RESEARCH REPORT 2017

UNIVERSITY OF KWAZULU-NATAL™
INYUVESI YAKWAZULU-NATALI

INSPIRING GREATNESS

COVER DESIGN

The cover represents the four UKZN flagships: Social Cohesion, African Health, Big Data and Informatics and African Cities of the Future, which involve the environment, technology and rural and urban communities. The spherical shapes float in a forward and upward direction, symbolic of progress and forward thinking with regard to research and innovation within the University, South Africa and the world.

RESEARCH REPORT 2017

ACKNOWLEDGEMENTS

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Design and layout
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RESEARCH FLAGSHIPS
KEY TO UKZN'S FUTURE PROSPERITY

A major step forward in advancing UKZN's Strategic Plan 2017-21 – the Research Flagship initiative – was announced by the Acting Vice-Chancellor and Principal Professor Nana Poku in his message for the release of the University's *Research Report 2017*.

Professor Nana Poku
VICE-CHANCELLOR AND PRINCIPAL (ACTING)

The Research Flagships are, says Poku, key to the University's vision of consolidating its existing strengths; furthering its innovative, applied research; enhancing its international reach and standing, and re-configuring the way in which a 21st century university relates to key stakeholders, both in South Africa and throughout the African continent.

"The vision is premised on a record of achievement. This year UKZN was named one of the top 100 universities in the Times Higher Education Young University Rankings 2018. Positioned at number 83, UKZN is the only South African university to feature in the top 100 list. Impressive though this is, even more outstanding, I believe, is our potential for path-breaking research, social and private sector engagement beyond the academy and the ability to act as an engine for positive and inclusive socio-economic change," he said

The four Flagships are:

- Social Cohesion – Addressing Inequality and Promoting Nation Building
- African Health – Saving Lives
- Big Data and Informatics – Computing Solutions
- African Cities of the Future – Creating Liveable Cities

"The choice of Flagship programmes," said Poku, "was driven by an appreciation that although established disciplinary boundaries provide the University's considerable expertise, the issues confronting us locally, regionally and continentally require that we re-conceive the purposes of our work, the range of partners we need to

engage with both inside and outside the University, and how we can best combine our strengths to address complex conditions and issues. UKZN recognises its obligations to be responsible and responsive to the society which supports it – and to fulfil the high expectations for the quality and applicability of its research."

He said the announcement signalled the start of the strategic investment in the Flagships. Four Pro Vice-Chancellors – champions for each of the Flagships – had been appointed and the University had allocated more than R25 million to support the initiative in 2018.

"The Flagships emphasise and nurture collaborative research in order to address questions that are locally responsive and globally relevant. The Flagships are also required to leverage additional external financial resources for research, infrastructure and training. The intention is to support large scale investigative projects that bring together teams of interdisciplinary, multidisciplinary and transdisciplinary researchers – students as well as emerging and established academics – who focus on critical challenges that lead to the generation of new, transformative knowledge."

He said as articulated in the Strategic Plan, the Flagships were also a vehicle to establish key national and international partnerships in these research areas and to concentrate internal and external resources in order to achieve global recognition.

"In addition to research outputs, a key feature of the Flagships Initiative is the ways in which it will alter relationships within the University and become more deeply and routinely engaged with partners outside of it."

Poku says the Flagship programmes will thus:

- Promote meaningful participation and influence on mega-projects and activities by all members
- Include local African staff as core team members, especially younger members, in the academic development phase of their careers, while research groups will be required to reflect the demographics of South African society and demonstrate that the projects would develop capacity, especially among younger and Black researchers
- Have a strong mentoring process, including career guidance for younger and under-represented academic staff, and invest in building the capacity of a new cadre of science leadership among doctoral and postdoctoral students
- Draw on academics from across Schools and preferably across Colleges
- Fill important skills gaps through strategic partnerships with national and international institutions and organisations
- Include government and/or industry and/or civil society partners as appropriate and relevant

"As well as enhancing our good public image, the Flagships will also enable us to attract funding and resources, which is critical for the sustainability of a Higher Education Institution – and only possible for universities that are research driven.

"Research that responds to major social, economic and environmental challenges has positive benefits for society more generally; entrenching the role of universities to positively transform societies," said Poku.

He noted that teams from across Schools and Colleges were working together with innovative research ideas that reflected UKZN's existing talent and expertise. "The ethos of working together is reflected in the orientation of the four Pro Vice-Chancellors who continuously work together and engage collaboratively. The four Flagships are themselves interconnected and there is an institutional commitment to encourage research that also cuts across the four Flagships. Numerous training activities linked to the Flagships have already been conducted.

"While we maintain a keen interest in furthering the already considerable strengths of the University of KwaZulu-Natal, the Flagships Initiative also arises from a vision of what the 21st century African university can and should be. We see no division between securing the goals of the Institution and bettering life for the communities who support us.

"I am delighted to have furthered this very important work," added Poku. ■

UKZN STRIVES FOR RELEVANT RESEARCH

Research that is relevant and produces outcomes with a wide socio-economic impact are among the goals UKZN has for the road ahead.

Added to this, the University wants more quality research from its academics, while also high on its list of priorities is strengthening initiatives around human capacity development, especially training and development of the next generation of researchers.

That is the gist of the message from Deputy Vice-Chancellor: Research, Professor Deresh Ramjugernath, for the 2017 UZKN Research Report.

Ramjugernath is generally happy with the progress made in 2017. "We not only enjoyed a significant increase in the quantity of research outputs, but also saw improvements with regard to the research quality as well as the standing of our researchers," he said.

The establishment of the four Research Flagships to encourage and facilitate interdisciplinary, multidisciplinary and transdisciplinary research had been, according to Ramjugernath, generally very well received by the University community. The purpose of the Flagships is to promote research that has socio-economic impact and relevance to society and UKZN stakeholders, with the emphasis being on projects which are impactful, implementable and spur economic growth and social upliftment.

"Four Pro Vice-Chancellors have been appointed to co-ordinate initiatives and work closely with the Colleges and Schools in driving research within the flagship areas," said Ramjugernath. "The Executive Management Committee has set aside a budget for the initiative as part of their strategic planning.

"The first call for proposals has just gone out and we hope to fund the first projects under the Flagships initiative before the end of 2018.

Professor Deresh Ramjugernath
DEPUTY VICE-CHANCELLOR: RESEARCH

"I have been highly pleased by the positive response from our research community as well as from our external stakeholders and am excited that we are working together to transform research at UKZN."

Ramjugernath said UKZN is recognised as a research intensive university both nationally and internationally. The Department of Higher Education and Training report on research outputs for 2016 showed that UKZN had maintained its position as the second most productive university in the country in terms of quantity of research output.

"UKZN has achieved an approximately 14 percent year-on-year growth in its total research output - for the first time in our history the total research outputs exceeded the 2000 unit mark. This shows we are doing exceptionally well as an institution in terms of getting our researchers and academics research-active and publishing. We have pockets of excellence with regard to high quality and high impact academic publishing and this is a behaviour that we need to broaden at the University.

"We can gauge our performance globally from our standing in the various world rankings. We do very well in rankings – which are only research performance based – and have improved our standing in these rankings. We are placed within the Top 400 universities globally in the Leiden Rankings while in other rankings, which emphasis research performance, we place in the top 500 universities world-wide," he said.

Ramjugernath said the University received the National Research Foundation Excelleration Award in 2017 for achieving the most improved research performance over recent years as evaluated by independent parties and measured against a selection of critical indicators.

"The University continues to secure significant external funding from both statutory and non-statutory agencies and research institutions. Approximately R600 million was received during 2017, with around R200 million from the main national research funding agency, the National Research Foundation (NRF). About 360 NRF grants were awarded to researchers at the University."

"The year 2017 proved to be an important watershed year for UKZN, ensuring the Institution is strongly positioned to deliver on the strategic objectives outlined in its new Strategy (2017-2021)," he added. ■

IMPROVING RESEARCH ADMINISTRATIVE EFFICIENCIES

Investing in the Research Information Gateway (RIG) system

In 2017, the Research Office supported by the then Vice-Chancellor and Principal, Dr Albert van Jaarsveld, and Deputy Vice-Chancellor: Research, Professor Deresh Ramjugernath, made a strategic decision to invest in a fully integrated online research management system to replace the Intelligent Remote Management System (IRMA).

Dean of Research, Professor Urmilla Bob, says this decision was vital for the improvement of research administrative and management processes at UKZN, noting that "the RIG system will ensure greater accountability, turnaround times and efficiencies".

Bob said in 2017, substantial efforts were made to develop the workflows and processes for the Phase 1 development of a fully integrated publications management system that accommodated the Department of Higher Education and Training (DHET) requirements for the submission of research outputs as well as the internal configuration aligned to the institution's Productivity Unit (PU) system.

"Additionally, the focus was on developing an online platform for the submission of ethical applications. This strategic effort was fully supported by Information Communication Services (ICS) – with Mr Riaz Essay of the ICS Division being the Project Manager - Library Services as well as research administrators and leadership from the Schools and Colleges."

Bob said the initiative exemplified the true spirit of teamwork at UKZN.

The Research Office continued to provide training and capacity development support for postgraduate students and emerging researchers.

Bob - in partnership with the Human Resources Division, College Deans of Research and the Research Office - introduced a new approach in 2016 in which concerted efforts were made to support and motivate emerging researchers.

Weekend writing retreats for young and emerging researchers were among the highlights for the Research Office. "Weekend writing retreats took place away from the hurly burly of campus life and provided a forum where we helped emerging and young researchers develop research ideas as well as guide them further if they had started working on a research article. We also helped by linking them up with specialists in their fields. The aim was to ensure that during the course of the weekend, they developed work in progress into an article that could be submitted to a DHET recognised journal. We believe it was a great success. Many young scientists are now much more research active. In the writing retreats, for example, every single participant managed to submit an article," said Bob.

"Induction workshops which began in 2016 were continued into the new year. The idea here was to cover a wide range of aspects including grant writing, how to become research productive, the process of graduating students, publishing research findings, and how to get a rating from the National Research Foundation to become a scientist. The Research Office remains committed to work with internal and external stakeholders to train the next generation of researchers and support existing academics. Efforts are being made to increase resource investments in this regard," she said, adding, "Research capacity development activities have been integrated into the University Capacity Development Programme (UCDP) funded by DHET. The Research Office has also allocated strategic funding to support research."

Bob says UKZN is committed to creating an environment and providing resources to bring to fruition its strategic goal of achieving excellence and high impact in research, innovation and entrepreneurship.

The four Deans of Research in the Colleges are Professor Harold Ngalawa, College of Law and Management Studies (CLM); Professor Kevin Kirkman, College of Agriculture, Engineering and Science (CAES); Professor Michelle Gordon, College of Health Sciences (CHS); and Professor Pholoho Morojele, College of Humanities (COH). ■

Professor Urmilla Bob
DEAN OF RESEARCH

College Deans of Research Highlight Top Achievements of their Colleges:

Professor Michelle Gordon

College of Health Sciences (CHS)

The Research Office supported 334 CHS students in 2017 and spent more than R17 million on postgraduate College grants. A record 121 research abstracts were presented by staff and students at the two-day College Research Symposium. Research output increased significantly with the following five CHS staff members being listed among the Top 30 UKZN Researchers: Professor Mahmoud Soliman (UKZN's Top Researcher), Professor Anil Chuturgoon, Professor Benn Sartorius, Professor Thavi Govender, and Professor Colleen Aldous. The number of rated researchers increased from 48 to 59.

Targetted efforts by the CHS in sourcing big grants yielded good results:

- The former College Dean of Research, Professor Moses Chimbari, was appointed a co-deputy director of the Tackling Infections to Benefit Africa (TIBA) project - a R140 million high impact, stakeholder-driven campaign
- Professor Thumbi Ndung'u was awarded a R37 million grant by Gilead Science for a research project titled: Females Rising Through Education, Support and Health (FRESH) Acute HIV Infection Cohort
- The Director of the Centre for Rural Health, Professor Inge Petersen, and her colleagues – Professor Arvin Bhana of the Medical Research Council and Professor Deepa Rao of Washington - were awarded a research grant worth about R52 million by the National Institute of Mental Health to establish a research consortium involving South Africa, Mozambique and Tanzania
- The College's former Deputy Vice-Chancellor of the College of Agriculture, Engineering and Science, Professor Rob Slotow, received a multi-million rand grant over a period of five years from the Wellcome Trust which fosters interdisciplinary research across three Colleges
- The Research Council awarded Professor Thumbi Ndung'u and Professor Frank Tanser with gold medals for their innovative scientific contributions in the fields of HIV/AIDS and tuberculosis research; while specialist physician, Dr Somasundran Pillay, received the International Hospital Federation Global Excellence Award in Leadership and Health Care in recognition of his doctoral research work

Four CHS researchers were awarded Thuthuka grants by the National Research Foundation (NRF). They are Ms Varsha Banalee, Dr Bongani Nkambule, Dr Phikelelani Ngubane and Dr Onyameachi Azu.

Professor Harold Ngalawa

College of Law and Management Studies (CLMS)

The College graduated 65 PhDs in 2017 – the highest in its history – and of those 19 were staff members, indicating the exceptional calibre of academics at UKZN. Another feather in the College's cap was Professor Stephen Migiro of the Graduate School of Business and Leadership, and Professor Krishna Govender of the School of Management, Information Technology and Governance, featuring in UKZN's list of 30 Top Performing Researchers for 2017. Dr Paul-Francois Muzindutsi of the School of Accounting, Economics and Finance was placed third among the Top 10 Published Researchers and Dr Muhammad Hoque of the Graduate School of Business and Leadership was fourth.

In the Top 10 Published Student Researchers section, Mr Joseph Olorunfemi Akande of the School of Accounting, Economics and Finance was sixth and Mr Augustine Kutu of the same School was tenth.

The College's Research Day was held in September under the theme: Creating Knowledge through Quality Research and was for the first time attended by students and academics from other KZN-based institutions of Higher Education, including the University of Zululand and the Durban University of Technology.

Global trends in Management, IT and Governance in an e-World was the theme of a joint multidisciplinary international conference hosted in November by the College in partnership with the Open University of Mauritius.

The conference featured 123 research papers from the two host countries of South Arica and Mauritius as well as others from Zambia, Tanzania, Zimbabwe, Botswana, Nigeria and India.

Professor Pholoho Morojele

College of Humanities (COH)

Two College academics, Professor Christopher John Ballantine and Professor Ernest Nene Khalema, were on the 2017 list of the Top 30 Most Published Researchers; while two postgraduate students, Ms Ncamsile Daphne Motsa and Mr George Fomunyam Kehdinga, featured in the Top 10 Most Published Students Researchers roll, in top position and fourth, respectively. The College has seen the number of staff and students graduating with PhDs double in 2017 compared to the previous year. With the inception of the University Capacity Development Programme (UCDP) in 2018, we envisage more targeted training of designated academics likely to sustain an ascending trajectory of more staff and students producing high quality PhD theses in the coming years. Several MoUs have been signed with prestigious institutions and agencies across the globe.

Professor Kevin Kirkman

College of Agriculture, Engineering and Science (CAES)

The College maintained its long-held position as the leading College in research production at the University. Bursaries worth R1,2 million supported 51 postgraduate students – 34 Masters and 17 PhDs. The College also spent R228 000 providing support to 21 postgraduate students and postdoctoral scholars as well as five academic staff to attend both local and international conferences. The total amount spent to support postdoctoral scholars was R11,7 million. Professor Sunil Maharaj secured grants of R43 200 450 for postdoctoral students, research activities and staff development. CAES awarded an impressive 128 PhDs out of a total of 350 during Graduation ceremonies - a noteworthy increase over previous years. Rankings within and outside the University showed the College's excellence. Of UKZN's Top 30 performing researchers, 16 are in the CAES. The University Ranking by Academic Performance for 2016/2017 ranked 16 South African universities among 2 500 global Higher Education Institutions, placing UKZN top in Physical Science, Chemical Engineering and Engineering.

Notable research programme launches included:

- The Durban Research Action partnership (D'RAP) – a joint environmental capacity-building initiative with the eThekwini Municipality
- The international interdisciplinary Sustainable and Healthy Food Systems Programme featuring UKZN and the London School of Hygiene and Tropical Medicine
- The School of Engineering's AfriHub – a trans-disciplinary centre for research into smart and sustainable cities

Other noteworthy achievements included Professor Colleen Downs being awarded a Trilateral Research Chair through Canada's International Development Research Centre and South Africa's National Research Foundation; and 12 Top Achieving students from the University's Science and Access programme receiving Nedbank bursaries worth more than R1 million.

The Research Office is the administrative centre of research activities at UKZN and includes the Publications, Grants and Awards, Ethics, and Finance and Contracts clusters.

The following were among achievements in 2017:

Grants and contracts worth R469 406 119 were administered and processed by the Research Office
The total amount of the NRF Grant was R91 058 654. The College of Agriculture, Engineering and Science received R51 776 840; the College of Health Sciences R15 707 730; the College of Humanities R13 651 177, the College of Law and Management Studies R1 803 489, and the Research Office R8 119 418
A total of 827 applications for NRF grants were made, of which 336 were granted
The total grant award from the Medical Research Council was R3 521 062. The College of Agriculture, Engineering and Science received R388 000, and the College of Health Sciences R3 133 062
The Publications Cluster screened 5 380 items including 2 494 journal articles; 21 journal and book editorials; 186 books or chapters in books, 181 conference proceedings, 1 971 Masters and doctoral graduates, and 66 staff who graduated with PhDs
Four ethical committees process ethical applications. They are the Animal Research Ethics Committee (AREC); the Biomedical Research Ethics Committee (BREC), the Human and Social Sciences Research Ethics Committee (HSSREC), and the Institutional Biosafety Committee (IBC). The AREC reviewed 113 applications, BREC 1 860, HSSREC 2 331 and IBC 17
Number of SARChI Chairs: 15
Number of African researchers: 276
Number of female researchers: 717
Number of NRF-rated researchers: 293
Number of NRF A-rated researchers: 8
Number of patents granted: 2

RESEARCH PORTFOLIO ORGANOGRAM

Deputy Vice-Chancellor: Research
Professor Deresh Ramjugernath

Pro-Vice Chancellor: Research
Professor Salim Abdool Karim

Pro-Vice Chancellor: Social Cohesion
Professor Relebohile Moletsane

Pro-Vice Chancellor: African Health
Professor Quarraisha Abdool Karim

Pro-Vice Chancellor: African Cities of the Future
Professor Rob Slotow

Pro-Vice Chancellor: Big Data and Informatics
Professor Francesco Petruccione

Director: Research Financial Services
Mrs Noluthando Mngadi

University Dean of Research
Professor Urmilla Bob

Manager: Research Office
Mr Wilondja Muzumbukilwa

Manager: Research and Financial Services
Mr Eric Sithole

Director: Intellectual Property and Commercialisation
Mrs Suvina Singh

Director: Library
Ms Joyce Myeza

Manager: Client Services
Mrs Roshni Pather

Project Manager InQubate
Dr Umeshree Govender

Manager: Special Collections and Core Services
Dr Praversh Sukram

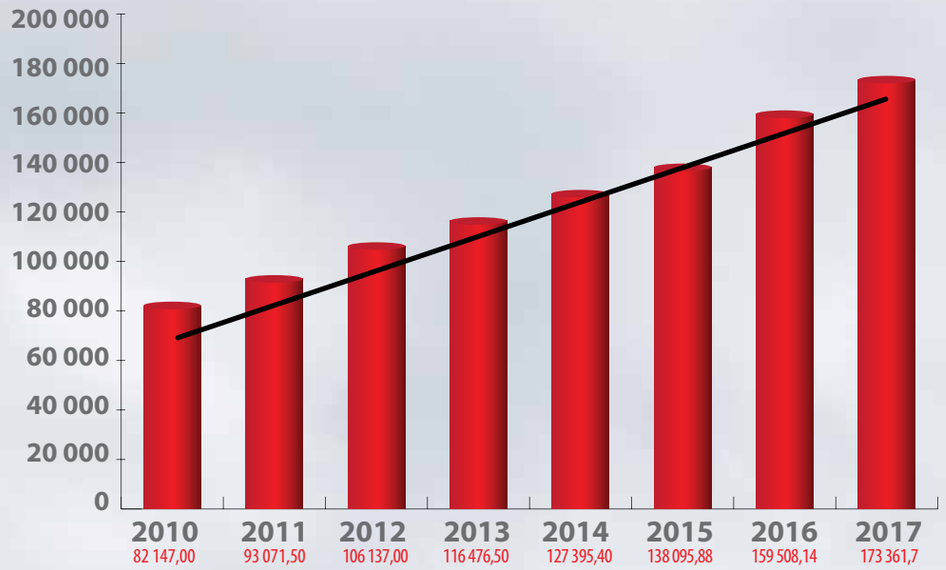
Director: UKZN Press
Ms Debra Primo

Manager: Library Information Services
Ms Nonhlanhla Ngcobo

Manager: Technology Transfer
Vacant

Manager: Consultancy
Vacant

PRODUCTIVITY BEFORE DHET NOTIFICATION FOR 2017



The yearly increase in Productivity Units (PUs) was 13.3%, 14.0%, 9.7%, 9.4%, 8.4%, 15.5% and 9% respectively from 2010 to 2017. Overall, the increase in the number of PUs attained by UKZN research increased by 111% over the 8 years period, from 82147 in 2010 to 173361,7 in 2017 (06 September 2018).

NUMBER OF PRODUCTIVITY OUTPUTS PROCESSED IN 2017

ITEM	NUMBER
Journal Articles submitted to DHET	2 494
Whole Books submitted to DHET	9
Book Chapters submitted to DHET	177
Conference Proceedings contributions submitted to DHET	181
Journal Editorials	18
Book Editorials	3
Patents granted	2
International Creative contributions	1
Local Creative contributions	5
Staff graduated with Doctoral degree	66
Publishing research staff (in DHET categories)	1 388
African researchers	276
Female researchers	717
Doctoral degrees awarded	466
Masters degrees awarded	1 505
Prolific researchers	148
Emerging researchers	79
NRF-rated researchers	293
NRF A-rated researchers	8
NRF (100) awarded	4
NRF (60) awarded	32
SARChi Chairs	15

HOW ARE PUS CALCULATED?

CATEGORY	CURRENT PRODUCTIVITY UNITS
Whole Book	120-600
Patent	80
Journal article	60
Graduated doctoral student	60
Staff graduated with doctoral degree	60
Creative contribution (international)	50
Book editorial	30
Chapter in book	60
Creative contribution (local)	15
Graduated full dissertation masters students	16
Refereed conference proceedings	10
Journal editorial	8
Graduated coursework masters students	8
NRF Rating	60-100

UNIVERSITY RANKINGS

As a research-led university, UKZN prioritises our academic standing and the University's position in world rankings of Higher Education Institutions.

The University's cutting-edge research in the natural, biomedical, humanities and social sciences; innovative curricula; dynamic teaching and learning; state-of-the-art laboratories; as well as accredited professional degrees have earned it a reputation as a leading Higher Education Institution on the African continent.

The achievements listed here could not have been accomplished without the continued strategic thinking, hard work and dedication of the University's community as a whole in the form of the various committees of Management, Council, staff, students, alumni as well as partners and donors.

TABLE 1 : UKZN'S WORLD POSITION IN RANKINGS ORGANISATIONS WHERE DATA IS SOURCED DIRECTLY FROM UKZN (FOR SOME INDICATORS)

Ranking Organisation	2018/19	2017/18	2016/17	2015/16	2014/15	2013/14	2012/13	2011/12
Rankpro		503	600+					
Academic Ranking of World Universities (ARWU)	501-600	401-500	401-500	401-500	401-500	401-500	401-500	401-500
Times Higher Education (THE) World University Rankings	401-500	401-500	501-600	401-500	351-400	351-400		
Times Higher Education (THE) Young University Rankings	83							
QS World University Rankings (QSWUR)	751-800	701-750	651-700	551-600	501-550	501-550	551-600	601+
QS University rankings: BRICS *(from 2013)*	85	80	72	68	60	60		
QS Graduate Employability Rankings	301-500	301-500						
Greenmetric World University Rankings		559	348	328	294	244	179	139
Clarivate Analytics *(from 2015) – Data provider for U.S News Best global & Round University rankings*				638				

TABLE 2 : UKZN'S WORLD POSITION IN RANKINGS ORGANISATIONS WHICH DO NOT SOURCE DATA DIRECTLY FROM UKZN

Ranking Organisation	2018/19	2017/18	2016/17	2015/16	2014/15	2013/14	2012/13	2011/12
Center for World University Rankings	402	445	467	478	459			
Times Higher Education BRICS	41	58	46	47	45			
US News Best Global Universities *(from 2015) – Data sourced from Clarivate Analytics*	336	336	346	435				
Webometrics Rankings of World Universities	641	675	652	717	830			
CWTS Leiden Ranking	418	436	447	609	643	466		
Round University Ranking – *Data sourced from Clarivate Analytics*	427	443	572	475	455	441	476	418
URAP – University Ranking by Academic Performance		349	369	369	404	444	444	480

276 NUMBER OF AFRICAN RESEARCHERS

4 RESEARCH FLAGSHIPS

Social Cohesion – Addressing Inequality and Promoting Nation Building

African Health – Saving Lives

Big Data Informatics – Computing Solutions

African Cities of the Future – Most Liveable Cities

2 494 NUMBER OF JOURNAL ARTICLES SUBMITTED TO DHET

9 NUMBER OF WHOLE BOOKS SUBMITTED TO DHET

177 NUMBER OF BOOK CHAPTERS SUBMITTED TO DHET

717 NUMBER OF FEMALE RESEARCHERS

18 NUMBER OF JOURNAL EDITORIALS

181 NUMBER OF CONFERENCE PROCEEDINGS CONTRIBUTIONS SUBMITTED TO DHET

3 NUMBER OF BOOK EDITORIALS

2 NUMBER OF PATENTS GRANTED

1 NUMBER OF INTERNATIONAL CREATIVE CONTRIBUTIONS

5 NUMBER OF LOCAL CREATIVE CONTRIBUTIONS

1388 NUMBER OF PUBLISHING RESEARCH STAFF (IN DHET CATEGORIES)

15

SARCHI CHAIRS

- Evolutionary Biology
- Gravitating Systems
- Systems Biology of HIV/AIDS
- Quantum Information Processing & Communication
- Fluorine Process Engineering & Separations Technology
- Indigenous Health Care Systems Research
- Economic Development
- Applied Poverty Reduction Assessment
- Land Use Planning and Management
- Rural Agronomy and Development
- Gender and Childhood Sexuality: Violence, Inequalities and Schooling
- Proteolysis in Homeostasis, Health and Disease
- Ecosystem Health and Biodiversity in KZN and the Eastern Cape
- Antibiotic Resistance and One Health
- Indigenous Knowledge Systems

1st

TOP UNIVERSITY FOR STUDYING
PHYSICAL SCIENCE & ENGINEERING

1505
MASTERS DEGREES AWARDED

466
DOCTORAL DEGREES AWARDED

66 NUMBER OF STAFF GRADUATED WITH DOCTORAL DEGREES

148 NUMBER OF PROLIFIC RESEARCHERS

79
EMERGING RESEARCHERS

293
NRF-RATED RESEARCHERS

8
NRF A-RATED RESEARCHERS

4
NUMBER OF NRF (100) AWARDED

32
NUMBER OF NRF (60) AWARDED

RESEARCH CENTRES

UKZN boasts various Research Centres where investigative and interdisciplinary work is done in diverse fields. Researchers and scientists at these Centres are at the forefront of cutting-edge work which has seen UKZN establish itself as an internationally respected research-led university.

The Centres include:

AFRICA HEALTH RESEARCH INSTITUTE

The Africa Health Research Institute is committed to working towards the elimination of HIV and TB. It combines the renowned Africa Centre for Population Health's detailed population data from over 100 000 participants, with the KwaZulu-Natal Research Institute for TB-HIV (K-RITH)'s basic science, experimental medicine and world-class laboratory facilities.

The Institute aims to link clinical and laboratory-based studies with social science, health systems research and population studies to make fundamental discoveries about these killer diseases as well as demonstrating how best to reduce sickness and death.

It endeavours to bring together leading researchers from different fields, use cutting-edge science to improve people's health and help train the next generation of African scientists.

ASTROPHYSICS AND COSMOLOGY RESEARCH UNIT

The Astrophysics and Cosmology Research Unit (ACRU) is a key driver of astronomy and cosmology research with an international reputation. The Unit's goals include contributing to the knowledge economy of South Africa by producing high-impact research in astrophysics and cosmology, and building local skills and capacity by training high calibre PhD graduates. Another key objective is to create a greater awareness of astronomy in South Africa through public talks, school visits, participation in science exhibitions and the use of social media.

CENTRE FOR THE AIDS PROGRAMME OF RESEARCH IN SOUTH AFRICA (CAPRISA)

The main goal of CAPRISA is to undertake globally relevant and locally responsive research that contributes to understanding HIV pathogenesis, prevention and epidemiology as well as the links between Tuberculosis and AIDS care. CAPRISA was created in 2001 and formally established in 2002 under the NIH-funded Comprehensive International Programme of Research on AIDS (CIPRA) by five partner institutions: UKZN, University of Cape Town, University of Western Cape, National Institute for Communicable Diseases, and Columbia University in New York.

CAPRISA, which has made numerous breakthroughs in HIV and AIDS research, is also a designated UNAIDS Collaborating Centre for HIV Prevention Research.

AFRICA CENTRE FOR CROP IMPROVEMENT

The Centre trains African plant breeders in eastern and southern Africa to breed better crops using conventional and molecular breeding tools. It is involved in a wide range of multidisciplinary research projects that include forestry, engineering, genetics, microbiology, entomology, engineering, economics, biochemistry, horticultural science, crop science, botany, chemistry and animal science.

Students undertake academic studies for one year on the Pietermaritzburg campus before returning to their home countries to conduct three years of field research breeding African food security crops, primarily using conventional plant breeding methods in the environments in which the new crop cultivars will be grown by small-scale farmers.

The focus of the PhD theses is on the applied breeding of key food crops such as sorghum, cassava and cowpeas for increased disease and drought tolerance, and improved yields and quality, with the aim of improving food security in some 14 African countries.

HEALTH ECONOMICS AND HIV AND AIDS RESEARCH DIVISION (HEARD)

The Health Economics and HIV and AIDS Research Division (HEARD) has been at the coalface of the national and international struggle against HIV and AIDS for almost 20 years.

The applied social science centre works in an interface between policy and research around the issue of health in Africa, conducting a wide range of investigations into the macro-economic implications of HIV and AIDS including health systems challenges, the cost of treatment and care. It also does research into malaria and tuberculosis.

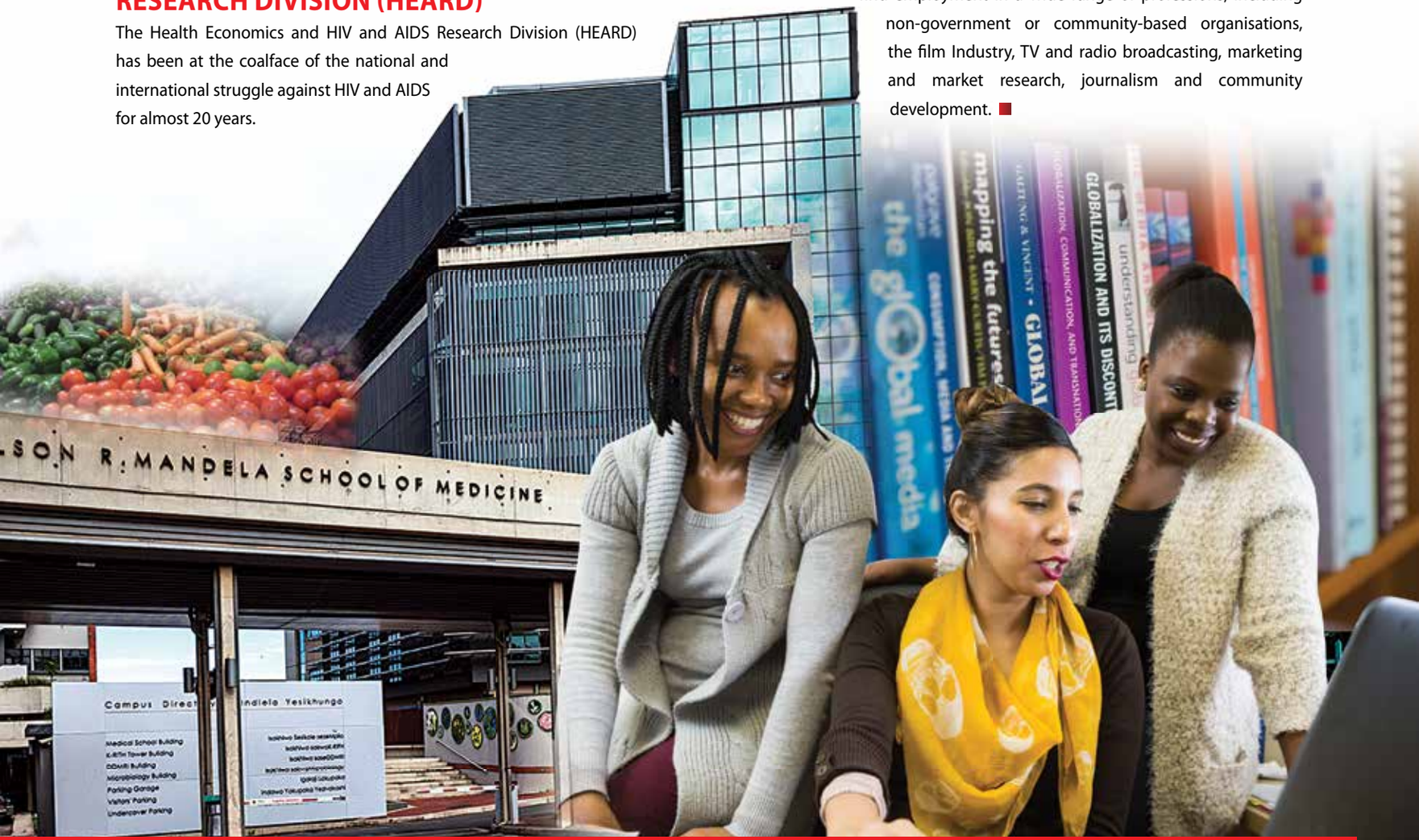
CENTRE FOR SOCIO-LEGAL STUDIES

UKZN's Centre for Socio-Legal Studies has spent the past 30 years taking Law to the people so that they can use it in their everyday lives. It has also developed the definitive manual on Street Law to provide legal education for trade unions.

CENTRE FOR COMMUNICATION, MEDIA AND SOCIETY (CCMS)

The Centre offers a range of postgraduate degrees in Culture, Communication and Media Studies. Staff are internationally recognised scholars and postgraduate research reflects the Centre's interdisciplinary and international research culture, which draws on media studies, television studies, film studies, cultural studies, history, and health communication.

The Centre has a focus on independent thinking, creative approaches to problem solving, as well as analytical and presentation skills. Graduates typically find employment in a wide range of professions, including non-government or community-based organisations, the film Industry, TV and radio broadcasting, marketing and market research, journalism and community development. ■



IN-DEPTH: RESEARCH FLAGSHIPS

UKZN aims to strengthen its research performance through strategic investment in key University-wide, cutting-edge research flagships. The flagships represent areas of research where UKZN aspires to be world class on a sustainable basis with the research focus serving as a mechanism for attracting and retaining the best students and staff.

"Flagship" is an old naval term to describe the ship used by the commanding officer of a fleet of battleships.
Only this ship flies the commander's distinctive flag.

Over the years, the term has become a metaphor to describe an organisation's most important product or idea while in conservation biology, a flagship species refers to an animal such as the rhino that has become a symbol or rallying point to catalyse broader conservation action.

As part of the UKZN Strategic Plan 2017-2021, UKZN has established four cutting-edge Research Flagships which, according to Professor Deresh Ramjugernath, UKZN Deputy Vice-Chancellor: Research, represent areas of research the University aspires to be world class in. The research flagships will also, says Ramjugernath, serve as a mechanism for attracting the best students and staff to the University and retaining them.

The four UKZN research flagships are:

- Social Cohesion – "Addressing Inequality and Promoting Nation Building"
- African Health – "Saving Lives"
- Big Data and Informatics – "Computing Solutions"
- African Cities of the Future – "Most Liveable Cities"

Expanding on some of the flagship objectives, Ramjugernath said: "We want to move away from quantity to quality. We want to be relevant and have a socio-economic impact. We also wish to promote more multi-disciplinary, trans-disciplinary and inter-disciplinary research and to work across disciplines and Schools. In short, we want to move out of academic silos."

"We also want to build a critical mass of researchers, including senior world-leading scientists who can help to capacitate younger researchers."

Ramjugernath says the research flagships approach represents a different way of thinking about research. "Rather than focusing on 'outputs', we would prefer to have 'outcomes'. It is about finding solutions to some of the key challenges identified in the National Development Plan, the strategic plans of provincial and municipal government and some of the global goals identified under the 2030 Agenda for Sustainable Development," he said.

This Agenda, adopted by 193 United Nations member states in New York in 2015, includes 17 Sustainable Development Goals (known as the SDGs), all aimed towards a "universal, integrated and transformative vision for a better world".

Ramjugernath notes that a number of universities at a global level are pursuing similar research flagship approaches. "They are realising that as Higher Education Institutions, their work is not just about producing research papers and conference papers, but about measuring the impact their research is having on the wider community. The government is also talking about evidence-based decision making and that is what we are trying to contribute to through the research flagships. We have the capacity to do this research and, in partnership, can find solutions".

"The other thing we are hoping to achieve is to engage with a variety of stakeholders under the quadruple helix model that involves industry, business and the private sector; all three tiers of government; Higher Education and research institutions and civil society," said Ramjugernath.

He believes that to achieve meaningful and lasting solutions, there needs to broad buy-in from the start.

"For many years we have been driven by quantity and outputs. That is fine, and we have done very well – we have been ranked among the top two Higher Education Institutions nationally – but we also want to be known globally for the type of research we do and to have impact," said Ramjugernath.

To do this, a shift in mindset is also needed for the University's research agenda. "Right now, we are still in the implementation stage. The four research flagship Pro Vice-Chancellors have been appointed and we are investing about R22 million for 2018 to kick start about four of five projects that will involve nearly 40 postdoctoral students and 40 PhD students," he said.

Ramjugernath hopes that this seed funding can be used to leverage and multiply the initial funding five to ten-fold, from sources outside UKZN.

"We have called for proposals and will receive concept notes that will then be assessed and refined so that we can choose the really great ideas and ask for them to be developed into full proposals. I believe the true impact of this new research flagships approach and the shift in our research culture could take five to ten years to take root," he said, noting that a series of Flagship consultations and workshops had been well-received.

"In no way are we saying that all the researchers have to work in the Flagships because we know that we require a strong foundation of research to support our broader work."

With the African Health research flagship, the aim is to move away from mainly HIV or TB research and to tackle some of the other leading health challenges such as mental health and respiratory and communicable diseases.

"In this way, we can build capacity around the 10 leading causes of death and try to find treatments for them," said Ramjugernath.

The Social Cohesion Flagship will tackle all the various aspects which result in inequality; from gender to race, socio-economic factors or in the provision of water and electricity.

"We are hoping to find meaningful solutions to inequality and promote social cohesion - right here on this campus," said Ramjugernath.

The Big Data and Informatics Flagship will be looking at how to use information and communications technology (ICT), for example, or the latest innovations in nanotechnology or quantum technology to find solutions in health, renewable energy or water purification.

The African Cities of the Future Flagship was not just about urban-planning, but also about service delivery, along with smart-cities, smart-waste or urban agriculture.

"With all these Flagships, there is a lot of overlap and I am not saying that we can address all the challenges facing our society, but we do want to try to find some really meaningful solutions. The eThekwini Municipality, for example, is pushing the concept of a Smart City which could include automated billing for a wide range of services. We want stakeholders to be involved right from the start and we won't support projects unless outside stakeholders are directly involved. This means that our academics will have to go outside the campus to understand what the challenges are, rather than sitting in ivory towers," he said. ■

SOCIAL COHESION – ADDRESSING INEQUALITY AND PROMOTING NATION BUILDING

PROFESSOR RELEBOHILE MOLETSANE

Why do the noble concepts of social cohesion and nation building remain so elusive despite South Africa being well into its democracy?

Social Cohesion Research Flagship Pro Vice-Chancellor, Professor Relebohile Moletsane, believes one of the main reasons is that race relations have never really been "sorted out" - even though apartheid was abolished on paper amid grand pronouncements about the birth of a new Rainbow Nation.

"Now, 25 years later, we are almost back to square one," said Moletsane. "I don't think we had the necessary conversations about several issues, including the supposed superiority or inferiority of different race groups."

Over this period, she notes, the growth in equality between rich and poor has also not been reversed.

"But even though 25 years have passed, it is still not too late to have those conversations. We still don't listen to the other side so we need to start teaching ourselves to talk and also how to listen."

However, Moletsane believes these conversations need to happen outside formal political formations. "I am happy to engage with the Department of Arts and Culture for example; but not with the ANC, the DA or the EFF. Unfortunately, organised politics is the domain where this problem of 'not listening' is often most apparent."

If so, can academia still influence the course of politics and nation-building?

"The flagships are not meant to be academic only," said Moletsane.

"The intention is to influence policy at the municipal, provincial or national level and to initiate coherent research work and community engagement which aim to address inequality and nurture social cohesion in institutions, communities and society.

"This includes inequalities based on ethnicity, gender, class, nationality, age, disability and other 'differences' that continue to engender discrimination, marginalisation and conflict, including violence and crime."

In terms of the UKZN Strategic Plan 2017- 2021, this research flagship aims to tackle factors that sustain inequality of opportunity and outcomes by building capabilities, removing barriers and redressing the wrongs of the past.

"UKZN will focus on leveraging successes in these areas for translation into real achievements for our citizens and communities, with an emphasis on the poorest of the poor and marginalised communities," the UKZN 2017-2021 Strategic Plan states.

This Flagship will also function as a hub for community engagement and dialogue; facilitating conversations within UKZN, between UKZN and various communities, as well as national and international dialogues aimed at understanding and addressing inequality and promoting social cohesion and nation building.

The Flagship also aims to train and support a cohort of postgraduate students, researchers and practitioners who will contribute towards research and community engagement initiatives aimed at understanding the issues and finding or developing solutions.

"I think there are creative ways of enabling people to talk to one another. It does not have to be a formal conference or seminar because there are other spaces such as sport or art, for example, where we can get to understand one another better," said Moletsane.

"We are trying to see where the flagships interrelate, for example, with youth, inequality or land in order to enable a more intelligent, scholarly discussion," she said.

Moletsane also believes there is a need for the University to consider new methodological innovations for community outreach projects.

"We can't rely on interviews or questionnaires only. We need to be innovative, to open up new spaces. I think we can also do more to teach university students to help them become employed. Currently, we don't teach them to be entrepreneurs and I don't think we have changed our curricula sufficiently."

Moletsane suggests that in trying to open up spaces for further discussions, it is "more about rethinking how we work, rather than adding more work". She feels strongly that the issue of social cohesion and nation-building should begin within UKZN, as a microcosm of society.

"I am talking about the way we talk and coexist with each other at UKZN. We have a lot to do within the University itself before we think we can tackle the society around us."

This will require a lot of creativity, she says, referring to a concept called Art Hive initiated by McGill University in Canada.

Moletsane, who has visited the Art Hive, says McGill University adjoins a local refugee centre for those displaced from countries such as Pakistan, Yemen, Syria, Congo and Haiti.

"So they bring in children from the refugee centre to produce art and also to talk in a new, casual space about their experience of fleeing their countries or about what it is like to be on the run." ■

AFRICAN HEALTH – SAVING LIVES

PROFESSOR QUARRAISHA ABDOOL KARIM

Healthy nations are wealthy nations thus the state of a nation's health is important - socially, politically and economically. Despite major investments in health and health care delivery in South Africa, serious disparities still exist in the sector along racial and economic lines.

This is according to African Health - Saving Lives Research Flagship Pro Vice-Chancellor Professor Quarraisha Abdool Karim.

"Even as we grapple with high death rates from communicable diseases we are seeing a substantial growth in non-communicable diseases," said Abdool Karim. "South Africa faces a 'quadruple burden of disease' - a term used to describe the confluence of four colliding epidemics: maternal, new-born and child health; HIV/AIDS and TB; non-communicable diseases; and violence and injury. According to the 2015 report on causes of death in South Africa, the five conditions contributing to the largest proportion of deaths are 1) tuberculosis, 2) diabetes, 3) hypertension, stroke and heart disease, 4) HIV, and 5) lung infections such as influenza and pneumonia."

Abdool Karim underscores the critical importance of knowledge generation to reduce the country's disease burden and impact on saving lives as well as the central role UKZN can play in improving health and health care delivery in South Africa. She emphasises that UKZN is already a recognised global leader in some priority areas of medical research such as HIV/AIDS and tuberculosis.

The African Health Research Flagship provides an opportunity to build and expand on this existing strength to maximally impact the other top causes of death in South Africa.

"Medical practice currently focuses on care provision for presenting signs and symptoms of diseases at health care facilities, yet the root cause and magnitude of some of our health challenges lie at a population level. We have an opportunity through the four interconnected UKZN Research Flagship programmes to address saving lives by working in trans- and multi-disciplinary teams to synergistically examine and address these multiple health challenges and move from the laboratory to the bedside and back to the population.

"Disease and health are often influenced by a person's unique social and environmental context. For example, people who experience gender-based violence at an early age may be more likely to engage in greater risk taking behaviour that might increase their exposure to HIV. People may also be more prone to obesity due to the particular context and social environment. So syndemics look beyond the individual in isolation, but also about where they live, where they work or even how they get to work," she said.

"If you are going to change things, you need to look at the challenges holistically rather than quick fixes."

Abdool Karim said that as technology developed, there was an increasing volume of health-related information becoming available. "On the one hand, it is empowering for individuals to manage their health and on the other, discerning what is factually correct or not can be challenging, highlighting the need to popularise science and the scientific method.

"The impact of technology on young people - particularly constant stimulation and inadequate amounts of rest or anxiety around social status and its effect on learning and social interactions – is starting to unfold. In a continent where 65% of the population is under the age of 35, their voices need to be heard in important decisions that are impacting their lives today and shaping their future."

Abdool Karim sees opportunities for UKZN to reposition itself at the forefront of global research, including areas such as precision medicine and precision public health. "The impact of technology is a reality. We need to better understand the impact of technology on social cohesion even as we explore how to use state-of-the-art technologies to enhance our ability to manage illness and support wellness through better constructed and organised living and work spaces.

"The African Health Research Flagship aims to bring together established and young researchers from all disciplines at UKZN and beyond to identify potential high impact studies on the leading causes of death in South Africa today and be better prepared for the challenges of the future." ■

BIG DATA AND INFORMATICS – COMPUTING SOLUTIONS

PROFESSOR FRANCESCO PETRUCCIONE

How many traditional universities will be left in South Africa 20 years from now if they fail to adapt swiftly to the disruptive technologies emerging from the 4th Industrial Revolution?

Professor Francesco Petruccione, Big Data and Informatics – Computing Solutions Research Flagship Pro Vice-Chancellor, warns that the world is changing rapidly due to a fusion of technologies that blur the lines between the physical, digital, and biological spheres – changes that are evolving at an exponential rate and disrupting almost every industry in every country on Earth.

Petruccione believes this rapid change will create opportunities for billions of people across the world who are now connected by mobile devices. These opportunities will also be amplified by technology breakthroughs in artificial intelligence, robotics, nanotechnology, biotechnology, material sciences, energy storage, and quantum computing.

However, he also points to recent predictions by Professor Clayton Christensen of Harvard Business School who warned that nearly 50% of traditional colleges and universities in the United States are heading for collapse within 10 to 15 years due to the rapid growth of online education models.

"The same could happen here so we need to respond and adapt quickly," said Petruccione, who was born in Italy and received his PhD in Physics at the University of Freiburg in Germany before being appointed Professor of Theoretical Physics at UKZN in 2004.

He says the Big Data and Informatics Research Flagship – which aims to train students to take advantage of the 4th Industrial Revolution – is relevant to all other research flagships and will involve much more than mathematics or physics.

"Artificial intelligence and machine learning are everywhere so there are many disciplines that can make use of these new technologies. Law, for example, is another field where machine-learning technologies could lead to job losses for personnel such as legal assistants. The field of law has all those huge documents. Humans spend months reading through them, whereas machines will be able to accomplish similar tasks in a matter of seconds," he believes.

Big Data would also have major applications in generating data from satellite images or image recognition.

"You can measure the moisture levels of a whole field of mealies using satellites so this is not just technology for the fun of it – it will be accessible to all sorts of disciplines," he said.

The Square Kilometre Array (SKA) project, in which UKZN will be closely involved, is expected to produce massive volumes of data – as much as 10 times the current global internet traffic volume.

Collecting and storing such huge volumes of data would require the development of new skills which UKZN could also provide.

"When they planned the SKA, the architects tried to foresee what technologies might be needed 10 years from now. These are not technologies that you can buy at your nearest branch of Incredible Connection. They still have to be developed, so there are a lot of skills that will be needed," said Petruccione.

The development of quantum computing is another area where advanced skills will be required.

"Smaller scale quantum devices are already available in the Cloud to solve problems much faster than our current binary computers. Companies like Boeing, Lockheed-Martin and BMW are using them already to optimise the design of aeroplane wings or engines. We always want things to be done faster, but computer chips can only be made so small, so this is where quantum technology will be vital," he said.

Petruccione also foresees opportunities in the fusion of biology and quantum mechanics – where humanity could imitate or draw lessons from nature in designing clean and renewable energy sources.

He notes, for example, that more solar energy strikes the Earth in an hour than the energy used by all human activity in a year – so artificial photosynthetic systems could be the ideal solution to our energy needs.

However, a detailed understanding of the primary stages of photosynthesis and energy transfer is essential before "artificial energy-producing leaves" could be developed.

Using quantum mechanics, it might also be possible to revolutionise the manufacture of fertilisers, such as nitrogen, by imitating or enhancing the processes used by bacteria.

"Our current fertiliser factories require very high temperatures and pressures, whereas bacteria do it for free," said Petruccione.

Is he worried about whether humanity is equipped to filter or to deal with the coming "avalanche" of Big Data? "When the wheel was invented, there were probably some people who were overwhelmed," Petruccione responds. "Every technology has positive and negative sides and this raises ethical questions. Yes, scientists have to think about what they do. . . but more and more there is a push towards a new way of doing open science so that people can check what is going on."

and quite apart from having to learn isiZulu as an additional language, Petruccione says he would like to see future UKZN students being compelled to learn "Python" to ensure that they have the necessary computer literacy skills to cope with the onset of the 4th Industrial Revolution.

Python is a computer programming language" for beginners developed by Dutch programmer Guido van Rossum in 1991. Van Rossum named it after the television show: *Monty Python's Flying Circus*, because examples and tutorials include jokes from the show. "My office is next to the main library, but almost no-one goes there to borrow books anymore," Petruccione observes. "Possibly in 10 years, there will be no books left there and the current library will become a new space for meetings and discussion instead."

He says UKZN is embracing the ground-shifting developments and is ready to exploit the countless opportunities offered by the 4th Industrial Revolution and the 2nd Quantum Revolution.

"UKZN is already a global leader in some areas of the mathematical, physical and biological sciences and engineering ranging from astronomy to bioinformatics and from quantum information processing to big data analytics, so this Flagship offers UKZN the opportunity to build on existing strengths and expand to a focused set of high impact research and development studies," he added. ■

AFRICAN CITIES OF THE FUTURE

PROFESSOR ROB SLOTOW

Africa's population has almost trebled in size in less than 40 years - from around 478 million people in 1980 to around 1.2 billion today.

The United Nations Economic Commission for Africa believes the continent's population will double by 2050, at which point about 56% of people will be living in towns and cities.

While the United Nations suggests that urbanisation is an untapped tool for development and economic growth, the rapid population growth of African cities also presents a wide range of socio-economic challenges.

Professor Rob Slotow, African Cities of the Future Research Flagship Pro Vice-Chancellor, lists some of these challenges as transport congestion; water, housing, sanitation and energy shortages; food security, pollution, unemployment as well as rising crime levels.

However, says Slotow, these challenges also provide an opportunity for all disciplines in UKZN to come together to work in an inter-disciplinary, multi-disciplinary and synergistic approach to find solutions which are unique and indigenous to Africa.

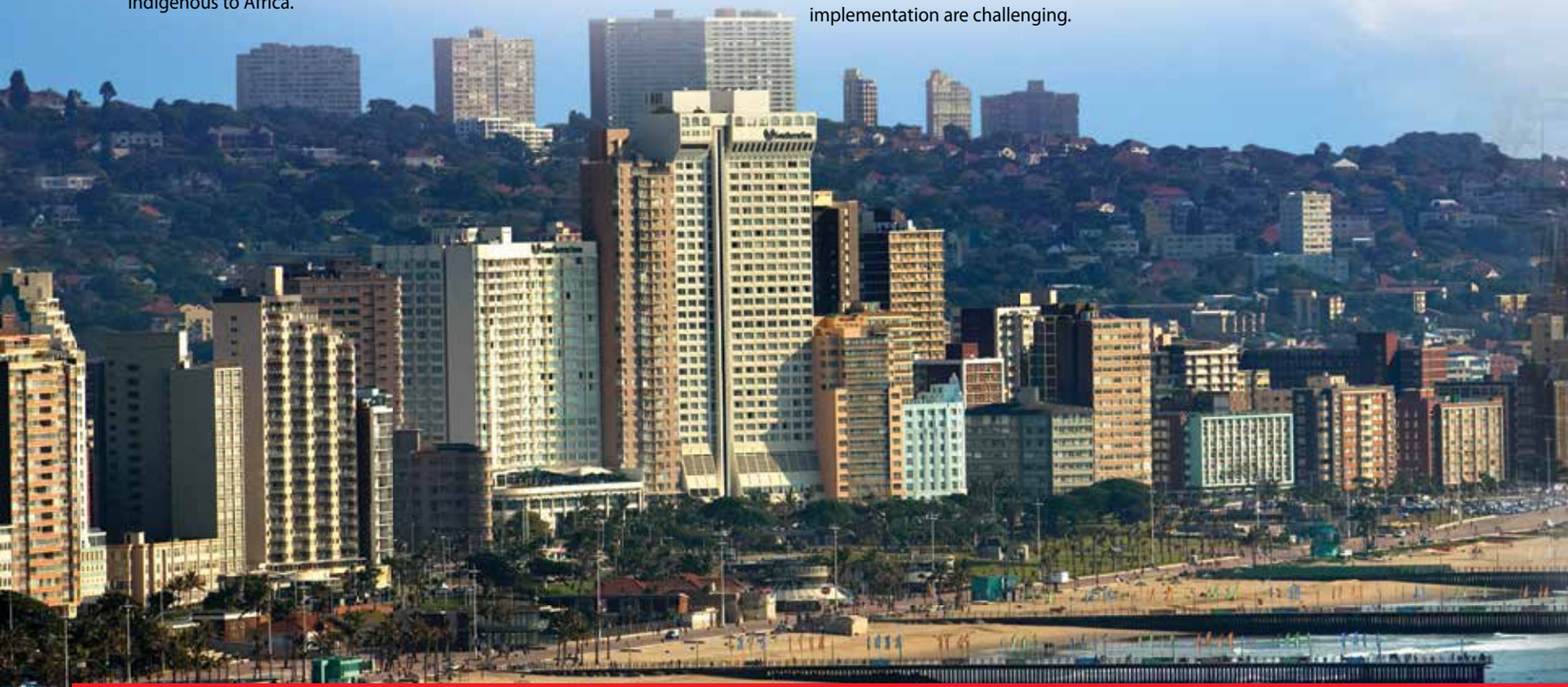
According to the UKZN Strategic Plan 2017-2021, the African Cities of the Future Research Flagship will bring together researchers from across the University to work closely with municipalities and provincial and national governments to find sustainable solutions to challenges associated with rapid urbanisation and the vision of developing African cities which are on par or better in terms of liveability than leading global cities.

Slotow says UKZN hopes to work closely with the KwaZulu-Natal Department of Cooperative Governance and Traditional Affairs (Cogta) which has the mandate for oversight of municipalities within the province.

"As the project cuts across government departments, we will also work closely with the KZN Premier's Office and other departments such as KZN Agriculture and Rural Development and KZN Economic Development and Tourism," he said.

Initially, the key focus cities will be eThekwini and Msunduzi, which also include large components of rural land.

"For example, about 30% of land in the eThekwini Municipality is considered rural and falls under the traditional leadership and the Ingonyama Trust," said Slotow. "Within this area, there is now densification and building, with areas becoming peri-urban or suburban. However, because of the dual governance system of traditional leadership and formal wards, development planning and implementation are challenging.



"Linking these poor communities into the urban grid for service delivery, without concomitant rates collection, poses a major challenge," he said, adding that there is, however, an opportunity for different development trajectories, thus allowing communities to retain the connection with the land and also improve food security with reduced global environmental impacts.

"Migration to cities from rural communities takes on different dimensions with many migrants retaining a second home at their place of origin and with strong connections with that place. For the urbanising poor, the rural home may still constitute the primary household with the urban accommodation often being in informal settlements," he said.

Slotow notes that there is a large volume of research that has been conducted in cities all over the world including eThekwini. "However, the work is often buried in academic journals or student theses. This makes it extremely difficult for practitioners to access the knowledge and understanding that has been generated. There is a requirement for translation of such work into clear opportunities for policy improvement."

By creating a new "unit" with a high profile of produced synthesis documents that have impact on government thinking, the Flagship would quickly enhance the reputation of UKZN in African cities research.

"Each project group will include academics from different disciplines as well as practitioners from government. The unit will provide logistical, administrative and technical support for generating briefs."

There are also a large number of student theses on work undertaken on cities and this team could assist academics in converting these theses into academic publications and then to policy briefs.

One of the pillars of the new University Strategic Plan is to position UKZN at the epicentre of the innovation and entrepreneurship ecosystem in the region.

UKZN and partners have already established the aerotropolis, based at Dube Trade-port/King Shaka International. UKZN and eThekwini are also in advanced discussions to create a biotech innovation platform associated with the Medical School.

Other opportunities exist around the various campuses, including the Pietermaritzburg campus, to partner with the Msunduzi Municipality as well as Pietermaritzburg Chamber of Commerce for an innovation hub.

Slotow said the Research Flagship would support the University's Research Office and InQubate unit in taking these opportunities forward through stimulating research in key areas of opportunity that leverage the geographic advantage, and have potential to generate propriety IP, and then take that to proof of concept for commercialisation. "Consultancy at UKZN is currently relatively small, but this could be a major generator of third-stream income, as well as increasing our reputation for work that has direct impact. Various teams and projects established from various disciplines could potentially tender for work in government and industry."

Slotow also foresees opportunities for students to gain real-world experience through work-place experiential opportunities within eThekwini, either as internships or in transdisciplinary research projects that are structured to provide benefit to both the student and the municipality.

"This is an excellent opportunity for students to undertake translational work within communities, but also for UKZN to build the capacity of academics and their students to work closely with the Municipality and communities.

"The Flagship programme will also strongly promote the enrolment of government staff into postgraduate study as part of the joint research activities as a mechanism for upskilling on the job," said Slotow.

It is proposed that a series of internal workshops be convened on each of the campuses to engage with staff and students on the Flagship with the goal of gaining shared understanding and vision for the Flagship and a broad mandate to embark on a specific path.

A separate series of meetings and workshops would be held with Cogta, eThekwini and Msunduzi stakeholders, in order to create buy-in and establish functional relationships and structures to enable the research programme to proceed. ■

The movement of people into urban areas brings with it new challenges including an increase in shack settlements and human density.

HIRAX TELESCOPE
PEERING BACK THROUGH MISTS OF TIME

When a giant tree topples and dies in an ancient forest, it is possible to measure its age quite accurately by counting the distinctive annual growth rings that radiate through its core.
Newer technologies such as carbon-dating allow scientists to look much further back in time to determine the age of fossilised dinosaurs, volcanic eruptions or tectonic movements in the Earth's crust.

Now, imagine that you want to look back in time on an even grander scale, rather like the opening lines of Star Wars, to a period "a long time ago, in a galaxy far, far away....".

Not just a few hundred, thousand or million years ago - but right back to a period in the universe almost 10 000 000 000 (10 billion) years ago. How would you do this?

To find answers to such mysteries - and to build research capacity - UKZN and the Department of Science and Technology (DST), through the National Research Foundation (NRF), are funding a multi-million project known as HIRAX (Hydrogen Intensity and Real Time Analysis eXperiment) that will have important synergies with the 64-dish MeerKAT, the precursor to South Africa's ambitious Square Kilometre Array (SKA) project.

UKZN astrophysicist and cosmologist, Professor Kavilan Moodley, the Principal Investigator of the HIRAX radio telescope project, hopes that this ground-breaking science venture will help boost South Africa's reputation as a global leader in radio astronomy and also help train a new generation of scientists and technicians in a variety of fields.

At ground level, the project involves the installation of 1 024 radio receiver dishes (each 6m wide) in the Karoo desert, one of the few remaining regions of the world that remains unpolluted by Wi-Fi, cellphone, television and other electrical interference.

Arranged in a rectangle pointing to the heavens, the purpose of these dishes is to collect data on the characteristics of "dark energy" as well as perplexing flashes of light known as Fast Radio Bursts (FSBs).

Moodley says this powerful radio telescope will help scientists look back in time to study background radiation left over from the Big Bang (a massive, explosive event 13.7 billion years ago that astrophysicists associate with the beginning of the universe).

Unlike optical telescopes, which allow people to see and study information from light sources in the heavens, the HIRAX telescope gathers radio waves from neutral hydrogen gas and converts this into radio images.

Though much of the infrastructure will be located in the "radio-quiet" remoteness of the Karoo, the experiment will be managed from Durban by a team of UKZN researchers in collaboration with several other local and foreign universities and research bodies.

Dr Rob Adam, managing director of the SA Radio Astronomy Observatory, believes it is critical to use a combination of techniques to gather clearer images of the universe.

Adam says large optical telescopes such as SALT (Southern African Large Telescope) were very useful in magnifying the remote "blobs" of light in the heavens. But when using radio telescopes, it was possible to gather a very different perspective of these blobs.

"With radio telescopes, you see something quite different. You get different information," he says.

Adam notes that the view of the Milky Way is clouded by "dust" when viewed through an optical telescope, whereas radio telescopes allow the viewer to discern all sorts of peculiar features that were not visible previously.

People cannot "see" radio waves of course, but different colours can be assigned to different radio frequencies to make them visible. For example, low-frequency waves are depicted as red; high-frequencies as blue and middle-frequencies as green.

Moodley explains that another advantage of radio telescopes is that they can gather information both day and night, unlike optical telescopes that rely mainly on the dark night sky. He says the main focus will be to determine the characteristics of "dark energy" during a critical period of the universe (between 7 - 11 billion years ago) when dark energy became the dominant component in the universe, causing it to expand at an accelerated rate.

"What is dark energy? We don't really know," Moodley admits, adding: "It remains one of the most perplexing puzzles in physics."

In simplistic terms, however, astronomers and physicists suggest that dark energy is a form of repulsive gravity that is pushing the universe apart.

These are some of the six-metre wide HIRAX prototype radio dishes installed at the Hartebeesthoek Radio Astronomy Observatory.

Looking much like the massed battle shields of a phalanx of ancient Greek warriors, more than 1 000 radio astronomy dishes will be lined up in the Karoo desert to establish the new HIRAX compact radio telescope.

Moodley hopes that the first 128 dishes will be installed on the SKA SA Karoo site near the town of Carnarvon by late 2019, with the full complement of 1 024 dishes in place by 2021.

The teams at UKZN and other research institutions will help to process and decode heavenly data from the southern hemisphere skies that will chew up vast volumes of bandwidth.

Moodley says HIRAX will collect data at a rate of about 6.5 Terabits per second – a volume that is comparable to all of Africa's current international bandwidth.

The South African HIRAX array will also complement a similar project in the northern hemisphere known as the Canadian Hydrogen Intensity Mapping Experiment (CHIME) and will share much of the back-end technology.

"The HIRAX project is exciting because we are working with a dynamic group of scientists that work on all aspects of the project- from building the telescope and analysing the data, to scientific interpretation," said Moodley.

"We are aiming to use our competitive advantage of being on the excellent SKA site in the Karoo to have an impact on the study of dark energy and fast radio bursts."

National Science and Technology Minister, Ms Mmamoloko Kubayi-Ngubane, has also praised the HIRAX initiative.

"This project will help South Africa to develop innovative solutions, particularly in instrumentation and big data processing, directly impacting other economic sectors through technology transfer."

At a broader level, says Kubayi-Ngubane, the HIRAX project will also help to inculcate and inspire an interest in science and technology among young South Africans.

"To those who always wonder why projects like this are important, I will say to them in the words of the American cosmologist, Neil Tyson that: 'Space exploration is a force of nature unto itself that no other force in society can rival, not only does that get people interested in sciences and all the related fields, [but] it transforms the culture into one that values science and technology, and that's the culture that innovates. and in the 21st century, innovations in science and technology are the foundations of tomorrow's economy.'"

The HIRAX project will involve several universities and research bodies, including UKZN, University of Cape Town, University of the Western Cape, Stellenbosch, Rhodes, Durban University of Technology, Botswana International University of Science and Technology, McGill University, University of Toronto, Yale, California Institute of Technology, University of Wisconsin, University of Geneva and the University of Oxford.

UKZN's Professor Kavilan Moodley (centre), Principal Investigator of the HIRAX radio telescope, peers into the heavens with instrumentation head, Dr Cynthia Chiang, and Professor Jonathan Sievers, the Co-Principal Investigator.

NEW STAR ON THE HORIZON
PLANETARIUM PLAN FOR ASOKA THEATRE

Exciting plans have been launched to convert the old Asoka Theatre on UKZN's Westville campus into a state-of-the-art digital planetarium – the first in KwaZulu-Natal.

The project entails the installation of a 14m dome screen above the existing theatre building and a sophisticated digital projection system that will light up the night skies and provide students and visitors with imaginative opportunities to travel though space and time without leaving planet Earth!

A planetarium is a domed theatre in which images of stars, planets, and constellations are projected for public entertainment or education.

According to the International Planetarium Society, planetaria have been used to train early astronauts in celestial navigation techniques and have become an important global tool for increasing science literacy.

"Many of today's leading scientists chose their careers because they were captivated by the experience of a planetarium visit," said the society.

Archimedes, the famous Greek polymath, is credited with creating the first primitive planetarium. However, the new generation of digital planetaria create an immersive, multi-sensory experience where visitors can zoom in to inspect different parts of the universe.

"It will be a bit like an IMAX theatre on steroids," said Professor Francesco Petruccione, UKZN Big Data and Informatics Research Flagship Pro Vice-Chancellor and Deputy Director of the National Institute for Theoretical Physics.

Petruccione, who is driving the project, says the historic Asoka Theatre has not been used for more than a decade after the humanities, theatre and arts departments were moved to the Howard College campus.

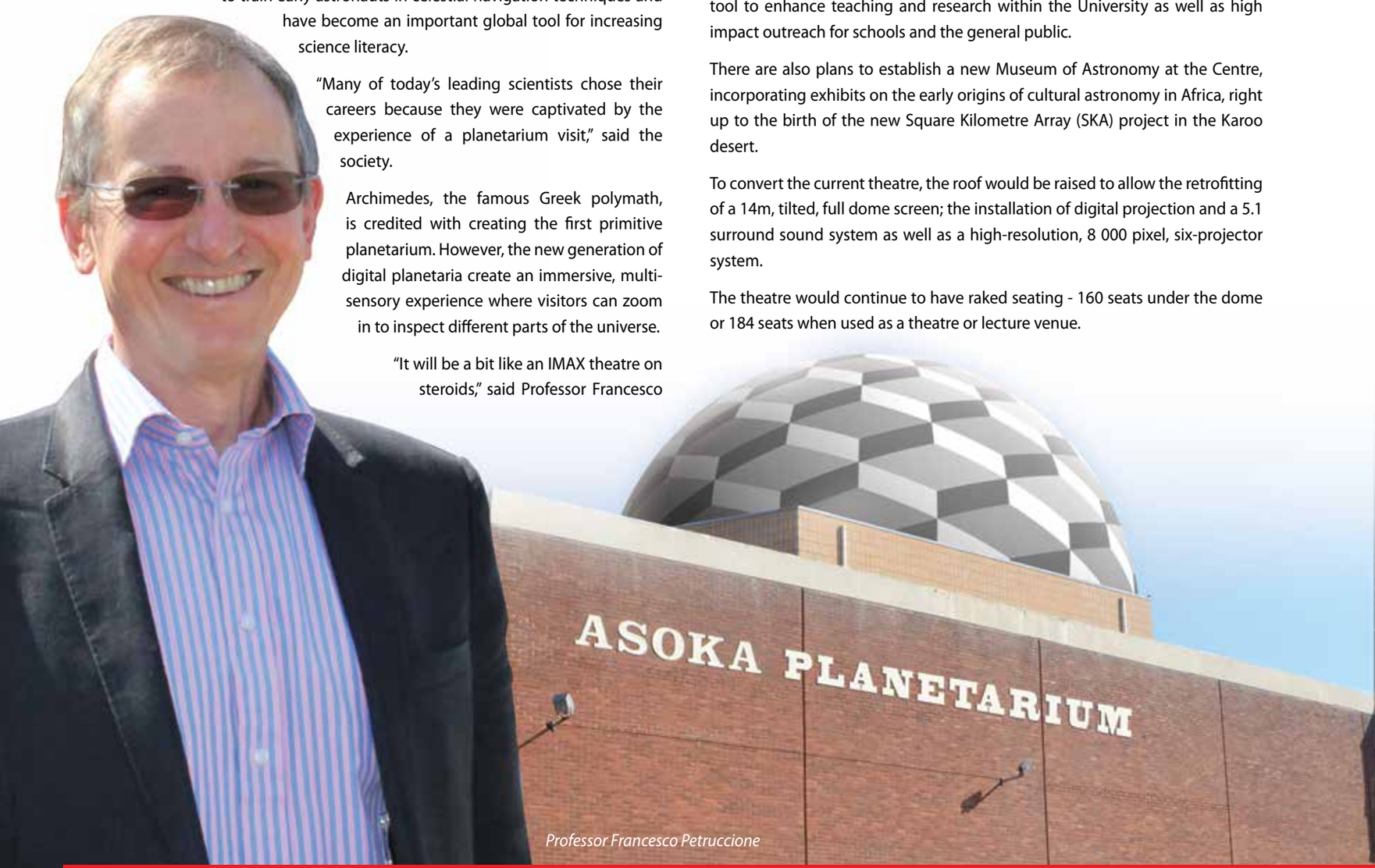
"We believe that the Asoka can be converted at a relatively modest cost, while still retaining opportunities to use it as a venue for the performing arts."

This will enable the theatre to be used as a planetarium and as a visualisation tool to enhance teaching and research within the University as well as high impact outreach for schools and the general public.

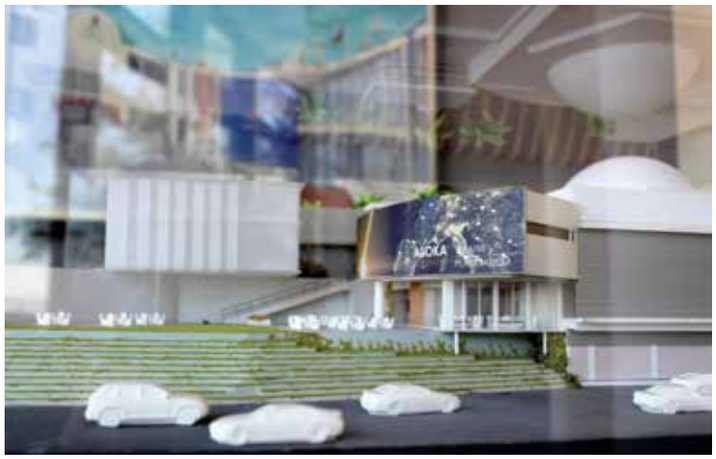
There are also plans to establish a new Museum of Astronomy at the Centre, incorporating exhibits on the early origins of cultural astronomy in Africa, right up to the birth of the new Square Kilometre Array (SKA) project in the Karoo desert.

To convert the current theatre, the roof would be raised to allow the retrofitting of a 14m, tilted, full dome screen; the installation of digital projection and a 5.1 surround sound system as well as a high-resolution, 8 000 pixel, six-projector system.

The theatre would continue to have raked seating - 160 seats under the dome or 184 seats when used as a theatre or lecture venue.



Professor Francesco Petruccione



Currently, there are only three planetariums in South Africa: the Naval Hill Planetarium in Bloemfontein, the Iziko Planetarium in Cape Town as well the Johannesburg Planetarium.

"This new digital planetarium at the Asoka would be the first one in KZN and has the potential to become another tourist attraction for Durban," says Petruccione.

Apart from serving as an educational tool for UKZN and schools, it could also be a regional resource for other tertiary institutions such as the Durban University of Technology, Mangosuthu University of Technology and possibly the University of Zululand.

Petruccione says that apart from its utility in explaining astrophysics, the theatre could also be used for other disciplines ranging from GIS mapping to the molecular structure of biological organisms.

The Asoka Theatre, established in 1972, is architecturally unique and based on the design of the famous Questors Theatre in London. As the home of the Drama department at the former University of Durban-Westville, it produced generations of South African drama teachers, performers, directors, playwrights and TV personalities, and also played a large part in the anti-apartheid struggle; forming close associations with leading struggle playwrights such as Ronnie Govender and the late Matsemela Manaka, among others.

Regretfully, the theatre has not been used for several years, though the University and wider community would like to see it come alive again. The proposed addition of a digital dome system would enable the theatre to still be used for other purposes such as lectures, play productions and events, with options to combine these with projections onto the overhead dome.

The UKZN Foundation is now seeking strategic partners to support the planetarium plan by funding the new technology installation and refurbishment process.

The budget required is estimated at around R60 million.

Mr Steve Camp, UKZN Foundation Donor Relationship Manager, says there are several profile-raising opportunities for donors who substantially invest in this project, including co-branding, naming of the planetarium or parts thereof (based on the prevailing naming policy), media coverage and publicity, websites and publications of UKZN.

The project is classified as Socio-Economic Development for the purposes of the BBBEE scorecard evaluation and is Section 18a tax deductible. ■

FOR MORE INFORMATION, CONTACT

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Mr Steve Camp – email: camps@ukzn.ac.za or
Phone: +27 31 2602395

VICE-CHANCELLOR'S RESEARCH AWARD

PROFESSOR CYNTHIA CHIANG

Professor Cynthia Chiang is an astrophysicist specialising in observational cosmology – the study of the origins, evolution and overall structure of our universe.

Chiang's research focus involves precision measurements of the temperature and polarisation anisotropies of the cosmic microwave background and redshifted 21-cm emission of neutral hydrogen.

Her experience includes instrumentation development and data analysis, spanning ground-, balloon- and satellite-based telescope platforms. She is a collaborator in the Planck High Frequency Instrument, Spider balloon-borne telescope; the South Pole Telescope polarimeter; the C-Band All-Sky Survey, the Hydrogen Epoch of Reionization Array, and the Hydrogen Intensity and Real-time Analysis eXperiment.

Recently, she constructed the PRIZM radio telescope with her students and collaborators and deployed the telescope on Marion Island. PRIZM (Probing Radio Intensity at high-Z from Marion) is a low-frequency radio telescope which collects information about the universe during the Cosmic Dawn, the period a few hundred million years after the big bang when the first stars in the universe formed. The light from these first stars is too dim for optical telescopes to view, therefore, they have never been measured directly. PRIZM was designed to make this measurement and to help determine when the first stars and galaxies formed.

Earlier this year, Chiang went to Marion Island, situated halfway between Antarctica and South Africa, where she upgraded the PRIZM radio telescope. Prior to this trip, Chiang and her postgraduate students added two additional antennas of a different design.

Chiang served as a member of the South African Astronomy Advisory Council in 2017 and also played a key role in the project review panel for the MeerKAT large surveys.

She has published more than 130 research papers in high-ranking journals including: *Astronomy & Astrophysics,* the *Astrophysical Journal, Astroparticle Physics,* and the *Journal of Cosmology and Astroparticle Physics*. Her research has been cited more than 25 000 times and she has an H-index of 50.

She has participated in various conferences, seminars, talks and poster presentations. Some of her recent activities include a TEDx UKZN event, and presentations at the Advances in Theoretical Cosmology in the Light of Data conference at NORDITA in Sweden and the URSI National Radio Science Meeting in Colorado.

Winner of the Vice-Chancellor's Research Award, she was ranked among the Top Five Most Cited Researchers at UKZN. Her many other awards and honours include the Dicke Postdoctoral Fellowship at Princeton (2018-2011) in the United States, the P.E.O. Scholar Award (2007), and the NASA graduate fellowship (2005–2008). She is also the recipient of numerous scientific grants from the National Research Foundation, the National Institute for Theoretical Physics and UKZN.

Chiang is currently an Associate Professor of Physics at McGill University in Montreal, Canada. She has been a Senior Lecturer in UKZN's School of Mathematics, Statistics and Computer Science since 2013, and was a researcher in the Astrophysics and Cosmology Research Unit, where she still maintains an honorary affiliation. Prior to her work at UKZN, she was a Dicke postdoctoral fellow at Princeton University in the United States and also spent a year working at the Amundsen-Scott South Pole Station as a winterover scientist.

In her undergraduate years, she majored in Physics at the University of Illinois at Urbana-Champaign in 2002 and then received her PhD in Physics from the California Institute of Technology in 2009, working on cosmic microwave background polarimetry under the supervision of Andrew Lange. ■

WOMEN IN SCIENCE AWARD

PROFESSOR COLLEEN DOWNS

With many accolades already to her name, UKZN's Professor Colleen Downs received several more prestigious awards in 2017 in recognition of her outstanding work in science and research.

As the South African Research Chair (SARChI) in Ecosystem Health and Biodiversity in KwaZulu-Natal and the Eastern Cape, Downs's area of research has been focused on how land use and climate change influence the ecology, behaviour, physiology and conservation of birds, reptiles and mammals as well as on science education and developing research capacity.

Last year, Downs was named winner of one of the 13 highly acclaimed National Science and Technology Forum (NSTF)-South32 Awards, receiving recognition for Research Capacity Development (other than engineering) by individuals over the last five to 10 years as well as for her contribution to developing scientists over the years.

The NSTF-South32 Awards is a collaborative effort to recognise outstanding contributions to science, engineering and technology (SET) and innovation in South Africa for researchers and other SET-related professionals. This includes experienced scientists, engineers, innovators, science communicators, research and engineering capacity builders, organisational managers/leaders as well as research managers.

Dubbed the "Science Oscars" of South Africa, the NSTF-South32 prize is the largest, most comprehensive and sought-after national award.

In addition to receiving the Research Capacity Development Award, Downs was a finalist in two other categories: the Lifetime Award in recognition of an individual's achievements over a period of 15 years or more, and the NSTF-Green Matter Award for contributions to biodiversity, conservation, environmental sustainability and a greener economy.

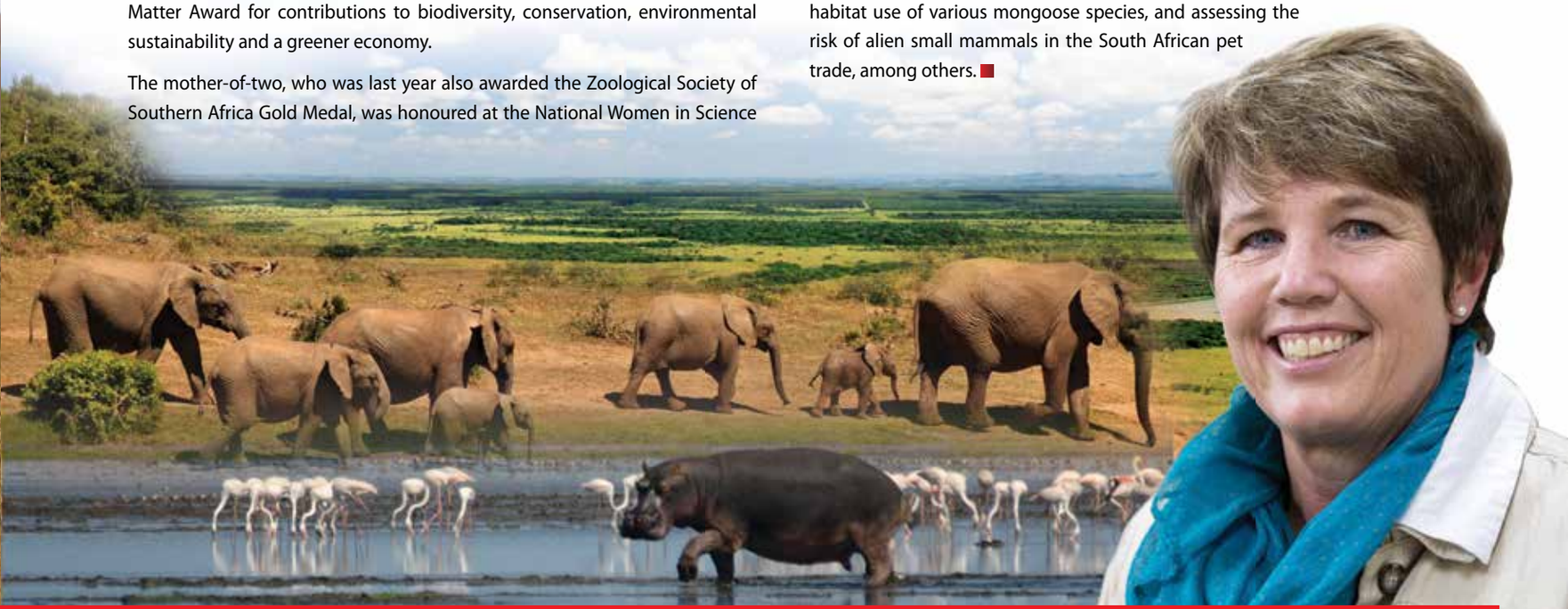
The mother-of-two, who was last year also awarded the Zoological Society of Southern Africa Gold Medal, was honoured at the National Women in Science Awards (WISA) by the Department of Science and Technology, and announced as second runner up for the Distinguished Woman Researcher award in the category of Natural (Life and Physical) and Engineering Sciences. She was also named the SA-Canada Trilateral Chair.

Downs said a lot of what she had achieved was thanks to team effort. "My team and I are getting recognition for the hard work we've done."

She said receiving the awards was special. "I don't work on one particular thing. I work on many different vertebrate species and I'm interdisciplinary in my research, including conservation, physiology, ecology and behaviour. Often, you are not recognised as an expert if your research interests are broad. So, it was quite special to be recognised," said Downs.

Downs is a Fellow of the International Ornithologists Union, a member of the Academy of Science of South Africa, honorary president of Bird Life South Africa and chairs the Cape Parrot Working Group. She often gives talks at schools and bird clubs.

She is currently supervising a number of MSc and PhD students who are researching a range of topics across a land use gradient from protected areas to farmland to urban areas. Some of these include aspects of the ecology of hippo in South Africa; assessing poisoning and local trade in vultures in southern Africa and changing human behaviour and attitudes toward vultures; mammalian faunal assessment of the Afromontane forests of the former Transkei, Eastern Cape and KwaZulu-Natal; the effects of differing land use on the presence and habitat use of various mongoose species, and assessing the risk of alien small mammals in the South African pet trade, among others. ■



SOUTH AFRICAN RESEARCH CHAIRS INITIATIVE (SARChI)

Fluorine Process Engineering and Separations Technology

PROFESSOR DERESH RAMJUGERNATH

South Africa has the second largest reserves of fluorspar globally but it currently imports almost all of its fluorinated products.

Fluorspar is the starting material for all fluoro-chemicals and the activities under this Chair aim to develop technology and human capacity to drive the development and expansion of a fluorochemical cluster.

The research Chair also covers chemical thermodynamics and separation technology and has one of the best equipped laboratories in the Southern Hemisphere.

The team is regarded as one of the leading groups in its field globally, undertaking cutting-edge research contributing towards chemical process development and optimisation in South Africa and abroad.

This includes the generation of experimental phase equilibrium and thermo-physical data for fluorochemical and hydrocarbon systems (including refrigerants).

"We also have a research programme on finding applications for fluorochemicals and fluorinated molecules as novel 'green' solvents in separation processes," says interim Chair, Professor Deresh Ramjugernath.

"We have screened molecules using infinite dilution activity coefficient measurements with gas-liquid chromatography. Studies are also ongoing on the potential use of perfluorocarbons as physical solvents for the removal of flue gas components," he said.

Overall, the research also supports the Government's Fluorochemical Expansion Initiative (FEI) to beneficiate large fluorspar reserves through the establishment of world-class high value fluorochemical production facilities.

This includes the design and screening of fluorocarbons as potential replacement solvents to hydrocarbon-based solvents and for possible application in desalination and refrigeration.

The Chair aims to train several postdoctoral fellows, PhD and masters students every year. ■

Gender and Childhood Sexuality: Violence, Inequalities and Schooling

PROFESSOR DEEVIA BHANA

The research projects under this Chair aim to support gender equality and sexual justice among children and also provide scientific knowledge to guide new educational policies and programmes in schools.

"Childhood is a critical time in the lifelong project of gender and sexuality. Therefore, understanding and addressing patterns of behaviour and conduct at this stage in life is critical," said Professor Deevia Bhana.

One of the research projects aims to ensure that men and issues of masculinity are addressed from the early years of schooling by focusing on male teachers in primary schooling.

Bhana and her students have been examining why there are few men teaching young children at the primary or foundation phase level of teaching, which was often characterised as "women's work".

A separate project, titled: "Stop the Violence" aims to understand and address violence against girls in and around schools.

"Schools have been identified as dangerous places for girls and much of the violence is rendered invisible by an inattention to the underlying gender inequalities through which violence is enacted. It examines what and how boys and girls learn about gender and sexuality through formal sex education or Life Orientation as well as informally through their everyday participation in institutional activities in and outside the school environment," says Bhana.

During 2017, two PhD and four Master's students graduated under her supervision. Of the six graduates, four were women and two were men. ■

Professor Deevia Bhana (left) and some of her students (from left) Ms Vimbai Matswetu, Ms Nozipho Mvune, Ms Nicci Carboni and Mr Senzo Nkabini (back).

Ecosystem Health and Biodiversity in KZN and Eastern Cape

PROFESSOR COLLEEN DOWNS

Can animals and birds survive in shrinking patches of forest when their living space is degraded by development or climate change? Can drones and cameras help to save time and money when estimating the number and interactions of wild creatures in game reserves?

These are some of the research questions tackled by Professor Colleen Downs and her more than 30 postgraduate students. Collectively, 40 of their articles were published or provisionally accepted in international peer-reviewed journals in 2017.

As a mentor, Downs believes her role includes helping students to achieve their best including getting research fellowships, academic positions or conservation management posts - as well as putting them forward for prizes and awards.

If you see it, you can be it, she says, noting that the visibility of young academics is one of the best ways to encourage future generations to undertake a scientific career and fill posts in this sector.

The broad aims of the Chair are to study the health of ecosystems in an era in which human land use changes are having a major impact on biological diversity.

"We are using advanced GPS-cell telemetry techniques and camera-trapping to determine spatial use and will use systematic mark-recapture or transect methods to determine the population status and interactions of species under varying land use."

The team also investigates human wildlife conflict and make management recommendations to the relevant provincial and municipal organisations.

At a personal level, Downs excelled again during 2017, winning the highly acclaimed National Science and Technology Forum-South32 Award for Research Capacity Development. She was also awarded the Zoological Society of Southern Africa Gold Medal and was named as second runner-up in the Distinguished SA Women Scientists Awards. ■

UKZN MSc postgraduate, Ms Mahlatse Fortunate Mashapu, during a fish survey at Albert Falls Dam.

Professor Colleen Downs

Bemused PhD postgraduate students Mr Machawe Maphalala, Mr Mfundo Maseko, Mr Ntaki Senoge and Ms Vuyisile Thabethe meet an unusually large bearded vulture and crow at the International Ornithological Conference, Vancouver, Canada, where they all presented.

Indigenous Health Care Systems

PROFESSOR EXNEVIA GOMO

Traditional medicine remains an important health service in Africa with an estimated 80% of the population reliant on it for some form of primary healthcare.

Professor Exnevia Gomo says this Chair aims to provide scientific evidence that promotes and informs the institutionalisation of traditional medicine into national healthcare systems as well as to improve the practise of traditional medicine and identify commercialisation opportunities.

"Contrary to some people's perceptions, traditional healers care about their patients and have their own form of Hippocratic Oath. Traditional medicine is neither witchcraft, magic, evil or dangerous," said Gomo.

Specifically, the Chair hopes to strengthen engagement and trust between traditional health practitioners and researchers and also improve the evidence base for safety, efficacy and quality of traditional medicines and practice.

During 2017, two meetings were held with leadership of traditional healers in KwaZulu-Natal where a new PhD project was presented. Healers and apprentices will be engaged as research assistants on some of the projects.

One-on-one meetings were also held with healers who provided their medicines for validation.

The Chair had seven PhD, five masters and three honours students - some of whom conducted research on validation of safety, efficacy and mechanisms of action of traditional medicines. This includes studies on the potential anti-diabetic, anti-cancer (breast cancer and leukaemia) and wound healing effects of extracts from various traditional medicines used by local traditional healers in KwaZulu-Natal.

Professor Exnevia Gomo (far left) and some of his students, with a traditional healer.

Chemistry of Indigenous Medicinal Plants

PROFESSOR FANIE VAN HEERDEN

Professor Fanie van Heerden

Professor Fanie van Heerden and her Chemistry students spend their days studying plants and how their valuable chemical properties can be used to cure or treat a wide variety of diseases and injuries.

They are also building a unique library. However, instead of archiving books and paper records, van Heerden and her team are establishing an electronic and physical library of compounds extracted from South African plants.

A further objective of this Chair is to establish a research network of African collaborators on the phytochemistry of medicinal plants – including the potential to combat malaria, diabetes, hypertension and bacterial infections.

During 2017, van Heerden's team reviewed the use of plant-based chalcone compounds to treat leishmaniasis, an insect-borne disease that causes severe ulcers of the skin, mouth and nose as well as fever and enlarged livers and spleens.

The team also examined the use of the *Rhoicissus tridentata* plant (Bushman's Grape) for potential use in treating pregnancy ailments.

Van Heerden has initiated collaboration with researchers in Nigeria and Uganda and also hopes to interact with researchers in the Democratic Republic of the Congo.

"South Africa has a wealth of indigenous plants, many of which have medicinal properties and more commercialisation of the plants will contribute to the country's bio-economy," said van Heerden.

She hopes the training will equip Chemistry students for future industrial careers or to start their own companies. ■

Students and colleagues examining plants with nematocidal activity.

Quantum Information Processing and Communication

PROFESSOR FRANCESCO PETRUCCIONE

The Latin word quantum ("how much") has traditionally been used to describe the measurement of amounts of the things we can see.

Quantum Physics, however, is concerned with the behaviour of much tinier particles such as photons, electrons, atoms or energy waves that are not visible to the human eye.

The word can also be used as an adjective, where it refers to a sudden increase in size and amount or to an important change such as a "a quantum leap".

Professor Francesco Petruccione believes Quantum Information Processing and Communication (QIPC) has the potential to revolutionise many areas of science and technology because it exploits fundamentally new modes of computation and communication.

The work done by this Chair will feed into UKZN's strategic research plan, including the potential establishment of a local quantum technologies industry which would make South Africa competitive in the international arena.

Petruccione says there were several notable team achievements during 2017.

For example, PhD student Ms Maria Schuld, was invited to present at an international conference at the Kavli Institute for Theoretical Sciences in China and was also invited to write an article for *Physics World*, a popular physics journal.

Schuld also took part in in a three-month internship at Microsoft's Quantum Architectures and Computation group in Seattle in the United States, while PhD student, Mr Sanele Dlamini, visited the Okinawa Institute of Science and Technology Graduate University in Japan.

Postdoctoral student, Dr Yaseera Ismail, was awarded the prestigious 2018 Optical Society of America Ambassador recognition, a first for a South African researcher, while Ms Marie Louise Umuhire won the prize for the best poster presentation at the Deep Learning Indaba 2017 at Wits University. ■

Land Use Planning and Management

PROFESSOR ONISIMO MUTANGA

Armed with some of the latest "information from heaven", Professor Onisimo Mutanga and his research students are using data from satellites to monitor the use of the earth's natural resources.

Known as remote-sensing, the analysis of satellite imagery allows researchers to study the earth from a high-flying bird's-eye perspective.

The focus is on protecting and enhancing the use of environmental assets and natural resources by studying trends in land use patterns as well as the productivity of natural systems over a large spatial extent.

The next two decades will likely be marked by the most rapid period of urbanisation in the world's history, and Mutanga believes that climate change may also lead to the rapid degradation of ecosystem services across Africa.

"Informed by high quality science, the ultimate goal is to develop integrated land-use planning approaches for sustainable utilisation of resources in order to strike a balance between conservation and societal benefit at various spatial scales," he said.

In 2017, Mutanga was named among the best scientific contributors in Africa. He holds an NRF B-rating, has more than 120 publications to his name, and has supervised more than 16 PhD and 28 Masters students.

This year, his students were involved in a wide range of research, including work under the aegis of the Durban Research Action Partnership (D'RAP), a joint project between the eThekwini Municipality and UKZN.

"Our work will prioritise enhancing synergy between academia, government, councils and the private sector so that research produced is useful for decision-making," he said. ■

The team (from left): Mr Sibongiseni Xulu, Ms Adeola Arougundade, Miss Silungile Dlamini, Miss Nokwanda Gumede, Miss Sethabile Mbatha, Professor Onisimo Mutanga, Miss Confidence Mthanti, Mr Rowan Naiker, Mr Trylee Matongera and Mr Lwando Royimani.

Rural Agronomy and Development

PROFESSOR PARAMU MAFONGOYA

Africa's farmers have always been vulnerable to drought, storms, insects, fungus and other threats to their crops but the risks have been magnified in the era of market globalisation and climate change.

Professor Paramu Mafongoya and his research students are tackling some of these growing challenges by helping smallholder farmers to improve food security, reduce poverty and promote sustainable development.

"Smallholder farmers use a lot of indigenous knowledge to manage climate change and natural resources and this knowledge needs to be combined with scientific methods to develop robust strategies to manage natural resources," said Mafongoya.

The team's work includes the development and promotion of "climate-smart" crops best-suited to higher temperatures, less predictable rainfall or extreme weather events.

"During 2017, we have done research on climate change perceptions, adaptation and indigenous knowledge. We have also published a book on indigenous knowledge systems (IKS) and climate change management in Africa," said Mafongoya.

Some students have also been involved in a project to promote the commercialisation of pigeon peas (dahl) for local consumption and possible export to India. "Currently, pigeon pea is not grown in South Africa to a large scale and we are evaluating varieties that can be grown locally."

This has involved field experiments at two sites, the Makhathini area and Newlands Research Stations, both in KwaZulu-Natal.

The Chair has also focused on increasing agricultural production while reducing the environmental footprint simultaneously through the use of manure and other organic nutrients or no-till agriculture.

"During 2017, we also published 54 papers in refereed journals and 14 book chapters," he said.

Nine MSc students and one PhD graduated, while recruits included one postdoctoral, two PhD and two MSc students. ■

Economic Development

PROFESSOR PRANITHA MAHARAJ

Economic development is not just about building new factories, roads or airports - it is also about addressing the crucial social challenges faced by South Africa's people from birth till old age.

Professor Pranitha Maharaj says the broad goal of the Chair is to build capacity and knowledge to investigate the relationship between sustainable economic development and demographic change.

"Research suggests that the consequences of early childbearing are likely to be severe and may also have negative implications for national efforts to redress social inequalities," said Maharaj.

Economic development therefore refers simultaneously to improving the quality of life of people across generations through a life-cycle approach and expanding the freedom of people to make sound social and economic choices.

"Most studies on childbearing tend to focus on women. Fathers, in particular, are neglected and if they are studied, it is often secondary investigations done through interviewing young women who are in relationships or have children with young fathers. However, there is growing recognition that young fathers are likely to face similar issues as young mothers, including too-early role transition from adolescence to parenthood, social exclusion, unstable relationships and social and family opposition to their involvement as fathers," she said.

During 2017, the Chair supervised several masters and PhD students and celebrated the graduation of 12 students from the Discipline of Population Studies and Development Studies.

Together with her doctoral students and young researchers, Maharaj presented findings of her work at international conferences in Austria, India and Japan.

She was elected editor-in-chief of the *Southern African Journal of Demography* and was part of the scientific organising committee of the 2017 International Population Council organised by the International Union for the Scientific Study of Population. ■

Antibiotic Resistance and One Health

PROFESSOR SABIHA ESSACK

The World Bank and the tripartite alliance of the World Health Organization (WHO), the Food and Agriculture Organisation of the United Nations (FAO) and the World Organisation for Animal Health (OIE) describe antibiotic resistance as one of the biggest threats to global health, food security, the global economy, and the achievement of the sustainable development goals (SDGs).

Professor Sabiha Essack and her students are at the forefront of global research to help tackle the problem by comprehensively delineating the molecular epidemiology, nature and extent of antibiotic resistance in human, animal and environmental health in the "One Health" context to inform evidence-based strategies for its monitoring, prevention and containment - this being the overarching focus of the Chair.

The year 2017 was one of the Chair's best in terms of research grants. Essack leveraged her Chair to obtain grants from the World Health Organization's Department of Food Safety and Zoonosis (US$70 000), the South African Medical Research Council (SA MRC) and the UK Newton Fund (R1 500 000), the SA MRC and the Swedish Research Council for Health, Working Life and Welfare (R800 000) and the NRF (R2 030 000).

An ongoing project funded by the Norwegian Agency for Development Cooperation (NORAD) called "Antibiotic Stewardship and Conservancy in Africa" was showcased in the 2017 NORAD Annual Report and is envisaged to graduate 52 masters and six PhD students by December 2019.

During 2017, Essack wrote or contributed to nine peer-reviewed articles, three technical reports and presented keynote conference addresses in South Korea and Australia.

She also supervised postgraduate students from several African nations who explored antibiotic resistance in the context of their respective countries thereby contributing to human capital development in Africa. ■

Professor Sabiha Essack (front row, third from right) with some of her students.

Evolutionary Biology

PROFESSOR STEVEN JOHNSON

Recent studies have shown an astonishing 75% decline in flying insects in Germany over the last three decades, a pattern that appears to be mirrored in many parts of the developed world.

The findings, published by Dutch ecologist Caspar Hallmann, shocked scientists internationally because of the potential for cascading negative effects on food webs, ecosystem services and the pollination of plants globally.

"Pollination is a process that is ecologically essential for the maintenance of plant diversity," said Professor Steven Johnson, head of what is regarded as one of the strongest pollination research groups in the world.

Johnson has established a state-of-the-art chemical ecology laboratory in the School of Life Sciences on UKZN's Pietermaritzburg campus for the study of chemical cues used by plants to attract insect pollinators.

This year the laboratory was upgraded further with the purchase of a new gas chromatograph mass spectrometer (GC-MS) system.

"Our basic research in evolutionary biology is already excellent," said Johnson. "However, many of the current postgraduates in our lab are studying applied issues - including seed production of eucalyptus trees for forestry, volatile mediated interactions between sugar cane and pest insects, and solving pollination deficits in agriculture," he said.

Johnson and his students published 16 papers in 2017, many of these in high-impact journals. He has also led plans to establish a new Centre for Biodiversity and Ecology at UKZN and to improve human capacity development for postgraduate students.

"I see these efforts as crucial to ensuring that we provide adequate support to our postgraduates and my plan is to use postdocs and sabbatical visitors to run more workshops in the near future," said Johnson. ■

Gravitating Systems

PROFESSOR SUNIL MAHARAJ

Gravity is one of the fundamental forces in nature. It is the force that binds stars, galaxies and clusters of galaxies together.

Professor Sunil Maharaj says it operates everywhere and controls the effects of all other forces wherever they act.

Building on the work of famous scholars like Sir Isaac Newton and Albert Einstein, modern researchers hope to gain a deeper understanding of the behaviour of strong gravitational fields and the early universe which are now being observed in fine detail by astronomers.

"The ultimate goal is to unify gravity with the other forces of nature which will lead to what is called the quantum gravity of nature. Our research in gravitating systems is ongoing. We have obtained several new original results in our research thrusts and our results have been presented in local and international conferences," said Maharaj.

During 2017, more than 20 research papers were published by Maharaj's group in international scientific journals. Four MSc and two PhD students graduated, while four postdoctoral fellows, four BSc (Hon), two MSc students and 14 PhD students were supervised.

Dr A John was appointed lecturer in the Department of Mathematics and Applied Mathematics at Rhodes University, Grahamstown, while Dr B Chilambwe was appointed lecturer in the Department of Mathematics and Natural Sciences at Copperbelt University, Kitwe, Zambia, and Dr S Ngubelanga was appointed lecturer in the Department of Mathematics and Statistics at the Durban University of Technology.

Maharaj's group also collaborated with researchers at Ulyanovsk University in Russia and the Jamia Millia Islamia in India. Dr Aleksei Nikolaev has joined the research team as a postdoctoral fellow from Russia, and another recent postdoctoral appointment is Dr Muhammed Amir from India. ■

Visitors, academic staff, postdoctoral fellows and postgraduate students of the Astrophysics and Cosmology Research Unit at UKZN during a recent workshop in symmetries, mechanics and applications.

Systems Biology of HIV/AIDS

PROFESSOR THUMBI NDUNG'U

HIV/AIDS is one of South Africa's biggest health challenges but prevention and treatment strategies remain suboptimal.

"Our work focuses on mechanisms of immune control in HIV infection. We seek to understand how the immune system can be harnessed or augmented to achieve prevention of infection or effective control or cure in those already infected," said Professor Thumbi Ndung'u, SARChI Chair in Systems Biology of HIV/AIDS.

Under this Chair, Ndung'u has supervised 34 female and 14 male masters, honours, PhD and postdoctoral trainees since 2006.

Trainees have gone on to fill important professional positions including senior lecturers at UKZN; a postdoctoral fellow at the Harvard School of Public Health; senior scientist at the National Health Laboratory Services; senior researcher at the Wits Reproductive Health and HIV Institute; research scientist at Kenya AIDS Vaccine Initiative, and molecular parasitologist at the International Atomic Energy Agency in Austria.

Dr Veron Ramsuran, Dr Christina Thobakgale and Dr Jaclyn Mann - who were supervised by Ndung'u - are all senior lecturers at UKZN.

Ndung'u said the Research Chair has also yielded important findings likely to inform vaccine design and cure strategies for HIV. One such project, the FRESH (Females Rising through Education, Support and Health) cohort project, is expected to lead to a clinical trial on HIV cure strategies within the next year.

The FRESH project seeks to identify high-risk women with acute HIV infection as early as possible following infection.

"We want to characterise the viral reservoir to see where the virus hides and understand why it is so difficult to cure HIV infection and examine whether early treatment can reduce the reservoir to an extent where it becomes easier to eradicate the virus completely using a combination of biological approaches," he said.

Another focus of his laboratory is to understand why HIV-1 infected people are more likely to develop active TB infection. The ultimate goal of this work is to develop better anti-TB vaccines or immunotherapies. ■

Students working with Professor Thumbi Ndung'u (from left) Noluthando Mazibuko (MMedSci), Lisa Naidoo (MMedSci), Katlego Sojane (PhD) and Zinhle Mzobe (MMedSci).

NATIONAL RESEARCH FOUNDATION A-RATED RESEARCHERS

Professor Quarraisha Abdool Karim

Professor Fernando Albericio

Professor Michael Chapman

Professor Rob Gous

Professor Jacques Grosset

Professor Steve Johnson

Professor Craig Packer

Professor Linda Richter

NRF-rated Researchers

A-Rated Researchers

TITLE	SURNAME	FIRST NAME	SCHOOL	COLLEGE
Professor	Abdool Karim	Quarraisha	CAPRISA	Health Sciences
Professor	Albericio	Fernando	Chemistry and Physics	Agriculture, Engineering and Science
Professor	Chapman	Michael JF	Arts	Humanities
Professor	Gous	Robert M	Agricultural, Earth and Environmental Sciences	Agriculture, Engineering and Science
Professor	Grosset	Jacques HE	Health Sciences	Health Sciences
Professor	Johnson	Steven Dene	Life Sciences	Agriculture, Engineering and Science
Professor	Packer	Craig	Chemistry and Physics	Agriculture, Engineering and Science
Professor	Richter	Linda M	Applied Human Sciences	Humanities

College of Agriculture, Engineering and Science

TITLE	SURNAME	FIRST NAME	SCHOOL
Professor	Adali	Sarp	Engineering
Professor	Afullo	Tomas JO	Engineering
Professor	Ajibade	Peter Adewale	Chemistry and Physics
Dr	Akerman	Matthew	Chemistry and Physics
Professor	Albericio	Fernando	Chemistry and Physics
Dr	Aremu	Adeyemi	Life Sciences
Professor	Ariatti	Mario	Life Sciences
Professor	Baboolal	Dharmanand	Mathematics, Statistics and Computer Science
Professor	Bala	Muhammad	Chemistry and Physics
Professor	Bau	Sheng	Mathematics, Statistics and Computer Science
Professor	Beckett	Richard Peter	Life Sciences
Dr	Bertling	Isa	Agricultural, Earth and Environmental Sciences
Professor	Bezuidenhout	Carel Nicolaas	Engineering
Professor	Bob	Urmilla	Agricultural, Earth and Environmental Sciences
Professor	Bright	Glen	Engineering
Dr	Bytebier	Benny LG	Life Sciences
Dr	Carrasco	Nicola	Life Sciences
Professor	Carsky	Milan	Engineering
Dr	Chetty	Naven	Chemistry and Physics
Dr	Chiang	Hsin Cynthia	Mathematics, Statistics, and Computer Science
Professor	Chimonyo	Michael	Agricultural, Earth and Environmental Sciences
Professor	Chuturgoon	Anil	Health Sciences
Professor	Coetzer	Theresa Helen	Life Sciences
Professor	Downs	Colleen Thelma	Life Sciences
Professor	Finnie	Jeffrey Franklin	Life Sciences

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College of Agriculture, Engineering and Science

TITLE	SURNAME	FIRST NAME	SCHOOL
Professor	Ford	Tony, A	Chemistry and Physics
Professor	Gebreyohannis	Ayalneh Bogale	Agricultural, Earth and Environmental Sciences
Dr	Goswami	Rituparno	Mathematics Statistics and Computer Science
Professor	Govender	Saneshan	Engineering
Professor	Govinder	Keshlan Sathasiva	Mathematics, Statistics and Computer Science
Professor	Green	Jannette Maryann	Agricultural, Earth and Environmental Sciences
Dr	Green	Andrew Noel	Agricultural, Earth and Environmental Sciences
Dr	Gubba	Augustine	Plant Pathology
Dr	Hansraj	Sudan	Mathematics, Statistics and Computer Science
Dr	Harinarain	Nishani	Engineering
Professor	Hart	Robert Clynton	Life Sciences
Professor	Hellberg	Manfred Armin	Chemistry and Physics
Professor	Hill	Trevor	Agricultural, Earth and Environmental Sciences
Dr	Hilton	Matthew James	Mathematics, Statistics and Computer Science
Professor	Hughes	Jeffrey Charles	Agricultural, Earth and Environmental Sciences
Dr	Islam	M Shahidul	Life Sciences
Dr	Jachowski	David	Agricultural, Earth and Environmental Sciences
Professor	Jewitt	Graham Paul Wyndham	Engineering
Professor	Johnson	Steven Dene	School of Life Sciences
Professor	Jonnalagadda	Sreekantha Babu	Chemistry and Physics
Dr	Juergens	Andreas	Life Sciences
Professor	Kirkman	Kevin	Life Sciences
Professor	Konrad	Thomas	Chemistry and Physics
Professor	Laing	Mark Delmege	Agricultural, Earth and Environmental Sciences
Professor	Latif	Abdalla	Life Sciences
Professor	Leach	Peter	Mathematics, Statistics and Computer Science
Dr	Light	Marnie E	Life Sciences
Professor	Lin	Johnson	Life Sciences
Dr	Lokhat	David	Engineering
Dr	Ma	Yin-Zhe	Chemistry and Physics
Dr	Macdonald	Angus	Life Sciences
Professor	Mace	Richard Lester	Chemistry and Physics
Dr	Maguire	Glenn	Chemistry and Physics
Dr	Magwaza	Lembe	Agricultural, Earth and Environmental Sciences
Professor	Maharaj	Brijlall	Agricultural, Earth and Environmental Sciences
Professor	Maharaj	Sunil	Mathematics, Statistics and Computer Science
Professor	Martincigh	Bice	Chemistry and Physics
Professor	Massamba	Fortune	Mathematics, Statistics and Computer Science
Dr	Matthews	Alan	Chemistry and Physics
Dr	McIntyre	Trevor	Life Sciences
Professor	Meikap	Bhim Charan	Engineering

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College of Agriculture, Engineering and Science

TITLE	SURNAME	FIRST NAME	SCHOOL
Dr	Misra	Saumitra Kumar	Agricultural, Earth and Environmental Sciences
Professor	Mola	Genene Tessema	Chemistry and Physics
Professor	Moodley	Kavilan	Mathematics, Statistics and Computer Science
Professor	Motsa	Sandile Sydney	Mathematics, Statistics and Computer Science
Dr	Moyo	Thomas	Chemistry and Physics
Dr	Msomi	Justice Zakhele	Chemistry and Physics
Professor	Muchaonyerwa	Pardon	Agricultural, Earth and Environmental Sciences
Dr	Mudhara	Maxwell	Agricultural, Earth and Environmental Sciences
Professor	Mukaratirwa	Samson	Life Sciences
Professor	Mutanga	Onisimo	Agricultural, Earth and Environmental Sciences
Professor	Naidoo	Gonasageran	Life Sciences
Dr	Naidoo	Yougasphree	Life Sciences
Dr	Niesler	Carola Ulrike	Life Sciences
Professor	Nyamori	Vincent Onserio	Chemistry and Physics
Dr	Ojwach	Otieno Stephen	Chemistry and Physics
Professor	Olaniran	Ademola Olufolahan	Life Sciences
Professor	Ortmann	Gerald Friedel	Agricultural, Earth and Environmental Sciences
Dr	Owaga	Bernard Omond	Chemistry and Physics
Professor	Packer	Craig	Chemistry and Physics
Professor	Pammenter	Norman William	Life Sciences
Professor	Pegram	Geoffrey Guy Sinclair	Engineering
Professor	Petruccione	Francesco	Chemistry and Physics
Professor	Proches	Serban	Agricultural, Earth and Environmental Sciences
Professor	Ramjugernath	Deresh	Engineering
Professor	Ray	Subharthi	Mathematics, Statistics and Computer Science
Dr	Robertson-Andersson	Debrah V	Life Sciences
Professor	Robinson	Ross Stuart	Chemistry and Physics
Professor	Rodrigues	Bernardo Gabriel	Mathematics, Statistics and Computer Science
Professor	Rouget	Mathieu Jean Francois	Agricultural, Earth and Environmental Sciences
Professor	Savage	Michael John	Agricultural, Earth and Environmental Sciences
Dr	Scharler	Ursula Michaela	Life Sciences
Professor	Schmidt	Stefan	Life Sciences
Dr	Schoeman	Corrie	Life Sciences
Professor	Seebregts	Christopher	Mathematics, Statistics and Computer Science
Professor	Shimelis	Hussein	Agricultural, Earth and Environmental Sciences
Dr	Shuttleworth	Adam	Life Sciences
Professor	Sibanda	Precious	Mathematics, Statistics and Computer Science
Professor	Sievers	Leroy Jonathan	Chemistry and Physics
Dr	Sinayskiy	Ilya	Chemistry and Physics
Dr	Sithole	Bruce	Engineering
Dr	Siwela	Mthulisi	Agricultural, Earth and Environmental Sciences

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College of Agriculture, Engineering and Science

TITLE	SURNAME	FIRST NAME	SCHOOL
Professor	Smithers	Jeffrey Colin	Engineering
Professor	Stark	Annegret	Engineering
Dr	Stirk	Wendy A	Life Sciences
Dr	Stone	Robert Douglas	Life Sciences
Professor	Stopforth	Riaan	Engineering
Professor	Stretch	Derek Dewey	Engineering
Professor	Tame	Mark	Chemistry and Physics
Professor	Tapamo	Jules-Raymond	Engineering
Dr	Tesfay	Samson	Agricultural, Earth and Environmental Sciences
Professor	Thandar	Ahmed Suleman	Life Sciences
Dr	van der Niet	Timotheus	Life Sciences
Professor	Van Heerden	Fanie Retief	Chemistry and Physics
Professor	Van Staden	Johannes	Life Sciences
Professor	Van Zyl	Werner Ewald	Chemistry and Physics
Dr	Vanak	Abi Tamim	Life Sciences
Professor	Venkataraman	Sivakumar	Chemistry and Physics
Professor	Viriri	Serestina	Mathematics, Statistics and Computer Science
Professor	Watt	Maria Paula Mousaco	Life Sciences
Dr	Willows-Munro	Sandi	Life Sciences
Professor	Xu	Hongjun	Engineering
Professor	Zegeye	Edilegnaw Wale	Agricultural, Earth and Environmental Sciences
Professor	Zewotir	Temesgen	Mathematics, Statistics and Computer Science
Dr	Zunckel	Caroline L	Chemistry and Physics

College of Health Sciences

TITLE	SURNAME	FIRST NAME	SCHOOL
Dr	Abbai	Nathlee	Clinical Medicine
Professor	Arvidsson	Per	Health Sciences
Dr	Azu	Onyemaechi Okpara	Clinical Anatomy/Laboratory Medicine & Medical Sciences
Professor	Bhimma	Rajendra	Clinical Medicine
Professor	Brysiewicz	Petra	Nursing and Public Health
Dr	Clarke	Damian Luiz	Clinical Medicine
Professor	Das	Gobardhan D	Laboratory Medicine and Medical Sciences
Dr	Dlova	Ncoza	Dermatology
Professor	Essack	Sabiha, Y	Health Sciences
Dr	Gordon	Michelle	HIV Pathogenesis Programme
Professor	Govender	Thavendran	Health Sciences
Professor	Govender	Thirumala	Pharmacology
Professor	Grosset	Jacques HE	Health Sciences
Dr	Herbst	Abraham Jacobus	Africa Centre
Professor	Hickner	Robert	Health Sciences
Dr	Honarparvar	Bahareh	Pharmacology
Dr	Karpoormath	Rajshekhar	Pharmacology
Professor	Kruger	Hendrik Gerhardus	Health Sciences
Dr	Kvalsvig	Jane Dene	Nursing and Public Health
Dr	Mabandla	Musa Vuyisile	Laboratory Medicine and Medical Sciences
Professor	Madiba	Thandinkosi Enos	Clinical Medicine
Dr	Mann	Jaclyn Wright	Laboratory Medicine and Medical Sciences
Professor	McKune	Andrew James	Health Sciences
Professor	Mody	Girish M	Clinical Medicine
Professor	Moodley	Dhayendre	Clinical Medicine
Dr	Moshabela	Mosa M	Nursing and Public Health
Professor	Naicker	Thajasvarie Kisten	Laboratory Medicine and Medical Science
Professor	Naidoo	Kovin	Optometry
Professor	Naidoo	Datshana	Clinical Medicine
Professor	Ndung'u	Peter Thumbi	Laboratory Medicine and Medical Sciences
Professor	Pillay	Deenan	African Centre for Health and Population Studies
Dr	Pillay	Manormoney (Cookie)	Laboratory Medicine and Medical Sciences
Dr	Rodseth	Reitze Nils	Anaesthetics
Professor	Satyapal	Kapil Sewsaran	Laboratory Medicine and Medical Sciences
Professor	Soliman	Mohmoud Elsayed	Health Sciences
Professor	Suleman	Fatima	Health Sciences
Professor	Tanser	Frank Courteney	Africa Centre
Professor	Taylor	Myra	Nursing and Public Health
Dr	Thobakgale-Tshabalala	Christina Fanesa	Laboratory Medicine and Medical Sciences

College of Humanities			
TITLE	**SURNAME**	**FIRST NAME**	**SCHOOL**
Dr	Akintola	Olagoke	Applied Human Sciences
Professor	Alant	Jacob Willem	Arts
Professor	Bansilal	Sarah	Mathematics Education
Dr	Bate	Stuart	Religion, Philosophy and Classics
Dr	Bertram	Carol Anne	Education
Professor	Bhana	Deevia	Education
Professor	Buthelezi	M Thabisile	Education
Professor	Chikoko	Vitallis	Education
Professor	Collier	John D	Religion, Philosophy and Classics
Professor	Collings	Steven John	Applied Human Sciences
Professor	De Meyer	Bernard Albert Marcel Sylvain	Arts
Professor	Deacon	Roger A	Education
Dr	Dempster	Edith	Education
Professor	Denis	Philippe Marie Berthe Raoul	Religion, Philosophy and Classics
Professor	Dimitriu	Ileana	Arts
Professor	Draper	Jonathan Alfred	Religion, Philosophy and Classics
Professor	Durrheim	Kevin Locksley	Applied Human Sciences
Professor	Ebrahim	Mohsin AF	Religion, Philosophy and Classics
Professor	Freund	William Mark	Social Sciences
Dr	Gopal	Nirmala	Applied Human Sciences
Dr	Govender	Desmond Wesley	Education
Professor	Haddad	Beverley Gail	Religion, Philosophy and Classics
Professor	Hilton	John Laurence	Religion, Philosophy and Classics
Professor	Hiralal	Kalpana	History
Professor	Hlongwa	Nobuhle	Arts
Professor	Hugo	Wayne	Education
Dr	Keith-van Wyk	Helen	Religion, Philosophy and Classics
Professor	Khan	Sultan	Social Sciences
Professor	Koopman	Adrian	Humanities
Professor	Leeb-Du Toit	Juliette C	Arts
Professor	Maharaj	Pranitha	Built Environment and Development Studies
Professor	Malaba	Mbongeni	Arts
Professor	Mare	Paul Ggerhardus	Built Environment and Development Studies
Professor	Marschall	Sabine	Social Sciences
Dr	Matolino	Bernard	Religion, Philosophy and Classics
Professor	McCracken	Donal Patrick	Applied Human Sciences
Professor	Mutula	Stephen M	Social Sciences

continued...

College of Humanities

TITLE	SURNAME	FIRST NAME	SCHOOL
Dr	Naidu	Uma Maheshevari	Social Sciences
Dr	Narsiah	Inbersagran	Social Sciences
Professor	Parle	Julie	Social Sciences
Professor	Penumala	Pratap Kumar	Religion, Philosophy and Classics
Professor	Petersen	Inge	Applied Human Sciences
Dr	Pillay	Guruvasagie (Daisy)	Education
Dr	Pithouse-Morgan	Kathleen Jane	Education
Professor	Ramrathan	Prevanand/Labby	Education
Dr	Raniga	Tanusha	Applied Human Sciences
Professor	Samuel	Micheal	Education
Dr	Singh	Shakila	Education
Professor	Sooryamoorthy	Radhamany	Social Sciences
Professor	Spurrett	David	Philosophy, Religion and Classics
Professor	Stiebel	Eelyn Alexandra Lindy	Arts
Professor	Stilwell	Christine	Social Sciences
Professor	Stobie	Cheryl	Arts
Professor	Teer-Tomaselli	Ruth Elizabeth	Applied Human Sciences
Professor	Tomaselli	Keyan Gray	Applied Human Sciences
Professor	Turner	Noleen Sheila	Arts
Dr	Van Der Walt	Charlene	Religion, Philosophy and Classics
Dr	Van Laren	Linda	Education
Professor	Wedekind	Volker	Education
Professor	West	Gerald O	Religion, Philosophy and Classics
Professor	Zeller	Jochen Klaus	Arts

College of Law and Management Studies

TITLE	SURNAME	FIRST NAME	SCHOOL
Professor	Brijball Parumasur	Sanjana	Management, IT and Governance
Professor	Devenish	George	Law
Dr	George	Gavin	Accounting, Economics and Finance
Dr	Govender	Irene	Information Systems and Technology
Dr	Hanass-Hancock	Jill	HEARD
Professor	Harris	Geoffrey Thomas	Accounting, Economics and Finance
Professor	Hoctor	Shaun Vaughn	Law
Dr	Hoque	Muhammad	Graduate School of Business and Leadership
Professor	Kidd	Michael Antony	Law
Professor	McQuoid-Mason	David Jan	Law
Professor	Mubangizi	Betty Claire	Management, IT and Governance
Professor	Naude	Micheline Juliana Alberta	Management, IT and Governance
Professor	Reddy	Purshotta-Masivanar	Management, IT and Governance
Dr	Ruggunan	Shaun Denvor	Management, IT and Governance
Professor	Stainbank	Lesley June	Accounting, Economics and Finance
Dr	van Niekerk	Brett	Management, IT and Governance
Professor	Whiteside	Alan Walter	HEARD
Professor	Williams	Robert C	Law

ESTABLISHED RESEARCHERS

2017 Top Published Researcher at UKZN

PROFESSOR MAHMOUD ELSAYED SOLIMAN

Having published in a wide range of international journals that feature research in drug design, discovery and development, Professor Mahmoud Elsayed Soliman, has been named UKZN's Top Published Researcher for 2017.

Dean and Head of the School of Health Sciences, Soliman has been on the University's list of the Top 30 Published Researchers for the past four years; making the Top 10 list in 2016.

He has published 130 research articles, all in Institute for Scientific Information-accredited international journals. His passion to research and improve the quality of human life is what motivates Soliman to publish.

Soliman is the Principle Investigator of the Molecular Modeling and Drug Design Laboratory in the UKZN School of Health Sciences. The laboratory focuses on the study of biological systems, drug-receptor interactions and the design of novel drug candidates and their mechanism of action. The Molecular Modelling and Drug Design Lab has been awarded various grants and support from the National Research Foundation, the School of Health Sciences as well as the Centre for High Performance Computing in Cape Town (CHPC) to enhance research at UKZN in drug design and modelling areas.

Soliman is passionate about drug design and the discovery of new medicines as well as understanding drug interactions and mechanisms with biological systems. The main focus of his research for the last seven years has been HIV/AIDS, tuberculosis and cancer.

"My current and future goals are to make a valuable contribution towards the understanding and discovery of drugs that can be effective, safe and accessible to patients – especially those who can't afford or have access to treatment. That's why I am currently working with local pharmaceutical companies on several 'drug repurposing' and 'formulation' projects to be able to accomplish these goals for the benefit of all South Africans, especially those who struggle the most with the high prices and the inaccessibility of medicines. I think we all are well aware of the health challenges in the South African context in terms of access to medicine and the high costs as a result of medicine prices being mainly controlled or influenced by international pharmaceutical companies and the number of people who are infected with HIV, TB, cancer, etc. All of these factors have motivated me to try my best to contribute towards addressing these major health challenges in Africa," he said.

Soliman said he personally looked at the impact of any research by the way it contributed to the lives of people - whether it was in finding a cure for a disease, creating a job opportunity or making life easier for people.

"So far, my contribution or impact is humble. I have thus far only been successful in creating job opportunities for students. More effort is needed," he said.

Soliman said research towards understanding cancer and its treatment required more attention.

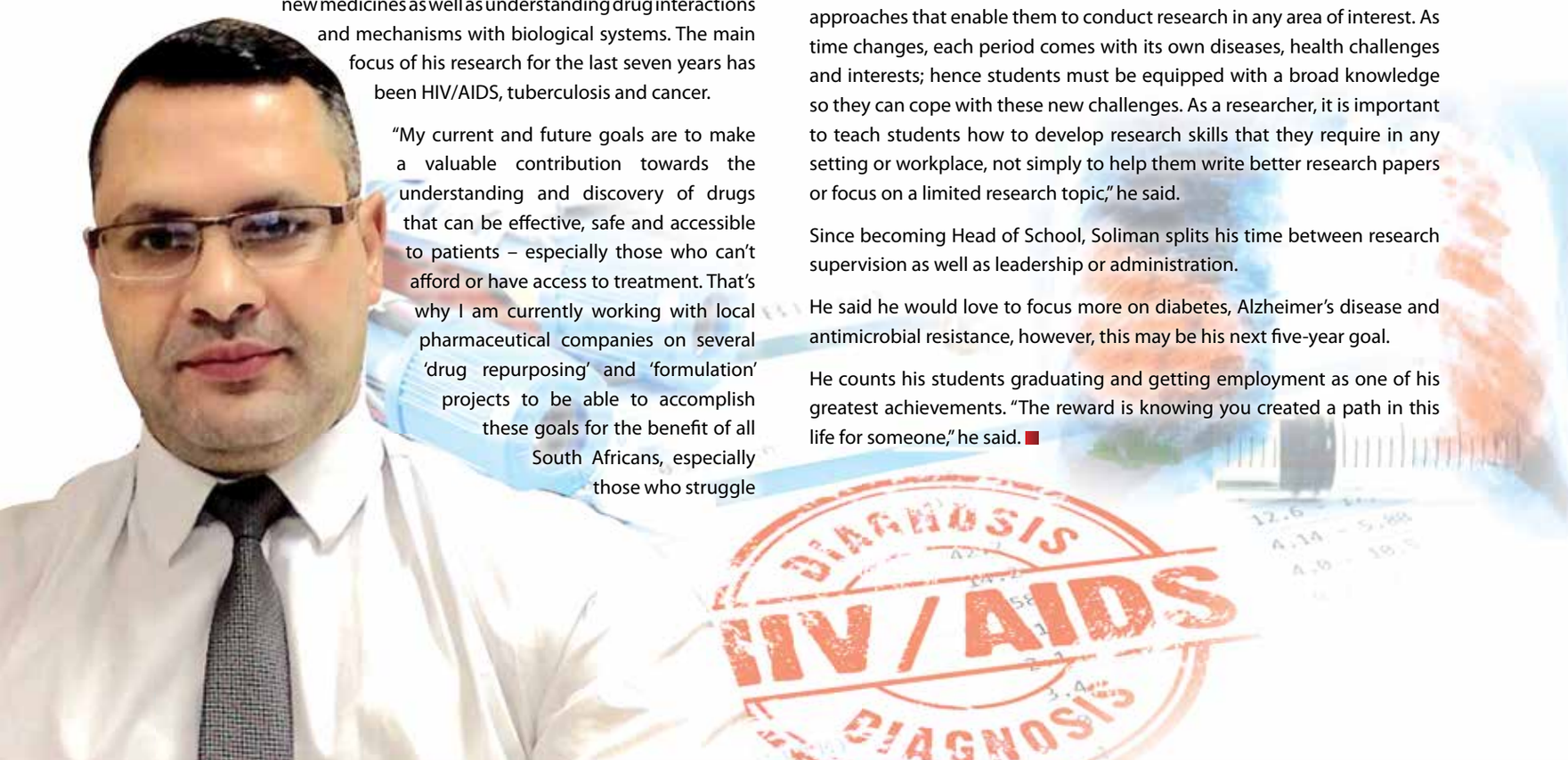
For students under Soliman's supervision, research has been mainly in the understanding of cancer targets and mechanisms of action cancer drugs in order to open new avenues for the discovery of more potent drugs. Other projects relate to viral infections such as HIV and Hepatitis C Virus (HCV).

"I teach my students a wide range of drug design and discovery tools and approaches that enable them to conduct research in any area of interest. As time changes, each period comes with its own diseases, health challenges and interests; hence students must be equipped with a broad knowledge so they can cope with these new challenges. As a researcher, it is important to teach students how to develop research skills that they require in any setting or workplace, not simply to help them write better research papers or focus on a limited research topic," he said.

Since becoming Head of School, Soliman splits his time between research supervision as well as leadership or administration.

He said he would love to focus more on diabetes, Alzheimer's disease and antimicrobial resistance, however, this may be his next five-year goal.

He counts his students graduating and getting employment as one of his greatest achievements. "The reward is knowing you created a path in this life for someone," he said. ■



Top Published Woman Researcher

PROFESSOR COLLEEN DOWNS

Professor Colleen Downs, UKZN biologist and terrestrial vertebrate specialist, is intent on understanding how changing land use in KwaZulu-Natal and the Eastern Cape affects wildlife.

Downs, UKZN's Top Published Woman Researcher for 2017, has been consistently recognised for being among the University's most published researchers. She was the Top Woman Researcher from 2009 to 2012, and each year again from 2014.

Downs published more than 30 papers in a wide range of international peer-reviewed journals during the past year.

"It's collaborative work," she said. "I always tell my students they will only do two to three theses in a lifetime. You have to learn to produce papers. I love publishing and I love seeing students benefit from getting kudos for the work that they've done. When you publish your work, it gets reviewed and there's often constructive criticism which helps you improve it," said Downs.

Her hobby of bird watching has become her work. In the early years, she used to work more on mammals but now the focus is on mammals, birds, reptiles, and some freshwater fish. Downs says the challenge is to try and make a difference and help people realise they have something special in their own backyard.

According to research, green areas and wildlife are needed to ensure the well-being of humans.

"The main thing is for the ecosystem to function and to do that you need all the different parts of the food web operating. When you lose a part, it has a domino effect on everything else," said Downs.

"We are particularly interested in how anthropogenic changing land use affects animals. We work along a gradient. Some students work in protected areas, some on farm land and some in urban areas. Usually with urbanisation, there's a decrease in biodiversity.

"There are students looking at how some species manage to thrive in an urbanised environment. Because of the rapid anthropogenic land use and climate change, especially in KwaZulu-Natal and the Eastern Cape, it is important to get more baseline data to document trends and identify problems. If we could change human behaviour towards caring for the environment in the short and long term, it would be great," she said.

Downs says much of the biological research is dominated by what happens in the northern hemisphere. "I think we have highlighted and raised awareness of some of the trends in the southern hemisphere, especially southern Africa. In particular, our work along a land use gradient from protected areas to farmlands to urban areas has shown some important and often novel data on a range of species, and assisted with management and development," she said.

Downs said in KwaZulu-Natal there is a whole range of changing land use, from the mountains to the sea. The aspects of terrestrial vertebrate research her students have been involved in include conservation, ecology, physiology and behaviour. "My research interests are broad and interdisciplinary so I prefer students focus on something they are interested in and then develop a passion for it while doing their research."

"Among the interesting research students have been involved in are examining green areas and showing why the D'Moss system is so important for species." The Durban Metropolitan Open Space System – D'Moss - is a system of green corridors in the city.

There is also the long-term data collection in the Durban area around crowned eagles and how people need to be aware of and not shoot them because they think the raptors will take their dog or cat. There are some students working on hippos and looking at how the drought affects them, she said.

A PhD student is researching the woolly-necked stork which used to migrate in the winter but now stays in Durban for most of the year. Also in the greater Durban area, research is taking place on the mongoose species and how they move and survive as well as on establishing how common mamba snakes are.

Students often use novel technologies such as drones and GPS radio tracking in their research work.

Downs' teaching time was reduced after she was awarded the NRF's South African Research Chair for Ecosystem Health and Biodiversity in KwaZulu-Natal and the Eastern Cape. The SA Research Chair Initiative (SARChI) is a national intervention aimed at improving research and innovation capacity at public universities while responding to national social and economic challenges.

"But I have upped the number of postgraduates I supervise," said Downs, adding that receiving a research chair was an honour.

In fact, 2017 has been an outstanding year for her. Downs won the highly acclaimed National Science and Technology Forum (NSTF)-South32 Award for Research Capacity Development and was also awarded the Zoological Society of Southern Africa Gold Medal in July 2017 for outstanding achievements in Zoology in southern Africa over a number of years. Dubbed the Science Oscars of South Africa, the NSTF-South32 Awards recognise outstanding contributions to science, engineering and technology (SET) and innovation in South Africa for researchers and other SET-related professionals.

She was also a nominee in the South African Women in Science Awards and was second runner-up in the Distinguished Women Scientists category.

"However, I have not done all of this on my own. I am most grateful to my family, postgraduate students and colleagues," she added. ■

Top 30 Published Researchers

NO.	TITLE	SURNAME	FIRST NAME	COLLEGE	SCHOOL
1	Professor	Soliman	Mahmoud Elsayed Soliman	Health Sciences	Health Sciences
2	Professor	Downs	Colleen Thelma	Agriculture, Engineering and Science	Life Sciences
3	Professor	Jonnalagadda	Sreekantha Babu	Agriculture, Engineering and Science	Chemistry and Physics
4	Professor	Mutanga	Onisimo	Agriculture, Engineering and Science	Agricultural, Earth & Environmental Sciences
5	Professor	Srivastava	Viranjay Mohan	Agriculture, Engineering and Science	Engineering
6	Professor	Shimelis	Hussein	Agriculture, Engineering and Science	Agricultural, Earth & Environmental Sciences
7	Professor	Van Staden	Johannes	Agriculture, Engineering and Science	Life Sciences
8	Professor	Modi	Albert Thembinkosi	Agriculture, Engineering and Science	Agricultural, Earth & Environmental Sciences
9	Professor	Maharaj	Sunil Dutt	Agriculture, Engineering and Science	Mathematics, Statistics & Computer Science
10	Professor	Friedrich	Holger Bernhard	Agriculture, Engineering and Science	Chemistry & Physics
11	Professor	Chuturgoon	Anil Amichund	Health Sciences	Laboratory Medicine and Medical Sciences
12	Professor	Migiro	Stephen Oseko	Law and Management Studies	Graduate School of Business & Leadership
13	Professor	Brysiewicz	Petra	Health Sciences	Nursing & Public Health
14	Professor	Laing	Mark Delmege	Agriculture, Engineering and Science	Agricultural, Earth & Environmental Sciences
15	Professor	Ramjugernath	Deresh	Admin Office: DVC (RKP&P)	Admin Office: DVC (RKP&P)
16	Professor	Ballantine	Christopher John	Humanities	Arts
17	Professor	Mohammadi	Amir Hossein	Agriculture, Engineering and Science	Engineering
18	Professor	Islam	Shahidul	Agriculture, Engineering and Science	Life Sciences
19	Professor	Inambao	Freddie Liswaniso	Agriculture, Engineering and Science	Engineering
20	Professor	Govender	Krishna Kistan	Law and Management Studies	Management, Information Technology & Governance
21	Professor	Chimbari	Moses John	Health Sciences	Nursing & Public Health
22	Professor	Gueguim Kana	Evariste Bosco	Agriculture, Engineering and Science	Life Sciences
23	Professor	Chimonyo	Michael	Agriculture, Engineering and Science	Agricultural, Earth & Environmental Sciences
24	Professor	Motsa	Sandile Sydney	Agriculture, Engineering and Science	Mathematics, Statistics & Computer Science
25	Professor	Sartorius	Benn Kurt Daniel	Health Sciences	Nursing & Public Health
26	Professor	Massamba	Fortune	Agriculture, Engineering and Science	Mathematics, Statistics & Computer Science
27	Professor	Nyamori	Vincent Onserio	Agriculture, Engineering and Science	Chemistry & Physics
28	Professor	Khalema	Ernest Nene	Humanities	Built Environment & Development Studies
29	Professor	Albericio	Fernando	Agriculture, Engineering and Science	College Admin Office: AES
30	Dr	Owaga	Bernard Omondi	Agriculture, Engineering and Science	Chemistry & Physics

TOP 10 YOUNG PUBLISHED RESEARCHERS
– Under the Age of 40

NO.	TITLE	SURNAME	FIRST NAME	COLLEGE	SCHOOL
1	Professor	Srivastava	Viranjay Mohan	Agriculture, Engineering and Science	Engineering
2	Professor	Sartorius	Benn Kurt Daniel	Health Sciences	Nursing and Public Health
3	Dr	Muzindutsi	Paul-Francois	Law and Management Studies	Accounting, Economics & Finance
4	Dr	Hoque	Muhammad Ehsanul	Law and Management Studies	Graduate School of Business & Leadership
5	Professor	Ojwach	Stephen Otieno	Agriculture, Engineering and Science	Chemistry and Physics
6	Dr	Mashamba-Thompson	Tivani Phosa	Health Sciences	Nursing and Public Health
7	Professor	Green	Andrew Noel	Agriculture, Engineering and Science	Agricultural, Earth & Environmental Sciences
8	Dr	Magwaza	Lembe Samukelo	Agriculture, Engineering and Science	Agricultural, Earth & Environmental Sciences
9	Dr	Akerman	Matthew Piers	Agriculture, Engineering and Science	Chemistry and Physics
10	Professor	Naicker	Tricia	Health Sciences	Health Sciences

PROFESSOR VIRANJAY M SRIVASTAVA

An associate professor in the School of Electrical, Electronic and Computer Engineering, Professor Viranjay M Srivastava, heads the 2017 Top 10 Young Researchers List - and it is easy to understand why.

At the age of 37, Srivastava already boasts more than 14 years of teaching and research experience, and has published a wide variety of scientific papers.

In 2017, he published 21 scientific articles in the DHET *Scopus Journal* and presented a further 20 papers at international conferences.

His main area of research is in the fields of microelectronics and nanotechnology which include smart antenna and metamaterial with various applications of communication technology.

Srivastava is part of a group involved in VLSI and chip design, RF design and antenna designing.

"Our entire research and academic works are advanced and related to Device and Communication Technologies," said Srivastava.

"Our research group has four post-doctoral fellows, 10 doctorate researchers and seven masters candidates. They have contributed more than 190 scientific articles in various international refereed books and journals including DHET-listed publications and at conferences," he said.

"The group also plans to work towards the reduction of radiation emission from mobile handsets. This type of research will lead to the development of even smaller devices with enhanced features and good signal strength," he added. ■

DR PAUL-FRANCOIS MUZINDUTSI

For Dr Paul-Francois Muzindutsi, the main goal of his research is to create and share knowledge.

Driven by a desire to not only create and share knowledge but to acquire it, Muzindutsi has been working hard on research focused on finding new ways of modelling the changing phenomena of financial markets.

His main area of focus is on investment analysis, financial markets, financial risk and a time series analysis of macroeconomic variables.

At number three on the 2017 list of Top 10 Young Published Researchers, the senior lecturer and Academic Leader in the Discipline of Finance at the School of Accounting, Economics and Finance, is a rising star.

Muzindutsi, who published an equivalent 5.65 articles in 2017 in Department of Higher Education and Training accredited peer-reviewed journals, holds Masters, BCom Honours and BCom degrees in Finance from UKZN. He completed his PhD in Economics at North West University in 2015.

Muzindutsi, who has been in academia for nearly a decade, began his career as an Academic Development Officer at UKZN in 2009 before being appointed a lecturer in 2012. He then moved to North West University in 2013 and was appointed senior lecturer in 2016 before returning to UKZN.

As a young researcher, Muzindutsi believes mentorship and collaboration in research are very important. ■

PROFESSOR MUHAMMAD HOQUE

Professor Muhammad Hoque wants to use research to help create a better South Africa through solving everyday problems.

This is best reflected in the wide range of topics he researched in 2017 - the year in which he co-authored seven papers.

The articles Hoque published in partnership with other academics and students covered diverse subjects, ranging from youth unemployment to infant feeding practices among HIV-positive mothers.

One of the papers he contributed to is titled: Reducing Youth Unemployment Beyond the Youth Wage Subsidy: A Study of Simtech Apprentices.

The main finding of the cross sectional study was that internship had a statistically significant impact on permanent employment while the youth work ethic had a minor impact on the permanent employment status – albeit not a statistically significant one.

He also contributed to a qualitative study which explored factors influencing the infant feeding choice of HIV-positive mothers at a peri-urban hospital in Tembisa, Gauteng.

Hoque, an Associate Professor and Academic Leader for Higher Degrees and Research at the Graduate School of Business and Leadership as well as being a Y2-rated researcher, said his research endeavours were driven by a desire to investigate something new.

He boasts more than 13 years of teaching experience and holds a Master of Science degree from UKZN and a Doctorate in Medical Science from the University of Antwerp in Belgium. ■

PROFESSOR STEPHEN OJWACH

Professor Stephen Ojwach has always strived to establish himself as a distinguished scholar with international standing in his field of expertise.

Ojwach's research niche revolves around investigating late transition metal complexes as catalysts for olefin transformation reactions. This involves the conversion of petrochemical-based raw materials into valuable industrial and domestic products such as fuel, lubricants, detergents, polymers, fragrances, food additives and pharmaceutical products.

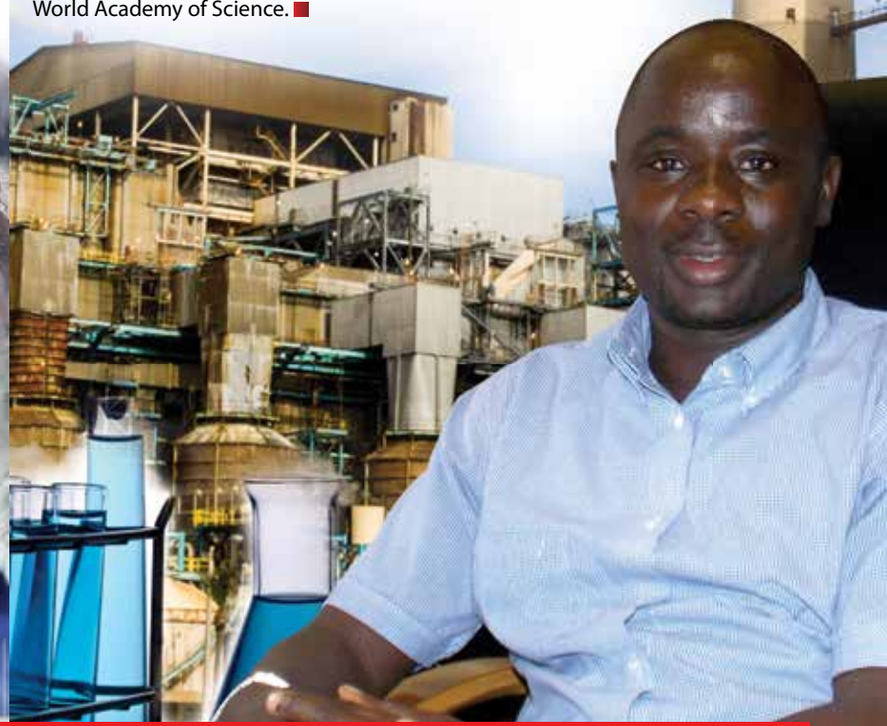
"South Africa is rich in petroleum derived from low-grade coal, and these low-grade olefins can be converted into a number of valuable domestic and industrial products," said Ojwach.

Ojwach, an associate professor and Academic Leader in the Chemistry and Physics Department on UKZN's Pietermaritzburg campus, has co-authored more than 60 publications in international peer-reviewed journals. He says his research journey started in 2003 when he received a scholarship to study for an MSc degree in Inorganic Chemistry at the University of the Western Cape.

After being awarded his MSc in 2005, he won another scholarship and completed his PhD in Inorganic Chemistry at the University of Johannesburg. In 2008, he joined Maseno University in Kenya as a lecturer in Inorganic Chemistry and was promoted to senior lecturer in 2011. While in Kenya, he received various research grants.

In 2012, he took up a position of senior lecturer at UKZN where he has grown in stature as a researcher and is now the principal investigator in the Olefin Programme.

Ojwach has received several international research grants, including one from the International Foundation for Science and another from the Third World Academy of Science. ■



DR TIVANI MASHAMBA-THOMPSON

Dr Tivani Mashamba-Thompson, the Academic Leader for Research at the School of Nursing and Public Health, lost her mother in 2007 to Motor Neuron Disease (MND), a fatal muscle wasting neurodegenerative ailment.

Mashamba-Thompson believes her mother's condition was "inadequately diagnosed and poorly managed" due to a lack of appropriate diagnostics systems and responsive healthcare and this has since been the driving force behind her research which focuses on translational medicine.

A medical scientist, Mashamba-Thompson has been hard at work researching precision technologies for disease diagnosis at point-of-care.

"Regrettably, not accessing more precise diagnostics and healthcare is still a reality for many in South Africa, including those suffering from treatable conditions," she explained.

Most of the available treatments, she says, have been designed with a "one-size-fits-all" approach, something that may be useful for some patients but may prove unhelpful or even harmful for others.

"This demands the urgent implementation of precision technologies to aid in precise diagnosis and selecting the right treatment for individual patients."

Mashamba-Thompson has received recognition, both at home and abroad, for her research which she feels has enabled her to collaborate with some of the leading researchers in the field.

In 2017, not only did she author 14 articles but she was also invited to present her research findings as a keynote speaker at the University College London in England. ■

PROFESSOR ANDREW GREEN

Academic leader of Geological Sciences Professor Andrew Green says his passion for research stems from his love for writing and for the natural world, especially the ocean.

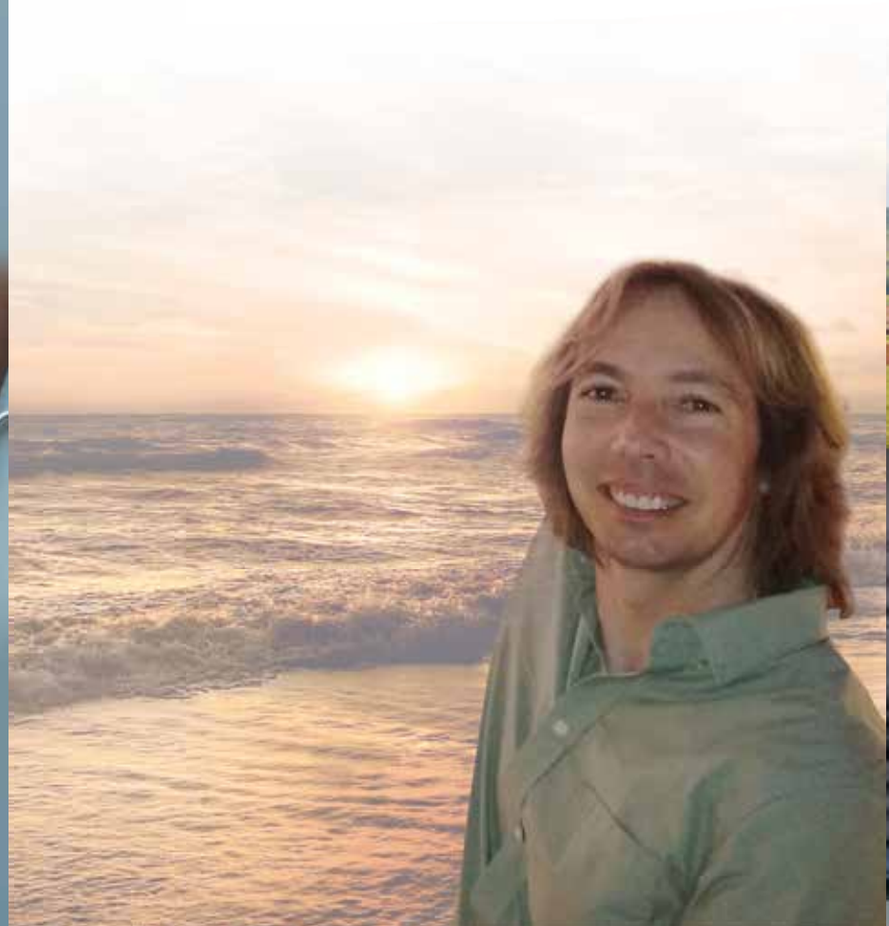
His main area of research is coastal and marine geology, specifically shallow marine systems and sediments as they relate to sea level changes.

This research, Green says, is key to the effective and sustainable planning around climate change for major coastal urban centres.

"Considering the recent Intergovernmental Panel on Climate Change (IPCC) report, never has insight into past sea level and climate been so important. Examining how palace-coastal systems have responded to major shifts in sea level gives a glimpse into how future scenarios will play themselves out as the world's coasts are drowned by rising waters," he said.

Despite having achieved a lot in research and academia - including eight papers published in 2017 - Green says he and his wife's purchase of a new home and getting a dog top the list of his 2017 highlights!

Meanwhile, his 2017 research and academia highlights include being appointed Editor-in-Chief of the journal *Geo-Marine Letters*, running an International Geoscience Programme meeting on sea level changes, and having all his students graduate with first class MSc degrees. ■



DR LEMBE MAGWAZA

Finding innovative ways to reduce unnecessary post-harvest losses and food waste is Dr Lembe Magwaza's passion.

He says world-wide food loss and waste in the post-harvest value chain amount to about 1.8 billion tons every year and this could threaten food security in the near future.

"Post-harvest food losses are also translated into wastage of resources such as water, land, agro-chemicals, fertilisers, energy, money, and other crop production inputs," said Magwaza who adds that this might also be contributing to global warming considering agricultural crop production is energy intensive and that the industry depends mainly on fossil fuels.

A lecturer in the Discipline of Crop Science in the School of Agricultural, Earth and Environmental Sciences, Magwaza leads a multidisciplinary postgraduate and postdoctoral research team in the Disciplines of Crop Science, Horticultural Science, Plant Pathology and Biosystems Engineering.

The team is working on practices that will improve the post-harvest handling of different tropical and subtropical fruit.

Magwaza says the next research project he will undertake is aimed at reducing postharvest food losses incurred by smallholder farmers from 50% to less than 10%.

His ultimate goal is to produce postgraduates who are better equipped for potential industry collaborations and transfer developed technologies as well as those who want to be entrepreneurs instead of employees.

DR MATTHEW AKERMAN

Dr Matthew Akerman, senior lecturer and Academic Leader of Teaching and Learning in the School of Chemistry and Physics, believes the days of individuals performing high level research on their own are over.

It is for this reason he has formed what he says are "many beneficial collaborations" with other researchers nationally and internationally as he continues in his quest to develop drug candidates for the treatment of various cancers.

One such collaboration is with the South African Nuclear Energy Corporation and this has seen his research move into radiopharmaceuticals. "We have thus far developed a few good drug candidates, some of which have been patented. The road to delivering a new drug to the market though remains long," said Akerman.

As an inorganic chemist, Akerman conducts research in bioinorganic chemistry and X-ray crystallography. His work in this area has focused on the applications of metals - mainly copper - in the treatment of various cancers.

Having published 10 ISI-rated articles in 2017, Akerman says his passion for research can be attributed to the excellent training he received as part of his postgraduate training from accomplished researcher Professor Orde Munro.

Akerman is now trying to inspire the next generation of researchers. Although he is an active researcher, he has maintained an interest in teaching as he feels there is a strong connection between the two at university level.

PROFESSOR TRICIA NAICKER

Professor Tricia Naicker (33) is the youngest Associate Professor in the Discipline of Pharmaceutical Science in the College of Health Sciences at UKZN.

Having published 12 papers in 2017, Naicker's main area of focus is method development in organic synthesis with an emphasis on drug discovery.

"I hope that one of my products will contribute to the pharmaceutical industry through helping society deal with one of our many health challenges," she said.

Her passion for research is driven by her desire to be happy with everything she does as well as solving problems, learning new concepts and helping others.

She says joining the Catalysis and Peptide Research Unit team – "where leaders create leaders" - is the best decision she has ever made.

Hard work is obviously one of the ingredients for Naicker's success - but there is more to it than that. "The support and platform that Principal Investigators at the Unit, Professor Gert Kruger and Professor Thavi Govender, have created accelerated my research enormously," she said.

Naicker joined the academic staff at UKZN in 2013 after completing her PhD in Pharmaceutical Chemistry and did postdoctoral research at the Aarhus University in Denmark.

In 2017, she was the runner-up in the Young Distinguished Women category of the South African Women in Science Awards. ■

TOP FIVE MOST CITED RESEARCHERS

NO.	TITLE	SURNAME	FIRST NAME	SCHOOL
1	Professor	Naidoo	Kovin	Health Sciences
2	Professor	Sartorius	Benn	Nursing & Public Health
3	Professor	Tanser	Frank	Nursing & Public Health
4	Professor	Mohammadi	Amir	Engineering
5	Professor	Govender	Thavendran	Health Sciences

PROFESSOR KOVIN SHUNMUGAN NAIDOO

While references to the research findings of Professor Kovin Shunmugan Naidoo are numerous, the most often cited and most important, he says, are those that provide valuable epidemiology data for all major diseases and assist with health services planning - particularly in the field of eye care in Africa.

Naidoo has dedicated his career to the inequalities of eye care services for the poor as well as bringing attention to the impact of uncorrected refractive error (URE) on the prevalence of blindness and vision impairment which has led to the World Health Organization (WHO) changing its approach in the way refractive error (RE) is defined.

The most cited articles are from research which Naidoo collaborated on in terms of the global burden of disease studies (GBD) between 2005 and 2017.

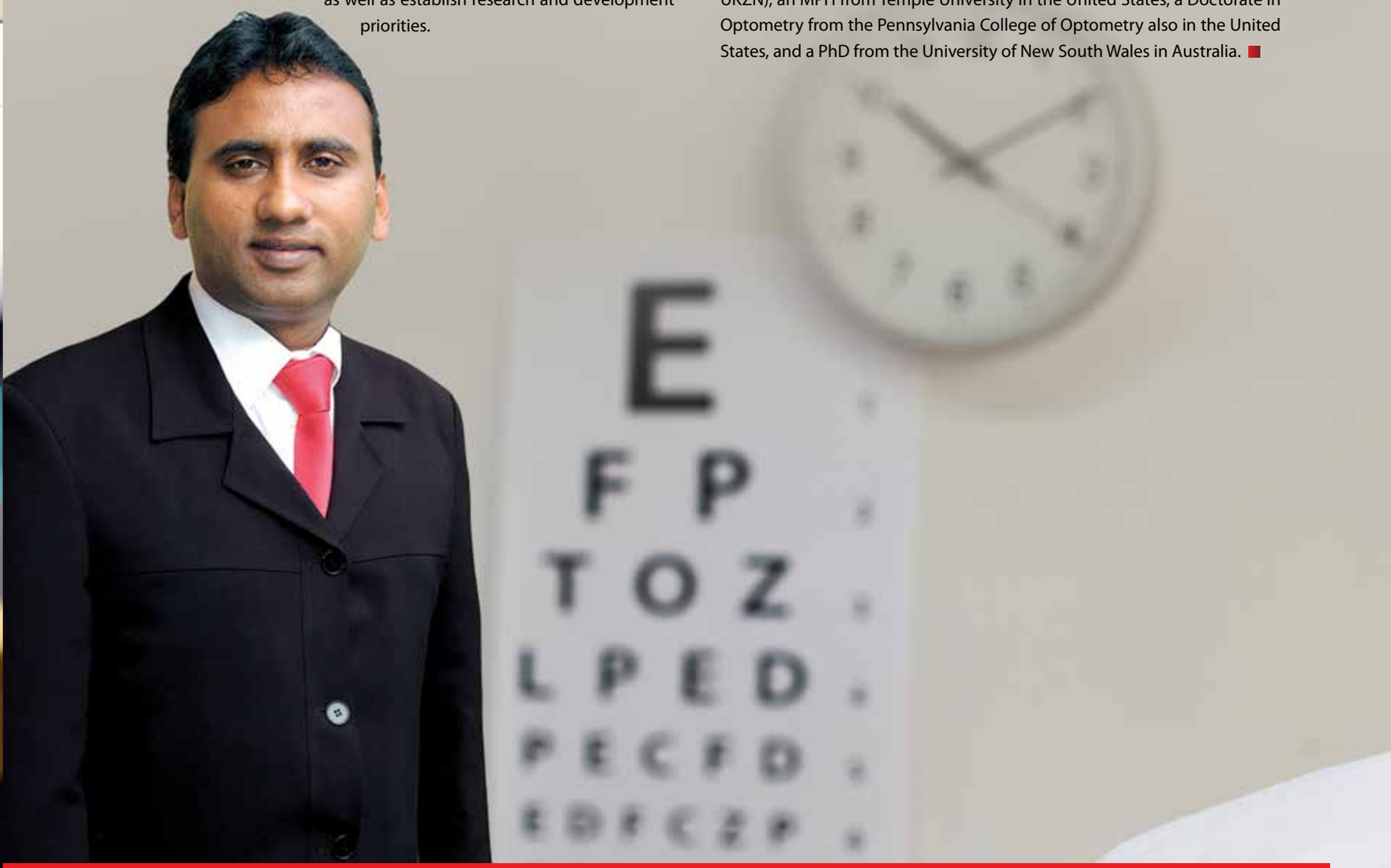
Epidemiological data, Naidoo said, was critical because it assisted with healthcare planning and also helped policy makers define key priorities, identified where care was most needed, and supported advocacy efforts of civil organisations to articulate the required health interventions. The data was also useful as it helped define and monitor those interventions as well as establish research and development priorities.

Prior to findings from the research, Naidoo said organisations such as WHO assumed that those in poor communities who presented with visual acuity received the correction they needed as eye examinations and glasses were not expensive and therefore not a public health care priority. However, the opposite was true.

"This resulted in URE becoming the leading cause of vision impairment and the second leading cause of blindness, elevating its importance in global and national eye health priorities. This has led to significant investment, both by civil society and governments in addressing this eye health challenge," Naidoo said.

Recently Naidoo collaborated on research which showed that by 2050, half of the world's population would be myopic (short-sighted), with 20% of these individuals at risk of blindness and serious vision impairment due to high myopia.

Naidoo, who cites Australian eye health researcher, Professor Brien Holden, as his mentor and someone who he has collaborated with on the establishment of public health programmes around the world, has a BSc and BOptometry degree from the former University of Durban-Westville (now UKZN), an MPH from Temple University in the United States, a Doctorate in Optometry from the Pennsylvania College of Optometry also in the United States, and a PhD from the University of New South Wales in Australia. ■



PROFESSOR BENN SARTORIUS

Professor Benn Sartorius is a full research professor in the School of Nursing and Public Health, College of Health Sciences.

His primary research interest has been in the spatial epidemiology domain with particular focus on the burden of disease and associated determinants under the auspices of the Institute for Health Metrics and Evaluation (IHME) at the University of Washington in Seattle, United States.

"I became a member of the Scientific Council for the Global Burden of Disease (GBD) project in 2015 and have as such joined their key scientific decision-making body," said Sartorius. "The Scientific Council is made up of leading experts in fields related to the GBD project and consists of 30 scientists from around the globe. I'm the only member from South Africa and one of two from the African continent."

Sartorius has also been appointed as an Affiliate Professor in Health Metrics Sciences at the University of Washington.

A large proportion of his citations in 2017 came from his work and involvement in the Global Burden of Disease project which were published in high impact journals such as *The Lancet* and the *New England Journal of Medicine* specifically. The Global Burden of Disease (GBD) project provides a tool to quantify health loss from hundreds of diseases, injuries and risk factors so that health systems can be improved and disparities eliminated.

The GBD research estimates all-cause and cause-specific mortality, morbidity and associated risk factor attributability by age, sex, geography and year using consistently improving analytical approaches.

Given the demand and need for up-to-date information on the health of populations, annual updates of the GBD study are now prepared at country and subnational level over time to help inform health policy debates and decision making by health authorities.

Notable publications contributing to his growing citations include:

- GBD 2015 Risk Factors Collaborators†. Global, regional, and national comparative risk assessment of 79 behavioural, environmental and occupational, and metabolic risks or clusters of risks, 1990–2015: a systematic analysis for the Global Burden of Disease Study 2015. *The Lancet*. 2016 Oct 8;388(10053):1659-724
- Global Burden of Disease Cancer Collaboration. Global, regional, and national cancer incidence, mortality, years of life lost, years lived with disability, and disability-adjusted life-years for 32 cancer groups, 1990 to 2015: a systematic analysis for the global burden of disease study. *JAMA Oncology*. 2017 Apr 1;3(4):524-48

Sartorius is also a member of a current World Health Organization (WHO) expert task force for Health Metrics (GPW 13) under the auspices of the WHO Expert Reference Group to accelerate the development of the triple billion methodology focusing on three strategic priority areas: universal health coverage, health emergencies and healthier population targets.

Sartorius was also integrally involved in other spatial temporal burden of disease work that was published in the prestigious journal *Nature* (malaria) and leading epidemiology journal *International Journal of Epidemiology* (HIV) in 2017.

"Further high impact papers are currently in the pipeline and will, I hope, continue to make a significant public health impact," he added. ■

PROFESSOR FRANK TANSER

Professor Frank Tanser is a South African infectious disease epidemiologist with specialist expertise in geographical information systems (GIS) technology.

He is also a founder member of the Africa Centre for Population Health – now known as the Africa Health Research Institute – where he holds the position of faculty member. The facility was first opened in 1998.

Tanser's research aims to evaluate and design intervention strategies to drive back the HIV epidemic and its negative consequences in communities hardest hit by the disease.

Tanser has published more than160 papers in high-ranking journals including *Science, Science Translational Medicine, PLoS Medicine, ELife* and five papers in *The Lancet*. His research has been cited over 13 500 times and he has an H-index of 47.

In 2017, he was awarded a gold medal by the South African Medical Research Council (SAMRC) for his seminal scientific contributions in the fields of HIV and tuberculosis research. The SAMRC awards are among South Africa's most prestigious and handed out annually to established senior scientists who have made seminal scientific contributions directly impacting on the health of developing country populations.

On receiving the award, Tanser said he was deeply honoured and accepted the recognition on behalf of his "excellent team of researchers and collaborators". He also paid tribute to the "incredible" support from his family for the more than 20 years he had been doing this all-important and often highly demanding work.

His pivotal work over the two decades has provided substantial insights into the ever-changing nature of the HIV epidemic and its key drivers resulting in informed prevention and treatment efforts in the sub-Saharan Africa region.

Tanser's research into the population-level impacts of the antiretroviral therapy (ART) roll-out has led to wide-reaching and rapid changes in government policy on how treatment programmes in South Africa are designed and implemented. In particular, a seminal study published in one of the world's leading scientific journals, *Science*, was the first to show how nurse-led and decentralised HIV programmes in rural areas could be successful in reducing transmission of HIV at the community level.

Tanser is an honorary professor at the University College London and currently serves on the board of the *The Lancet HIV* while also being a member of the International Scientific and Technical Advisory Committee to the Executive Director of UNAIDS, Michele Sidibé.

Holding master's degrees from the Imperial College in London and Rhodes University in Grahamstown, Tanser also has a doctorate from UKZN. He has served as a consultant and advisor to several high-profile organisations including the Mailman School of Public Health, USAID, the Futures Group International and UNAIDS.

Tanser has raised over R550 million in external research funding to date and is the recipient of numerous scientific grants. ■

PROFESSOR AMIR H MOHAMMADI

Gas hydrate formation as an environmentally empathetic separation technology is showing tremendous potential, both from a physical feasibility option as well as an envisaged lower energy utilisation criterion which has resulted in a dramatic increase in research in the field over the last decade.

Professor Amir H Mohammadi, who has 20 years' experience working in the Discipline of Chemical Engineering with a specific interest in gas hydrates, thermodynamics and petroleum engineering, is rated one of UKZN's most cited academics.

The most cited research was titled: Application of Gas Hydrate in Separation Processes: A Review of Experimental Studies, which was completed at the MINES ParisTech in France in 2012. In the article, focus was given to a brief description of the positive applications of gas hydrates and a comprehensive survey of experimental studies performed on separation processes using gas hydrate formation phenomena, and to conclusively prove its sustainability.

According to a 2014 Essential Science Indicator released by ISI Thomson Reuters - recognised as the ISI's International Top Scientists list - Mohammadi is also rated as a top (0.01%) researcher globally.

Mohammadi is renowned not only for his pioneering research in the field, which is his passion, but also the development of this technology which he says has allowed him to work on solutions for gas hydrate formation that are more environmentally friendly and cost effective for industry. The research, he says, gives him motivation for the future.

With academic qualifications from Université Paris XIII (Université Sorbonne, Paris Cité), École Nationale Supéreure des Mines de Paris, both in France; the Heriot-Watt University in the United Kingdom and the University of Tehran in Iran, Mohammadi has been a visiting professor at the University of Calgary and Université Laval, both in Canada; adjunct lecturer at École des Mines de Nantes in France; and a visiting scholar at the Instituto Politécnico Nacional in Mexico, the Planta Piloto de Ingeniería Química in Argentina and the Tomsk Polytechnic University in Russia.

He is also a recipient of a research award from the Institute of Materials, Minerals and Mining in the United Kingdom and outstanding research awards from UKZN. ■

Prolific Researchers

Research Portfolio

TITLE	SURNAME	FIRST NAME	SCHOOL
Professor	Ramjugernath	Deresh	Research

College of Agriculture, Engineering and Science

TITLE	SURNAME	FIRST NAME	SCHOOL
Professor	Adali	Sarp	Engineering
Dr	Akerman	Matthew Piers	Chemistry & Physics
Professor	Albericio	Fernando	College Admin Office: AES
Professor	Baiyegunhi	Lloyd James Segun	Agricultural, Earth and Environmental Sciences
Professor	Chimonyo	Michael	Agricultural, Earth and Environmental Sciences
Professor	Domanska-Zelazna	Urszula Maria	Engineering
Professor	Downs	Colleen Thelma	Life Sciences
Professor	Friedrich	Holger Bernhard	Chemistry & Physics
Dr	Giraldi	Filippo	College Admin Office: AES
Dr	Goswami	Rituparno	Mathematics, Statistics and Computer Science
Professor	Govinder	Keshlan Sathasiva	Mathematics, Statistics and Computer Science
Professor	Green	Andrew Noel	Agricultural, Earth and Environmental Sciences
Professor	Gubba	Augustine	Agricultural, Earth and Environmental Sciences
Professor	Gueguim Kana	Evariste Bosco	Life Sciences
Dr	Hansraj	Sudan	Mathematics, Statistics and Computer Science
Professor	Inambao	Freddie Liswaniso	Engineering
Professor	Islam	Shahidul	Life Sciences
Dr	Jeena	Vineet	Chemistry & Physics
Professor	Johnson	Steven Dene	Life Sciences
Professor	Jonnalagadda	Sreekantha Babu	Chemistry & Physics
Professor	Koorbanally	Neil Anthony	Chemistry & Physics
Professor	Laing	Mark Delmege	Agricultural, Earth and Environmental Sciences
Professor	Mafongoya	Paramu	Agricultural, Earth and Environmental Sciences
Dr	Magwaza	Lembe Samukelo	Agricultural, Earth and Environmental Sciences
Professor	Maharaj	Sunil Dutt	Mathematics, Statistics and Computer Science
Dr	Manning	John Charles	Life Sciences
Professor	Massamba	Fortune	Mathematics, Statistics and Computer Science
Dr	Mewomo	Oluwatosin Tope	Mathematics, Statistics and Computer Science
Professor	Modi	Albert Thembinkosi	Agricultural, Earth and Environmental Sciences
Professor	Mohammadi	Amir Hossein	Engineering
Professor	Mola	Genene Tessema	Chemistry & Physics
Professor	Motsa	Sandile Sydney	Mathematics, Statistics and Computer Science
Dr	Mudhara	Maxwell	Agricultural, Earth and Environmental Sciences
Professor	Mukaratirwa	Samson	Life Sciences
Professor	Mutanga	Onisimo	Agricultural, Earth and Environmental Sciences
Professor	Mwambi	Henry Godwell	Mathematics, Statistics and Computer Science
Professor	Nsahlai	Ignatius Verla	Agricultural, Earth and Environmental Sciences

continued...

College of Agriculture, Engineering and Science

TITLE	SURNAME	FIRST NAME	SCHOOL
Professor	Nyamori	Vincent Onserio	Chemistry & Physics
Dr	Odindi	John Odhiambo	Agricultural, Earth and Environmental Sciences
Dr	Odindo	Alfred Oduor	Agricultural, Earth and Environmental Sciences
Professor	Ojwach	Stephen Otieno	Chemistry & Physics
Professor	Olaniran	Ademola Olufolahan	Life Sciences
Dr	Olckers	Terence	Life Sciences
Dr	Owaga	Bernard Omondi	Chemistry & Physics
Professor	Petruccione	Francesco	Chemistry & Physics
Professor	Savage	Michael John	Agricultural, Earth and Environmental Sciences
Professor	Schmidt	Stefan	Life Sciences
Professor	Shimelis	Hussein	Agricultural, Earth and Environmental Sciences
Professor	Sibanda	Precious	Mathematics, Statistics and Computer Science
Dr	Sibiya	Julia	Agricultural, Earth and Environmental Sciences
Professor	Singh	Moganavelli	Life Sciences
Professor	Sithole	Bishop Bruce	College Admin Office: AES
Professor	Siwela	Muthulisi	Agricultural, Earth and Environmental Sciences
Professor	Srivastava	Viranjay Mohan	Engineering
Dr	Stone	Robert Douglas	Life Sciences
Professor	Tapamo	Jules Raymond	Engineering
Dr	Tesfay	Samson Zeray	Agricultural, Earth and Environmental Sciences
Professor	Van Staden	Johannes	Life Sciences
Professor	Van Zyl	Werner Ewald	Chemistry & Physics
Professor	Ward	David Mercer	Life Sciences
Professor	Workneh	Tilahun Seyoum	Engineering
Professor	Worth	Steven Hugh	Agricultural, Earth and Environmental Sciences
Professor	Zewotir	Temesgen Tenaw	Mathematics, Statistics and Computer Science

College of Health Sciences

TITLE	SURNAME	FIRST NAME	SCHOOL
Professor	Abdool Karim	Salim Safurdeen	CAPRISA
Professor	Aldous	Colleen Michelle	Clinical Medicine
Professor	Brysiewicz	Petra	Nursing and Public Health
Professor	Chimbari	Moses John	Nursing and Public Health
Professor	Chuturgoon	Anil Amichund	Laboratory Medicine and Medical Sciences
Professor	Clarke	Damian Luiz	Clinical Medicine
Professor	Garcia De-La-Torre	Beatriz	Laboratory Medicine and Medical Sciences
Dr	Gopalan	Pragasan Dean	Clinical Medicine
Professor	Govender	Thirumala	Health Sciences
Professor	Govender	Thavendran	Health Sciences
Mr	Gray	andrew Lofts	Health Sciences
Dr	Hardcastle	Timothy Craig	Clinical Medicine

continued...

College of Health Sciences

TITLE	SURNAME	FIRST NAME	SCHOOL
Dr	Karpoormath	Rajshekhar	Health Sciences
Professor	Kruger	Hendrik Gerhardus	Health Sciences
Dr	Laing	Grant Llewellyn	Clinical Medicine
Dr	Lazarus	Lelika	Laboratory Medicine and Medical Sciences
Professor	Mabandla	Musa Vuyisile	Laboratory Medicine and Medical Sciences
Professor	Madiba	Thandinkosi Enos	College Admin Office: HS
Professor	Marais	Leonard Charles	Clinical Medicine
Dr	Mashamba-Thompson	Tivani Phosa	Nursing and Public Health
Dr	Mashige	Khathutshelo Percy	Health Sciences
Professor	Moodley	Jagidesa	Clinical Medicine
Professor	Motala	Ayesha Ahmed	Clinical Medicine
Professor	Naicker	Tricia	Health Sciences
Professor	Naicker	Thajasvarie	Laboratory Medicine and Medical Sciences
Professor	Naidoo	Mergan	Nursing and Public Health
Dr	Nlooto	Manimbulu	Health Sciences
Professor	Pillay	Basil Joseph	Nursing and Public Health
Professor	Ross	andrew John	Nursing and Public Health
Professor	Sartorius	Benn Kurt Daniel	Nursing and Public Health
Professor	Satyapal	Kapil Sewsaran	Laboratory Medicine and Medical Sciences
Professor	Singh	Shenuka	Health Sciences
Professor	Soliman	Mahmoud Elsayed	Health Sciences
Professor	Suleman	Fatima	Health Sciences
Professor	Taylor	Myra	Nursing and Public Health
Professor	Tsoka-Gwegweni	Joyce Mahlako	Nursing and Public Health
Dr	Wajuihian	Samuel Otabor	Health Sciences

College of Humanities

TITLE	SURNAME	FIRST NAME	SCHOOL
Professor	Ballantine	Christopher John	Arts
Professor	Bansilal	Sarah	Education
Professor	Bhana	Deevia	Education
Professor	Denis	Philippe Marie Berthe Raoul	Religion, Philosophy and Classics
Professor	Draper	Jonathan Alfred	Religion, Philosophy and Classics
Professor	Gopal	Nirmala Devi	Applied Human Science
Professor	Govender	Desmond Wesley	Education
Professor	Govender	Nadaraj	Education
Professor	Hewitt	Roderick Raphael	Religion, Philosophy and Classics
Professor	Hoskins	Ruth Geraldine Melonie	Social Sciences
Professor	Khalema	Ernest Nene	Built Environment and Development Studies
Professor	Maistry	Suriamurthee Moonsamy	Education
Professor	Malaba	Mbongeni Zikhethele	Arts

continued...

College of Humanities

TITLE	SURNAME	FIRST NAME	SCHOOL
Dr	Maluleke	Witness	Applied Human Sciences
Professor	Marschall	Sabine	Social Sciences
Professor	Meyer-Weitz	Anna	Applied Human Sciences
Dr	Mkhatshwa	Elijah Johan	Arts
Professor	Morojele	Pholoho Justice	College Admin Office: HUM
Professor	Mutula	Stephen	Social Sciences
Dr	Naidoo	Jayaluxmi	Education
Professor	Naidu	Uma Maheshvari	Social Sciences
Professor	Nwoye	Augustine	Applied Human Sciences
Professor	Ojong	Vivian Besem	Social Sciences
Dr	Singh-Pillay	Asheena	Education
Dr	Siwila	Cheelo Lillian	Religion, Philosophy and Classics
Professor	Smit	Johannes andreas	Religion, Philosophy and Classics
Professor	Stobie	Cheryl	Arts
Professor	West	Gerald Oakley	Religion, Philosophy and Classics

College of Law and Management Studies

TITLE	SURNAME	FIRST NAME	SCHOOL
Dr	Bokana	Koye Gerry	Accounting, Economics and Finance
Professor	Brijball Parumasur	Sanjana	Mananagement, Information Technology & Governance
Dr	Chummun	Bibi Zaheenah	Graduate School of Business & Leadership
Professor	Fields	Ziska	Mananagement, Information Technology & Governance
Professor	Govender	Krishna Kistan	Mananagement, Information Technology & Governance
Professor	Govender	Irene	Mananagement, Information Technology & Governance
Professor	Hoctor	Shannon Vaughn	Law
Dr	Hoque	Muhammad Ehsanul	Graduate School of Business & Leadership
Dr	Kwenda	Farai	Accounting, Economics and Finance
Professor	Mcquoid-Mason	David Jan	Law
Professor	Migiro	Stephen Oseko	Graduate School of Business & Leadership
Dr	Mutambara	Emmanuel	Graduate School of Business & Leadership
Dr	Muzindutsi	Paul-Francois	Accounting, Economics and Finance
Professor	Ngalawa	Harold Phellix Emmanuel	Accounting, Economics and Finance
Professor	Pelser	Theunis Gert	Graduate School of Business & Leadership
Professor	Sibanda	Mabutho	Accounting, Economics and Finance
Dr	Tenza	Mlungisi Ernest	Law
Dr	Thaldar	Donrich Willem	Law
Professor	Wissink	Henry Frank	Mananagement, Information Technology & Governance

EMERGING RESEARCHERS

Top 10 Published Students

NO	TITLE	SURNAME	FIRST NAME	COLLEGE	SCHOOL
1	Ms	Motsa	Ncamsile Daphne	Humanities	Education
2	Dr	Chemura	Abel	Agriculture, Engineering and Science	Agricultural, Earth and Environmental Sciences
3	Dr	Moodley	Preshanthan	Agriculture, Engineering and Science	Life Sciences
4	Dr	Kehdinga	George Fomunyam	Humanities	Education
5	Dr	Obih	Uchenna	Agriculture, Engineering and Science	Agricultural, Earth and Environmental Sciences
6	Dr	Akande	Joseph Olorunfemi	Law and Management Studies	Accounting, Economics and Finance
7	Dr	Njogu	Eric Munene	Agriculture, Engineering and Science	Chemistry and Physics
8	Dr	Shoko	Cletah	Agriculture, Engineering and Science	Agricultural, Earth and Environmental Sciences
9	Dr	Balmith	Marissa	Health Sciences	Health Sciences
10	Dr	Kutu	Augustine Adebayo	Law and Management Studies	Accounting, Economics and Finance

MISS NCAMSILE DAPHNE MOTSA

School of Education

"If I could wake up one day and know that no child goes to bed hungry, miserable, hating school, and that no child is stigmatised and discriminated against, I would have served my purpose. Until then, sleep will remain a luxury for me."

These are the words Miss Ncamsile Motsa - who tops the list of UKZN's most published students for 2017 - uses to describe her determination to help poor and vulnerable children get a better shot at life through a decent education.

Currently a rural high school teacher in eSwatini (formerly Swaziland) where she has taught for 15 years, Motsa wrote or co-authored five papers in 2017 and is now a PhD candidate under the mentorship of Professor Pholoho Morojele of UKZN.

Her research focused on how being an orphan, a child from a child-headed household or a child from a poor family affect schooling in a nation of over a million people, where an estimated 150 000 children have been classified as vulnerable due to the impact of HIV/ AIDS.

"I come from a polygamous family. My father had four wives and about 22 children. Hence, I have lived all my life surrounded by children and, probably, that is where my love for them was inculcated," she said.

"I have always known that writing was my path and indeed in academia, I have found my 'happy place'. So, for 2018 and the years beyond, I hope to write more on vulnerability and schooling. Only when I have published a thousand articles will I look back and say: 'I have fought a good fight'. " ■

DR ABEL CHEMURA

School of Agricultural, Earth and Environmental Sciences

Born into a farming family in Zimbabwe's Rusitu Valley, Dr Abel Chemura is convinced that his research work will help Africa's farmers reduce poverty and improve crop yields.

To do this, Chemura is making use of satellite imagery and advanced computer techniques to help overcome water stress, disease and other crop farming challenges in the era of climate change.

Working under the supervision of Professor Onisimo Mutanga, Chemura wrote or co-authored eight papers focused mainly on perennial tree crops, such as coffee grown by millions of farmers across the world.

"I worked on developing a method for crop condition assessment in coffee by combining remote sensing data and machine learning algorithms," Chemura said.

By analysing data from freely-available satellite imagery, information from infrared wavebands can be used to predict plant water content, water stress and other potential problems in advance. These techniques could potentially allow farmers to make use of drones, hand-held scanners and other devices to manage farming problems such as unnecessary water loss in irrigation farming.

Now working as a postdoctoral researcher in crop modelling at the Potsdam Institute for Climate Impact Research in Germany, he said, "I believe that remote sensing is a game changer in terms of revealing how agriculture techniques can be improved to fight hunger, poverty and diseases associated with low and poor-quality food systems." ■

DR PRESHANTHAN MOODLEY

School of Life Sciences

When he is not peering into a microscope, chances are that Dr Preshanthan Moodley is busy producing or directing a new film.

Over the last few years, the multi-talented Moodley has turned his energy to the study of microbiology, chemistry, biotechnology… and film-making.

In 2017, he published five papers focused mainly on the conversion of sugarcane and agricultural waste into value-added products such as biofuels.

"I was privileged to present my PhD research at an international conference in Switzerland, and some of my research was published in the top 10 journals in the biofuel field," he said.

Born in Richards Bay, Moodley says he is passionate about renewable energy and reducing the impact of global warming. He is currently a UKZN postdoctoral researcher continuing his research on biofuel production.

"My research has implications not just at home, but also abroad as the issues of fossil fuel depletion and climate change affect the entire world," he said.

"Prior to starting my science degree at UKZN in 2011, I completed my BA Hons in Filmmaking. I have produced several films and TV shows for DSTV. I have also managed to merge my two fields and have produced a series of short informative documentaries about the various disciplines at UKZN."

DR GEORGE FOMUNYAM KEHDINGA

School of Education

South African Higher Education remains rife with inequalities as well as a lack of resources and personnel, says Higher Education researcher Dr George Fomunyam Kehdinga.

"Owing to the inequalities and lack of transformation in South African universities, 24 years after the end of apartheid, students and staff are demanding the decolonisation of the curriculum," he says.

Born in Cameroon, his research at UKZN focused on several issues including decolonisation, student movements and student performance.

"Since students raised the question of decolonising Higher Education in South Africa, I set out to understand the character of student movements and how that affects the decolonisation movement. My research brings to light the character and history of student movements and how they impact the society in general and the Higher Education landscape in particular. The decolonisation of South African Higher Education would ensure the decolonisation of other aspects of the society in a bid to improve the knowledge economy," he says.

Kehdinga, who published seven articles and a book chapter in 2017, says he is looking forward to becoming a professor within the next five years and a leading scholar in education.

"Education has always been my passion because I enjoy training people and watching them develop," he said.

As a curriculum specialist, he is also motivated by determining what gets to be studied and how it can or should be studied. He believes universities need to create environments where students are comfortable to learn; thereby eradicating the need for protest.

DR UCHENNA OBIH

School of Agricultural, Earth and Environmental Sciences

Rice is the most common staple food for nearly 170 million Nigerians, yet many households still choose to buy expensive brands of imported rice rather than cheaper domestic varieties.

Dr Uchenna Obih (PhD Agricultural Economics) wrote several papers to explain why consumers are still willing to pay more for imported rice and what can be done to turn this situation around.

Obih believes that spending nearly US $6 million daily on rice imports not only drains the country's Forex reserves, but also threatens the development of the domestic rice industry.

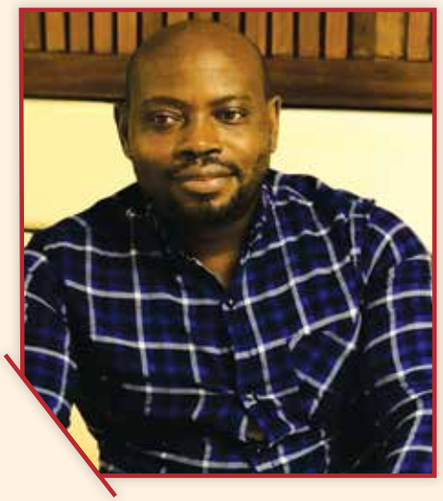
His studies examined customer perceptions about the colour and swelling capacities of different rice grains along with other factors. He has made several recommendations, including import restrictions, strategic marketing campaigns and measures to improve the quality and image of local rice brands.

Now based in Abuja as regional head of agribusiness finance at First City Monument Bank Ltd, he said: "I strongly believe that Nigeria's economic development is largely dependent on fixing the country's food security system and that a sound knowledge of agribusiness and access to affordable financing can play a key role in this."

Obih's ambitions include helping to establish two new privately-owned institutions, an agribusiness bank as well as an agricultural business school. ■

DR JOSEPH OLORUNFEMI AKANDE

School of Accounting, Economics and Finance



Dr Joseph Akande likens banking systems to the human heart, noting that if banks were to collapse, so too would their country's economies.

He also believes that competition and stability in banks have become increasingly important in the wake of the 2007/2009 financial crisis.

Akande wrote or co-authored five papers in 2017 which focused largely on how to stimulate competition in banking systems without compromising financial stability. This included a study on competition and stability in a panel of 440 commercial banks in 37 sub-Saharan African nations from 2006-2015.

The Nigerian-born father of four sons believes his research helped to produce several critical insights, with substantial implications for the conduct of bank regulatory policy.

"Of utmost importance will be the need to strengthen the various antitrust agencies and ensuring strict adherence to various banking regulations that address issues of competition, including monitoring and developing new ones where necessary," he said.

Akande hopes to continue working at the cutting-edge of financial research and help ensure global prosperity and development.

"We must never allow the world financial system to melt down again. Just as the heart is to the human body, so is the banking system crucial to an economy's financial system," he said.

He has a BSc (Hons) Accounting (1st class), MSc Finance (distinction) and PhD in Finance (UKZN). ■

DR ERIC MUNENE NJOGU

School of Chemistry and Physics

Lovers sometimes speak about a special "chemistry" that draws them together.

In fact, says Kenyan-born Chemistry researcher, Dr Eric Njogu: "Chemistry is the driver of all aspects of our lives and being. It is an active, evolving science that is fundamental to our world in the realms of nature and society."

Though its roots are ancient, he says chemistry is also the basis of all modern products in health and medicine; energy and the environment; materials and technology; food and agriculture - among others.

"My research is geared towards developing new chemical entities that can act as leads in the development of agents for the prevention and management of communicable and non-communicable diseases as well as those fascinating structures and applications in materials and technology."

Njogu hopes this research will contribute towards a family of non-toxic, novel synthetic compounds; some derived from silver and pyridinyl ligands.

"This means that in future, we can have drugs that are highly effective and have low toxicity to the users," he said.

Njogu published seven articles in 2017, some focused on the synthesis of new chemical entities using environmentally-friendly and high-yielding techniques.

He is currently lecturing and researching at the Multimedia University of Kenya, Nairobi, after obtaining his PhD in Chemistry from UKZN where he was also involved in several community outreach projects. ■

DR CLETAH SHOKO

School of Agricultural, Earth and Environmental Sciences

There are about 2 000 active satellites spinning around the earth at high altitude, transmitting reams of information back to receiving stations scattered all across the world.

Back down on terra firma, Dr Cletah Shoko is one of the thousands of young female earth scientists analysing and making use of this remotely-gathered imagery and data to solve real-world problems- literally with minimal ground-work required.

"The ability of remote-sensing to acquire information without physical contact, over large areas in a spatially-explicit manner and over time, is indispensable," says Shoko.

"It helps to overcome the labour-intensive, cost and spatial challenges associated with traditional field-based surveys in natural resources monitoring."

Shoko wrote or co-authored eight papers in 2017 focused mainly on the use of remote-sensing to monitor soil erosion, the moisture content of plants and grasses, climatic changes or the spread of invasive water weeds across southern Africa.

The Zimbabwean-born scientist and postdoctoral student believes that remote-sensing will help to expand the frontiers of knowledge in a more cost-effective way, especially in Africa where resources are limited.

She also feels this technology can go a long way towards using natural resources more wisely in an era where water and grazing resources are becoming increasingly scarce in many places. ■

DR MARISSA BALMITH

School of Health Sciences

The Ebola virus is a severe illness with an average fatality rate of 50% according to the World Health Organization. Yet to date, finding drugs to treat this deadly haemorrhagic fever has been challenging.

Born in Chatsworth, Durban, Dr Marissa Balmith has examined a relatively new methodology for molecular modelling and drug design research on the Ebola virus.

Balmith published three papers in 2017 and believes her research could provide potential clues for designing novel inhibitors to treat the virus.

"I am someone who is invigorated by new ideas and complex challenges, particularly those related to human disease," she said.

Balmith is now a postdoctoral research fellow in the Department of Chemistry at the University of Cape Town where she is part of the Scientific Computing Research Unit.

After completing her BSc degree in Microbiology and Biochemistry, she branched off into Biochemistry for both her Honours and Master's degrees. She then moved into new terrain to complete her PhD in Pharmaceutical Chemistry.

"I am passionate about science and research, as well as making a difference in the lives of people by bringing innovative ideas and problem solving to the research sector. My message to young scientists is to always believe in yourself and follow your dreams because hard work always pays off."

DR AUGUSTINE ADEBAYO KUTU

School of Accounting, Economics and Finance

China has emerged as a major force in industrial growth and global power relations, but the country's growth began to slow down at the end of 2014.

Nigerian-born economist Dr Augustine Adebayo Kutu (PhD Economics) has been tracking the growth of this new global powerhouse along with the effects of monetary policy, inflation and other global shocks in all five nations of the BRICS bloc (Brazil, Russia, India, China and South Africa).

Kutu - who has been listed among UKZN's Top 10 published student researchers for the second consecutive year - wrote or co-authored four papers during 2017 that focused primarily on monetary policy and exchange rate volatility in the five emerging economies. The BRICS nations collectively contain nearly 42% of the global human population and cover about 25% of the planet's landmass.

In one of his papers, Kutu found that China appeared to have overtaken the United States as an industrialised nation, but the country's growth rate had slowed down from the fourth quarter of 2014. This paper also looked at how China's long-term growth could be sustained by a more effective monetary policy.

He also examined monetary policy in South Africa and Brazil in order to establish the extent to which oil prices and international interest rates influenced currency exchange rate variations.

Emerging Researchers

College of Agriculture, Engineering and Science

TITLE	SURNAME	FIRST NAME	SCHOOL
Dr	Booysen	Irvin Noel	Chemistry & Physics
Dr	Chirove	Faraimunashe	Maths, Statistics and Computer Science
Dr	Di Minin	Enrico	Life Sciences
Dr	Finch	Jemma May	Agricultural, Earth and Environmental Science
Dr	Harinarain	Nishani	Engineering
Dr	Jachowski	David	Life Sciences
Dr	Joshi	Meenu	Life Sciences
Dr	Joshi	Shailesh Vinanay	Life Sciences
Dr	Kolanisi	Unathi	College Admin Office: AES
Dr	Kumar	Pradeep	Engineering
Dr	Kumarasamy	Muthukrishnavellaisamy	Engineering
Dr	Lokhat	David	Engineering
Dr	Lougue	Siaka	Maths, Statistics and Computer Science
Dr	Ma	Yin-Zhe	Chemistry & Physics
Mr	Mditshwa	Asanda	Agricultural, Earth and Environmental Science
Dr	Naidoo	Sershen	Life Sciences
Dr	Narain	Rivendra Basanth	Maths, Statistics and Computer Science
Dr	Nel	Adrian	Agricultural, Earth and Environmental Science
Dr	Nelson	Wayne Michael	Engineering
Dr	Pillay	Narushan	Engineering
Mr	Pitot De La Beaujardiere	Jean-Francois Philippe	Engineering
Dr	Sinayskiy	Ilya	Chemistry & Physics
Dr	Sithebe	Siphamandla	Chemistry & Physics
Dr	Swanson	Andrew Graham	Engineering
Dr	Tchoukouegno Ngnotchouye	Jean Medard	Maths, Statistics and Computer Science
Dr	Van Der Niet	Timotheus	Life Sciences
Dr	Van Niekerk	Brett	Maths, Statistics and Computer Science
Dr	Wiles	Nicola Laurelle	Agricultural, Earth and Environmental Science
Dr	Willows-Munro	Sandi	Life Sciences
Dr	Zishiri	Oliver Tendayi	Life Sciences

College of Humanities

TITLE	SURNAME	FIRST NAME	SCHOOL
Dr	Brzozowski	Jacek Jerzy	Religion, Philosophy and Classics
Dr	Dyll-Myklebust	Lauren Eva	Applied Human Science
Dr	Ettang	Dorcas Oyebisi	Social Sciences
Mrs	Khala-Phiri	Ayanda Kabelo	Arts
Dr	Matolino	Bernard	Religion, Philosophy and Classics
Dr	Ndlovu	Annatoria Zanele	Education
Ms	Nqelenga	Pumelela	Arts
Dr	Okem	andrew Emmanuel	Social Sciences
Dr	Pillay	Kathryn	Social Sciences

College of Health Sciences

TITLE	SURNAME	FIRST NAME	SCHOOL
Dr	Bruce	John Lambert	Clinical Medicine
Dr	De Gama	Brenda Zola	Laboratory Medicine and Medical Sciences
Mrs	Maddocks	Stacy Theresa	Health Sciences
Dr	Mahomed	Saajida	Laboratory Medicine and Medical Sciences
Dr	Moshabela	Matlagolo Mosa	Nursing and Public Health
Dr	Naidoo	Joanne Rachel	Nursing and Public Health
Dr	Naidoo	Rowena	Health Sciences
Dr	Nkambule	Bongani Brian	Laboratory Medicine and Medical Sciences
Dr	Perumal-Pillay	Velisha Ann	Health Sciences
Dr	Pillay	Pathmavathie	Laboratory Medicine and Medical Sciences
Ms	Sayed Karrim	Saira Banu	Health Sciences
Dr	Skelton	Adam Arnold	College Admin Office
Dr	Tomita	Mitsuaki andrew	Nursing and Public Health
Dr	Mansoor	Leila Essop	Nursing and Public Health
Dr	Vandormael	Alain Marc	Nursing and Public Health

College of Law and Management Studies

TITLE	SURNAME	FIRST NAME	SCHOOL
Mr	Ajayi	Nurudeen	Management, Information Technology and Governance
Mr	Ayandibu	Ayansola Olatunji	Management, Information Technology and Governance
Ms	Balogun-Fatokun	Victoria Aderonke	Law
Miss	Behari	Asheelia	Law
Dr	Chasomeris	Mihalis Georgiou	Graduate School of Business & Leadership
Mr	Chikandiwa	Christopher Tarisayi	Graduate School of Business & Leadership
Ms	Dobreva	Ralitza Vassileva	Accounting, Economics & Finance
Mrs	Donnelly	Dusty-Lee	Law
Mrs	Doorasamy	Mishelle	Accounting, Economics & Finance
Mr	George	Gavin Lloyd	Accounting, Economics & Finance
Mrs	Holness	Willene Audri	Law
Dr	Khan	Franaaz	Law
Mr	Khumalo	Khulekani	Law
Dr	Mashau	Pfano	Graduate School of Business & Leadership
Dr	Mc Cullough	Kerry-Ann Frances	Accounting, Economics & Finance
Dr	Muller	Colette Lynn	Accounting, Economics & Finance
Dr	Nyatanga	Phocenah	Accounting, Economics & Finance
Mr	Nzimande	Ntokozo Patrick	Accounting, Economics & Finance
Dr	Oodith	Devina	Management, Information Technology and Governance
Dr	Proches	Cecile Naomi	Graduate School of Business & Leadership
Mr	Subramanien	Darren Cavell	Law
Dr	Surbun	Vishal	Law
Dr	Swanepoel	Paul Arthur Albertus	Law
Miss	Tucker	Leigh Andrea	Accounting, Economics & Finance
Dr	Van Der Westhuizen	Thea	Management, Information Technology and Governance

Doctoral Graduates

College of Agriculture, Engineering and Science

SURNAME	FIRST NAME	SCHOOL	QUALIFICATION	THESIS TITLE
Abdou	Nourou	Agricultural, Earth and Environmental Sciences	Doctor of Philosophy (Science)	The Effect of Roughage Processing and Feeding Level on Production, Reproduction, and Growth Performance of the Red Maradi Goat
Abraha	Mizan Tesfay	Agricultural, Earth and Environmental Sciences	Doctor of Philosophy (Science)	Breeding Tef Eragrostis tef (Zucc.) Trotter] for Drought Tolerance in Northern Ethiopia
Adam	Elkhatab Mohamed Abdalla	Agricultural, Earth and Environmental Sciences	Doctor of Philosophy (Science)	Land Use and Land Management Impact on Soil CO2 Emissions in Selected Smallholder Farming Systems
Aduah	Michael Soakodan	Agricultural, Earth and Environmental Sciences	Doctor of Philosophy (Science)	Impacts of Global Change on a Lowland Rainforest Region of West Africa
Akinnuoye-Adelabu	Dolapo Bola	Agricultural, Earth and Environmental Sciences	Doctor of Philosophy (Science)	Integration of Management Practices Towards Improving Hybrid Maize Yield, Quality and Nutritional Compositions Under Rain-Fed Condition
Bulcock	Lauren Michelle	Agricultural, Earth and Environmental Sciences	Doctor of Philosophy (Science)	Exploring the Potential for the Use of Remote Sensing Technology and GIS to Aid the Upscaling of Rainwater Harvesting in Sub-Saharan Africa
Chapoto	Rumbidzai Debra	Agricultural, Earth and Environmental Sciences	Doctor of Philosophy (Science)	The Response of Insect Pests to a Changing and Variable Climate in Zimbabwe
Chaúque	Pedro Silvestre	Agricultural, Earth and Environmental Sciences	Doctor of Philosophy (Science)	Genetic and Path Coefficient Analyses and Heterotic Orientation of Maize Germplasm Under Combined Heat and Drought Stress in Sub-Tropical Lowland Environments
Chipeta	Michael Malandula	Agricultural, Earth and Environmental Sciences	Doctor of Philosophy (Science)	Identification and Development of Cassava Brown Streak Disease Resistant and Early Storage Root Bulking Varieties in Malawi
Crots	Franscois Engelbertus	Agricultural, Earth and Environmental Sciences	Doctor of Philosophy (Science)	Optimal Energy to Total Lysine Ratios for Broiler Performance from Day Old to 35 Days of Age
Figlan	Sandiswa	Agricultural, Earth and Environmental Sciences	Doctor of Philosophy (Science)	Phenotypic Characterisaion and QTL Mapping of Adult Plant Resistance to Leaf Rust and Stem Rust in Wheat (Triticum aestivum L.)
Gordon	Steven Lawrence	Agricultural, Earth and Environmental Sciences	Doctor of Philosophy (Science)	Understanding the Hostility Towards So-Called 'Barbarians': A Quantitative Analysis of Public Attitudes Towards Foreign Nationals in Post-Apartheid South Africa
Hassan	Muhammad Bello	Agricultural, Earth and Environmental Sciences	Doctor of Philosophy (Science)	Adoption and Economic Assessment of Integrated Striga Management (ISM) Technologies for Smallholder Maize Farmers in Northern Nigeria
Horn	Lydia Ndinelao	Agricultural, Earth and Environmental Sciences	Doctor of Philosophy (Science)	Breeding Cowpea (Vigna unguiculata[L.] Walp) for Improved Yield and Related Traits Using Gamma Irradiation
Ibaba	Jacques Davy	Agricultural, Earth and Environmental Sciences	Doctor of Philosophy (Science)	Identification and Characterization of Viruses Infecting Cucurbits in the Province of KwaZulu-Natal, Republic of South Africa, with the Purpose of Developing Transgenic Virus Resistant Cucurbits
Ibrahim	Ahmed Berima Tirab	Agricultural, Earth and Environmental Sciences	Doctor of Philosophy (Science)	Phenotypic Characterization, Production Constraints and Management Practices of Hamari Sheep in Western Sudan
Kimaro	Didas Rogasian	Agricultural, Earth and Environmental Sciences	Doctor of Philosophy (Science)	*Genetic Improvement of Pigeonpea (Cajanus cajan(L.) Millsp.) for Fusarium wilt Resistance in Tanzania*
Kusena	Winmore	Agricultural, Earth and Environmental Sciences	Doctor of Philosophy (Science)	The Dynamics of Urban Water Service Delivery Capacity and the Implications for Household Food Security in Gweru, Zimbabwe
Leitman	Steve Francis	Agricultural, Earth and Environmental Sciences	Doctor of Philosophy (Science)	Development and Utilization of a River System Model to Integrate Human and Ecological Water Requirements in a Southeastern United States River Basin
Lottering	Romano Trent	Agricultural, Earth and Environmental Sciences	Doctor of Philosophy (Science)	The Pixel Size Matters: Optimising the Spatial Resolution of Remotely Sensed Data for Detecting and Mapping Eucalyptus Plantations Defoliated by Gonipterus scutellatus
Manyani	Albert	Agricultural, Earth and Environmental Sciences	Doctor of Philosophy (Science)	Rural Livelihoods and Adaptation to Climate Variability and Change in Chadereka Ward 1 in Muzarabani District, Zimbabwe

continued...

College of Agriculture, Engineering and Science

SURNAME	FIRST NAME	SCHOOL	QUALIFICATION	THESIS TITLE
Mashilo	Jacob	Agricultural, Earth and Environmental Sciences	Doctor of Philosophy (Science)	Pre-Breeding of Bottle Gourd [Lagenaria siceraria (Molina) Standl.]
Matimelo	Audrey Mukwavi	Agricultural, Earth and Environmental Sciences	Doctor of Philosophy (Science)	Faith Based Organizations and mobilizing of community assets to alleviate poverty among women and vulnerable children: A case study of Zimele Developing Community Self-Reliance in rural KwaZulu-Natal
Mokgehle	Ngoakoana Salmina	Agricultural, Earth and Environmental Sciences	Doctor of Philosophy (Science)	Variations in Growth, Yield and Metabolites of African Ginger (Siphonochilus aethiopicus) in Response to Irrigation Regimes and Nitrogen Levels
Moodley	Desika	Agricultural, Earth and Environmental Sciences	Doctor of Philosophy (Science)	Assessing the Invasiveness of Alien Aroids using Modelling Techniques and Ecological Assessments
Moodley	Sogendren Mogambary	Agricultural, Earth and Environmental Sciences	Doctor of Philosophy (Science)	City-to-City Learning in Urban Strategic Planning in Southern Africa: Unearthing an Underground Knowledge Economy
Munien	Suveshnee	Agricultural, Earth and Environmental Sciences	Doctor of Philosophy (Science)	A Comparative Assessment of the Socio-Economic and Spatial Factors Impacting the Implementation of Renewable Energy in Marginalised Communities: The Case of Inanda and Bergville
Musundire	Mabel Tafadzwa	Agricultural, Earth and Environmental Sciences	Doctor of Philosophy (Science)	Influence of Age and Sex on Carcass and Meat Quality Traits of Scavenging Guinea Fowls
Mutibvu	Tonderai	Agricultural, Earth and Environmental Sciences	Doctor of Philosophy (Science)	Behaviour, Physiological Responses, Meat Yield and Gut Morphology of Free-Range Chickens Raised in a Hot Environment
Mvuyekure	Simon Martin	Agricultural, Earth and Environmental Sciences	Doctor of Philosophy (Science)	Increasing the Resilience of Elite Rice Cultivars to Sheath Rot (Sarocladium orizyae sawada) in Rwanda through Breeding for Resistance
Mwadzingeni	Learnmore	Agricultural, Earth and Environmental Sciences	Doctor of Philosophy (Science)	Genetic Analysis of Drought Tolerance in Selected Bread Wheat (Triticum aestivum L.) Genotypes
Ndou	Vuledzani Nico	Agricultural, Earth and Environmental Sciences	Doctor of Philosophy (Science)	Genetic Analysis of Maize Hybrids Derived from Temperate by Tropical Germplasm under Low and High Plant Population Density Stress
Nduwumuremyi	Athanase	Agricultural, Earth and Environmental Sciences	Doctor of Philosophy (Science)	Participatory Cassava (Manihot esculenta Crantz) Breeding for Improved Total Carotene Content and Delayed Physiological Postharvest Deterioration in Rwanda
Nyombayire	Alphonse	Agricultural, Earth and Environmental Sciences	Doctor of Philosophy (Science)	A Study of Heterotic Grouping, Gene Action and Genotype x Environment Interactions of Mid-Altitude and Highland Maize Inbred Lines in Rwanda
Obala	Jimmy	Agricultural, Earth and Environmental Sciences	Doctor of Philosophy (Science)	Study of Inheritance and Identification of Molecular Markers for Seed Protein Content in Pigeonpea Cajanus cajan (L.)Millsp.)
Omer	Galal Elawad Khaled	Agricultural, Earth and Environmental Sciences	Doctor of Philosophy (Science)	Remote Sensing of Endangered Tree Species in the Fragmented Dukuduku Indigenous Forest of KwaZulu-Natal, South Africa
Oyeyinka	Adewumi Toyin	Agricultural, Earth and Environmental Sciences	Doctor of Philosophy (Science)	Nutritional, Sensory and Functional Properties of a Bambara Groundnut Complementary Food
Sibanda	Mbulisi	Agricultural, Earth and Environmental Sciences	Doctor of Philosophy (Science)	Remote Sensing Grass Quantity under Different Grassland Management Treatments Practised in the Southern African Rangelands
Simatende	Protus	Agricultural, Earth and Environmental Sciences	Doctor of Philosophy (Science)	Microbial Ecology and Diversity of Swazi Traditional Fermented Foods
Sutherland	Catherine Grace	Agricultural, Earth and Environmental Sciences	Doctor of Philosophy (Science)	Society, Space and Environment: 'Environmental Spaces' in Knysna, Southern Cape, South Africa
Tende	Regina Mumbua	Agricultural, Earth and Environmental Sciences	Doctor of Philosophy (Science)	Combining Stem Borer and Postharvest Insect Pests Resistance in Early Maturing Maize Hybrids
Thomas	Ronald Sylvester	Agricultural, Earth and Environmental Sciences	Doctor of Philosophy (Science)	Physicochemical Properties of Fermented Liquid Potato Hash Diet Treated with or without Exogenous Enzymes and their Effects on Feed Intake, Growth Performance and Carcass Characteristics of Growing Large White x Landrace Crossbred Pigs
Urinzwenimana	Clement	Agricultural, Earth and Environmental Sciences	Doctor of Philosophy (Science)	Breeding for Ascochyta Blight [Phoma exigua var. diversispora (Bubak) Boerema] Resistance of Common Bean (Phaseolus vulgaris L.) in Rwanda

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College of Agriculture, Engineering and Science

SURNAME	FIRST NAME	SCHOOL	QUALIFICATION	THESIS TITLE
Walters	Damian James John	Agricultural, Earth and Environmental Sciences	Doctor of Philosophy (Science)	An Assessment of the Agricultural Utilisation of Wetlands: The Mbongolwane Case Study
Weitz	Jan Christian	Agricultural, Earth and Environmental Sciences	Doctor of Philosophy (Science)	Hydrogeological and Three-Dimensional Numerical Groundwater Flow Modelling of the Lake Sibayi Catchment, Northern KwaZulu-Natal, South Africa
Ajayi	Tomilola Joseph	Chemistry and Physics	Doctor of Philosophy (Science)	Metal Complexes with Phosphor-1, 1-Dithiolato Ligands : Green Synthesis, Structures , Antimicrobial Studies and Dye –Sensitized Solar Cell Application.
Akpan	Ekemini Daniel	Chemistry and Physics	Doctor of Philosophy (Science)	Coordination Chemistry, Kinetics and Mechanistic Studies of Ring Opening Polymerization of Cyclic Esters by Formamidine and Benzimidazolyl MG (II), CU(II) and ZN(II) Complexes Transition Metal Formamidines Complexes for Ring Opening Polymerization Reactions
Akpotu	Samson Oghenemauro	Chemistry and Physics	Doctor of Philosophy (Science)	A Study of Modified Mesoporous Silica for the Adsorption of Selected Organic Pollutants.
Alapour	Saba	Chemistry and Physics	Doctor of Philosophy (Science)	Metal Catalysed Cross-coupling Reactions of Nitrogen and Fluorine Containing Heterocyclic Compounds.
Arbab	Elhadi Abdalla Adam	Chemistry and Physics	Doctor of Philosophy (Science)	Bulk Heterojunction Organic Solar Cells and Thin Film Electrode Buffer Layers: Synthesis, Preparation and Characterization
Aremu	Oluwole Samuel	Chemistry and Physics	Doctor of Philosophy (Science)	Synthesis, Characterization and Biological Studies of Novel Pyrimidine Derivatives.
Augustine	Shivan Michael	Chemistry and Physics	Doctor of Philosophy (Science)	Wind Tunnel Simulations to Detect and Quantify the Turbulent Effects of a Propagating He-Ne Laser Beam in Air
Bodede	Olusola Sunday	Chemistry and Physics	Doctor of Philosophy (Science)	Phytochemical Investigation and Tissue Culture Studies of two South African Knob Trees, Zanthoxylum Capense and Senegalia Nigrescens
Damoyi	Nkululeko Emmanuel	Chemistry and Physics	Doctor of Philosophy (Science)	Density Functional Theory Studies of the Non-Catalytic and Catalytic Oxidative Dehydrogenation Reaction of n-HEXANE to 1-and 2-HEXENE
Darestani Farahani	Majid	Chemistry and Physics	Doctor of Philosophy (Science)	Design, synthesis and catalytic applications of NiO-Al2O3 materials for hydrogenation and oxidative dehydrogenation reactions
du Clou	Heidi	Chemistry and Physics	Doctor of Philosophy (Science)	Characterisation of Extracellular Polysaccharides Produced from a Fungal Pathogen of Sugarcane
Fish	Derek Bruce	Chemistry and Physics	Doctor of Philosophy (Science)	Probing the Conceptions and Mental Models of Students from Diverse Educational Backgrounds in the Context of a Science Centre Show on Sound
Gichumbi	Joel Mwangi	Chemistry and Physics	Doctor of Philosophy (Science)	Synthesis and Characterization of Half-sandwich Ruthenium/ Osmium N,N' Bidentate Complexes and their Catalytic and Anti-Cancer Applications
Gopaul	Kaalin	Chemistry and Physics	Doctor of Philosophy (Science)	Synthesis, Characterisation and Antidiabetic Activity of Quinoline Derivatives
Maddila	Suryanarayana	Chemistry and Physics	Doctor of Philosophy (Science)	Supported Heterogeneous Catalysts in Synthetic and Mechanistic Studies of Certain Heterocyclic Reactions
Mahlangeni	Nomfundo Thobeka	Chemistry and Physics	Doctor of Philosophy (Science)	Phytochemical and Elemental Analysis of Nettles, Found in KwaZulu-Natal, South Africa
Masina	Bathusile Nelisiwe	Chemistry and Physics	Doctor of Philosophy (Science)	Optimizing the Sysnthesis of Vanadium Oxide Nano-Structures by Plasma Plume Dynamics
Mbela	Kalengay	Chemistry and Physics	Doctor of Philosophy (Science)	Synthesis and Magnetic Properties of Sn, Mn and Mg DopedCr1.8-xFexO3 Nano Oxides
Mugemana	Aaron	Chemistry and Physics	Doctor of Philosophy (Science)	Linear and Nonlinear Fluctuation in Electron-Positron-Ion Plasmas Applied to Magnetospheric Environments.
Njogu	Eric Munene	Chemistry and Physics	Doctor of Philosophy (Science)	Silver(I)-pyridinyl complexes: Synthesis, antimicrobial and DNA binding studies
Njoku	Chima Benjamin	Chemistry and Physics	Doctor of Philosophy (Science)	Synthesis and Physico-Chemical Characterisation of Novel Ceria Based Materials and Application for Low Temperature Solid Oxide Fuel Cells

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College of Agriculture, Engineering and Science

SURNAME	FIRST NAME	SCHOOL	QUALIFICATION	THESIS TITLE
Pillay	Michael Nivendran	Chemistry and Physics	Doctor of Philosophy (Science)	Complexes and Clusters of Group 9-11 Metal Dithiophosphonates: Synthesis, Reactivity Luminescence Properties and Structural Investigations
Potwana	Fezile Siphiwe Wiseman	Chemistry and Physics	Doctor of Philosophy (Science)	Synthesis and Characterization of Functionalized 1,8-Diaminophosphines and Perimidines of Group 10-12 Complexes and Antimicrobial Applications
Schuld	Maria	Chemistry and Physics	Doctor of Philosophy (Science)	Quantum Machine Learning for supervised pattern classification- How quantum computers can learn from data
Senekane	Makhamisa Cletus	Chemistry and Physics	Doctor of Philosophy (Science)	Experimental and Theoretical Approach to Quantum Cyptography and Computation.
Shikwambana	Lerato David	Chemistry and Physics	Doctor of Philosophy (Science)	LiDAR and Satellite Observations of aerosols and clouds over South Africa
Shintre	Suhas Ashok	Chemistry and Physics	Doctor of Philosophy (Science)	Synthesis, Characterization and Bioactivity of Quinoxaline and Benzimidazole Derivatives.
Sweke	Ryan Baruch	Chemistry and Physics	Doctor of Philosophy (Science)	Quantum Simulation of Open Quantum Systems
Thangavel	Saravanan	Chemistry and Physics	Doctor of Philosophy (Science)	Synthesis, Characterization, Catalytic and Biological Applications of Bidentate Half Sandwich Ir(III), Rh(III), Ru(II) and Os(II) Complexes
Asiyo	Mike Omondi	Engineering	Doctor of Philosophy in Engineering	Multiscaling Analysis and Modelling of Bursty Impulsive Noise in Broadband Power Line Communication Channels
Diba	Feyisa Debo	Engineering	Doctor of Philosophy in Engineering	Radio Wave Propagation Modelling under Precipitation and clear-air at Microwave and Millimetric Bands over Wireless Links in the Horn of Africa.
Ebhota	Williams Saturday	Engineering	Doctor of Philosophy in Engineering	Novel Domestic Design and Manufacturing of Pelton Turbine Bucket: A Key to Manage and Enhance Sub-Saharan Africa's Hydro Energy Potential
Esenogho	Ebenezer	Engineering	Doctor of Philosophy in Engineering	Channel Assembling Policies for Heterogeneous Fifth Generation (5G) Cognitive Radio Networks
Goudarzi	Arman	Engineering	Doctor of Philosophy in Engineering	Smart Real-Time Scheduling of Generating Units in an Electricity Market Considering Environmental Aspects and Physical Constraints of Generators.
Jumman	Ashiel	Engineering	Doctor of Philosophy in Engineering	Using System Dynamics to Explore the Poor Uptake of Irrigation Scheduling Technologies in a Commercial Sugarcane Community in South Africa.
Kamari	Arash	Engineering	Doctor of Philosophy in Engineering	The Determination of Petroleun Reservoir Fluid Properties: Application of Robust Modelling Approaches.
Kassim	Alaika	Engineering	Doctor of Philosophy in Engineering	Development of a Small-Scale In-Field Integrated Postharvest Citrus Treatment Unit
Mafimidiwo	Olufunmilayo Alice	Engineering	Doctor of Philosophy in Engineering	Impact of Three-Dimensional Photovoltaic Structure on Solar Power Generation
Mhlanga	Farai Tafangenyasha	Engineering	Doctor of Philosophy in Engineering	Modelling Municipal Wastewater Treatment Plants for Industrial Effluent Discharge Permitting: Focusing on how Modelling can be Carried Out in Cases Where Measurements and Resources are Limited
Moodley	Kuveneshan	Engineering	Doctor of Philosophy in Engineering	A Universal Segment Approach for the Prediction of the Activity Coefficient
Mosalaosi	Modisa	Engineering	Doctor of Philosophy in Engineering	Characterisation and Modelling of the Channel and Noise for Broadband Indoor Powerline Communication (PLC) Networks
Mouafo Teifouet	Armand Robinson	Engineering	Doctor of Philosophy in Engineering	Dynamic Stability and Buckling of Viscoelastic Plates and Nanobeams Subject to Distributed Axial Forces
Musumpuka	Remmy	Engineering	Doctor of Philosophy in Engineering	Teletraffic Performance Analysis of Satellite Communication Networks

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College of Agriculture, Engineering and Science

SURNAME	FIRST NAME	SCHOOL	QUALIFICATION	THESIS TITLE
Mutombo	Ntumba Marc Alain	Engineering	Doctor of Philosophy in Engineering	Neuro-fuzzy Control Strategies for Hybrid Photovoltaic Fuel Cell Systems
Namane	Mpho Gift	Engineering	Doctor of Philosophy in Engineering	Precipitation and Valorization of Lignin obtained from South Africa Kraft Mill Black Liquors
Ngobese	Nomali Ziphorah	Engineering	Doctor of Philosophy (Science)	Characterisation of Potato Cultivars Recently Released in South Africa for Frozen French Fries.
Nuramo	Denamo Addissie	Engineering	Doctor of Philosophy in Engineering	Design Stage Considerations for Sustainable Infrastructure in Developing Countries: In the Case of Ethiopia.
Onuh	Emmanuel Idoko	Engineering	Doctor of Philosophy in Engineering	Combustion Studies of Biodiesel Fuel from Moringa, Jatropha and Restaurant Oil
Orumwense	Efe Francis	Engineering	Doctor of Philosophy in Engineering	Alternative Techniques for the Improvement of Energy Efficiency in Cognitive Radio Networks.
Oyebode	Kazeem Oyeyemi	Engineering	Doctor of Philosophy in Engineering	Improvements of Graph Cut Methods for Cell Images Segmentation
Sewchurran	Sanjeeth	Engineering	Doctor of Philosophy in Engineering	Modelling and Performance Analysis of the eThekwini Electricity Distribution Grid with Increased Embedded Generation Sources.
Situmbeko	Mubiana Shadreck	Engineering	Doctor of Philosophy in Engineering	Modelling and Testing of a Low Temperature Solar Organic Rankine Cyclepower Plant
Tshibangu	Marc Mulamba	Engineering	Doctor of Philosophy in Engineering	Investigation of Perfluorocarbons as Potential Physical Solvents for Flue Gas Cleaning
Tweddle	Peter Brian	Engineering	Doctor of Philosophy in Engineering	Estimating Traffic Induced Sugarcane Losses for Various Harvesting, Loading and Infield Transport Operations in South Africa
Balgobind	Adhika	Life Sciences	Doctor of Philosophy (Science)	The Silencing of HER2/neu Gene Expression in a Breast Cancer Cell Model using Cationic Lipid Based Delivery Systems
Brown	Kelly Joanne	Life Sciences	Doctor of Philosophy (Science)	Students' Competence and Understanding of Scientific Method in the Life Sciences at the University of KwaZulu-Natal
Burgdorf	Richard Jörn	Life Sciences	Doctor of Philosophy (Science)	Culture Independent Analysis of Fungal Endophytes of Wheat Cultivars Grown in KwaZulu-Natal, South Africa
Chibesa	Moses	Life Sciences	Doctor of Philosophy (Science)	Aspects of the Ecology of Trumpeter Hornbill (Bycanistes bucinator) Across Urban-Forest Mosaics in KwaZulu-Natal, South Africa
Chukwuma	Chika Ifeanyi	Life Sciences	Doctor of Philosophy (Science)	Studies on the Anti-Hyperglycemic Potentials and Possible Mode of Actions of Some Commonly Used Sugar Alcohols
Combrink	Leigh	Life Sciences	Doctor of Philosophy (Science)	The Habitat, Nesting and Foraging Requirements of Southern Ground Hornbills in the Kruger National Park, South Africa
Dwarka	Depika	Life Sciences	Doctor of Philosophy (Science)	Structural, Chemical and Physiological Investigations of Bilirubin Found in Seed Arils of Strelitzia nicolai
Ehlers Smith	Yvette Cathrine	Life Sciences	Doctor of Philosophy (Science)	Assessing Anthropogenic Impacts on the Persistence of Forest Mammals within the Indian Ocean Coastal Belt of Southern KwaZulu-Natal Province
Fajinmi	Olufunke Omowumi	Life Sciences	Doctor of Philosophy (Science)	Effect of Rutaceae Plants Essential Oil and Leaf Extracts on Dermatophytic Fungal Cell Morphology: A Hope for the Development of an Effective Antifungal from Natural Origin
Gannimani	Ramesh	Life Sciences	Doctor of Philosophy (Science)	Synthesis, Characterization and Evaluation of Antibacterial, Antidiabetic and Toxicological Profiles of Newly-Derived Therapeutic Agents
Gous	Annemarie	Life Sciences	Doctor of Philosophy (Science)	Investigating Floral Choice in Bees (Megachilidae) Using Pollen Metabarcoding
Hausmann	Anna	Life Sciences	Doctor of Philosophy (Science)	Integrating Traditional and Novel Data Sources to Inform Conservation Marketing in Sub-Saharan Protected Areas
Hunter	Charles Haig	Life Sciences	Doctor of Philosophy (Science)	Screening of Aerobic Endspore-Forming Bacterial Isolates as Candidate Biocontrol Agents Against Rhizoctonia solani
Krause	Robert Gerd Erich	Life Sciences	Doctor of Philosophy (Science)	Developing Antibodies Against Plasmodium Lactate Dehydrogenase, Glyceraldehyde-3-Phosphate Dehydrogenase and Phosphoethanolamine-N-Methyltransferase

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College of Agriculture, Engineering and Science

SURNAME	FIRST NAME	SCHOOL	QUALIFICATION	THESIS TITLE
Makin	Douglas Ferguson	Life Sciences	Doctor of Philosophy (Science)	Varying Degrees of Fear: How do Large Herbivores Adjust Their Anti-Predator Behaviour in Response to Different Predators?
Mann	Bruce Quintin	Life Sciences	Doctor of Philosophy (Science)	An Assessment of the Effectiveness of the St Lucia Marine Reserve (KwaZulu-Natal, South Africa) in the Protection of Surf-zone Angling Fish Species
Marneweck	Courtney Jade	Life Sciences	Doctor of Philosophy (Science)	Olfactory Communication of the White Rhinoceros (Ceratotherium simum)
Mdladla	Khanyisile	Life Sciences	Doctor of Philosophy (Science)	Landscape Genomic Approach to Investigate Genetic Adaptation in South African Indigenous Goat Populations
Moothoo-Padayachie	Anushka	Life Sciences	Doctor of Philosophy (Science)	Factors Governing Seed Recalcitrance in Two Species of Contrasting Storage Longevity
Mureva	Admore	Life Sciences	Doctor of Philosophy (Science)	Ecosystem Carbon Change of Shrub-Encroached Grasslands Across a Precipitation Gradient in South Africa
Naidoo	Devashan	Life Sciences	Doctor of Philosophy (Science)	In Vitro Propagation, Phytochemistry and Pharmacology of the Blood Lily, Scadoxus puniceus
Naidoo	Cassandra Dasanah	Life Sciences	Doctor of Philosophy (Science)	Towards Ameliorating Some of the Stresses Associated with the Procedural Steps Involved in the Cryopreservation of Recalcitrant-Seeded Germplasm
Narainpersad	Nicolisha	Life Sciences	Doctor of Philosophy (Science)	Mitochondrial Localisation and Cellular Uptake in vitro using Novel 'Mitochondriotropic' Liposomes
Nnadozie	Chika Felicitas	Life Sciences	Doctor of Philosophy (Science)	Construction of a Bacterial Metagenome from Eucalyptus spp. Woodchips and its Phylogenetic Characterisation and Lignocellulose Degrading Potential
Oyenihi	Ayodeji Babatunde	Life Sciences	Doctor of Philosophy (Science)	Antidiabetic Properties of Centella asiatica in Type II Diabetic Rats
Padayachee	Letrisha	Life Sciences	Doctor of Philosophy (Science)	Quantification of the Thioredoxin System
Pfeiffer	Morgan Briana	Life Sciences	Doctor of Philosophy (Science)	Ecology and Conservation of the Cape Vulture in the Eastern Cape Province, South Africa
Pitman	Ross Tyzack	Life Sciences	Doctor of Philosophy (Science)	Applied Carnivore Management in a Data Deficient World: Leopard Panthera pardus as a Case Study
Rakotoarivelo	Andrinajoro Rianarivola	Life Sciences	Doctor of Philosophy (Science)	Phylogenetics and Phylogeography of Hipposideros commersoni (Chiroptera) Species Complex with Special Reference to Malagasy Populations
Schmitt	Melissa	Life Sciences	Doctor of Philosophy (Science)	The Influences of Plant Secondary Metabolites on the Foraging Behaviour and Carrying Capacities of the African Elephant, *Loxodonta africana*
Afassinou	Komi	Mathematics, Statistics and Computer Science	Doctor of Philosophy (Science)	Analysis of Multiple Control Strategies for Pre-Exposure Prophylaxis and Post-infections Interventions on HIV Infection.
Akinyelu	Ayobami Andronicus	Mathematics, Statistics and Computer Science	Doctor of Philosophy (Science)	Intelligent Instance Selection Techniques for Support Vector Machines Speed Optimization with Application to e-Fraud Detection
Bodhlyera	Oliver	Mathematics, Statistics and Computer Science	Doctor of Philosophy (Science)	A Statistical Analysis of Dissolving Timber Pulp Properties Using Linear Mixed Model
Bogadi	Robert Sacha	Mathematics, Statistics and Computer Science	Doctor of Philosophy (Science)	Relativistic Thermodynamics of Radiating Stars
Chetty	Mervin	Mathematics, Statistics and Computer Science	Doctor of Philosophy (Science)	The Enhanced Best Performance Algorithm for Global Optimization with Applications.
Chikamai	Keith Sasala	Mathematics, Statistics and Computer Science	Doctor of Philosophy (Science)	Multi-Level Parallelization for Accurate and Fast Medical Image Retrieval
Chinomona	Amos	Mathematics, Statistics and Computer Science	Doctor of Philosophy (Science)	A Frequentist and Bayesian Approach to Estimating HIV Prevalence Accounting for Non-Response Using Population-Based Survey Data

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College of Agriculture, Engineering and Science

SURNAME	FIRST NAME	SCHOOL	QUALIFICATION	THESIS TITLE
Coetzer	Willem	Mathematics, Statistics and Computer Science	Doctor of Philosophy (Science)	A Knowledge-Based System for Automated Discovery of Ecological Interactions in Flower-Visiting Data
Hamid	Aymen Ismail Mohamed	Mathematics, Statistics and Computer Science	Doctor of Philosophy (Science)	Dynamics and Thermodynamics of LRS-II Spacetimes
Haroun	Nageeb Abdallah Hamed	Mathematics, Statistics and Computer Science	Doctor of Philosophy (Science)	Convective Heat and Mass Transfer in Boundary Layer Flow Through Porous Media Saturated with Nanofluids
Iiyambo	David Shituula Ila-kutse	Mathematics, Statistics and Computer Science	Doctor of Philosophy (Science)	Asymptotic and Blow-up Dynamics of Keller-Segel Chemotaxis Equations in Scale of Banach Spaces.
Jessop	Carol Lynne	Mathematics, Statistics and Computer Science	Doctor of Philosophy (Science)	Ratios of Classes of Graphs Involving Energies and Coverings: Asymptotes, Conservation of Energy and Area.
Kala	Jules Raymond	Mathematics, Statistics and Computer Science	Doctor of Philosophy (Science)	Leaf Recognition for Accurate Plant Classification
Kombo	Abdalla Yusuf	Mathematics, Statistics and Computer Science	Doctor of Philosophy (Science)	Statistical Methods for Handling Incomplete Longitudinal Data with Emphasis on Discrete Outcomes with Application
Lokosang	Laila Barnaba	Mathematics, Statistics and Computer Science	Doctor of Philosophy (Science)	Flexible Statistical Modelling in Food Insecurity Risk Assessment
Magagula	Vusi Mpendulo	Mathematics, Statistics and Computer Science	Doctor of Philosophy (Science)	Bivariate Pseudospectral Collocation Algorithms for Nonlinear Partial Differential Equations
Naidoo	Llewellyn Reeve	Mathematics, Statistics and Computer Science	Doctor of Philosophy (Science)	An Assessment of Modified Systematic Sampling in the Presence of Linear Trend.
Ogbuisi	Ferdinard Udochukwu	Mathematics, Statistics and Computer Science	Doctor of Philosophy (Science)	Approximation Methods for Solutions of some Nonlinear Problems in Banach Spaces.
Ogundele	Olukunle Ayodeji	Mathematics, Statistics and Computer Science	Doctor of Philosophy (Science)	An Ontology-Driven Approach for Structuring Scientific Knowledge for Predicting Treatment Adherence Behaviour: A Case Study of Tuberculosis in Sub-Saharan African Communities.
Okango	Elphas Luchemo	Mathematics, Statistics and Computer Science	Doctor of Philosophy (Science)	Bayesian Spatial Joint and Spatio-Temporal Disease Modeling with Application to HIV, HSV-2 and Malaria using Case Studies from Kenya and Angola Respectively
Okeke	Justina Ebele	Mathematics, Statistics and Computer Science	Doctor of Philosophy (Science)	An Analysis of Symmetries and Conservation Laws of Some Classes of PDEs that Arise in Mathematical Physics and Biology.
Wilson	Susan	Mathematics, Statistics and Computer Science	Doctor of Philosophy (Science)	Evolution of Galaxy Cluster Scaling Relations over Half a Hubble Time

College of Health Sciences

SURNAME	FIRST NAME	SCHOOL	QUALIFICATION	THESIS TITLE
Archary	Moherndran	Clinical Medicine	Doctor of Philosophy (Medicine)	Malnutrition and Antiretroviral timing in children with HIV (MATCH): A Comparison of early vs delayed initiation of HAART in severely malnourished HIV-infected children
Bagwandeen	Chauntelle Ingrid	Clinical Medicine	Doctor of Philosophy (Medicine)	"Sowing the seeds". The use of feedback in postgraduate medical education: A key factor in developing and enhancing clinical competence
Brown	Ottilia	Clinical Medicine	Doctor of Philosophy (Medicine)	Culturally competent patient-provider communication with Zulu patients diagnosed with Osteosarcoma
Daya	Mahendra	Clinical Medicine	Doctor of Philosophy (Medicine)	The use of paper tape application in skin tissue expansion and abnormal scar modulation
Malherbe	Helen	Clinical Medicine	Doctor of Philosophy (Medicine)	An investigation into the renewed need for care and prevention of congenital disorders in South Africa
Matshela	Mamotabo Rossy	Clinical Medicine	Doctor of Philosophy (Medicine)	Application of speckle tracking echocardiographic technology to assess ventricular function
Pillay	Somasundram	Clinical Medicine	Doctor of Philosophy (Medicine)	A multifaceted approach to improving regional diabetes care

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College of Health Sciences

SURNAME	FIRST NAME	SCHOOL	QUALIFICATION	THESIS TITLE
Ramaema	Dibuseng Paulina	Clinical Medicine	Doctor of Philosophy (Medicine)	Radiological evaluation of breast disorders related to tuberculosis amongst women in Durban, KwaZulu-Natal, South Africa
Reimers	Penelope	Clinical Medicine	Doctor of Philosophy (Medicine)	Effect of feeding buddies on adherence to World Health Organisation PMTCT guidelines in South Africa
Saloojee	Shamima	Clinical Medicine	Doctor of Philosophy (Medicine)	Metabolic syndrome and severe mental illness in KwaZulu-Natal, South Africa
Sebitloane	Hannah Motshedisi	Clinical Medicine	Doctor of Philosophy (Medicine)	Maternal complications in HIV infected women receiving combination antiretroviral treatment in a resource constraint setting
Wood	Darryl Ross	Clinical Medicine	Doctor of Philosophy (Medicine)	Snakebite in KwaZulu-Natal: The burden of disease and prediction of risk of adverse outcomes
Baijnath	Sooraj	Health Sciences	Doctor of Philosophy (Health Sciences)	The optimisation of a rat model of a pre-eclamptic like syndrome
Balmith	Marissa	Health Sciences	Doctor of Philosophy (Health Sciences)	Potential Ebola virus drug targets: A computational insight into drug discovery
Bangalee	Varsha	Health Sciences	Doctor of Philosophy (Health Sciences)	The South African pharmaceutical supply chain
Cele	Zamani Eugene Doctor	Health Sciences	Doctor of Philosophy (Health Sciences)	Synthesis and biological studies of novel carbapenem derivatives
Cobbing	Saul Edward	Health Sciences	Doctor of Philosophy (Health Sciences)	Home-based rehabilitation for people living with HIV in a resource-poor setting in KwaZulu-Natal, South Africa
Coutts	Kim Angela	Health Sciences	Doctor of Philosophy (Health Sciences)	Investigation into the clinical swallow evaluation and the decision making processes of speech therapists when identifying neurogenic dysphagia in adults at the bedside
Dutta	Jyotibon	Health Sciences	Doctor of Philosophy (Health Sciences)	Synthesis and evaluation of peptides for Radiopharmaceutical applications
Fakhar	Zeynab	Health Sciences	Doctor of Philosophy (Health Sciences)	Molecular modeling of antimicrobial peptides inhibitors against mycbacterium tuberculosis (TB)
Hampannavar	Girish Appasaheb	Health Sciences	Doctor of Philosophy (Health Sciences)	Novel series of dehydrozingerone inspired potential antimycobacterial agents: Design, synthesis, spectral studies and in vitro biological evaluation
Jad	Yahya El-Sayed	Health Sciences	Doctor of Philosophy (Health Sciences)	Advanced strategies for peptide synthesis
Karunanidhi	Sivanandhan	Health Sciences	Doctor of Philosophy (Health Sciences)	Design, synthesis and biological evaluation of isatin and benzoxazine derivatives as antimicrobial and antitubercular agents
Khumalo	Bhekuzulu	Health Sciences	Doctor of Philosophy (Health Sciences)	Wheelchair basketball (WB) participation trends: An analysis of perceived antecedents and accessibility in selected Zimbabwean cities
Kumalo	Hezekiel Mathambo	Health Sciences	Doctor of Philosophy (Health Sciences)	An integrated molecular dynamics, principal component analysis and residue interaction network approach reveals the impact of mutation on HIV reverse transcriptase resistance to lamivudine
Machaba	Kgothatso Eugene	Health Sciences	Doctor of Philosophy (Health Sciences)	Application of advanced computational tools towards the understanding of TB targets and design of potential drug candidates
Mashige	Khathutshelo Percy	Health Sciences	Doctor of Philosophy (Health Sciences)	An investigation of productivity loss due to visual impairment (tentative)
Mathibe	Lehlohonolo John	Health Sciences	Doctor of Philosophy (Health Sciences)	The effects of certain indigenous South African plants on tumorigenesis and angiogenesis
McGillewie	Lara	Health Sciences	Doctor of Philosophy (Health Sciences)	Investigating plasmepsin flexibility as a function of the flap region - a unique structural and dynamic feature of aspartic protease
Naidoo	Anushka	Health Sciences	Doctor of Philosophy (Health Sciences)	Moxifloxacin pharmacokinetics and pharmacodynamics (PK-PD) in the treatment of Drug-Susceptible tuberculosis

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College of Health Sciences

SURNAME	FIRST NAME	SCHOOL	QUALIFICATION	THESIS TITLE
Naidoo	Deshini	Health Sciences	Doctor of Philosophy (Health Sciences)	Aligning occupational therapy education with primary healthcare: A multisectoral approach
Nizami	Bilal	Health Sciences	Doctor of Philosophy (Health Sciences)	Synthesis and computational studies of pyrimidine derivatives as anti HIV agents
Nuhu	Jibril Mohammed	Health Sciences	Doctor of Philosophy (Health Sciences)	Effect of rebound therapy on metabolic outcomes and quality of life in Nigerian patients with Type 2 diabetes
Parboosing	Raveen	Health Sciences	Doctor of Philosophy (Health Sciences)	Nanotechnology and the treatment of HIV infection
Perumal-Pillay	Velisha Ann	Health Sciences	Doctor of Philosophy (Health Sciences)	An evaluation of the availability and selection of essential medicines for adults and children in South Africa
Rambharose	Sanjeev Kumar	Health Sciences	Doctor of Philosophy (Health Sciences)	Novel lipidic materials to enhance the transdermal delivery of Tenofovir
Sikhwal	Dhiraj Radhesham	Health Sciences	Doctor of Philosophy (Health Sciences)	Material science based approaches for improving antibiotic drug delivery
Singh	Ashona	Health Sciences	Doctor of Philosophy (Health Sciences)	Rational design and synthesis of inhibitors of plasmodium falciparum N-Myristoyltransferase and AdSS
Sonawane	Sandeep Jagannath	Health Sciences	Doctor of Philosophy (Health Sciences)	Nanobased approaches to treat susceptible and resistant s. aureus infections
Thandar	Yasmeen	Health Sciences	Doctor of Philosophy (Health Sciences)	An investigation into the use of complementary and alternative medicine (CAM) for atopic eczema
Thema	Kgaladi Lawrence	Health Sciences	Doctor of Philosophy (Health Sciences)	Analysis of services provided by oral health professionals in Limpopo Province
Asowata	Osaretin Emmanuel	Laboratory Medicine and Medical Sciences	Doctor of Philosophy (Medicine)	Effectiveness of a monovalent human rotavirus vaccine among children of 5 years and below in KwaZulu-Natal
Aung	Myint	Laboratory Medicine and Medical Sciences	Doctor of Philosophy (Medicine)	Gene polymorphisms of the renin-angiotensin-aldosterone system in the pathogenesis of pre-eclampsia in black South African women
De Gama	Brenda Zola	Laboratory Medicine and Medical Sciences	Doctor of Philosophy (Health Sciences)	Cultural and religious attitudes of black South African citizens towards body donation
Ebell'a Dalle	Ernest Remy Herve	Laboratory Medicine and Medical Sciences	Doctor of Philosophy (Health Sciences)	The effects of fluvoxamine maleate in a post-natal stress rat model of neurodegeneration
Jegede	Ayoola Isaac	Laboratory Medicine and Medical Sciences	Doctor of Philosophy (Health Sciences)	Testicular morphological and seminal alterations following highly active antiretroviral therapy and the ameliorative effects of plant-based adjuvant: An experimental normo and hypertensive animal model
Khan	Rene Bernadette	Laboratory Medicine and Medical Sciences	Doctor of Philosophy (Health Sciences)	The molecular mechanisms of fumonisin B1 induced toxicity in SNO cells
Kiguoya-Njau	Marion Wangui	Laboratory Medicine and Medical Sciences	Doctor of Philosophy (Medicine)	Functional and clinical consequences of Gag-protease sequence variation in HIV-1 subtypes A, C, D and intersubtype recombinants
Lazarus	Lelika	Laboratory Medicine and Medical Sciences	Doctor of Philosophy (Health Sciences)	The praxis and research of human anatomy through auto-ethnography
Mackenzie	Jared Stuart	Laboratory Medicine and Medical Sciences	Doctor of Philosophy (Medicine)	Microchemostat technologies for characterization of efflux pumps associated with multidrug resistance in Mycobacterium tuberculosis
Marera	Dominic Oduor	Laboratory Medicine and Medical Sciences	Doctor of Philosophy (Health Sciences)	Development and ossification of the clavicle from adolescent to early adulthood: A comparative study in indigenous South African and Kenyan population
Mavondo	Greanious Alfred	Laboratory Medicine and Medical Sciences	Doctor of Philosophy (Health Sciences)	Evaluating Plasmodium berghei infection influence and asiatic acid administration efficacy in Sprague Dawley male rats: Effects on parasitamia, glucose homeostasis and renal electrolyte handling
Mbatha	Joyce Nonhlanhla	Laboratory Medicine and Medical Sciences	Doctor of Philosophy (Medicine)	Genotyping, clearance and persistence of high-risk human papillomavirus and evaluation of self-sampling techniques in HIV infected and uninfected young women in selected regions of KwaZulu-Natal

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College of Health Sciences

SURNAME	FIRST NAME	SCHOOL	QUALIFICATION	THESIS TITLE
Mohamed Moosa	Zulfiah Bibi	Laboratory Medicine and Medical Sciences	Doctor of Philosophy (Health Sciences)	Developmental methylmercury toxicity in a 6-hydroxydopamine rat model: Evaluating Searsia chirindensis as a potential neuroprotectant
Mzobe	Gugulethu Favourate	Laboratory Medicine and Medical Sciences	Doctor of Philosophy (Medicine)	Temporal gene expression of Chlamydia trachomatis in keratinocytes at 37 versus 33ºC
Naidoo	Nerissa	Laboratory Medicine and Medical Sciences	Doctor of Philosophy (Health Sciences)	An anatomical investigation of the subacromial complex: Intrinsic and extrinsic parameters of the South African and Belgian populations
Naidoo	Dhaneshree Bestinee	Laboratory Medicine and Medical Sciences	Doctor of Philosophy (Health Sciences)	An in vitro investigation into the anti-proliferative and anti-inflammatory properties of Centella asiatica (linnaeus) urban (leaf) and Withania somnifera (linnaeus) dunal (root) extracts
Naidoo	Natasha	Laboratory Medicine and Medical Sciences	Doctor of Philosophy (Medicine)	Evaluation of Mycobacterium tuberculosis curli pili as a diagnostic biomarker for a point-of-care diagnostic test
Ndlovu	Bongiwe Goodness	Laboratory Medicine and Medical Sciences	Doctor of Philosophy (Medicine)	Evolution of humoral immune responses in acute and early human immunodeficiency virus type 1 (HIV-1) subtype C infection
Ngema	Phumzile Nomfundo	Laboratory Medicine and Medical Sciences	Doctor of Philosophy (Health Sciences)	Effects of exposure to stress following 6-OHDA injection on dopamine neuron survival: Implication for nicotine treatment
Onyangunga	Onankoy Atshakala	Laboratory Medicine and Medical Sciences	Doctor of Philosophy (Medicine)	The role of lymphaniogenesis in placental bed and placentas of HIV associated pre-eclampsia
Padayachy	Keseri	Laboratory Medicine and Medical Sciences	Doctor of Philosophy (Health Sciences)	Estimating skeletal age using the wrist in the KwaZulu-Natal population. A morphometric study
Pillay	Pathmavathie	Laboratory Medicine and Medical Sciences	Doctor of Philosophy (Health Sciences)	Legislative framework for the use of human remains in teaching and research at Higher Education Institutes in South Africa: Historical analysis, medico-legal challenges and needs
Rennie	Carmen Olivia	Laboratory Medicine and Medical Sciences	Doctor of Philosophy (Health Sciences)	The development of the paranasal air sinuses in a South African population from childhood to early adulthood: an anatomical, radiological and forensic study
Samuel	Reshmi	Laboratory Medicine and Medical Sciences	Doctor of Philosophy (Medicine)	HIV-1 drug resistance by ultra-deep sequencing after exposure to prevention of mother-to-child transmission (PMTCT) strategies in KwaZulu-Natal
Seipone	Ikanyeng Dolly	Laboratory Medicine and Medical Sciences	Doctor of Philosophy (Medicine)	Investigation of viral characteristics and immune microenvironment between the blood and the central nervous system in patients with HIV associated Mycobacterial tuberculosis infection
Sibiya	Happiness	Laboratory Medicine and Medical Sciences	Doctor of Philosophy (Health Sciences)	The effects of transdermal anti-malarial formulations on malaria parasites and selected metabolic parameters in male Sprague-Dawley rats
Sibiya	Ntethelelo Hopewell	Laboratory Medicine and Medical Sciences	Doctor of Philosophy (Health Sciences)	Application of dermal patches containing wider range of pectin and pectin efficacy studies in rodents
Swanson	Rosemary Veronica	Laboratory Medicine and Medical Sciences	Doctor of Philosophy (Medicine)	Maximising the therapeutic potential of clofazimine for tuberculosis treatment
Swe Swe/Han	Khine	Laboratory Medicine and Medical Sciences	Doctor of Philosophy (Medicine)	A standardised approach to the treatment and management of significant Acinetobacter species infection at academic complex hospitals, Durban, KwaZulu-Natal
Ayandiran	Emmanuel Olufemi	Nursing and Public Health	Doctor of Philosophy in Nursing	Facilitation of the development of blended E-learning model for nursing education in a resource constrained educational setting in Nigeria
Bomela	Nomasomi Oscarine	Nursing and Public Health	Doctor of Philosophy in Nursing	Developing a balanced score card(BSC) for the monitoring and evaluation of quality assurance in primary health care settings of Gauteng Province- A systems approach
Bvumbwe	Macksham Thokozani	Nursing and Public Health	Doctor of Philosophy in Nursing	Participation of nurse leaders in health policy development: An action research approach
Chironda	Geldine	Nursing and Public Health	Doctor of Philosophy in Nursing	Development of a community based adherence model to facilitate management of end stage renal disease (ESRD) patients

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College of Health Sciences

SURNAME	FIRST NAME	SCHOOL	QUALIFICATION	THESIS TITLE
Cumber	Samuel Nambile	Nursing and Public Health	Doctor of Philosophy (Medicine)	A situational analysis of health status and risky factors of street children in Cameroon, in order to develop an appropriate intervention model aimed at improving their health
Curran	Robyn Leigh	Nursing and Public Health	Doctor of Philosophy in Nursing	An evidence based model of care specific to human trafficking survivors
De Kock	Johannes Hendrikus	Nursing and Public Health	Doctor of Philosophy (Medicine)	Alleviating the Mental Health Crisis in South Africa's rural primary care areas through task shifting: non-medical prescribers and the case of clinical psychology
Dlamini	Zanele Faith	Nursing and Public Health	Doctor of Philosophy in Nursing	Participation of nurse leaders in health policy development: An action research approach
Dlungwane	Thembelihle Patricia	Nursing and Public Health	Doctor of Philosophy (Medicine)	Academic success in part-time Master of Public Health programmes
Ginindza	Themba Geoffrey	Nursing and Public Health	Doctor of Philosophy (Medicine)	The significance of HPV infection on Cervical cancer among sexually active women in the Kingdom of Swaziland: Its Implications in the HIV epidemic era
Harerimana	Alexis	Nursing and Public Health	Doctor of Philosophy in Nursing	An analysis of the utilisation of e-learning platform at a selected nursing school in Rwanda: A participatory action research study
Hlongwana	Khumbulani Welcome	Nursing and Public Health	Doctor of Philosophy (Medicine)	Factors influencing the implementation of the malaria elimination policy in South Africa
Kalinda	Chester	Nursing and Public Health	Doctor of Philosophy (Medicine)	Experimental studies on the effect of temperature on the Bulinus globosus – Schistosoma haematobium system
Khuzwayo	Nelisiwe Francisca	Nursing and Public Health	Doctor of Philosophy (Medicine)	An in-depth investigation of the factors that determine non-adherence to post exposure prophylaxis (PEP) after sexual assault among a sample of raped women survivors attending a public health clinic in the Eastern Cape
Luvuno	Zamasomi Prudence Busisiwe	Nursing and Public Health	Doctor of Philosophy in Nursing	An ethnographic study of transgender people's access to and management of sexual and reproductive health in KwaZulu-Natal, South Africa
Marwa	Immaculate Nyaseba	Nursing and Public Health	Doctor of Philosophy in Nursing	A focused ethnographic study on management of chronic comorbid (diabetes and hypertension) conditions among adults in selected primary health care settings in Kenya
Mashamba-Thompson	Tivani Phosa	Nursing and Public Health	Doctor of Philosophy (Medicine)	Evaluating the accessibility and utility of HIV-related point of care diagnostics for maternal health in rural South Africa
Mudaly	Prenola Devasree	Nursing and Public Health	Doctor of Philosophy in Nursing	A classical ethnographic study on academic monitoring and support services of undergraduate nursing students in higher education in KwaZulu-Natal
Mukeshimana	Madeleine	Nursing and Public Health	Doctor of Philosophy in Nursing	Collaborative care model for management of co-morbid depression and selected chronic non communicable diseases for Rwandan health facilities: Model adaptation and justification
Murararaneza	Claudine	Nursing and Public Health	Doctor of Philosophy in Nursing	An analysis of the implementation of competency-based curricula in pre-service nursing and midwifery educational programs in Rwanda: A grounded theory approach
Musesengwa	Rosemary	Nursing and Public Health	Doctor of Philosophy (Medicine)	Community engagement strategies and experiences in a Multicentre Study in South Africa and Zimbabwe
Naidoo	Yogandra	Nursing and Public Health	Doctor of Philosophy (Medicine)	Evaluating government's HIV and AIDs prevention, treatment and care programmes from a lay perspective: A qualitative exploration of the experiences of the South African Indian community of Chatsworth
Narsai	Prishah	Nursing and Public Health	Doctor of Philosophy (Medicine)	An investigation of the housing conditions and the quality of life of clients in the built environment in the eThekwini municipality during the HIV/ AIDS epidemic
Ngcobo	Mlungisi	Nursing and Public Health	Doctor of Philosophy (Medicine)	Evaluation of immunomodulatory mechanisms of South African traditional medicines using In Vitro and In Vivo models
Oyegbile	Yemisi Okikiade	Nursing and Public Health	Doctor of Philosophy in Nursing	Developing an intervention model for care-givers of patients with end-stage renal disease in a resource limited setting in Nigeria.

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College of Health Sciences

SURNAME	FIRST NAME	SCHOOL	QUALIFICATION	THESIS TITLE
Ramkisson	Samantha	Nursing and Public Health	Doctor of Philosophy (Medicine)	Psychological well-being in adults with Type 2 Diabetes
Rawatlal	Nishola	Nursing and Public Health	Doctor of Philosophy (Medicine)	A study of family and environmental stress factors, alcohol use and depression in a South African youth cohort
Tlou	Boikhutso	Nursing and Public Health	Doctor of Philosophy (Medicine)	Spatial-temporal dynamics and structural determinants of child and maternal mortality in a rural, high HIV burdened South African population, 2000-2014
Tshabalala	Ann Mamosa Elsie Teboho	Nursing and Public Health	Doctor of Philosophy (Medicine)	Assessment of the implementation of municipal ward based health data collection and its application to decision making with special focus on improving child health outcomes in Amajuba District, KZN, SA

College of Humanities

SURNAME	FIRST NAME	SCHOOL	QUALIFICATION	THESIS TITLE
Adibo	Josephine	Applied Human Science	Doctor of Philosophy (Human Sciences)	Acholi indigenous methods for healing and re-integrating survivors of violent conflict into the community: A case of Gulu and Kitgum, Northern Uganda
Emslie	Natalie Anne	Applied Human Science	Doctor of Philosophy (Human Sciences)	COP17 and Climate Change in Two Durban Dailies: A Comparative Quantitative Content Analysis of News Agendas, Local-Global Mediations, BRICS tone and Frames.
Foley	Jonathan Bernard	Applied Human Science	Doctor of Philosophy (Human Sciences)	Biodiversity Messaging to Generation Y students at the Durban University of Technology
Froschauer	Ursula Monica	Applied Human Science	Doctor of Philosophy (Human Sciences)	The wedding performance: Gender inequality and system justification in the white wedding
Gama-Chawana	Angeline Joyce Thabile	Applied Human Science	Doctor of Philosophy (Human Sciences)	Career Management Complexities in Developing Economies: An Autoethnographic Exposition of One Inxile's
Groenewald	Candice Joy	Applied Human Science	Doctor of Philosophy (Human Sciences)	Mothers lived experiences and coping response to adolescents with substance abuse problems: A phenomenological inquiry.
Holscher	Dorothee	Applied Human Science	Doctor of Philosophy (Human Sciences)	Exploring experiences of displacement and cross-border migration in South Africa: Implications for social work's commitment to social justice.
Kerr	Philippa Louise	Applied Human Science	Doctor of Philosophy (Human Sciences)	Xenophobia, social change and social continuity: Changing configurations of intergroup allegiance and division among farm workers in De Doorns, 2009-2013
Kittur	Mangala	Applied Human Science	Doctor of Philosophy (Human Sciences)	Personality types and resilience of crime scene investigators in KwaZulu-Natal, South African police service: A mixed method approach.
Kometsi	Molelekoa Johannes	Applied Human Science	Doctor of Philosophy (Human Sciences)	Mental health literacy: Conceptions and attitudes towards mental disorders and beliefs about treatment among African residents of Sisonke District in KwaZulu-Natal.
Maractho	Emilly Comfort	Applied Human Science	Doctor of Philosophy (Human Sciences)	Mass Media, women and public life in Uganda: Interrogating representation, Interaction and Engagement.
Masvaure	Polite	Applied Human Science	Doctor of Philosophy (Human Sciences)	Marange diamonds: socio political environment and its role on psychological well being and organizational citizenship of diamond miners in Marange, Zimbabwe
Mayaba	Phindile Lungile	Applied Human Science	Doctor of Philosophy (Human Sciences)	The cultural and linguistic appropriateness of the Individual Scale for Zulu-speaking pupils: A qualitative analysis
Mitchell	Carol Jean	Applied Human Science	Doctor of Philosophy (Human Sciences)	Critical reflection in service-learning: The construction of the 'good citizen'
Naidoo	Sarojini	Applied Human Science	Doctor of Philosophy (Human Sciences)	Testing the interpersonal psychological theory of suicidal behaviour in the South African context

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College of Humanities

SURNAME	FIRST NAME	SCHOOL	QUALIFICATION	THESIS TITLE
Namusoga	Sara	Applied Human Science	Doctor of Philosophy (Human Sciences)	The framing of homosexuality by two Ugandan newspapers from 2007 to 2011: An analysis of New Vision and the Daily Monitor
Napakol	Angella	Applied Human Science	Doctor of Philosophy (Human Sciences)	Communicating AIDS: The coverage of HIV/AIDS discourse in two Ugandan newspapers, 1992-2011
Petrus	Ruwayda Chantelle	Applied Human Science	Doctor of Philosophy (Human Sciences)	Positive Psychological resources and stressors of nurses working in an National Health Insurance (NHI) pilot site
Ramgoolam	Simi	Applied Human Science	Doctor of Philosophy (Human Sciences)	Perceived organisational effectiveness in South Africa's public sector: Employee's narrative accounts
Semujju	Robert Brian	Applied Human Science	Doctor of Philosophy (Human Sciences)	Comminity Media Narrowcasting in Uganda: An assessment of Community Audio towers
Shadrach	Nolan Roderick	Applied Human Science	Doctor of Philosophy (Human Sciences)	A study on the impact of the balanced scorecard as a performance management system on performance and motivation in the retail industry
Silaigwana	Blessing	Applied Human Science	Doctor of Philosophy (Human Sciences)	Empirical investigation of ethical issues raised by two research ethics committees reviewing biomedical research in South Africa
Singh-Pillay	Neeshi Devirisha	Applied Human Science	Doctor of Philosophy (Human Sciences)	The unsaid: An interpretative phenomenological analysis to understanding non-disclosure in clinical supervision from trainee and supervisor perspectives
Ureke	Oswelled	Applied Human Science	Doctor of Philosophy (Human Sciences)	Cinematic fact and the film services industry: Production contexts and contexts of production in Zimbabwe (1980-2016)
Zihindula	Ganzamungu	Applied Human Science	Doctor of Philosophy (Human Sciences)	Access to health care services by refugees in South Africa: A case study of the Congolese community living in the city of Durban
Awezaye	Mwilarhe	Arts	Doctor of Philosophy (Human Sciences)	Le marronnage paradigmatique dans la litterature africaine francophone contemporaine: d'Ahmadou Kourouma à Kossi Efoui
Du Plessis	Donatella Pia	Arts	Doctor of Philosophy (Human Sciences)	The development of the relationship between technique and ideal in Diderot's criticism of history painting in his salons (1759-1767)
Haricharan	Dhanwanthie	Arts	Doctor of Philosophy (Human Sciences)	A critical analysis of the relationship between literacy and disadvantage: A case study of grade 11 literacy practices in a township school
Harrison	Janet May	Arts	Doctor of Philosophy (Human Sciences)	Beyond the biopic: An exploration into the nature of biography through the medium of film
Kabasele	Philothe Mwamba	Arts	Doctor of Philosophy (Human Sciences)	Language typology and L3 transfer phenomena in adult learners: The case of Lingala-French speakers learning English
Ngoboka	Jean Paul	Arts	Doctor of Philosophy (Human Sciences)	Locatives in Kinyarwanda
Spencer	Faye Julia	Arts	Doctor of Philosophy (Human Sciences)	Narratives of departure: A body of art and literary work accompanied by a theoretical enquiry into the process and methodology of their production
Stewart	Michelle	Arts	Doctor of Philosophy (Human Sciences)	'Big Man', an animated film with an accompanying analysis of its relationship to the theory and practice of art and animation
Aledare	Kayode David	Built Environment and Development Studies	Doctor of Philosophy (Human Sciences)	The Vulnerability of Settlements to Climate Change: The Case of Lagos Metropolis Coastal Areas, Nigeria
Chikutsa	Antony	Built Environment and Development Studies	Doctor of Philosophy (Human Sciences)	Male Circumcision as an HIV Reduction Strategy: Implications For Men and Women In Zimbabwe
Kalina	Marc Ronald	Built Environment and Development Studies	Doctor of Philosophy (Human Sciences)	Deliberation and Environmental Assessment: Ecological Modernisation in Northern Mozambique
Luckan	Yashaen	Built Environment and Development Studies	Doctor of Philosophy (Human Sciences)	The Transformation of Architectural Pedagogy and Learning Space Development Towards a new Model for Architectural Education at Universities of Technology in South Africa
Masvaure	Steven	Built Environment and Development Studies	Doctor of Philosophy (Human Sciences)	Unshared Vision: Decentralization in Zimbabwe, a Special Reference to the Harare City Council
Mengesha	Gashaw Teshome	Built Environment and Development Studies	Doctor of Philosophy (Human Sciences)	Ethiopian Diaspora in South Africa: Typology Remittances & Policy Implications

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SURNAME	FIRST NAME	SCHOOL	QUALIFICATION	THESIS TITLE
Oke	Julius Oladapo	Built Environment and Development Studies	Doctor of Philosophy (Human Sciences)	Spatial Planning and Solid Waste Management: The Case of Ibadan Metropolitan City, Nigeria
Olayiwola	Kola Oladele	Built Environment and Development Studies	Doctor of Philosophy (Human Sciences)	Analysis of Residents Travel Patterns, Land Use Planning and Mobility in Metropolitan Lagos, Nigeria
Shonhai	Venencia Fortunate	Built Environment and Development Studies	Doctor of Philosophy (Human Sciences)	An Evaluation of Government's Attempts to Promote Indigenous Vegetables
Shonhe	Toendepi	Built Environment and Development Studies	Doctor of Philosophy (Human Sciences)	Capital Accumulation and Class Formation in Zimbabwe: Lessons From Post Fast Track Tobacco Farming in Hwedza District
Bowley	Barbara Anne	Education	Doctor of Philosophy (Education)	Boys, sport and the construction of masculinities: An ethnographic study of sporty year-eight boys in a single-sex private school in KwaZulu-Natal, South Africa
Budden	Ramona	Education	Doctor of Philosophy (Education)	Exploration of factors that inform Curriculum Studies students to use e-resources in conducting Masters of Education dissertations at a South African university
Buhigiro	Jean Leonard	Education	Doctor of Philosophy (Education)	The experiences of Rwandan secondary schools' history teachers in teaching the Genocide against the Tutsi and its related controversial issues
Campbell	Bridget	Education	Doctor of Philosophy (Education)	Influences on, and possibilities for, my English pedagogy: A narrative self-study
Chindedza	Winnet	Education	Doctor of Philosophy (Education)	Gender attitudes towards feminist literature: Lecturers' and students' engagement with feminist literary texts at a University in Zimbabwe
Chirikure	Tamirirofa	Education	Doctor of Philosophy (Education)	Exploring Zimbabwean Students' Approaches to investigation in Advanced Level Chemistry
Chitanana	Lockias	Education	Doctor of Philosophy (Education)	Using Web 2.0 Technologies to facilitate the Collaborative Design Process among Undergraduate Engineering students: An Actor-Network study
David	Kalaivani	Education	Doctor of Philosophy (Education)	SMT members' perceptions of their role in the Continuous Professional Development of teachers in two schools in the uMgungundlovu District
Goebel	Jessica Luise	Education	Doctor of Philosophy (Education)	Students' learning of threshold concepts in undergraduate economics
Hlatywayo	Jairos	Education	Doctor of Philosophy (Education)	Exploring the practices of leadership in the United Church of Christ mission schools in Zimbabwe: A historical case study
Hlela	Augustine Zamokwakho Nhlanhla	Education	Doctor of Philosophy (Education)	Participatory community learning for community empowerment: A case study in Maputaland
Ikyoive	Joseph Tertsea	Education	Doctor of Philosophy (Education)	Text to context: An interpretation of suicide in selected plays of Soyinka, Rotimi and Ogunyemi
Jafta	Thomas Daniel	Education	Doctor of Philosophy (Education)	An exploration of General Education and Training teachers' democratisation of the science teaching and learning space.
Kapofu	Lifeas Kudakwashe	Education	Doctor of Philosophy (Education)	In the Mix - Exploring Urban Black Youth Culture in Desegregated Life Sciences Classrooms
Kimathi	Faith Kananu	Education	Doctor of Philosophy (Education)	Professional learning of Foundation Phase teachers in the Advanced Certificate in Teaching (ACT) programme
Kolobe	Lebala Miriam	Education	Doctor of Philosophy (Education)	Teaching chemistry under the magnifying glass: Cases of experienced teachers teaching chemical equilibrium
Kufaine	Noel Drake	Education	Doctor of Philosophy (Education)	Internalization of Higher Education from the Leadership Perspective: A Case study of the University of Malawi
Mahabeer	Pryah	Education	Doctor of Philosophy (Education)	Curriculum intellectualization: An Engagement with Decision-makers
Mahadeo	Yesha Devi	Education	Doctor of Philosophy (Education)	The development of the linguistic repertoire of primary school learners within the Mauritian multilingual educational system

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SURNAME	FIRST NAME	SCHOOL	QUALIFICATION	THESIS TITLE
Mahloane Tau	Sophie Makonita	Education	Doctor of Philosophy (Education)	Responses of tertiary institution learners towards information, education and communication materials used to prevent HIV in Lesotho
Manickchund	Nadira	Education	Doctor of Philosophy (Education)	Parent's decision-making of primary school choice in KwaZulu-Natal
Meeran	Safura	Education	Doctor of Philosophy (Education)	Influence of new curriculum policies on Mathematics teachers' work
Mhindu	Admire	Education	Doctor of Philosophy (Education)	The experiences of teachers on the use of Shangani as the medium of instruction at three selected Chiredzi District schools in Zimbabwe
Mkhize	Bongani Nhlanhla Cyril Kenneth	Education	Doctor of Philosophy (Education)	Instructional leadership practices of secondary school principals in the context of multiple deprivations in Umlazi District: A multiple case study
Molefe	Mausley Barbara Sikhumbuzo	Education	Doctor of Philosophy (Education)	Implementing the policy on learner pregnancy in rural schools: Perspectives from schools in Uthukela District
Mosuoe	Malithapelo Mapaseka	Education	Doctor of Philosophy (Education)	Coping strategies and learning of Basotho women living with HIV and AIDS: A case study of a group of women belonging to Phelisanang Bophelong Association in the Leribe District
Mukaro	Joe Phaeton	Education	Doctor of Philosophy (Education)	Interpretation and implementation of the intended curriculum: A Zimbabwe case study of A-level Biology practical work teaching and learning practices
Myeni	Doris Nompumelelo	Education	Doctor of Philosophy (Education)	The Dynamics of Generation and Managing Educational Resources in Selected Secondary Schools in Swaziland
Ndlovu	Blanche Ntombizodwa	Education	Doctor of Philosophy (Education)	Exploring Teachers' understanding of pedagogic practices in teaching Mathematical concepts in Grade 1: A case study in a South African Primary Schools
Ndlovu	Emily	Education	Doctor of Philosophy (Education)	Towards an alternative model for implementing curriculum innovations in Zimbabwe secondary schools: The case of Art and Culture
Ndwandwe	Mduduzi Innocent	Education	Doctor of Philosophy (Education)	Participatory decision-making and power at three secondary schools in the Umlazi District: A case study
Nehal	Mitasha	Education	Doctor of Philosophy (Education)	Parental involvement in the development of reading among Grade R children in an Indian community
Ngcamu	Bethuel Sibongiseni	Education	Doctor of Philosophy (Education)	An exploratory study on the influences of leadership on transformation in a Higher Education Institution: A case of the Durban University of Technology, South Africa
Ngcobo	Ntombikayise	Education	Doctor of Philosophy (Education)	Towards Gender Equitable Schooling Environments: Space, Geography and Experiences of Children in Two South African Primary Schools
Ngubane	Sithembiso Magnus	Education	Doctor of Philosophy (Education)	Narratives of juvenile ex-inmates: Reinvigorating meanings of self through learning for reintegration into society
Nnadozie	Jude Ifeanyichukwu	Education	Doctor of Philosophy (Education)	The Geographies of migrant learners in three South African schools: A narrative inquiry
Nxumalo	Zodwa Gcinaphi	Education	Doctor of Philosophy (Education)	Implementing the new and localised English language curriculum in rural school contexts in Swaziland: The case of Lubombo Region
Pather	Roshini	Education	Doctor of Philosophy (Education)	Library spaces in higher education: Exploring academics' understanding
Pillay	Preya	Education	Doctor of Philosophy (Education)	Gender representation in four SADC high school Business Studies textbooks
Poovan	Devakumari	Education	Doctor of Philosophy (Education)	Novice teachers' discourses of teachers' work
Ramdhany	Virendra	Education	Doctor of Philosophy (Education)	Pre-service Mathematics teachers' recontextualising of the regulative discourse: A case study

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SURNAME	FIRST NAME	SCHOOL	QUALIFICATION	THESIS TITLE
Reddy	Nessa Govindasamy	Education	Doctor of Philosophy (Education)	Teachers' perspectives of the relationship between work and context work
Ross	Andrew	Education	Doctor of Philosophy (Education)	On being a rural origin Health Care Professional: Lives, learnings and practices
Shoko	Shepherd	Education	Doctor of Philosophy (Education)	Leader influence behaviours and school leadership: An ethnographic study of three primary school heads in the Zvishavane District in Zimbabwe
Simelane	Armstrong Siboniso	Education	Doctor of Philosophy (Education)	The Role, Adoption and Usage of e-books in Science, Mathematics and ICT education in Swaziland Schools
Subbaye	Reshma	Education	Doctor of Philosophy (Education)	Teaching and Academic promotions at Research Universities.
Subbiah	Charmaine	Education	Doctor of Philosophy (Education)	An investigation into how history learners view History as a subject in the secondary phase of schooling
Tarisayi	Kudzayi Savious	Education	Doctor of Philosophy (Education)	The social capital influences of land reform beneficiaries and communal farmers on satellite schools in Zimbabwe
Thabede	Khombisile Jeanette	Education	Doctor of Philosophy (Education)	School Management Teams and teachers' perspectives on their role in the implementation of Inclusive Education Policy: A case study of three primary schools in Umkhanyakude District
Thakaso	Mantsejoa Nthabiseng	Education	Doctor of Philosophy (Education)	Young adult understanding of citizen rights and responsibilities in the Lesotho context: Implications for civic education
Wojuola	Rosemary Nike	Education	Doctor of Philosophy (Education)	Public understanding of Renewable Energy Technologies in Nigeria: Implications for Science and Technology Policy and Education
Wood	Nicholas Anthony	Education	Doctor of Philosophy (Education)	Teaching practices in Management Accounting and Finance
Zulu	Free Queen Bongiwe	Education	Doctor of Philosophy (Education)	Teacher learning: A case study of two teacher learning communities in KwaZulu-Natal
Agai	Jock Matthew	Religion, Philosophy and Classics	Doctor of Philosophy (Human Sciences)	A reflection on the development of the tradition of an Egyptian origin of the Yoruba, 1846-1901
Boesak	Elna	Religion, Philosophy and Classics	Doctor of Philosophy (Human Sciences)	Channelling justice? A feminist exploration of North American televangelism in a South African constitutional democracy
Chingono	Herbert	Religion, Philosophy and Classics	Doctor of Philosophy (Human Sciences)	A critical study of the ethical challenges to United Nations peacekeeping missions and national sovereignty in Africa with specific reference to Congo, Somalia, Rwanda and Sudan
Dading	Cletus Haniel	Religion, Philosophy and Classics	Doctor of Philosophy (Human Sciences)	An exploration of sex and sexualities in a context of HIV and AIDS in the Lutheran Church of Christ in Nigeria (LCCN): A phenomenological study of Christian love and stigmatization in Nigeria-Adamawa state: A case study of the LCCN Todi Diocese
Dickie	June Frances	Religion, Philosophy and Classics	Doctor of Philosophy (Human Sciences)	Zulu song, oral art performing the Psalms to stir the heart: Applying indigenous form to the translation and performance of some praise Psalms
Govender	Jezreel	Religion, Philosophy and Classics	Doctor of Philosophy (Human Sciences)	Inter-Religious Marriage Counselling in South Africa: Towards a Counselling Model for Inter-religious Couples:A Christian Perspective
Hillebrand	Jennifer Dawn	Religion, Philosophy and Classics	Doctor of Philosophy (Human Sciences)	Weaving webs with Paul: Conceptual blending in a reading of Roman 1:1-5 in the context of the struggle in South Africa in the 1970s and 1980s
Hlatywayo	Anniegrace	Religion, Philosophy and Classics	Doctor of Philosophy (Human Sciences)	Indigenous knowledge, beliefs and practices on pregnancy and childbirth among the Ndau people of Zimbabwe
John	Sokfa Francis	Religion, Philosophy and Classics	Doctor of Philosophy (Human Sciences)	A Postcolonial critique of religion and ethnicity in Southern Kaduna with specific reference to an online forum
Kahuni	Panganai	Religion, Philosophy and Classics	Doctor of Philosophy (Human Sciences)	The Security Sector Reform debate in Post-Independent Africa south of the Sahara: A critical ethical investigation based on the concepts of sovereignty and anarchy

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SURNAME	FIRST NAME	SCHOOL	QUALIFICATION	THESIS TITLE
Kaunda	Mutale Mulenga	Religion, Philosophy and Classics	Doctor of Philosophy (Human Sciences)	Negotiated feminism? A study of married Bemba women appropriating the *Imbusa* pre-marital 'curriculum' at home and workplace
Keba	Muko Cyril	Religion, Philosophy and Classics	Doctor of Philosophy (Human Sciences)	A feminist ethical analysis of the Democratic Republic of the Congo's mining policy
Konyana	Elias	Religion, Philosophy and Classics	Doctor of Philosophy (Human Sciences)	When culture and the law meet: An ethical analysis of the interplay between the Domestic Violence Act and the traditional beliefs and cultural practices of the Ndau people in Zimbabwe
Mapala	Cogitator Wilton	Religion, Philosophy and Classics	Doctor of Philosophy (Human Sciences)	Ethnicity and Christianity: A historical perspective on the border dispute between the Livingstonia and Nkhoma Synods of the Church of Central Africa Presbyterian (1956-2015)
Ndlovu	Siphiwe	Religion, Philosophy and Classics	Doctor of Philosophy (Human Sciences)	The Concept of Alienation in the Work of Frantz Fanon
Nkohla	Thando	Religion, Philosophy and Classics	Doctor of Philosophy (Human Sciences)	Virtual ontology, moral responsibility and agency: The ethical implications of mobile communication technology use on parenting style in Pietermaritzburg, South Africa
Otaluka	Wisdom Okwuoma	Religion, Philosophy and Classics	Doctor of Philosophy (Human Sciences)	The cultural roots of corruption: An ethical investigation with particular reference to nepotism
Phiri	Lilly	Religion, Philosophy and Classics	Doctor of Philosophy (Human Sciences)	'Construction Sites': Exploring gay identity and sexuality at the intersections of religion and culture in Zambia
Pieters	Bernardus Johannes	Religion, Philosophy and Classics	Doctor of Philosophy (Human Sciences)	Community and the economy: A reformed theological reflection on a social-embedded economy
Pillay	Patrick Brian Segaren	Religion, Philosophy and Classics	Doctor of Philosophy (Human Sciences)	The Emergence Of Atheism in South Africa
Rugeje	Engelbert Abel	Religion, Philosophy and Classics	Doctor of Philosophy (Human Sciences)	Recurring conflict in the eastern Democratic Republic of Congo: The search for regional transformation mechanism premised on collective security and the African ethical concept of Ubuntu
Ssebunya	Margaret	Religion, Philosophy and Classics	Doctor of Philosophy (Human Sciences)	Investors or infestors: An ethical critique of the contribution of investors in Uganda's mining sector to development, environment and society
Adeleke	Olateju Abayomi	Social Sciences	Doctor of Philosophy (Human Sciences)	An investigation of the extent of automation of public libraries in South-West, Nigeria
Akinyemi	Temitope Edward	Social Sciences	Doctor of Philosophy (Human Sciences)	Climate change, migration and resource contestations: A case study of north-south migration in Nigeria
Benhura	Abigail Rudorwashe	Social Sciences	Doctor of Philosophy (Human Sciences)	Interrogating the Provision of Secondary School Education in Hopley and Caledonia Communities: A Lens into Internal Displacement in Zimbabwe
Brauns	Melody	Social Sciences	Doctor of Philosophy (Human Sciences)	Public healthcare in a Post-Apartheid South Africa: A critical analysis in governance practices
Chaputula	Aubrey	Social Sciences	Doctor of Philosophy (Human Sciences)	eReadiness of public university libraries in Malawi with special reference to use of mobile phones in the provision of library and information services
Dekker	Lydia Carol	Social Sciences	Doctor of Philosophy (Human Sciences)	The Social Construction of the South African Seafarer's Identity and Coping Strategies, in the International Merchant Navy
Dlamini	Siyabonga Innocent	Social Sciences	Doctor of Philosophy (Human Sciences)	Transforming local economies through land reform: Political dilemmas and rural development realities in South Africa
Durowaiye	Babatunde Emmanuel	Social Sciences	Doctor of Philosophy (Human Sciences)	An Exploration of Poverty and Socio-Cultural Factors on Young People's Access to Higher Education in Kogi State, Nigeria
Ehiane	Stanley Osezua	Social Sciences	Doctor of Philosophy (Human Sciences)	Terrorism in Nigeria, 2010-2015: Causes and Challenges
Ekwealor	Chinedu Thomas	Social Sciences	Doctor of Philosophy (Human Sciences)	The nexus between the United Nations Security Council reform and peacebuilding in Africa
Fatai	Abiodun Surajudeen	Social Sciences	Doctor of Philosophy (Human Sciences)	Elections and democratic consolidation in West Africa: Comparative study of Nigeria and Senegal, 1999-2012

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SURNAME	FIRST NAME	SCHOOL	QUALIFICATION	THESIS TITLE
Ferim	Valery, Buinwi	Social Sciences	Doctor of Philosophy (Human Sciences)	African Indigenous Knowledge Systems in Contemporary Conflict Transformation: A Case Study of the Bakweri People of the South West Region of Cameroon
Gopalan	Karthigasen	Social Sciences	Doctor of Philosophy (Human Sciences)	The Destruction and Remaking of 'Community': A Case Study of the Magazine Barracks Residents' Relocation to Chatsworth
Idoniboye-Obu	Tamunotonye Ibimina	Social Sciences	Doctor of Philosophy (Human Sciences)	User education programmes in selected university libraries in KwaZulu-Natal, South Africa
Johnson	Uduak Friday	Social Sciences	Doctor of Philosophy (Human Sciences)	Success or Failure? Student Experiences of the Extended Curriculum Programme (ECP) in the College of Humanities, University of KwaZulu-Natal
Khumalo	Thandi Fredah	Social Sciences	Doctor of Philosophy (Human Sciences)	Employment and social inclusion: Implications for young adults in Swaziland
Maiga	Zakayo Bernard	Social Sciences	Doctor of Philosophy (Human Sciences)	Knowledge sharing among academics in selected universities in Tanzania
Makanda	Joseph	Social Sciences	Doctor of Philosophy (Human Sciences)	South Africa and peacebuilding in the Democratic Republic of Congo (DRC) 1996-2016: Probing the attitudes of Congolese refugees in Durban
Mgxobane-Chitha	Nombulelo	Social Sciences	Doctor of Philosophy (Human Sciences)	Information behaviour of medical doctors and professional nurses in selected hospitals of OR Tambo Health District, Eastern Cape Province, South Africa
Muse	Sulaimon Adigun	Social Sciences	Doctor of Philosophy (Human Sciences)	Public Participation in Democratic Governance: A Case Study of Participatory Budgeting in Lagos, Nigeria
Ngcobo	Eunice Nonhlanhla	Social Sciences	Doctor of Philosophy (Human Sciences)	The use of Web 2.0 Technologies in university libraries in South Africa
Njie	Ebrima	Social Sciences	Doctor of Philosophy (Human Sciences)	Leadership Failure, State Collapse and External Intervention: Investigating Instability and Conflict in the Democratic Republic of Congo, 1960-2010
Nzuza	Nokwanda Yoliswa	Social Sciences	Doctor of Philosophy (Human Sciences)	Renegotiating Body Image and Sexuality after Surviving Breast Cancer: Narratives of Young Black African Women
Okite-Amughoro	Faith Ashinedu	Social Sciences	Doctor of Philosophy (Human Sciences)	The effectiveness of Web 2.0 in marketing academic library services in Nigerian universities: A case study of selected universities in South-South Nigeria
Onwuegbuchulam	Sunday Paul Chinazo	Social Sciences	Doctor of Philosophy (Human Sciences)	Where faith is a healer? Assessing faith-based organisations strategies and their partnership with government towards poverty alleviation: Case study of PACSA and Gift of the Givers in KwaZulu- Natal (South Africa)
Phakathi	Mlungisi Surprise	Social Sciences	Doctor of Philosophy (Human Sciences)	The management of intergovernmental relations in KwaZulu-Natal's Operation Sukuma Sakhe
Polak	Fiona Margaret	Social Sciences	Doctor of Philosophy (Human Sciences)	African identity in the making: The role of the Centre for African Literary Studies as a special collection of the University of KwaZulu-Natal
Radebe	Themba Innocent	Social Sciences	Doctor of Philosophy (Human Sciences)	An examination of South Africa's foreign policy towards Israel and Palestine after 1994, with a specific focus on the conflicts between these two respective territories / countries
Scina	Yonela	Social Sciences	Doctor of Philosophy (Human Sciences)	The Life Histories of Traditional Birth Attendants in the Context of Changing Reproductive Health Practices in uMzimkhulu, KwaZulu-Natal
Sejane	Lefuma Mamonaheng Evodia	Social Sciences	Doctor of Philosophy (Human Sciences)	Access to and use of electronic information resources in academic libraries of the Lesotho Library Consortium
Shisanya	Florence Adhiambo	Social Sciences	Doctor of Philosophy (Human Sciences)	A policy analysis of self-organized collective action among agricultural cooperatives in uMgungundlovu District, KwaZulu-Natal Province
Shoko	Evans	Social Sciences	Doctor of Philosophy (Human Sciences)	Water Access Policies: Probing Water Access Policies and Positive Peace in a Zimbabwean Rural Setting

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College of Humanities

SURNAME	FIRST NAME	SCHOOL	QUALIFICATION	THESIS TITLE
Tapfuma	Mass Masona	Social Sciences	Doctor of Philosophy (Human Sciences)	Utilisation of open access institutional repositories in Zimbabwe's public universities
Umoh	Nanji Rimdan	Social Sciences	Doctor of Philosophy (Human Sciences)	The ecology of Nigeria's public administration and employee motivation in the Plateau State Civil Service (2004-2014)
Umubyeyi	Beatrice Samson	Social Sciences	Doctor of Philosophy (Human Sciences)	Probing Marital Conflicts within the Context of Migrant Families from Democratic Republic of Congo (DRC) in Durban, KwaZulu-Natal Province
Vhumbunu	Clayton Hazvinei	Social Sciences	Doctor of Philosophy (Human Sciences)	The Secession of States as a Strategy for Resolving Intra-State Ethnic and Religious Conflicts in Post-Colonial Africa: The Case of South Sudan
Yaro	Suaka	Social Sciences	Doctor of Philosophy (Human Sciences)	Political and Socio-Economic Causes and the Effects of Armed Conflict in the Ivory Coast 2002-2011
Zibane	Sbonisile Zerurcia	Social Sciences	Doctor of Philosophy (Human Sciences)	Negotiating Sexuality: Informal Sexual Cultures Amongst Young People at a Township High School in KwaZulu-Natal

College of Law and Management Studies

SURNAME	FIRST NAME	SCHOOL	QUALIFICATION	THESIS TITLE
Ayandibu	Ayansola Olatunji	Graduate School of Business and Leadership	Doctor of Philosophy (Management Studies)	Strategic innovation as a tool for improved performance amongst Small and Micro Businesses
Dlamini	Phumzile Caroline	Graduate School of Business and Leadership	Doctor of Philosophy (Management Studies)	Improving Performance Monitoring and Evaluation in South African Local Government
Govender	Sagaren	Graduate School of Business and Leadership	Doctor of Philosophy (Management Studies)	Developing a leadership model to enhance healthcare services delivery in regional hospitals
Jacob	Noel	Graduate School of Business and Leadership	Doctor of Business Administration	Developing a Model of Organisational Success: A case of Link Healthcare Pty Ltd Business Implementations
Khumalo	Njabulo	Graduate School of Business and Leadership	Doctor of Philosophy (Management Studies)	The role of Human Resource Planning on service delivery in Sizakala Customer Care Centres in eThekwini Municipality
Madi	Katombe	Graduate School of Business and Leadership	Doctor of Business Administration	The quest for process operations' variability reduction in the Manufacturing Firms in South Africa
Majola	Siza Zabalazile	Graduate School of Business and Leadership	Doctor of Business Administration	Developing a model for managing stakeholder relationships for a traditionally Governed African Community: Bafokeng case
Mango	Dumisa Reuben	Graduate School of Business and Leadership	Doctor of Business Administration	Analysing challenges impeding the implementation of municipal strategies in Mpumalanga Province: A study of Msukaligwa Local Municipality
Masegare	Peter Mamoneke	Graduate School of Business and Leadership	Doctor of Business Administration	Critical analysis of Corporate Governance Implementation and Systems within the Municipal Sector in Gauteng, South Africa
Moodley	Kriyanka	Graduate School of Business and Leadership	Doctor of Philosophy (Management Studies)	Toward Eco-system Awareness: An inquiry into the Ontological Processes of Theory U
Ndlovu	Matshediso Joy	Graduate School of Business and Leadership	Doctor of Business Administration	The Impact of HR Governance in the success of Micro Finance Sector in South Africa
Ndlovu	Bongani Bhekinkosi	Graduate School of Business and Leadership	Doctor of Philosophy (Management Studies)	Strategic Leadership as an approach to promote service delivery by local government in South Africa: A Case study of the UThungulu District Municipality Strategic Leadership as an apporach to promote service delivery by local government in South Africa: Case study of the UThungulu District Municipality
Ogunlela	Oyebanjo Gabriel	Graduate School of Business and Leadership	Doctor of Business Administration	An integrated supply chain management model for Promoting Competitiveness in the fast moving customer goods (FMCG) manufacturing industry in Nigeria
Ojugbele	Hammed Olabode	Graduate School of Business and Leadership	Doctor of Philosophy (Management Studies)	Developing a System Dynamics Based Learning Laboratory for Understanding the Dynamics of Talent Management

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College of Law and Management Studies

SURNAME	FIRST NAME	SCHOOL	QUALIFICATION	THESIS TITLE
Ramrathan	Durrel	Graduate School of Business and Leadership	Doctor of Philosophy (Management Studies)	An Exploration of the fundamentals driving the strategic implementation of information technology and its impact on human intuition
Sifolo	Portia Pearl Siyanda	Graduate School of Business and Leadership	Doctor of Business Administration	A tourism stakeholder management supply chain framework for economic contribution for Northern Cape Province, South Africa
Tefera	Orthodox	Graduate School of Business and Leadership	Doctor of Business Administration	The Relationship amongst Hotel Ratings, Service Quality, Customer Satisfaction and Loyalty in Ethiopian Hotel Industry
Charteris	Ailie Heather	Accounting, Economics and Finance	Doctor of Philosophy (Management Studies)	An Analysis of Macroeconomic Factor Models in Explaining the Cross-Section of Share Returns in South Africa
Gisanabagabo	Sebuhuzu	Accounting, Economics and Finance	Doctor of Philosophy (Management Studies)	Financial Sector Development and Economic Growth in Rwanda
Mahomedy	Abdulkader Cassim	Accounting, Economics and Finance	Doctor of Philosophy (Management Studies)	Why the Rationalist Foundations of Modern Science are Unsuitable for Islamic Economics
Morakinyo	Akinola Ezekiel	Accounting, Economics and Finance	Doctor of Philosophy (Management Studies)	The MINT Economies and Non-Performing Loans
Mpembele	Stephen Chewe	Accounting, Economics and Finance	Doctor of Philosophy (Management Studies)	Financial Literacy amongst Informal Enterprise Owners in Zambia.
Rajaram	Rajendra	Accounting, Economics and Finance	Doctor of Philosophy (Management Studies)	Success Factors for Business Rescue in South Africa
Sarpong	Prince Kwasi	Accounting, Economics and Finance	Doctor of Philosophy (Management Studies)	Trading in Chaos: An Analysis of Active Management in a Fractal Market
Zegeye	Elias Asfaw	Accounting, Economics and Finance	Doctor of Philosophy (Management Studies)	Economic Evaluation and Utilization Analysis of the Prevention of Mother-to-Child Transmission of HIV Program in Ethiopia
Zogli	Luther-King Jnr	Accounting, Economics and Finance	Doctor of Philosophy (Management Studies)	An Economic Analysis of Urban Slum Activities in Ghana: A Case Study of Kumasi and Accra
Eba	Patrick Michael	Law	Doctor of Philosophy (Law)	The HIV tribunal of Kenya: A viable mechanism for enforcing HIV-related legislation?
Eniola	Bolanle Oluwakemi	Law	Doctor of Philosophy (Law)	Cultural practice and reproductive health rights of women: A comparative study of South Africa and Nigeria
Idris	Nuhu Musa	Law	Doctor of Philosophy (Law)	Residency issues and federalism in personal income tax: A comparative analysis of the Nigeria and South African legal regimes
Khan	Franaaz	Law	Doctor of Philosophy (Law)	A critical analysis of the laws and policies regulating the management of learner pregnancy in South Africa using the lived experiences of various stakeholders at selected public secondary schools in KwaZulu-Natal and Hospital School Pretoria
Maharaj	Sandhya	Law	Doctor of Philosophy (Law)	Non-pathological incapacity – reassessing the defence of provocation and emotional stress in South African Criminal law
Msuya	Norah Hashim	Law	Doctor of Philosophy (Law)	Culture and Traditions: A Roadblock in the Implementation of the Convention on the Elimination of Discrimination Against Women and the Maputo Protocol on Women's Rights in Tanzania
Adelekan	Saidi Adedeji	Management, Information Technology and Governance	Doctor of Philosophy (Management Studies)	Social Entrepreneurship Management: Pedagogical Initiatives Orientation for the Creation of Social Ventures at Designated Nigerian Universities
Aswanth Kumar	Krishnaperdash	Management, Information Technology and Governance	Doctor of Administration	Effectiveness and Efficiency of Revenue Management in South African Metropolitan Municipalities
Bachoo	Niresh	Management, Information Technology and Governance	Doctor of Philosophy (Management Studies)	Factors influencing Consumer Behaviour in the procurement/free downloading of mobile applications: A case study of students at the University of KwaZulu-Natal
Beharry - Ramraj	Andrisha	Management, Information Technology and Governance	Doctor of Philosophy (Management Studies)	Challenges to Management Practices in Public Technical and Vocational Education and Training (TVET) Colleges in the KwaZulu-Natal Province
Bomani	Mapeto	Management, Information Technology and Governance	Doctor of Philosophy (Management Studies)	Government Policies and Strategies in dealing with Challenges Confronting Small and Medium Enterprises: A Case of Harare, Zimbabwe

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College of Law and Management Studies

SURNAME	FIRST NAME	SCHOOL	QUALIFICATION	THESIS TITLE
Boodhoo	Suvera	Management, Information Technology and Governance	Doctor of Philosophy (Management Studies)	Implementing the Principles of Responsible Management Education (PRME) for Sustainable Development
Eke	Chidi Idi	Management, Information Technology and Governance	Doctor of Philosophy (Management Studies)	The Causes and Management of School-based Violence in High Schools in uMgungundlovu District of KwaZulu-Natal
Kakava	Nicholas Zivengwa	Management, Information Technology and Governance	Doctor of Philosophy (Management Studies)	Factors Influencing the Successful Adoption of Technopreneurship in the Food Processing Sector in Zimbabwe
Kariuki	Paul Kinyua	Management, Information Technology and Governance	Doctor of Administration	Developing a Human Resource Framework for Monitoring and Evaluating Personnel in selected Municipalities of KwaZulu-Natal
Khoase	Refiloe Gladys	Management, Information Technology and Governance	Doctor of Philosophy (Management Studies)	The Influence of Public and Private Supporting Institutions on Small, Medium and Micro Enterprise Development: A Comparative Study between Lesotho and South Africa
Makoba	Petulia Ntokozo	Management, Information Technology and Governance	Doctor of Administration	Values Underlying Traditional Leadership and Governance and South African Constitutional Imperatives: A Case of Umgungundlovu District Municipality in KwaZulu-Natal
Mangundu	John	Management, Information Technology and Governance	Doctor of Philosophy (Management Studies)	An Evaluation of the Inhibitors of IT Governance Implementation in Private and Public Healthcare in South Africa
Mantey	Nicholas Otu	Management, Information Technology and Governance	Doctor of Philosophy (Management Studies)	Passengers' perceptions and expectations towards Service Quality of Airlines owned by South Africa
Manuere	Faitira	Management, Information Technology and Governance	Doctor of Philosophy (Management Studies)	Corporate Social Responsibility Practices in Small to Medium Enterprises in Zimbabwe
Mashau	Pfano	Management, Information Technology and Governance	Doctor of Philosophy (Management Studies)	University Innovation Centres' Activities as Drivers of Entrepreneurship and Agglomeration Economies
Maunganidze	Farai	Management, Information Technology and Governance	Doctor of Philosophy (Management Studies)	The Changing Nature of Professional Work in Zimbabwe: Comparative case studies of Lawyers, Engineers and Chartered Accounts
Mbengo	Pinigas	Management, Information Technology and Governance	Doctor of Philosophy (Management Studies)	Marketing Mix's Influence on Mobile Banking Adoption by the Rural Unbanked Consumers in Masvingo Province
Mboto	Mzukisi James	Management, Information Technology and Governance	Doctor of Administration	Evaluation of Water Service Delivery in the OR Tambo District Municipality, Eastern Cape Province
Mtembu	Vuyokazi Ntombikayise	Management, Information Technology and Governance	Doctor of Philosophy (Management Studies)	Green Human Resource Management towards Sustainable Organizations: A Case of KwaZulu-Natal Higher Education Institutions
Munyaradzi	Mesheck	Management, Information Technology and Governance	Doctor of Philosophy (Management Studies)	A Strategy to build more peaceful schools in KwaZulu-Natal through effective management: An investigation of peace building terms
Ndayizigamiye	Patrick	Management, Information Technology and Governance	Doctor of Philosophy (Management Studies)	Adoption of Mobile Health Technologies for Public Healthcare in Burundi
Qwabe	Bongani Reginald	Management, Information Technology and Governance	Doctor of Administration	Human Capital for Rural Infrastructure Development in South Africa: A Project-Based Pedagogical Analysis
Ramluckan	Trishana	Management, Information Technology and Governance	Doctor of Administration	Social Media as a Communication Tool during crises and disasters: A South African Governance perspective
Shiri	Alphonce Tavona	Management, Information Technology and Governance	Doctor of Philosophy (Management Studies)	A Conceptual Model to enhance Leadership Styles in Life Insurance Policies Sales with a view to enhance Performance and Emotional States of Employees
Sibanda	Martha Nthambi	Management, Information Technology and Governance	Doctor of Administration	Disaster Risk Reduction Programmes in Nelson Mandela Bay Metropolitan Municipality
Wanda	Mutyaba Mary Nalwanga	Management, Information Technology and Governance	Doctor of Philosophy (Management Studies)	Retention of Academics in Private Universities of Uganda: The Role of Human Resource Practices
Wicomb	Daniel Robert	Management, Information Technology and Governance	Doctor of Philosophy (Management Studies)	Customer Relationship Management in Call Centres: An Eskom Perspective
Zimano	Felistas Ranganai	Management, Information Technology and Governance	Doctor of Philosophy (Management Studies)	Road Entry Point Management Systems and Regional Integration: The Case of Zimbabwe

University of KwaZulu-Natal Library

CHANGING WITH THE TIMES

The Library Advisory Board Committee, which was reinstated this year. NB - Some of the Board members are not present in this photograph.

Back row: *Dr R Pather, Dr C Muller, Dr D Reddy, Professor E Bhero, Mr A Bellengere (Chair), Professor Sibanda, Dr P Sukram.* Front row: *Dr N Ngcobo, Dr E Steinmeyer (Vice Chair), Mrs J Myeza and Professor M Malaba.*

For many of its patrons, the UKZN Library is more than just a space where they go to get books and to study.

With this in mind, the UKZN Library team has been hard at work transforming the academic space to keep up with the changing times and meet the expectation of users.

"We now know that most of our patrons are people who like online stuff. They like social media and social space," said Ms Joyce Myeza, the Director of the UKZN Library.

"When they come to the Library, it is not just about sitting and studying anymore – they want to see what is currently trending so that's why we're transforming the space in such a way that it talks to them," said Myeza.

Many of the changes that happened at the Library in 2017 were in keeping with this vision of transforming it into a hub. To achieve this, the Library partnered with other entities at the University, producing some of the most exciting innovations ever seen at the facility. For example, as a result of a partnership with the Student Health Services there is now a clinic inside the EG Malherbe Library on the Howard College campus. Space was also provided at the same library for a satellite of the popular SA Voices HIV Museum.

"Another partnership was with InQubate which was allocated space on the 11th floor of the Westville Main Library where it will be opening a centre for entrepreneurship."

The Library also becomes a collection point for many worthwhile projects such as Toy Story in which year-end gifts are collected for under-privileged children.

At the heart of the many other changes taking place at the Library is the e-Strategy where the aim is to guarantee that patrons can access library services anywhere, anytime and at any place.

With more than 10 000 users walking into UKZN libraries every day, the e-Strategy, complemented by 24-hour access, has been instrumental in solving the issue of space.

While it is very tempting to go all out on online, seeing there are now more users than those who rely on print, Myeza and her team have been very careful not to alienate traditional users.

"We still get students who do not have access to laptops at home and so we want to continue taking good care of them. We don't want to get complaints that we appear to be serving the first world while living in the third world. We are trying to accommodate the challenges of this country and we can never be online 100%," said Myeza.

Digitisation of the primary data, which is only available at UKZN, also gained more traction in 2017. However, this is a process that has to be done gradually with priority given to the digitisation of material in high demand.

Myeza says changes experienced at the Library had taken place smoothly thanks to the flexibility of the staff.

"Over the years, tasks have been changed and people have been moved around from campus to campus but we did not even have to involve the unions. We are blessed that we have the manpower that is so flexible, doing what needs to be done," she said.

While the Library is moving into the 21st century and can hold its own among the best in the world, it has not lost its identity.

A partnership with Indigenous Knowledge Systems (IKS) Director Professor Hassan Kaya led to the establishment of the IKS Library which was created in 2017 and Myeza says it has been getting a lot of financial support from IKS and has hosted interns from different countries and other South African universities.

She says the next big step for the Library is a project on the preservation of oral tradition. The idea was born out of the Africa-Asia conference organised by the IKS. "My take was that we usually say Africa is rich in oral tradition but what are we doing to make sure it is preserved? If we really want to change the game, we have to protect oral tradition."

The first step for IKS has been to ensure the appointment of a board that will review oral data.

"Once it is reviewed, we will be able to buy it and compensate the community holders then the data will also be recognised in that it can be used anywhere and can be referenced."

UKZN InQubate

Aptly described in the UKZN 2016 Research Report as a "mother hen sitting on a clutch of eggs", InQubate has in 2017 again "hatched" a whole batch of innovative projects with R3,7 million raised for the advancement of commercialisation efforts at the Institution.

InQubate is attached to the UKZN Research Office with four strategic areas of operation under the leadership of its Director, Ms Suvina Singh.

The areas are intellectual property management; commercialisation of intellectual property as a direct result of the research carried out by UKZN academics; consultancy; as well as student entrepreneurship.

The Unit's highlight of the year was the establishment of its Student Entrepreneurship Skills Programme - ENSPIRE™, the first phase of which was the creation of a student entrepreneurship policy approved by the University Council in October 2017.

"At the same time, UKZN InQubate started developing the processes and procedures to underpin its student entrepreneurship activities across the University," said Singh. "Initial student start-up businesses entering the programme were mainly in the agriculture and ICT fields with 13 young and aspiring entrepreneurs taken through a mentorship programme aimed at helping them with the development of their businesses."

The programme, she added, also actively promoted the advancement of entrepreneurship development through various workshops on a range of business areas, such as website development and business communication skills.

The workshops resulted in about 447 students gaining essential knowledge on how to develop their businesses.

Added to the R3,7 million raised by InQubate to advance commercialisation initiatives, South Africa's Department of Science and Technology – through its Technology Innovation Agency Seed Fund - directed R2.28 million to four projects, with an added R150 000 in top-up funding for further development on its previously funded African Horse Sickness Assay and Aquaculture Feed enhancement projects. A new collaboration with the African NBIC research and development Liselo-Labs was also established for the commercialisation of the African Horse Sickness Assay. Further finance was received from the KwaZulu-Natal Department of Economic Development, Tourism and Environmental Affairs Technology Transfer fund totalling R1,5 million for three projects.

A further seven projects were identified for funding for the development of antibiotics; anti-cancer diagnostics and therapy; low-cost inverters; parasite-resistant sorghum; low-cost and energy efficient briquettes; production of natural food additives, and a method of desulphurisation of coal for energy generation.

Added milestones achieved by the unit in 2017 include two South African patents for the Powerline Inspection Robot and the Compact Fluorescent Lightbulb Recycling projects. The latter achieved a licensing agreement with eWaste Africa while the Power Line Inspection Robot development team was awarded an all-expenses-paid trip to Japan by the Tokyo Electric Power Company to showcase the robot.

InQubate is also responsible for co-ordinating the Consultancy Portfolio, which supported academics by identifying industry engagement opportunities.

In response to bid calls, proposals targeting impactful major projects worth R5,13 million were developed and submitted to public and private entities such as the Dube TradePort Corporation (DTPC) and the Department of Environment (DEA).

The Portfolio continues to support public/private partnerships between the University and external third parties for meaningful socio-economic change. ■

UKZN PRESS

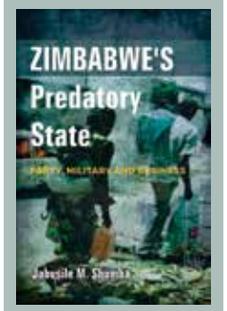
UKZN Press is constantly injecting new ideas into its operations. In 2017, one of the innovations was an initiative geared towards including more female writers.

"The Press initiated a women's imprint - supported by funding from the National Institute for the Humanities and Social Sciences (NIHSS) - to actively change the demographics of our author profile," said UKZN Press Director, Debra Primo. "Commissioning for the new imprint started in 2017 and the first books under the women's imprint will appear in 2019," she said.

Primo lists the republication of Mazisi Kunene's *Emperor Shaka the Great: A Zulu Epic*, and the first-time publication of the original isiZulu version, *UNodumohlezi Kamenzi*, among the 2017 highlights for UKZN Press.

"Although this epic poem was originally written in isiZulu and then translated into English by the poet himself, it was the English translation that was first published. The original publication then went out of print and the republication of the English edition and publication of the isiZulu edition were done in collaboration with the Mazisi Kunene Foundation, with a grant from the University," she said.

Another exciting moment for the Press was the timing of the publication of *Zimbabwe's Predatory State: Party, Military and Business* by Jabusile M Shumba. "The book was published just as the Zimbabwean coup d'état started in November last year," said Primo. While in 2017 the Press remained focused on scholarly works in the humanities and social sciences, it also started laying the groundwork for a move into textbook publishing which will also initially focus on the humanities and social sciences," said Primo. ■



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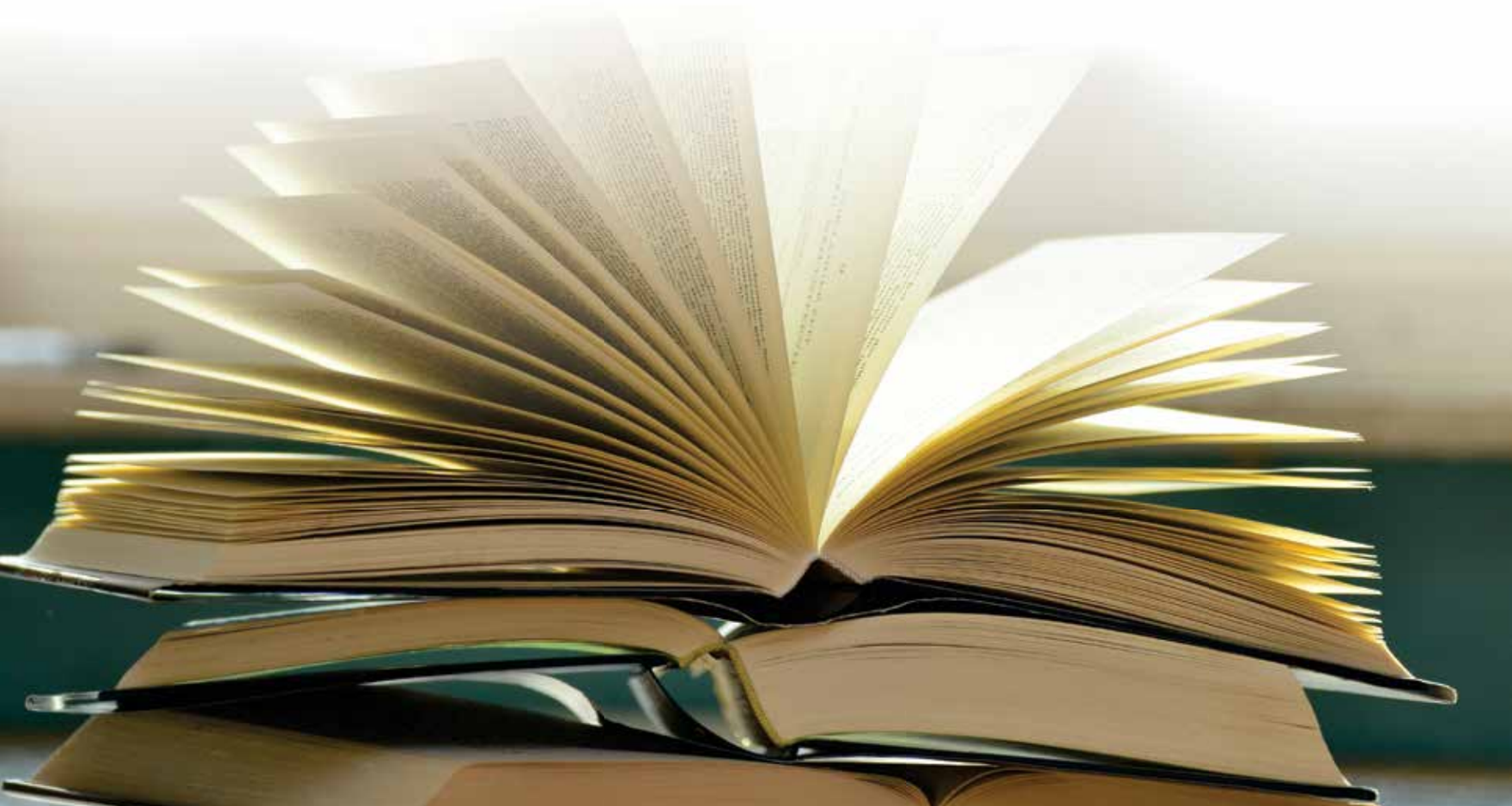
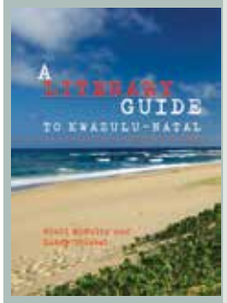
Zimbabwe's Predatory State: Party, Military and Business
Shumba, Jabusile M..





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A Literary Guide to KwaZulu-Natal
McNulty, Niall; Stiebel, Lindy

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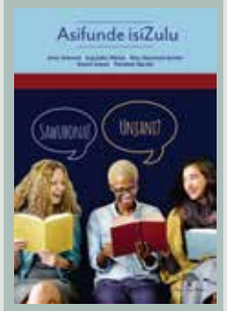
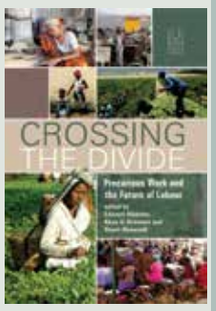
A Survey of South African Crime Fiction: Critical Analysis and Publishing History
Naidu, Sam; le Roux, Elizabeth



978 1 86914 369 5
Asifunde isiZulu
Shimwell, Anne; Mkhize, Gugulethu; Hammond-Gordon, Mary; Gokool, Roshni; Ngcobo, Tholakele



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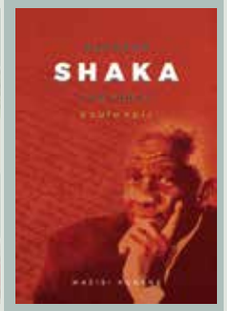
Crossing the Divide: Precarious Work and the Future of Labour
Webster, Edward; Britwum, Akua O.; Bhowmik, Sharit



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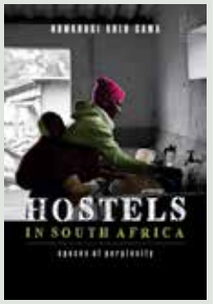
Emperor Shaka the Great: A Zulu Epic
Kunene, Mazisi



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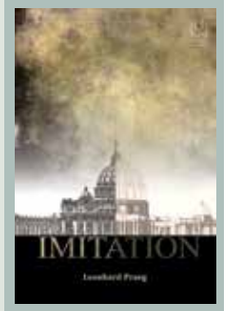
Hostels in South Africa: Spaces of Perplexity
Xulu-Gama, Nomkhosi



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Imitatione
Praeg, Leonhard

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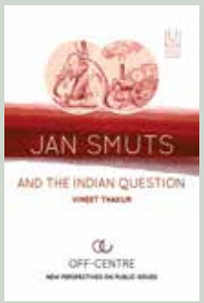
isiShweshwe: A History of the Indigenisation of Blueprint in Southern Africa
Leeb-Du Toit, Juliette



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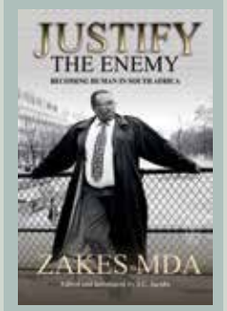
Jan Smuts and the Indian Question
Thakur, Vineet



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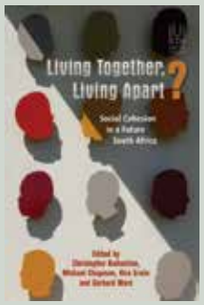
Justify the Enemy: Becoming Human in South Africa
Mda, Zakes (Jacobs, J. U., ed) Mda, Zakes (Jacobs, J. U., ed)



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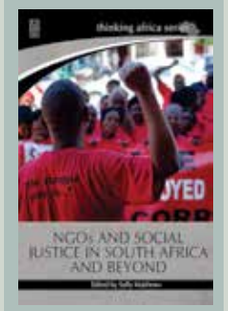
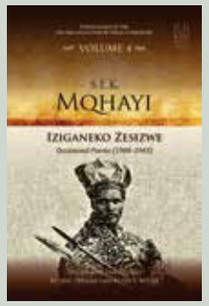
Living Together, Living Apart?: Social Cohesion in a Future South Africa
Ballantine, Christopher; Chapman, Michael; Erwin, Kira; Maré, Gerhard (eds)



978 1 86914 328 2
NGOs and Social Justice in South Africa and Beyond
Matthews, Sally (ed)

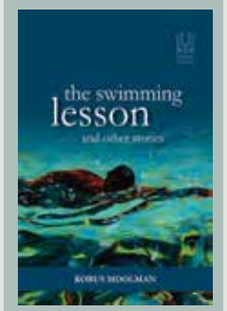


978 1 86914 334 3
S.E.K. Mqhayi, Iziganeko zesizwe: Occasional poems (1900–1943)
Mqhayi, S.E.K. (Opland, Jeff & Mtuze, Peter T. eds & tr.)

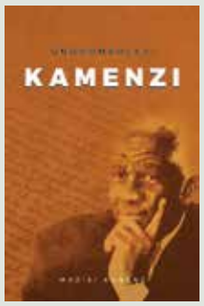
978 1 86914 376 3
Sitting Pretty: White Afrikaans Women in Postapartheid South Africa
Van der Westhuizen, Christi

978 1 86914 390 9
Street Life under a Roof: Youth Homelessness in South Africa
Margaretten, Emily

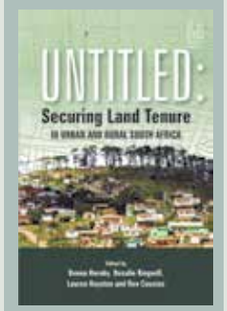
978 1 86914 359 6
The Art of Life in South Africa
Magaziner, Daniel



978 1 86914 362 6
The Swimming Lesson and Other Stories
Moolman, Kobus



978 1 86914 317 6
uNodumehlezi KaMenzi
Kunene, Mazisi



978 1 86914 350 3
Untitled: Securing Land Tenure in Urban and Rural South Africa
Hornby, Donna; Kingwill, Rosalie; Royston, Lauren; Cousins, Ben

978 1 86914 364 0
Water in Southern Africa
Swatuk, Larry A.

978 1 86914 321 3
Xhosa Poets and Poetry: (Second Edition, Updated and Revised)
Opland, Jeff

FOCUS ON GRANTMANSHIP

Professor Chris Buckley

Professor Chris Buckley, who graduated as a Chemical Engineer from the former University of Natal (now UKZN), says accessing grant funding has been made easier thanks to the highly qualified team he works with as well as a proven track record of delivering value to donors through top quality research.

Buckley and his team are involved in research into pollution management. He says lack of sanitation is the major cause of death in the world and prior to the Gates Foundation's focus on the problem, little research was being done on the issue.

"This sanitation challenge could be solved within our lifetime with sufficient target research, development and commercial application under the appropriate regulatory oversight," he said.

Funding was not hard to come by as he was constantly looking for new areas of value for funders. "I have a highly qualified and motivated team with a history of delivering value to funders, understanding their priorities and addressing them through high quality and innovative research," said Buckley.

As a result, funding for repeat research projects was also much easier to get. "To secure grants, I have to leave the university and hustle around the world, talking to people everywhere - at airports, conferences, and also inviting visitors to our lab plus interacting with industry and regulators. I also write a lot of proposals. I am happy if I get a success rate of about 25% from the proposals," he said.

Grant funding received in 2017 totalled R18 million and came from the Bill & Melinda Gates Foundation, the eThekwini Municipality and the Water Research Commission. The funds are being used in the following main areas: capital resources, people, and running costs. "We also recently received a grant to upgrade our laboratories and offices. These are all invaluable," added Buckley.

The research funding contracts were usually for three years and were used to support more students and researchers and assist young researchers start their independent research careers.

"The funding also provides career-building opportunities and our facilities are such that researchers wanting to work in our labs are able to do so at night and at weekends."

Buckley, who initially wanted to be an accountant, arrived at the then University of Natal in 1997 and has never left. "My entry into the academia was a slow immersion. What was then known as the Durban Corporation offered a pollution research scholarship for a master's degree which I applied for and was awarded. That helped me get started with a project on the dewatering of sewage sludge and I was appointed a research assistant in 1972," he said.

Buckley, who has been fund-raising for nearly 50 years, said the grants his department were awarded were not only essential but helped to keep the work meaningful and ensure the outcome from their research made a difference.

Over time, the scope of the Pollution Research Group has expanded into other industrial sectors, including mining, power generation, pulp and paper and petrochemicals. Through the deep knowledge of industrial processing and production, there was also a shift in emphasis from external recycling to waste minimisation and cleaner production and associated techniques such as water pinch and environmental life cycle assessment.

Buckley said different funder organisations measured the quality of research in different ways. "Non-industrial funders concentrate on outputs such as reports, papers and statistics on those outputs while industrial organisations concentrate on outcomes, for example, on how the research changed the way they conducted their business or strategic thinking." ■

Professor Hassan Omari Kaya

UKZN's ability to mobilise and promote community-based knowledge systems - built up over hundreds of years - in current mainstream society is dependent not only on funding but also on the driving passion of the Director for the Centre in Indigenous Knowledge Systems (CIKS), Professor Hassan Omari Kaya.

The CIKS was one of the top grant holders in 2017, raising R11 million for critical research and student support from South Africa's National Research Foundation (NRF), the Department of Science and Technology and the eThekwini Municipality.

Kaya said the sum raised was remarkable because the Discipline was a relatively new area of inquiry and also most funders considered the subject of Indigenous Knowledge Systems and practices to be both primitive and unscientific.

The R11 million was used to support postgraduate students and their research projects as well as assisting them to complete their study programmes on time.

Born and raised in Tanzania, Kaya said his love for indigenous wisdom began in the rural village where he lived. "I grew up in a remote area with no modern services relating to healthcare, food and nutrition, security or environmental management. The Indigenous Knowledge Systems, as we refer to it now, formed the basis of our rural livelihood.

"My own grandparents, especially my grandmother, had a wide knowledge. She and the other community knowledge holders and practitioners in the village communicated these important knowledge and value systems - especially relational values including respect for the natural environment - through evening storytelling, proverbs and songs," said Kaya.

"I also learned from the elders through participation in our daily household and community routine, farm work, hunting and playing, among other activities. The holistic and cultural-based nature of my experience formed the foundation of my interest in academia and research into the importance of community knowledge and the value of those who pass it down from one generation to the next."

He said rural people depended on these knowledge systems - produced, used and shared over generations - for their livelihoods and survival. "The holistic and cultural-based nature of these knowledge systems formed the foundation of my interest in culture, multi-disciplinary research and academia, including respect and recognition for the importance of community knowledge holders and practitioners as knowledge producers and managers in their own right."

The inclusion of indigenous knowledge systems into mainstream academia and research, said Kaya, would give Africans the ability to contribute and participate effectively in the global knowledge economy on their own terms rather than those dictated by others. ■

Professor Inge Petersen

Rated as one of the top grant holders at UKZN in 2017, Professor Inge Petersen says her work – which focuses on strengthening access to mental health services on the African continent – was first inspired by the experiences she had in the 1980s and early 1990s while working to make mental health services available to people who suffered from trauma as a result of apartheid-era atrocities.

In 2017, Petersen secured US$594 137 from the National Institutes of Health (NIH) in the United States adding up to a total of US$2 955 603 over five years; US$318 873 from the United States based Centre for Disease Control and Prevention (CDC, making a total of US$762 873 over three years; a further £140 246 from the Department for International Development in the United Kingdom, with a total value for the two years ending in 2019 of £308 598; and £121 954 from the National Institute for Health Research (NIHR) also in the United Kingdom over four years ending in 2021.

The grants were awarded, she said, to build on work she has been leading through two research consortia, namely the Programme for Improving Mental health Care (PRIME) in South Africa - funded by the Department for International Development - which began in 2011 and will conclude next year, and a project known as Emerald (Emerging Mental Health Systems in Low-and Middle-Income Countries) to integrate mental health into primary healthcare.

She said the CDC grant was to provide technical support for the scale-up of integrated mental health packages in South Africa while the NIH grant was to evaluate the scale-up of integrated mental health in South Africa as well as develop capacity for integrated mental health care in Mozambique and Tanzania. The NIHR funding was part of a larger Global Health Unit at Kings Hospital in London which had a number of "work packages".

"I am involved with two of these work packages. One is to expand on my current work on integrated mental health care to ensure access to mental health care for TB patients at primary healthcare level, and the other is to strengthen non-technical skills for person-centred care in primary healthcare providers across projects in South Africa, Ethiopia and Sierra Leone," Petersen said.

Petersen said the funding allowed her to work collaboratively in international research consortia to address the "big" research questions around integrated care.

"The funding also provides me with the real-world experiences and challenges to share with my students as well as opportunities for postgraduate students to link their research projects to these larger impactful groupings," she said.

Petersen said the value of the funding and its impact were measured through annual progress reports, conference presentations, published articles as well as societal impact such as policy changes and implementation. "We also measure the value of the funding by the number of postgraduate students who graduated with a direct link to the projects," she said. ■

Dr Kaymarlin Govender

Innovative research ideas, strong institutional credibility and dynamic partnerships are key factors in being able to compete for research funding in the global space, where resources are increasingly scarce.

This is according to Dr Kaymarlin Govender, Research Director of HEARD at UKZN's School of Accounting and Economics and Finance.

Govender, who was responsible for about US$2 million (R29 million) in grant funding in 2017, says his approach is to seek multiple sources of funding – long term implementation type funding and short-term investigative type grants. The smaller grants, he said, allowed for exploratory type activities, ie focusing on the social drivers of health outcomes, while longer-term funding was used for the development and evaluation of scaled-up interventions. "The blending of funding sources allows for the continuity of activities in key research areas, including HIV and sexual and reproductive health, and research on social vulnerability," he said.

In 2017, the grants were raised from a diverse source of international and local funders and allowed for scientific research on innovative HIV and SRH programming focusing on young populations living in different settings in Africa.

Govender said the funding also enabled transactional type student and staff exchange partnerships with leading international universities. These collaborations, he said, brought an evidence-based edge into the classroom environment and allowed students to extend their skills beyond traditional discipline boundaries when dealing with complex health problems.

Govender started his academic life as an associate lecturer in the Department of Psychology at the former University of Natal (now UKZN). From 1998 to 2011, he was a senior member of the College of Humanities in the School of Applied Human Sciences and is now Research Director at the Health Economics and HIV/AIDS Research Division (HEARD) in the School of Accounting and Finance.

"During my early years as an academic, my research focused primarily on cognate areas within the Discipline of Psychology (child and adolescent development). I then progressively shifted from Psychology into the public health arena to concentrate on HIV and SRH research on issues of social vulnerability while retaining a focus on young populations and issues of social vulnerability," Govender said.

"Issues covered in my research include the social aspects of HIV, the health conditions of young people living in structurally challenging environments and social constructions of health identities," he said.

Govender's research on social vulnerability occurs in South Africa and on the broader African continent. The value of his research is in leveraging regional and international partnerships to bring the most updated evidence to teaching and learning at UKZN.

"Research funding is key to enabling high quality scholarship," he added. ■

Top Grantholders

Research Office

PRINCIPAL INVESTIGATOR	PROJECT TITLE	FUNDER	AMOUNT AWARDED (RANDS)	TOTAL GRANT VALUE (RANDS)
Masinga, Zodwa	To develop and establish a community of competence to pilot the traditional health practices standards in the KwaZulu-Natal Province	Department of Science and Technology	945 000,00	1 445 000,00
Masinga, Zodwa	To develop and establish a community of competence to pilot the traditional health practices standards in the KwaZulu-Natal Province	Department of Science and Technology	500 000,00	

College of Health Sciences

PRINCIPAL INVESTIGATOR	PROJECT TITLE	FUNDER	AMOUNT AWARDED (RANDS)	TOTAL GRANT VALUE (RANDS)
Pillay, Deenan	A Cluster Randomised trial comparing the impact of immediate versus South Africa recommendations guided ART Initiation on HIV Incidence: The ANRS 12249 (treatment as Prevention) trial in Hlabida sub-district, KwaZulu-Natal, South Africa	International Initiative for Impact Evaluation, USA	89 616 376,55	89 616 376,55

College of Agriculture, Engineering and Science

PRINCIPAL INVESTIGATOR	PROJECT TITLE	FUNDER	AMOUNT AWARDED (RANDS)	TOTAL GRANT VALUE (RANDS)
Buckley, Christopher	Support for ongoing prototype testing platform	Bill & Melinda Gates Foundation, USA	34 514 132,06	35 971 597,51
Buckley, Christopher	Research Order: Lesotho case study	Bremen Overseas Research & Development Association (BORDA), Germany	1 124 289,11	
Buckley, Christopher	Research Order to cover PhD research costs June 2013 to December 2015	Bremen Overseas Research & Development Association (BORDA), Germany	104 514,20	
Buckley, Christopher	Costs related to PhD research of a particular student	Bremen Overseas Research & Development Association (BORDA), Germany	104 514,20	
Buckley, Christopher	Costs related to professional time attending meetings and conferences	Bremen Overseas Research & Development Association (BORDA), Germany	101 752,04	
Buckley, Christopher	Costs on low pressure filtration of DEWATS effluent	Bremen Overseas Research & Development Association (BORDA), Germany	22 395,90	

College of Humanities

PRINCIPAL INVESTIGATOR	PROJECT TITLE	FUNDER	AMOUNT AWARDED (RANDS)	TOTAL GRANT VALUE (RANDS)
Petersen, Inge	Southern African Research Consortium for mental health integration (S-MhINT)	National Institutes of Mental Health, USA	7 258 868,80	13 656 614,58
Petersen, Inge	"PRIME"Programme for improving Mental Health Care	University of Cape Town	5 224 193,82	
Petersen, Inge	MHINT (Strengthning th Evidence Base and Capacity for Implementing HIV Prevention)	University of Washington	1 173 551,96	

College of Law and Management Studies

PRINCIPAL INVESTIGATOR	PROJECT TITLE	FUNDER	AMOUNT AWARDED (RANDS)	TOTAL GRANT VALUE (RANDS)
Govender, Kaymarlin	South Africa School-Based Sexuality and HIV Prevention Education Activity	Education Development Centre, USA	23 650 833,00	25 295 743,00
Govender, Kaymarlin	Strengthening and expanding the HIV/AIDS surveillance activities in the Republic of South Africa under the president's emergency plan for AIDS relief (PEPFAR) CFDA: 93/067	Epicentre AIDS Risk Management (Pty) Ltd	610 875,00	
Govender, Kaymarlin	HIV Incidence Provincial Surveillance System (HIPPS): A longitudinal study to monitor HIV incidence trends in KwaZulu-Natal, South Africa, in a household-based representative sample of men and women	Epicentre AIDS Risk Management (Pty) Ltd	610 875,00	
Govender, Kaymarlin	Analysis of psycho-social profile of men who commit rape in the Province of KwaZulu-Natal	KwaZulu-Natal Department of Social Development	423 160,00	

RESEARCH GRANTS AND CONTRACTS 2017

1 JANUARY 2017 TO 31 DECEMBER 2017

College of Agriculture, Engineering and Science

PRINCIPAL INVESTIGATOR	PROJECT TITLE	FUNDER	AMOUNT AWARDED (RANDS)
Buckley, Christopher	Support for ongoing prototype testing platform	Bill and Melinda Gates Foundation, USA	34 514 132,06
Sibiya, Julia	2014 PASS 013 Grant for plant breeding MSc for Africa	Alliance for a green revolution in Africa (AGRA), Kenya	34 149 696,26
Ramjugernath, Deresh	Third addendum to the Principle Agreement relating to extending the term of the Fluorochemical Expansion Initiative funded research and development work.	Pelchem (Pty) Ltd	9 255 121,00
Dorrell, David	Modification 2 to Consortium Agreement No. 4600061784	Eskom Holdings SOC Ltd	4 000 000,00
Friedrich, Holger	Catalyst and process development	Novomer, Inc. USA	3 665 250,00
Pillay, Srinivasan	Investigating the feasibility of municipal risk pooling as an adaptation finance measure	International Development Research Centre (IDRC), Canada	3 374 436,29
Zegeye, Edilegnaw	Entrepreneurial development for establishing small farming businesses and employment by youth in rain-fed crop farming	Water Research Commission (WRC)	3 000 000,00
Zengeni, Rabecca	Water Ue Efficiency 8 Carbon Sequestration Potential of Indigenous Crops	Water Research Commission	2 627 272,00
O'Brien, Gordon	Research on Realtime Remote Water Quality Flow and Ecological Response Monitoring	Umgeni Water	2 189 432,70
Tafadzwanashe, Mabhaudhi	Developing a guideline for rain fed production of under utilised indigenous crops and estimating green water use of indigenes crops based on available models within selected bio-climatic regions of South Africa	Water Research Commission	2 000 000,00
Odindo, Alfred	Integrating sustainable agricultural production in the design of low cost sanitation technologies using nutrients and waste water recovered from human excreta- derived materials	Water Research Commission	1 710 000,00
Slotow, Robert	Memorandum of agreement to etablish and implement a SA based component of the working group technical support unit (TSU) of the IPCC WG II	The Federal Ministry of Education and Research of Germany (BMBF)	1 418 407,00
Dr Samuel A Iwarere	The use of non Thermal Plasma as a Low Energy Technology for Wastewater Treatment	Water Research Commission	1 200 000,00
Buckley, Christopher	Research Order: Lesotho case study	Bremen Overseas Research & Development Association (BORDA), Germany	1 124 289,11
andrew Graham Swanson	Field Testing of Power Line Robot and Development of Energy Harvester	KwaZulu-Natal Department of Economic Development, Tourism and Environmental Affairs	1 064 000,00
O'Brien, Gordon	Use of crocodile carcass waste as a replacement for fish meal protein for the commercial production of fish	Agribusiness Development Agency	1 011 360,00
Smithers, Jeffrey	Development and assessment of a probabilistic rational method for south Africa	Water Research Commission	1 000 000,00
Smithers, Jeffrey	Support for the National Flood Studies Program through the development of research capacity and training	University of Bath, United Kingdom	846 440,00
Mukaratirwa, Samson	Spatial eco-epidemiology of tick-borne rickettsial pathogens	Old Dominion University Research Foundation, USA	787 442,31
Jewitt, Graham	Global users in the Copernicus climate change service	Swedish Meteorological and Hydrological Institute (SMHI), Sweden	764 357,14

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College of Agriculture, Engineering and Science

PRINCIPAL INVESTIGATOR	PROJECT TITLE	FUNDER	AMOUNT AWARDED (RANDS)
Laing, Mark	Investigating alternative methods such as bacteriophages and bacteriocins to control mastitis organisms	Milk SA	720 300,00
Rawatlal, Randhir	Kinetic studies of Methane Oxidation	Johnson Matthey Research, South Africa	720 000,00
Mudhara, Maxwell	Establish an information and knowledge base for land administration and management	Human Sciences Research Council	642 960,00
Slotow, Robert	IPCC Working Group II	Intergovernmental Panel on Climate Change (IPCC), Switzerland	635 345,00
Jewitt, Graham	Demonstration Of How Healthy Ecological Infrastructure Can Be Utilised to Ensure Water For The Benefit of Society and The Green Economy	Water Research Commission (WRC)	621 800,00
Ramdhani, Syd	Tripartite Post-Doctoral Fellowship Agreement	South African National Biodiversity Institute	600 000,00
Martincigh, Bice	Developing Exposure and Toxicity Data for Trace Organic Chemicals in Wastewater, Biosolids and Soils	National Academy of Science, USA	594 283,64
Shimelis, Hussein	Demand-led plant variety design for emerging markets in Africa: Education and training courses on Demand led plant breeding	University of Queensland, Australia	453 061,55
Clulow, Alistair	Water use of avocado and macadamia orchards	University of Pretoria	447 062,40
Albericio, Fernando	Clarify the oxidation of the Oxyma Method. Novel reagen for h-phosphonate method	Ajinomoto Co, Inc. Japan	427 612,50
Dorrell, David	Development of additional teaching and research capacity for modern power systems studies between University of KwaZulu-Natal, DUT and University of Bristol	University of Bristol, United Kingdom	408 322,66
Shimelis, Hussein	ACCI-hosted workshop on demand let plant breeding with the Zimbabwe plant breeding association, at the University of KwaZulu-Natal	University of Queensland, Australia	389 897,08
Laing, Mark	Integrated control of liver fluke of cattle using botanical extracts and biocontrol agents	Milk SA	352 500,00
Friedrich, Holger	Addendum 01 to Project Initiation Form No. 009/14-03 ST	Sasol South Africa (Pty) Ltd	350 000,00
Trois, Cristina	Waste Characterization For Implementation of Waste Resource Optimization and Scenario Evaluation Model & Municipal Capacity Building	South African National Energy Development Institute (SANEDI)	325 000,00
Friedrich, Holger	Collaborative Agreement for Centre of Excellence in catalysis	University of Cape Town	300 000,00
Laing, Mark	Biocontrol of thrips affecting avocado fruit at Baynesfield Estate	Baynesfield Estate	300 000,00
Venkataraman, Sivakumar (10993)	SANAE HF Radar Experiment	South African National Space Agency	294 400,00
Brouckhaert, Christopher	The Development Of Research capacity and the conduct of research into biomediation at Merebank	LANXESS PTY LTD, South Africa	290 000,00
Laing, Mark	Isolation of biocontrol agents of selected insect pests	andermatt Biocontrols AG, Switzerland	225 000,00
Stuart-Hill, Sabine	Exploring the evidence of water-energy food nexus linkages to sustainable local livelihoods and wellbeing in South Africa	University of Cape Town	214 725,00
Tame, Mark	Quantum Optical Metamaterials	Equipment Grant	180 000,00
Mtapuri, Oliver	Institutionalising the rural innovation assessment toolbox (RIAT) in uMzinyathi District Municipality	Human Science Research Council	179 339,00
Venkataraman, Sivakumar	LIDAR remote sending of the forest fire and atmosphere in South Africa and Algeria (LIFASAA)	CSIR-NLC	155 120,00
Venkataraman, Sivakumar	Atmospheric Remote Sending Using Ground and Space Borne Techniques	African Laser Centre (ALC) and (CSIR)	150 000,00

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College of Agriculture, Engineering and Science

PRINCIPAL INVESTIGATOR	PROJECT TITLE	FUNDER	AMOUNT AWARDED (RANDS)
Lokhat, David	Enhanced Slurry Phase Fischer Trpsch Synthesis: Application of Nanocatalysts and Utrasonic Irratiation In A Loop Reactor	Sasol South Africa (Pty) Ltd	150 000,00
Moodley, Mathew	Laser synthesis of functional nanomaterials	Council for Scientifica and Industrial Research	148 000,00
Yobo, Kwazi Sackey	Studies on lecanicillium lecanii as a potential mycoparasite of the soybean rust fungs *phakopsora pachyrhizi* and its use as a biologocal control agent agaist soybean rust	Protein Research Foundation	146 000,00
Petruccione, Francesco	Experimental quantum information processing and communication	Council for Scientifica and Industrial Research	128 000,00
Lokhat, David	Thermal processing of waste tyres: Process plant design and experimental validation	Green Energy Converters (Pty) Ltd	126 500,00
Venkataraman, Sivakumar	Studies on trospheric aerosol and stratosphere-mesosphere temperature using two LIDAR's at Durban	CSIR-NLC	115 000,00
Buckley, Christopher	Research Order to cover PhD research costs June 2013 to December 2015	Bremen Overseas Research & Development Association (BORDA), Germany	104 514,20
Buckley, Christopher	Costs related to PhD research of a particular student	Bremen Overseas Research & Development Association (BORDA), Germany	104 514,20
Petruccione, Francesco	Quantum Africa 4 Conference	The African Laser Centre CSIR	102 200,00
Buckley, Christopher	Costs related to professional time attending meetings and conferences	Bremen Overseas Research & Development Association (BORDA), Germany	101 752,04
Modi, Albert	Memorandum of Agreement between UKZN, SAEES and INR	Institute of Natural Resources (NPC)	100 000,00
Jamal-Ally, Sumaiya	Development and testing of nanoparticle antimicrobial coating for Pfisterer old and new formulation silicone high voltage rubbers	Pfisterer (Pty)Ltd, South Africa	66 975,00
Martincigh, Bice	Photostability Studies	The Council Of Scientific and Industrial Research (CSIR)	63 000,00
Martincigh, Bice	Photostability Studies	The Council Of Scientific and Industrial Research (CSIR)	63 000,00
Green, Andrew	Memorandum of Understanding between Ezemvelo KZN Wildlife and University of KwaZulu-Natal - To implement the ACEP Spatial Solutions to undertake research and support post-graduate students	Ezemvelo KZN Wildlife	50 000,00
Downs, Colleen	Collaborative Agreement between Stellenbosch University and University of KwaZulu-Natal	Stellenbosch University	40 000,00
Laing, Mark	Soybean elite cultivar trial	Protein Research Foundation	35 000,00
Buckley, Christopher	Costs on low pressure filtration of DEWATS effluent	Bremen Overseas Research & Development Association (BORDA), Germany	22 395,90
Swanson, Andrew Graham	Submarine Canyon Evaluation of the Western Cape shape	South African Agency for Promotion of Petroleum Exploration and Exploitation (Pty) Ltd	6 432,00
Mabhaudhi, Tafadzwanashe	The role of information and communication technologies in realising a drought early warning system	Central University of Technology, Free State	0,00
Buckley, Christopher	Viscous heating demonstration for helminth deactivation	University of Missouri Kansas City - USA	0,00
Bytebier, Benny	Filling biodiversity information gaps to support development decision making in the Karoo	South African National Biodiversity Institute	0,00

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College of Agriculture, Engineering and Science

PRINCIPAL INVESTIGATOR	PROJECT TITLE	FUNDER	AMOUNT AWARDED (RANDS)
Buckley, Christopher	Determination of Characteristics of Slidge Including Helminth eggs	Cranfield University	0,00
Green, Andrew	Memorandum of Understanding between Council for Geoscience and UKZN	Council for Geoscience, South Africa	0,00
Buckley, Christopher	Viscous heating demonstration for Helminth Deactivation	University of Missouri Kansas City - USA	0,00
Coetzer, Theresa	Study of proteases of Theileria spp and other tick-borne disease pathogens as targets for diagnostics and vaccines (Material Tranfer agreement wih international Livestock Research Institute (ILRI), Nairobi Kenya for genomic DNA	International Livestock Research Institute, Kenya	0,00
Buckley, Christopher	Memorandum of Agreement Regarding the Development of research into water and sanitation	Khanyisa Projects, South Africa	0,00
Trois, Cristina	MOA Between SANEDI & UKZN for Energy Reearch	South African National Energy Development Institute (SANEDI)	0,00
Slotow, Robert	Amarula Elephant Research Programme Collaboration with the University Of Pretoria	University of Pretoria	0,00
Temes Gentenawzewotir	Modelling On Seroconversion In HIV and Acute Infection	Centre for the Programme of AIDS Research in South Africa (CAPRISA)	0,00
Buckley, Christopher	Thermochemical Conversion Of The Faecal Waste	Cranfield University, United Kingdom	0,00
Buckley, Christopher	Memorandum of Agreement for Generation of Scientific Knowledge in The Fields Relevant To BORDA	Bremen Overseas Research and Development Association (BORDA), Germany	0,00
Buckley, Christopher	Material Transfer Agreement - transfer of faecal sludge samples	Janicki Bioenergy, USA	0,00
Tyler, Nicola	Material Transfer Agreement	The National Institutes for Agronomic Research (INRA), France	0,00
Scogings, Peter	Memorandum of understanding (MOU) on research cooperation, students and staff exchange	Georg-August University Gottingen, Germany	0,00
Mabhaudhi, Tafadzwanashe	Developing an early warning system for the uMgungundlovu District Municipality- a pilot for the National framework for climate services	South African Weather Service	0,00
O'Brien, Gordon	Aquatic Ecosystems Research Programme	Rivers of Life Aquatice health Services CC	0,00
Naidoo, Paramespri	First Addendum to Agreement Number 2015/10: Technologies for recovering value from vinasse and managing distillery residues	Sugar Milling Research Institute NPC (SMRI)	0,00
Naidoo, Paramespri	First Addendum to Agreement Number 2015/10: Technologies for recovering value from vinasse and managing distillery residues	Sugar Milling Research Institute NPC (SMRI)	0,00
Buckley, Christopher	Mutual Non-Disclosure Agreement	Janicki Bioenergy, USA	0,00
Stark, Annegret	Confidentiality Agreement between Anglo American Platinum Limited and University of KwaZulu-Natal	Anglo American Platinum Limited	0,00
			R 121 351 648,02

College of Health Sciences

PRINCIPAL INVESTIGATOR	PROJECT TITLE	FUNDER	AMOUNT AWARDED (RANDS)
Pillay, Deenan	A Cluster Randomised trial comparing the impact of immediate versus South Africa recommendations guided ART Initiation on HIV Incidence: The ANRS 12249 (treatment as Prevention} trial in Hlabida sub-district, KwaZulu-Natal, South Africa	International Initiative for Impact Evaluation, USA	89 616 376,55
Wassenaar, Douglas	Canadian HIV vaccines initiative team in social and behavioural research in HIV vaccines	University of Toronto, Canada	52 584 150,94
Slotow, Robert	Sustainable and healthy food systems (SHEFS)	London School of Hygiene and Tropical Medicine, United Kingdom	15 052 631,88
de Oliveira, Tulio	Phylogenetics networks to address the transmission of HIV	University College London, United Kingdom	12 767 812,85
Ndhlovu, Zaza	International Research Scholars Program	Howard Hughes Medical Institute	8 735 512,50
Ginindza, Temba	Mulitnational lung cancer control program in Sub-Saharan Africa	Bristol Myers Squibb Foundation, USA	7 880 828,00
Moodley, Dhayendre	Immediate or deferred pre-exposure prophylaxis for HIV prevention: Safe options for pregnant and lactating women: An open-label, randomised control study	SA Medical Research Council	5 991 009,00
Ndung'u, Thumbi	Establishment of cohorts to support studies of HIV antigens and immune responses requied for control of HIV	International AIDS Vaccine Initiative (IAVI)	5 852 182,50
Ndung'u, Thumbi	T & B- cell mechanisms of HIV control: implications for vaccine design	Massachusetts General Hospital (MGH), US	5 648 712,26
Ndung'u, Thumbi	Modification 8: Establishment of cohorts to support studies of HIV antigens and immune responses required for control of HIV	International AIDS Vaccine Initiative (IAVI), USA	5 359 487,38
de Oliveira, Tulio	Transfer of Business Agreement between Technology Innovation Agency and University of KwaZulu-Natal	Technology Innovation Agency	5 003 264,00
Ndung'u, Thumbi	Pathogenesis of clade c HIV infection	Massachusetts General Hospital, USA	4 838 447,66
Moodley, Dhayendre	Re- Enrolling Young South African Mothers In School. As A Social Vaccine against HIV Transmission	Drexel University	4 615 685,00
Ndung'u, Thumbi	Identification of Novel Bioworkers Inactive and Latent TB in Conjunction with HIV Coinfection	South African Medical Research Council	3 930 000,00
de Oliveira, Tulio	A phyla-epidemic analysis of a rural hyer-epidemic HIV setting in South Africa in an era of widespread use of antiretroviral therapy	The Royal Society Newton Fund	1 869 515,10
Ndung'u, Thumbi	Development Of A Youth Cohort For Multi- disciplinary HIV Research Studies in Durban, South Africa	Simon Fraser University Canada	1 865 414,30
Petersen, Inge	National Institute of Health Research Global Health Research Unit on Health System strengthening in sub-Saharan Africa	Kings College London, United Kingdom	1 198 440,54
de Oliveira, Tulio	H3A: Informatics solutions for H3Africa	University of Cape Town	1 106 172,45
Ndung'u, Thumbi	Antiretroviral and risk of preterm delivery in a rural high HIV prevalence area	University of Southampton, United Kingdom	1 035 335,39
Ndung'u, Thumbi	New technologies for the study of HIV mucosal immunity and compartmentalisation in the femal genital tract	Massachusetts General Hospital, USA	733 050,00
Ndung'u, Thumbi	Partnership for Global Health Training Program	Harvard College, USA	493 172,58
Ndung'u, Thumbi	New technologies for the study of HIV mucosal immunity and compartmentalisation in the femal genital tract.	Massachusetts General Hospital	351 253,13
Ndung'u, Thumbi	Combined Immunology Approaches to Cure HIV-1	Beth Israel Deaconess Medical Center, Inc. USA	263 898,00
Ndung'u, Thumbi	Material Transfer Agreement - Transfer of Aldrithiol-2 inactivated concentrated HIV-1 virus and microvesicles from National Cancer Institute to UKZN	National Cancer Institute, USA	-
Ndung'u, Thumbi	Material Transfer Agreement: Transfer of blood samples and bodily fluids from University of KwaZulu-Natal to Heinrich Pette Institute	Heinnrich Pette Institute - Germany	-

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College of Health Sciences

PRINCIPAL INVESTIGATOR	PROJECT TITLE	FUNDER	AMOUNT AWARDED (RANDS)
Ndung'u, Thumbi	Material Transfer Agreement: Transfer de-identified human tissues and speciments from New York University to University of KwaZulu-Natal	New York University School of Medicine - USA	-
Ndung'u, Thumbi	Characterisation of the evolution of adaptive and innute immune responses in acute HIV clade C virus	Simon Fraser University	-
Ndung'u, Thumbi	Females Rising with Education	HIV Pathogenesis Programme. Nelson R Mandela School of Medicine	-
Ndung'u, Thumbi	Optimizing control of HIV in ART- treated children and adolescents	University of Munich, Germany	-
Ndung'u, Thumbi	Specimens transfer agreement for shipment of bio-specimens from Zimbabwe	University of Zimbabwe	-
Ndung'u, Thumbi	Impact of human leukocyte antigen (HLA) class I alleles in immune control of paediatric HIV infection	University of Oxford, United Kingom	-
			273 225 661,51

College of Humanities

PRINCIPAL INVESTIGATOR	PROJECT TITLE	FUNDER	AMOUNT AWARDED (RANDS)
Petersen, Inge	Southern African Research Consortium for mental health integration (S-MhINT)	National Institutes of Mental Health, USA	7 258 868,80
Petersen, Inge	"PRIME" Programme for improving Mental Health Care	University of Cape Town	5 224 193,82
Slack, Catherine	Strengthening participatory practices through the ethical review process HIV vaccine and biomedical prevention research project	AIDS Vaccine Advocacy Coalition (AVAC), USA	2 989 072,46
Bhana, Arvin	Vuka Family Programme: Supporting Perinatal HIV- Infected Youth In South Africa	McSilver Institute for Poverty Policy and Research, New York University, USA	2 787 300,45
Rebohile Moletsane	Re- enrolling Young South African Mothers In School. As A Social Vaccine Against HIV Transmission	Drexel University	2 513 756,37
Petersen, Inge	MHINT (Strengthening the Evidence Base and Capacity for Implementing HIV Prevention)	University of Washington	1 173 551,96
Zulu, Paulus	Role of the film industry in the promotion of culture in KwaZulu-Natal	KwaZulu-Natal Department of Social Film Commission	500 000,00
Slack, Catherine	Strengthening participatory practices through the ethical review process. HIV vaccine and biomedical prevention research project	AIDS Vaccine Advocacy Coalition (AVAC), USA	491 204,59
Bhana, Arvin	Vuka Ekhaya: A Take-Home Behavioural Risk Among Perennially HIV-Infected Youth	South African Medical Research Council	482 495,41
Slack, Catherine	Strengthening participatory practices through the Ethical review process HIV vaccine and biomedical prevention research project	AIDS Vaccine Advocacy (AVAC)	368 418,71
Sutherland, Catherine	Foundation for Climate resilient and sustainable growing settlements (U-RES)	University of East Anglia, United Kingdom	239 382,31
Oliver Mtapuri	Institutionalising the Rural Innovation Assessment Tool (RIAT) In Ugu District	Human Sciences Research Council	221 103,00
Sutherland, Catherine	Foundation for Climate resilient and sustainable growing settlements (U-RES)	University of East Anglia	170 659,23
Dlamini, Sazi	Sources of Creativity in the Arts: Living archives and traditions of practice in South African music	National Institute for the Humanities and Social Sciences	150 000,00
Sader, Saajidha	Neoliberalism, gender and higher education: Developing leadership capacity for women in higher education	The University of Newcastle, Australia	114 105,42
Bansilal, Sarah	Exploring Mathematics teachers' usage of the curriculum planner and tracker in secondary school in uThungulu and Pinetown district	The South African Institute for Distance Education	70 000,00

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College of Humanities

PRINCIPAL INVESTIGATOR	PROJECT TITLE	FUNDER	AMOUNT AWARDED (RANDS)
Zulu, Paulus	The constitution of houses of traditional leaders and traditional councils in provinces	Africore group	62 000,00
Teferra, Damtew	Request for renewal of support for International Higher Education and Related Activities on African Higher Education	Trustees of Boston College, USA	2 512,65
Moletsane, Relebohile	Facilitating access to sexual and reproductive health knowledge and promoting access to post-secondary education among rural secondary school learners in KwaZulu-Natal, South Africa	New Venture Fund - USA	-
Moletsane, Relebohile	Education and emancipation: A critical, intervention-oriented investigation of obstacles and opportunities within the higher education and training sector in South Africa	Department of Higher Education and Training	-
Bracking, Sarah	Making All Voices Count (MAVC)	IT for Change, Canada	-
Zivanai Tsvuura	An Integrative Decision Support System for Sustainable Rangeland Management in Southern African Savannas (IDESSA)	Federal Ministry of Education and Science (BMBF), Germany	-
Wassenaar, Douglas	Amendment to existing contract between Canadian HIV Vaccines Initiative team in social and behavioural research in HIV vaccines	University of Toronto, Canada	-
			24 818 625,18

College of Law and Management Studies

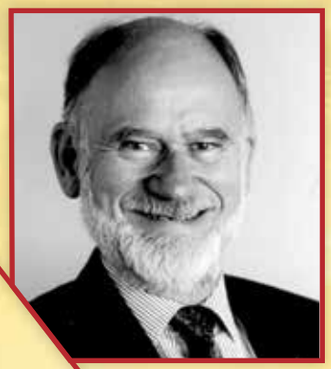
PRINCIPAL INVESTIGATOR	PROJECT TITLE	FUNDER	AMOUNT AWARDED (RANDS)
Govender, Kaymarlin	South Africa School-Based Sexuality and HIV Prevention Education Activity	Education Development Centre, USA	23 650 833,00
Poku, Nana	Linking Policy and Programming: Strengthening Legal & policy Environments for Reducing HIV Risk	United Nations Development Programme (UNDP)	17 297 145,54
Poku, Nana	Exploratory research in Malawi, Tanzania and Zimbabwe on Global Fund grant making and grant performance	Bill & Melinda Gates Foundation	3 120 190,67
George, Gavin	Estimate public healthcare expenditures for the 2014/2015 financial year to 2017/2018 financial year	National Department of Health	1 846 342,06
Poku, Nana	Technical guidance to American international health alliance	American International Health Alliance, United States	876 263,54
Govender, Kaymarlin	Strengthening and expanding the HIV/AIDS surveillance activities in the Republic of South Africa under the president's emergency plan for AIDS relief (PEPFAR) CFDA: 93/067	Epicentre AIDS Risk Management (Pty) Ltd	610 875,00
Govender, Kaymarlin	HIV Incidence Provincial Surveillance System (HIPPS): A longitudinal study to monitor HIV incidence trends in KwaZulu-Natal, South Africa, in a household-based representative sample of men and women	Epicentre AIDS Risk Management (Pty) Ltd	610 875,00
Govender, Kaymarlin	Analysis of psycho-social profile of men who commit rape in the Province of KwaZulu-Natal	KwaZulu-Natal Department of Social Development	423 160,00
Wissing, Henry	Service Level Agreement for the Establishment of Aerotropolis Institute Africa	Thokola Themba Projects	-
Govender, Kaymarlin	Project aimed at evaluating prevention & Treatment Interventions Targeting Truck Drivers Sex Workers & Migrant Populations in South Africa, Zimbabwe & Mozambique	North Star Alliance	-
Govender, Kaymarlin	Project aimed at evaluating prevention & Treatment Interventions Targeting Truck Drivers Sex Workers & Migrant Populations in South Africa, Zimbabwe & Mozambique	Eduardo Mondlane University, Mocambique	-
Govender, Kaymarlin	Project aimed at evaluating prevention & Treatment Interventions targeting truck drivers, sex workers and migrant populations in South Africa, Zimbabwe & Mozambique	Family SIDS Caring Trust (FACT), Zimbabwe	-
Govender, Kaymarlin	Adolescents HIV Prevention and Impact Mitigation	PACT Inc, Swaziland	-
Govender, Kaymarlin	No Cost Extension to Funding Agreement for the What Works Project	South African Medical Research Council	-
Sibanda, Mabutho	Open Africa Initiative	Durban Global Shapers	-
			48 435 684,81

STATUTORY INCOME FROM THE NRF

	COLLEGE					TOTAL
	Agriculture, Engineering and Science	Health Sciences	Humanities	Law and Management Studies	Research Office	
African Coelecanth Ecosystem Programme	617 178,06					**617 178,06**
Astronomy Sub-Agency Funding Programme	326 974,64					**326 974,64**
International Science and Technology Agreements	349 165,42		150 000,00			**499 165,42**
Blue Skies Research Programme	514 000,00					**514 000,00**
IRG – South Africa/Canada Research Chairs Trilateral Partnerships Initiatives	425 000,00					**425 000,00**
International Science and Technology Agreements	266 000,00					**266 000,00**
Community Engagement Programme		266 022,88				**266 022,88**
CoE: Indigenous Knowledge Systems					8 000 000,00	**8 000 000,00**
Competitive Programme for Rated Researchers	7 466 039,21	3 487 584,91	1 710 358,31			**12 663 982,43**
Competitive Programme for Unrated Researchers	1 466 601,93	972 855,04	959 735,65			**3 399 192,62**
Development Grant for Kfd		181 029,71	18 374,39			**199 404,10**
Sabattical Grant to Complete Doctoral Degrees		180 998,00	866 858,03	647 867,06		**1 695 723,09**
National Equipment Programme/National Nanotechnology Programme	1 000 000,00	1 495 800,00				**2 495 800,00**
Education Research in South Africa	89 844,58		75 964,68			**165 809,26**
Global Change Grand Challenge	390 000,00					**390 000,00**
Human and Social Dynamics in Development			549 174,59			**549 174,59**
Foundational Biodiversity Information Programme	25 553,99					**25 553,99**
International Council of Scientific Unions	353 580,53					**353 580,53**
RG – NRF/International Centre for Theoretical Physics Joint Collaboration for Science Advancement	64 000,00					**64 000,00**
EPD Flagship	1 084 909,44					**1 084 909,44**
Indigenous Knowledge Systems	647 304,44	170 583,00				**817 887,44**
SA RESEARCH CHAIRS indigenous Knowledge		1 822 143,54				**1 822 143,54**
IRG – India/South Africa Research Cooperation Programme		150 000,00				**150 000,00**
Incentive Funding for Rated Researchers	6 000 000,00	1 400 609,11	2 429 767,86	515 368,52	119 418,20	**10 465 163,69**
IRG South Africa/Tunisia/Taiwan/India/Sweden/ Switzerland Research Co-operation Programme	176 299,84	318 950,00		124 495,59		**619 745,43**
International Science and Technology Agreements	416 429,74	55 028,10	844 994,79			**1 316 452,63**
IRG – Kenya/South Africa Research Cooperation Programme	117 324,33					**117 324,33**
Research Equipment Programme	174 449,19		175 605,90			**350 055,09**
Human Capital Development for Multiwave-Length Astronomy	65 000,00					**65 000,00**
S&F – Research Development Grants for nGAP Scholars		16 845,70				**16 845,70**
Research and Technology Fund	345 682,21					**345 682,21**
South African Research Chairs Initiatives	24 903 769,96	3 729 554,53	4 475 806,96			**33 109 131,45**
SA National Antarctic Progamme	195 400,00					**195 400,00**
Academic Statistics Programme	550 000,00					**550 000,00**
Special Transformation Awards	29 514,58					**29 514,58**
Technology and Human Resources for Industry Programme (Thrip)	191 503,22					**191 503,22**
Thuthuka	2 973 822,02	1 071 386,76	723 482,20	303 671,30		**5 072 362,28**
Knowledge Interchange and Collaborations	566 062,98	255 558,87	241 983,35	212 086,51		**1 275 691,71**
IRG – UK/South Africa Researcher Links Grants for Travel			29 796,14			**29 796,14**
ESRC/NRF Collaborative Research: Urban Transfomation in SA			399 274,00			**399 274,00**
Research Development Grants for Y-Rated Researchers	14 943,88	103 265,22				**118 209,10**
	51 766 839,61	**15 707 729,95**	**13 651 176,85**	**1 803 488,98**	**8 119 418,20**	**91 058 653,59**

REST IN PEACE

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



Professor George Trotter

Academics in the Discipline of Economics, the wider academic community and alumni were deeply saddened by the death of Professor George Trotter on 11 October 2018. Trotter was acknowledged for being a highly talented and inspirational lecturer and served in various capacities at the University, including Dean and University Registrar. In his personal capacity, he served as President of the Economic Society of South Africa and was a member of the University Choir.

Professor Thokozani Timothy Xaba

The University community is saddened by the untimely death of Professor Thokozani Timothy Xaba. An Associate Professor in the School of Built Environment and Development Studies, Xaba's expertise and experience in the design, collection, analysis and reporting of demographic data was evident in the numerous community and research projects he led and co-led with colleagues in the School, the University, and abroad. His passion for community-engaged scholarship – often addressing issues for the under-served, the neglected, migrants, and the vulnerable in general – was evident throughout his academic career.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