 86914 275 9
23.	Dambi La Zwitori Zwashu	Mhlophe, Gcina	978 1 86914 273 5
24.	Dikanegelo Tša Rena Tša Go Makatša	Mhlophe, Gcina	978 1 86914 274 2



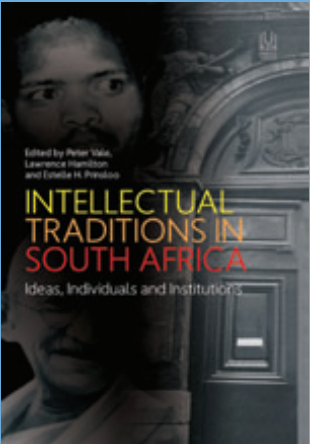
ISBN 978 1 86914 253 7
Antjie Krog: An Ethics of Body and Otherness
Coullie, Judith Lütge and Visagie, Andries (eds)



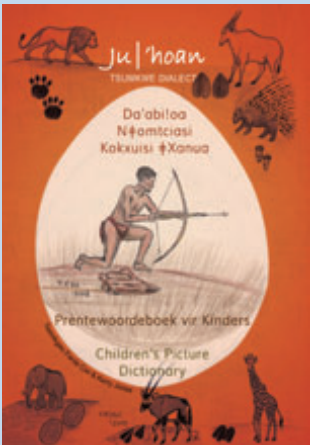
ISBN 978 1 86914 254 4
Ekhaya: The Politics of Home in KwaZulu-Natal
Healy-Clancy, Meghan and Hickel, Jason (eds)



ISBN 978 1 86914 261 2
The End of the Developmental State?
Williams, Michelle



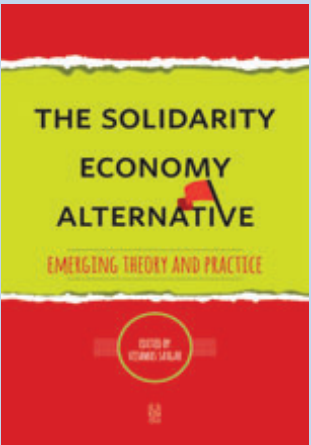
ISBN 978 1 86914 258 2
Intellectual Traditions in South Africa: Ideas, Individuals and Institutions
Vale, Peter; Hamilton, Lawrence and Prinsloo, Estelle H.



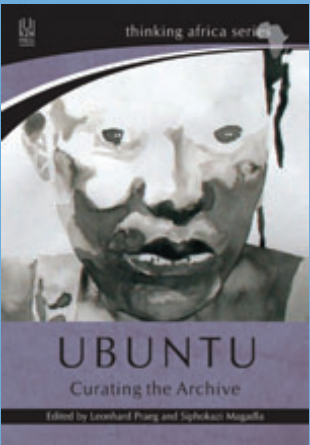
ISBN 978 1 86914 263 6
Jul'hoan Children's Picture Dictionary
Cwi, Tsemkgao Fanie and Jones, Kerry



ISBN 978 1 86914 287 2
Rusty Bell
Mohlele, Nthikeng



ISBN 978 1 86914 257 5
The Solidarity Economy Alternative: Emerging Theory and Practice
Satgar, Vishwas



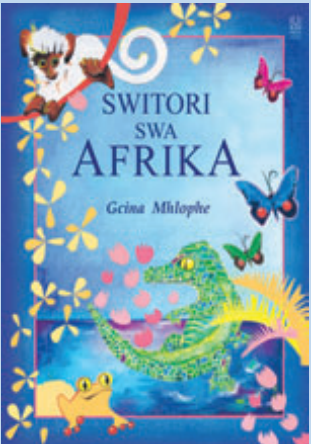
ISBN 978 1 86914 265 0
Ubuntu: Curating the Archive
Praeg, Leonhard and Magadla, Siphokazi (eds)



ISBN 978 1 86914 260 5
Winelands, Wealth and Work: Transformations in the Dwars River Valley, Stellenbosch
Van der Waal, Kees (C.S.) (ed)



ISBN 978 1 86914 262 9
World of Letters: Literary Criticism and Cultural Debate in Early Apartheid South Africa
Sandwith, Corinne



ISBN 978 1 86914 270 4
Switori Swa Afrika
Mhlophe, Gcina



ISBN 978 1 86914 275 9
Xitori Xa Hina Xa Mahlори
Mhlophe, Gcina

May Your Soul Rest in Peace

The song is ended,
but the melody lingers on...

- Irving Berlin



1948 -2015

Professor Cephas Musabayane was a Full Professor in Human Physiology in the School of Laboratory Medicine and Medical Sciences when he joined UKZN in 2003. He was internationally renowned for his work on the insulin patch for the management of people with Type 2 Diabetes.



1939 -2015

Professor Patricia Berjak served the University of Natal and University of KwaZulu-Natal for over 48 years in the Plant Biology Department. She was one of South Africa's few A-rated scientists, and received numerous awards including the NRF President's Award for Lifetime Achievement.

UKZN RESEARCH OFFICE STAFF





PUBLISHED BY

The Research Office and Corporate Relations Division

University of KwaZulu-Natal

Telephone: +27 (0) 31 260 2381/7476

Email: dvcresearch@ukzn.ac.za

Website: www.ukzn.ac.za



Copyright: All photos and images used in this publication are protected by copyright and may not be reproduced without permission of the Corporate Relations Division, University of KwaZulu-Natal. No section of this publication may be reproduced without the written consent of the University's Corporate Relations Division.

The University of KwaZulu-Natal Research Report 2014 is printed on environmentally friendly paper that is recyclable.