

2012 Rated Researchers

A view on knowledge, quality and expertise



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PREFACE

With this publication, the Directorate of Research and Innovation is proud to introduce TUT's 2012 rated researchers to the research community in general, prospective postgraduate students, other academic institutions and research-related industries.

TUT has 39 rated researchers. Their profiles will give the reader some background and understanding of the researchers, their specialisation areas and the difference they make in numerous fields of science, humanities, the arts, information and communication technology and engineering.

The former Foundation for Research Development introduced the evaluation and rating system for researchers for the natural sciences and engineering disciplines for the first time in 1984. A new system was implemented in 1999 to cater for research and scholarship in the fields of humanities, social and natural sciences, engineering and technology.

The system is a benchmarking system based on the opinions of national and international peers about recent research outputs and the impact of each applicant's work. Reviewers assess each applicant's standing as a researcher based on the quality and impact of his/her recent research outputs and contributions.

It also provides independent and objective information about the quality of research and South African research capacity in different fields. As such, it is a national benchmarking instrument, as well as a tool to identify strengths, weaknesses and trends in the South African science arena.

These 39 rated researchers prove that this institution is well on its way to becoming a research institution with excellent leaders, world-class expertise and outstanding knowledge to make a difference in numerous fields of much needed research in our communities and our country and even on the continent.

NRF RATINGS: A DESCRIPTION OF THE DIFFERENT CATEGORIES

Rating	Definition
A	Leading international researcher Researchers who are unequivocally recognised by their peers as leading international scholars in their field for the high quality and impact of their recent research outputs
B	Internationally acclaimed researcher Researchers who enjoy considerable international recognition by their peers for the high quality of their recent research outputs.
C	Established researcher Established researchers with a sustained recent record of productivity in the field who are recognised by their peers as having produced a body of quality work, the core of which has coherence and attests to ongoing engagement with the field as having demonstrated the ability to conceptualise problems and apply research methods to investigating them.
P	NRF Prestigious Awardee Young researchers (younger than 35 years of age), who have held the doctorate or equivalent qualification for less than five years at the time of application and who, on the basis of exceptional potential demonstrated in their published doctoral work and/or their research outputs in their early post-doctoral careers are considered likely to become future international leaders in their field.
Y	Promising young researcher Young researchers (below 40 years of age), who have held the doctorate or equivalent qualification for less than five years at the time of application, and who are recognised as having the potential to establish themselves as researchers within a five-year period after evaluation, based on their performance and productivity as researchers during their doctoral studies and/or early post-doctoral careers.
L	Late entrant into research (category terminated at the end of 2009) Persons (normally younger than 55 years) who were previously established as researchers or who previously demonstrated potential through their own research products, and who are considered capable of fully establishing or re-establishing themselves as researchers within a five-year period after evaluation.



DR JOSEPH ASANTE Faculty of Science

L rating

Dr Joseph Kwaku Ofori Asante started his scientific career in 1982 when he obtained a BSc in Physics from the Kwame Nkrumah University of Science and Technology. In 1986 he was appointed a teacher at Mehlomakulu Senior Secondary School, but he always knew that he would not remain a high school teacher for the rest of his life.

In 1998 he joined the University of the Free State as science researcher and in 2005 he obtained a PhD at that university for a thesis entitled *Surface segregation of Sn and Sb in the low index planes of Cu*. He accepted a post at TUT in 2006.

He has published numerous articles in refereed and peer-reviewed journals. *Quantification from overlapping Auger peak-to-peak heights in surface interface analysis, Sequential segregation of Sn and Sb in a Cu(111) single crystal in surface interface analysis and Determining the segregation parameters in ternary systems from a linear temperature run in surface sciences discussions* are a few of them.

Dr Asante's research often leads to national and international invitations to share his knowledge at conferences. He has shared his expertise on numerous platforms in Hong Kong, Cape Town, Stellenbosch, Port Elizabeth and elsewhere.

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PROF SANDRA COMBRINCK Faculty of Science

C rating

Prof Combrinck started her career in 1983 as a researcher at the Medical Research Council in Tygerberg. Her research focused on mycotoxins in food and feeds and included analytical chemistry and isolation and bioactivity determination.

In 1988 she obtained a Master of Science degree, specialising in Chemistry. After a few years at the CSIR, again working with fungal toxins, she moved to the academic environment of the former Technikon Pretoria. On completion of the upgrading of some of the laboratories, Prof Combrinck started afresh and changed her research interest to plant chemistry. She enrolled for a doctorate and became engrossed

in the world of plants; even doing some work on plant trichomes. She obtained her D Tech in Chemistry in 2007 and her preference is to work towards practical applications of plant products, whether they are volatile metabolites or non-volatile polar metabolites, and use these as the plant originally intended, namely mainly for protection against insects, fungi and bacterial threats.

Future research opportunities and possibilities are endless and include projects such as the development of alternative methods to apply essential oils and other plant extracts to fruit surfaces without causing physiological blemishes and achieving the same levels of protection afforded by synthetic fungicides.

She has received numerous awards including Woman Researcher of the Year (2009 runner-up), Research Team of the Year (2003 runner-up and 2004 winners), and she is a regular reviewer of manuscripts for the *South African Journal of Botany*, the *Australian and New Zealand Journal of Botany*, *Journal of Herbs, Spices and Medical Plants* and *Household and Personal Care Today* in Italy.

Prof Combrinck recently initiated a research project with the University of Lublin (Poland) and the University of Bayreuth (Germany) on secondary metabolites of lichens and liverworts from southern Africa. She regularly acts as supervisor for master's and doctoral students.

Her field of expertise and research specialisation is analytical chemistry, with the focus on:

- Chromatography
- Plant secondary metabolites
- Postharvest fungal diseases

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DR PATRICK DEMANA Faculty of Science

Y rating

One usually expects celebrities, the rich and famous, or royalty to be listed in the *Who's Who Directory*. But TUT has its own entry in the 2009 edition of Marquis' *Who's Who in the World*, in the person of Dr Patrick Demana, senior lecturer and postdoctoral fellow at the Department of Pharmaceutical Sciences. However, this is not his only award for outstanding work; he also received the Best Lecturer in Pharmacy Award in 2008, a NRF Emory University Postdoctoral Fellowship in 2009 and in 1989 he received a scholarship from the British Council.

In 1994 Dr Patrick Demana obtained a BSc Hons in Pharmacy at the Liverpool John Moores University, and he subsequently obtained an MSc Pharmaceutics at the Rhodes University and a PhD, also in Pharmaceutics, at the University of Otago.

Dr Demana has a sound knowledge of the pharmaceutical industry as he worked in that environment before joining the academic world. He worked as production pharmacist at Merck, Sharpe and Dohme, Rhone-Poulenc Rorer SA and Alliance Distribution. Before joining TUT, he lectured and undertook research projects at the universities of Otago and the Witwatersrand.

Dr Demana joined the Emory University for a year as postdoctoral fellow in 2009, sharing his knowledge and expertise with postgraduate students.

He has published numerous articles in refereed and peer-reviewed journals, including *Targeting receptors, transporters, site of absorption to improve oral drug delivery*; *On the preparation, microscopic investigation and application of ISCOMs* and *Effect of incorporation of the adjuvant Quil A on structure and immune stimulatory capacity of liposomes*.

Dr Demana is a prominent speaker at national and international pharmaceutical and science-related conferences.

His field of expertise and research specialisation is health and medical sciences, with the focus on:

- Pharmaceutical sciences
- Formulation and drug delivery

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PROF FELIX DAKORA
Research Professor,
Faculty of Science
B rating

Prof Felix Dakora is the incumbent of the Research Chair in Agrochemurgy and Plant Symbioses at the Department of Chemistry, Faculty of Science. The Chair was awarded to the University by the National Research Foundation and the Department of Science and Technology.

Prof Dakora enjoys international recognition as researcher and knows almost everything there is to know about research. With 26 years of work experience, comprising 16 years of postdoctoral research in Africa and North America, a variety of professorships at numerous national and international higher education institutions, and

heading various research departments, he stands out among his fellow researchers.

He is a popular speaker at conferences and seminars and has delivered and read a large number of keynote addresses and papers at national and international conferences and published countless articles in journals, books and other publications. Many students have successfully completed their postgraduate studies under his supervision. He serves on a number of scientific committees and associations, and acts as consultant for various review panels.

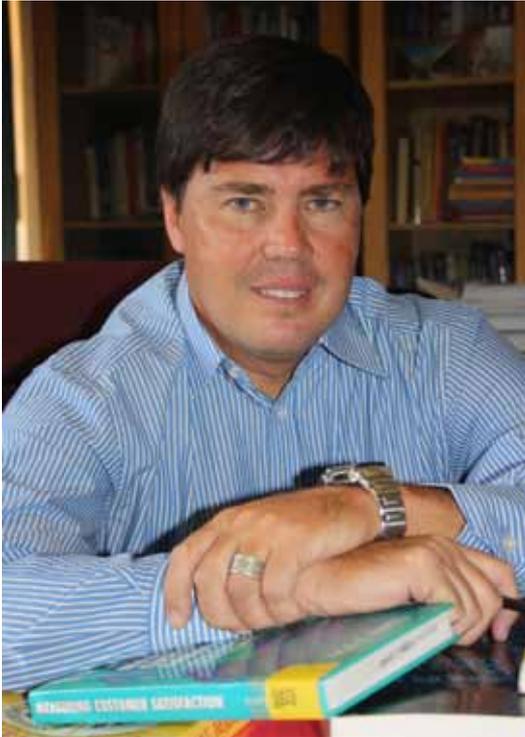
Prof Dakora's field of expertise and research specialisation is botany research, with the focus on:

- Biological nitrogen fixation
- Nitrogen metabolism
- Plant physiology

The Research Chair in Agrochemurgy and Plant Symbioses is a branch of applied chemistry concerned with preparing products from agricultural raw materials. It is a wide-ranging discipline involving chemistry, genetics, bacteriology and physics.

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PROF JOHAN DE JAGER

Faculty of Management
Sciences
C rating

Prof de Jager joined the University in 1992 after spending some time at the South African Police Force and Pretoria Metal Pressings and Research. He obtained his PhD in Business Management in 1998. A keen interest in research was born with the completion of his master's studies in 1991; he had no second thoughts about completing doctoral studies, which eventually led to a career in research.

His research has expanded across international borders to institutions such as the Hochschule für Wirtschaft in Switzerland, the University of Westminster in London, the Worcester University in the United Kingdom and the Curtin University of

Technology in Perth, Australia. Various collaborative research projects and national and international accredited and other journal articles resulted from these partnerships. Future international partnerships include countries such as New Zealand and Austria.

Prof de Jager serves on the advisory board of one of the largest and most influential conferences in the world, the International Academy of African Business and Development (IAABD) and has been actively involved with the Association since its first conference in 2000. He is co-chair of the Global Business and Technology Association (GBATA), a leading association that attracts more than 200 delegates on average per conference. He serves on the executive board and is a regional representative of the Society of Global Business and Development (SGBED).

A number of academic bodies have requested his membership, namely the South African Marketing Research Association (SAMRA), Association of Marketing Science (AMS), Academy of International Business (AIB), International Management Development Association (IMDA) Southern African Institute of Managerial Sciences (SAIMS), American Marketing Association (AMA) and the Australian New Zealand Marketing Association (ANZMAC).

His field of expertise and research specialisation is social sciences and humanities, with the focus on:

- Health care services
- Higher education marketing
- Service quality
- Services marketing

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DR PAUL FUNSTON Faculty of Science

C rating

The king of the African bush has fascinated people for centuries, including Dr Paul Funston, TUT's own wildlife and environmental expert. The reason for this fascination is hard to determine, but Dr Funston took it one step further. He made it the backbone of numerous research projects, trying to bring the African lion and its secrets closer to home and sharing his knowledge with thousands of people eager to find answers to so many previously unanswered questions.

Dr Funston often travels around sub-Saharan Africa in search for more detailed information when he and his students set off for yet another research project

on lions to examine their way of living and surviving and their destiny.

Most of his working life before joining the academic world was spent in the conservation environment such as game reserves, safari companies and game lodges. No challenge in the veld was ever too big or too small for Dr Funston; he did game drives, walking trails and veld management.

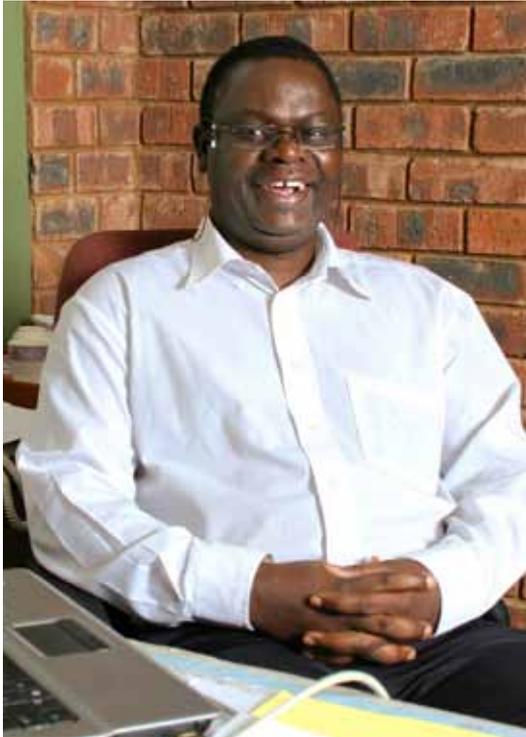
He obtained his PhD in Zoology in 1999 and was then appointed as Field Research Project Manager at the Kruger National Park, later he moved more north-west to the Kgalagadi Transfrontier Park before joining the Department of Nature Conservation in 2002. He brought with him an enthusiasm for wildlife research which spreads through the classroom and students are eager to get involved in his projects. He annually supervises postgraduate students in a range of conservation-related study fields, publishes numerous articles, conference outputs and technical reports in accredited journals and other publications.

Dr Funston's field of expertise and research specialisation is ecology and environmental science, game ranching and farming and zoology, with the focus on:

- Behavioural ecology
- Conservation
- Conservation ecology
- Game ranching
- Population ecology

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PROF ADISA JIMOH

Faculty of Engineering and the Built Environment

C rating

Prof Adisa Jimoh received his first degree, a Bachelor of Engineering with first class honours in Electrical Engineering, from the Ahmadu Bello University, Zaria, Nigeria in 1977. A few years later, in 1980, he received his Master of Engineering (MEng) from the same university for a study on Electrical Engineering with specialisation in Electric Power and Machines.

He then proceeded to Canada as a Commonwealth scholar to obtain a PhD in Electrical Engineering from McMaster University, Hamilton, Ontario, in 1986.

Prof Jimoh's career started as learner electrical engineer at the Nigerian Cement Factory, Nkalagu,

during his one year of National Youth Service in 1977. He then began his lecturing and academic career as a graduate assistant at the Department of Electrical Engineering of the Ahmadu Bello University in Zaria, Nigeria.

In 1992 he left the academic environment for industry. The National Electric Power Authority (NEPA) appointed him to head its newly established Research and Development Unit as principal manager. But the academia was in his blood and in 1996 he accepted a position at the University of Durban-Westville to lecture and carry out research in electric machines and power engineering.

Prof Jimoh is a registered engineer with the Engineering Council of South Africa (ECSA), a member of the Nigerian Society of Engineers, a senior member of the Institute of Electrical and Electronic Engineers (IEEE) in the USA and a senior member of the South African Institute of Electrical Engineer (SAIEE).

He is author and co-author of more than 100 papers and technical reports in international journals and conference proceedings.

Prof Jimoh's field of expertise and research specialisation is electrical engineering, with the focus on electric power, machines and power electronics.

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DR AJAY GARG Business School

C rating

Dr Garg holds a Bachelor and a Master's Degree in Engineering, a Master's Degree in Management and a doctorate in Business Leadership (SBL). His qualifications are an unusual combination of engineering and management subjects and with such a background he is an added asset to a university of technology.

Dr Garg lectures the course Research Methodology to master's students and is currently supervising 17 MBA dissertations, one M Tech and two doctoral theses. He has published extensively in important international journals including those that are accredited in South Africa.

He is a professional mining engineer, holds a first-class Mine Manager Certificate of Competency and is a full member of the Institution of Engineers of India. He has 22 years of industry experience, (India and Botswana Government), and had two years of university experience prior to joining the Business School in 2010.

Dr Garg was the key member in the implementation of Kimberley Process Certificate Scheme for rough diamonds and setting up controls for diamond polishing factories in Botswana. He also advises the mineral industry in the region on various research issues.

His field of expertise and research specialisation is social sciences and humanities.

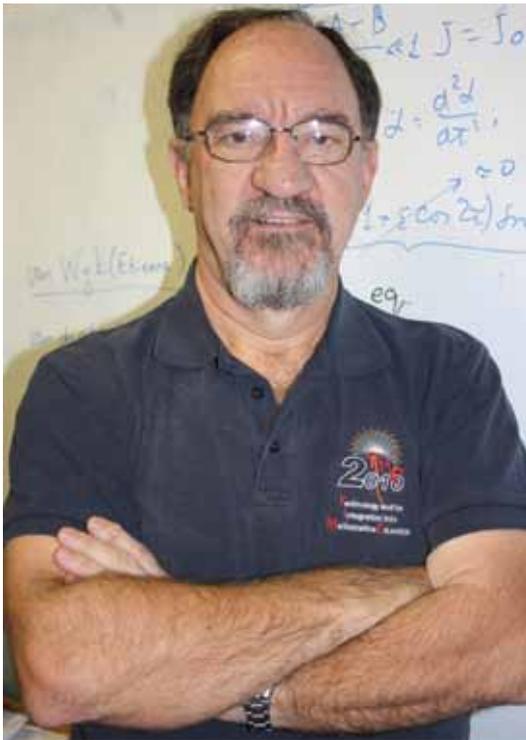
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PROF STEPHEN JOUBERT

Faculty of Science

C rating

Prof Stephen Joubert is not your typical mathematics professor whose only interests are calculations, deductions and logical thinking; he also has a keen interest in ballroom dancing, music theatre and cooking – interests most other mathematics professors do not have.

Since he can remember, Prof Joubert has had a love of mathematics. After failing an aptitude test for computer science (the report indicated that “he cannot do mathematics”), he obtained a doctorate in mathematics in 1983. After spending some two years teaching maths in a high school classroom, Prof Joubert joined TUT in 1975 as lecturer in Physics and

years later, in 2006, he was appointed Research Fellow (Professor) at the Faculty of Science’s Department of Mathematics and Statistics.

A change in his research direction paved the way for Prof Joubert to address the future research needs of a university of technology. He moved away from ring and module theory towards applied mathematics. This move has resulted in substantial human resource development (26 master’s and nine doctoral graduates), one SA patent and over 60 publications in peer-reviewed journals and conference proceedings.

Some additional highlights are:

- Prof Joubert refereed more than 10 abstracts for the TIME 2010 international conference that was held in Malaga, Spain.
- It came as no surprise when one of his master’s degree students won second prize at the SAMS Congress in 2008, as Prof Joubert is rated as one of the best supervisors in his field of study.

Prof Joubert’s field of expertise and research specialisation is mathematical sciences, with the focus on:

- Mathematical modelling
- Mathematical technology
- Science education

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PROF DIMITRI KATSKOV

Faculty of Science

B rating

Dmitri Katskov graduated from the Physical Faculty of St Petersburg (former Leningrad) University in 1966, and today, more than 40 years later, he is still continuing along the scientific road.

After graduating, he joined the State Institute for Applied Chemistry in St Petersburg, the biggest chemical institution in the former Soviet Union, first as engineer, later as senior scientist and then as head of the Department of Analytical and Physical Chemistry.

Profi Katskov obtained a DSc and a PhD degree at the State Institute of Rare Metal Industry in Moscow and the State Institute of Optics in St Petersburg, respectively. In 1993 he was invited to South Africa to join the Faculty of Science as visiting researcher at the Department of Chemistry and Physics. His ability to initiate and complete excellent research projects, his way of motivating students and his skills as a highly successful supervisor led to his appointment as professor at TUT in 1996.

Prof Katskov has made an invaluable contribution to the establishment of a research culture at TUT. To date he has been the supervisor of a large number of successful postgraduate students, he has published countless papers in accredited journals and he has delivered a large number of papers at highly acclaimed international conferences.

His field of expertise and research specialisation is analytical and physical chemistry, with the focus on:

- Applied optics
- Atomic spectroscopy
- Molecular spectroscopy
- Physical chemistry

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DR KHOBOSO LEHLOENYA Faculty of Science

Y rating

Dr Khoboso Lehloenya obtained her doctorate in animal production at the University of the Free State in 2008. She lectured at that university for four years before joining TUT as a lecturer, soon being promoted to a senior lecturer.

Dr Lehloenya is a reproductive physiologist and her research interest is the utilisation of assisted reproductive technologies (ARTs). She did most of her research in goats' ARTs such as oestrous synchronisation, artificial insemination, multiple ovulation and embryo transfer.

She is also involved in the freezing of the semen of farm animals and in vitro fertilisation, and has refereed and peer-reviewed numerous articles in journals on these and related topics. Dr Lehloenya is also a regular reviewer of manuscripts sent to the *South African Journal of Animal Science*, the *Small Ruminant Research Journal* and the *Journal of Reproduction, Fertility and Development*.

She is a Council member of the South African Society of Animal Science and a registered professional natural scientist.

A large number of postgraduate students have completed their studies under her supervision. Her research outputs have led to institutional acknowledgement in the form of the Junior Researcher of the Year Award in 2009.

Her field of expertise and research specialisation is animal production, with the focus on reproductive physiology.

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DR KHAKHATHI MANDIWANA

Faculty of Science

L rating

History was made on Tuesday, 24 April 2006, when the first doctorate was awarded at the Ga-Rankuwa Campus of the Tshwane University of Technology. A Doctorate in Chemistry was awarded to Khakhathi Mandiwana, a senior lecturer in Chemistry at the same campus. Hard work, dedication and commitment ensured him an NRF rating as researcher.

Dr Mandiwana was born in Venda, South Africa, and obtained his BSc (Hons) and University Education Diploma at the University of Venda. In 1994, he became a full-time student at the University of Pretoria, where he completed his MSc (Analytical

Chemistry) in December 1996. His dissertation, entitled *Inductively-coupled plasma optical emission spectroscopic determination of trace impurities in zirconium oxide powder*, was written under the leadership of Prof CJ Rademeyer. In March 1996, he accepted a post as temporary lecturer at the Department of Chemistry of the former Technikon North-West. He was appointed a permanent lecturer in August 1997 and was promoted to senior lecturer in 2003.

In 2003, he started his D Tech research project, which was funded by the National Research Foundation under the Thuthukha programme for researchers in training.

He applied for NRF rating in 2008 with only 16 published peer-reviewed articles, mostly from his doctorate research work. Due to the quality of the research work published in highly rated journals with high impact factors, the NRF awarded him an L rating.

Dr Mandiwana has published more than 20 articles in peer-reviewed journals to date. He is currently a visiting research scholar at Ryerson University in Toronto, Canada, where he is conducting research about mercury speciation in the environment under the mentorship of Prof Julia Lu, a Canadian environmental pollution expert. His projects include the development, evaluation, validation and application of analytical technologies to study biogeochemistry, sources, transport and health effects of persistence toxic substances in the natural environment.

His field of expertise and research specialisation is analytical chemistry.

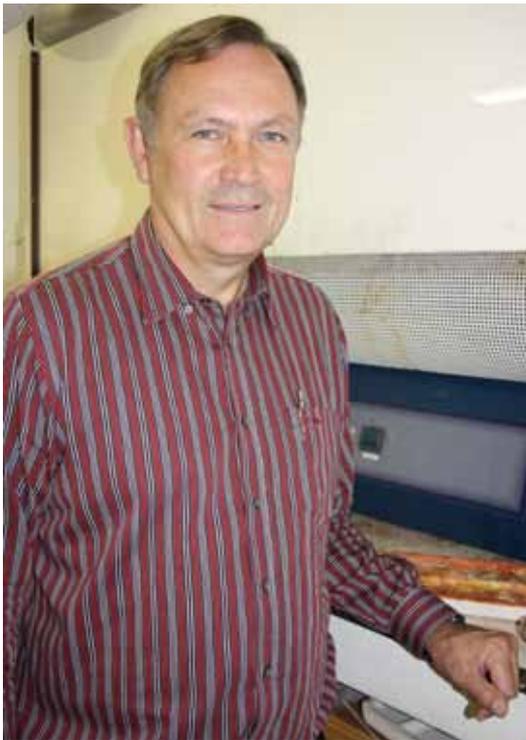
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PROF JANNIE MAREE

Faculty of Science

C rating

Prof Jannie Maree is an academic and researcher par excellence.

He is the holder of six degrees, two of which are doctorates in chemistry-related fields. These degrees were obtained from the universities of the Free State, South Africa and North-West. Today he is the incumbent of the Rand Water Chair in Water Utilisation at the Faculty of Science.

As a young graduate, Prof Maree was appointed an assistant research officer at the CSIR in 1976. He remained at that organisation until 2007, when he joined TUT as the holder of the Rand Water Chair.

His climb up the ladder of success was swift; within two years of being appointed in a junior position, he became a senior researcher, and then chief researcher, specialist researcher, project manager, research group leader and lastly, before leaving the CSIR, he held the post of divisional fellow.

His research outputs are known all over the world and he has received numerous awards and accolades for outstanding work. They include the Millipore Award for the Most Outstanding Young Scientist at the Division of Water Technology in 1987/1988, the WISA Award for the Best Article in 2001, and the CSIR Commercialisation Award in 2003.

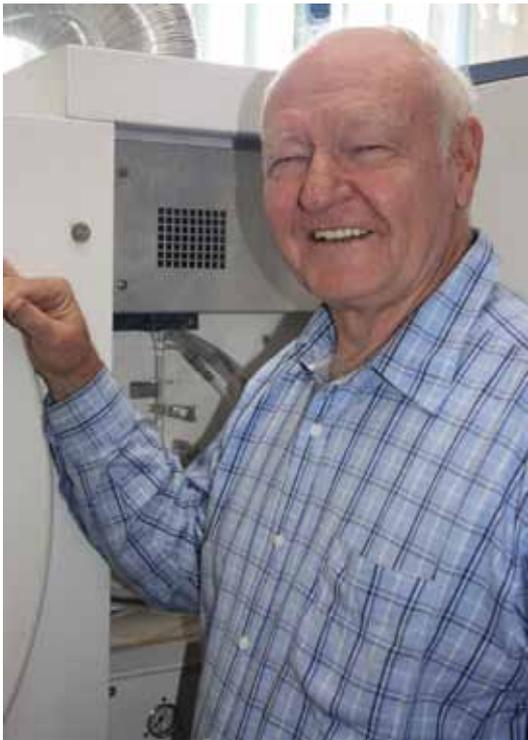
An outstanding researcher is known for patents registered, and Prof Maree has registered many of them. One remarkable patent is the limestone neutralisation implemented by Anglo Coal at several of its mines in the eMalahleni area, BCL in Botswana and Ticor in Empangeni.

Prof Maree's field of expertise and research specialisation is natural sciences and engineering, with the focus on:

- Limestone handling and dosing
- Mining effluent treatment
- Sulphate rich wastewater treatment
- Wastewater treatment
- Water and effluent management

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PROF ROB MCCRINDLE Faculty of Science

C rating

One of the most familiar faces on the TUT campuses is that of Prof Rob McCrindle. In 2010 he celebrated 30 years of involvement with the Department of Chemistry; first as lecturer and later as head of department. One needs only a few seconds in his company to realise that there is more to Prof McCrindle than lecturing, supervising and managing one of the largest departments at TUT.

Prof McCrindle obtained a BSc and a BSc (Hons) in Applied Mathematics at the University of the Witwatersrand, an MSc (Physical Chemistry) at the University of Natal and a PhD (Analytical Chemistry) at the University of Pretoria. He was a teacher at

Pretoria Boys High and later at Sevenoaks School in Kent before joining TUT.

His absolute passion for research and postgraduate studies make him one of the most popular supervisors at TUT, and almost all his postgraduate students made the decision to choose him as supervisor at undergraduate level already. This explains the good relationship between him and his students, based on years of respect, good work ethics, a proper understanding of competence and willingness to achieve the very best.

After so many years in education, Prof McCrindle is the first to admit that he still learns something new from each research project undertaken. He is known for saying that not even fifty years in research can make one “know it all”. And he is proud of the fact that many of the projects completed by his students lead to savings worth millions by numerous companies involved in industries such as the mining sector.

He is a popular speaker at conferences, he has written many scientific articles for publications and he has contributed chapters to numerous books.

Prof McCrindle’s field of expertise and research specialisation is chemistry, with the focus on:

- Analytical chemistry
- Science education
- Spectroscopy
- Supercritical fluid extraction

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PROF MAGGIE MOMBA Faculty of Science

C rating

Prof Maggie Momba was born and bred in Bikoro, Province of Equator in the Democratic Republic of Congo. Growing up in the heart of Africa taught her what a privilege it is to have access to clean running water. Today, after years of specialising in the field of water research, she is the Research Professor at the Department of Water Care.

Prof Momba successfully completed her undergraduate studies in Biology at the University of Kisangani, Democratic Republic of Congo, after which she continued with her postgraduate studies at the University of Pretoria in South Africa, where she completed an MSc and a PhD in Microbiology.

Today, Prof Momba is recognised as an expert in the field of wastewater management and potable water management.

She started her career at a pharmaceutical laboratory in Kinshasa and then joined the Zairian Institute for the Conservation of Nature (IZCN). While she was registered at the University of Pretoria, she accepted an appointment at the Environmental and Forestry Technology Department at the CSIR as a PhD postgraduate researcher

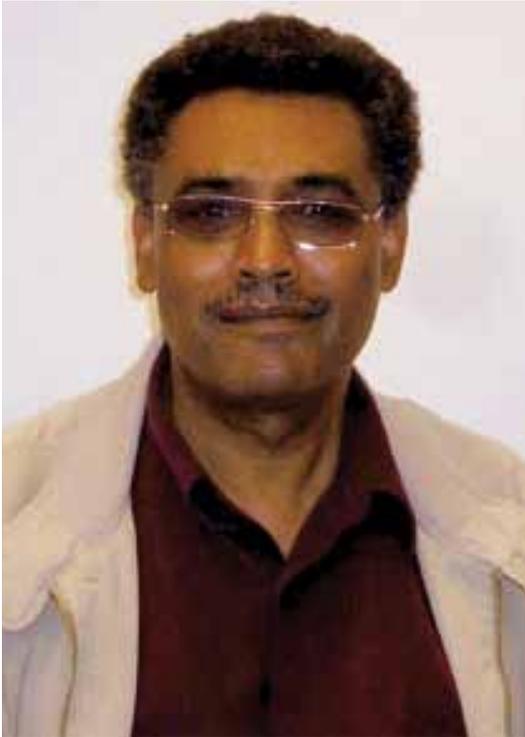
Membership of scientific committees is an indication of researchers' ranking and assessment in a specific environment, and Prof Momba is a member of no fewer than 13 national and international scientific committees. Some of them are the South African Society of Biochemistry and Molecular Biology in Eastern Cape Water, Water Research Commission (WRC) steering committees, International Advisory Board of the South Africa Centre for Essential Community Services, the Water Institute of South Africa and the DNA Bar Coding of Life Committee.

Her field of expertise and research specialisation is biological sciences, with the focus on:

- Applied microbiology
- Biotechnology
- Microbiology
- Molecular biology

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PROF MAMMO MUCHIE

Faculty of Economic
and Finances
C rating

Prof Mammo Muchie, originally from Ethiopia, obtained his DPhil in Science and Technology from the University of Sussex, United Kingdom, in 1986. He started his career at the University of Columbia as lecturer in physics and mathematics. Later he joined a number of other institutions, such as the Ethiopian Standards Institute, Sussex University, Middlesex University, University of Amsterdam, University of Maastricht and many more; sharing his knowledge of and expertise in economic sciences, humanities and social sciences.

Today Prof Muchie is the holder of the SARCHI Research Chair and Research Director of DIIPER on Innovation in Aalborg University, Aalborg Graduate School of International Studies, Centre for Comparative Integration as well as chairman of the Network of Ethiopian Scholars and a regular international visiting professor.

Prof Muchie is a founding member of the Globelics Academy and editor of the *Innovation and Development Journal*; founder of the scientific board of MedAlics, founder of NESglobal and its open access journal and founder of the *African Journal of Science, Technology and Innovation*, to mention but a few.

During the first Globelics Conference in Rio de Janeiro, Brazil, the book, *Putting Africa first, the making of African innovation systems*, he co-edited, was launched. This book has been reviewed and cited by UNIDO and UNESCO and many other international centres of learning.

His field of expertise and research specialisation is social sciences and humanities, with the focus on:

- African development
- African political thought
- Comparative studies
- Development studies
- Environmental studies
- Information technology and socio economic development
- International political economy

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PROF MAKAME MBARAWA

Faculty of Engineering and the Built Environment

C rating

Prof Makame Mbarawa is a full professor, head of department and researcher at the Faculty of Engineering and the Built Environment. He has been heading the Department of Mechanical Engineering since 2009.

Prof Mbarawa obtained his PhD degree in 1999 from the University of New South Wales, where the foundation for his research was laid while he worked there as research assistant for four years. After he obtained his doctorate, Prof Mbarawa joined a number of universities around the world as research fellow. These universities include the Russian Academy of Science, Belarus Academy of Science,

Seoul National University and the Szent Istvan University in Hungary.

Prof Mbarawa has extensive research experience in filtration combustion, gaseous fuel combustion, internal combustion engines, application of alternative fuel in internal combustion engines, production of biodiesel fuel and flue gas desulphurisation processes. His research has captured the interest and secured the collaboration of many international partners from countries such as Hungary, India, Tanzania and Kenya.

Currently, his research is focused on two areas: the production and utilisation of biodiesel in diesel engines and the flue gas desulphurisation process. The results of his research have been widely published in journals and at international conferences. He has published more than 60 refereed papers.

Although his time is limited due to his own research, Prof Mbarawa frequently supervises postgraduate students.

His field of expertise and research specialisation is natural sciences and engineering, with the focus on:

- Combustion
- Heat transfer
- Internal combustion engines

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PROF JULIUS NDAMBUKI

Faculty of Engineering and the Built Environment

C rating

Prof Julius Ndambuki is originally from Kenya. He is a registered civil engineer and currently the head of the Department of Civil Engineering at the Tshwane University of Technology..

Prof Ndambuki has been employed in a civil environment since he started his working life. He has worked at the Ministry of Transport and Communications as an assistant engineer, where he was involved in the design and construction supervision of the Njoro Bridge situated in Nakuru, Kenya.

He then joined the National Water Conservation and Pipeline Corporation as an assistant resident engineer for the Kajiado Water Supply Project.

But the classroom started to call and Prof Ndambuki was well aware of the value he could add with his years of experience in the civil engineering environment. He accepted a post as lecturer at the Moi University in Kenya where he taught Civil Engineering Materials, Fluid Mechanics, Hydrology and Water Resources Engineering. He then terminated his career to study for his PhD degree, which he obtained at the Delft University in The Netherlands.

With his doctoral degree behind his name, he returned to Moi University as a senior lecturer. In 2005 Prof Ndambuki joined the Vaal University of Technology as head of the Department of Civil Engineering and Building.

His field of expertise and research specialisation includes civil engineering.

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PROF DAN NICOLAE

Faculty of Engineering and
the Built Environment
C rating

Prof Dan Valentin Nicolae was born in Bucharest, Romania, and graduated from the Polytechnica University of Bucharest with an MSc in Applied Electronics. Soon after he had completed his studies, the Institute of Nuclear Technologies appointed him as design engineer.

He started his research career at the aviation branch of the National Institute for Scientific and Technical Creativity (INCREST), also in Bucharest. His activities focused on developing electronic equipment for Romanian designed airplanes and helicopters designed in Romania.

Before Prof Nicolae moved to South Africa in 1992 he worked in Germany as a freelance engineer two years. In SA he again freelanced for a while before he was offered a lecturing position at TUT. He lectured undergraduates, B Tech students, undertook research projects and completed his doctorate studies in 2004 at the Vaal University of Technology. Prof Nicolae has been supervising postgraduate students at master's and doctoral level since 2005.

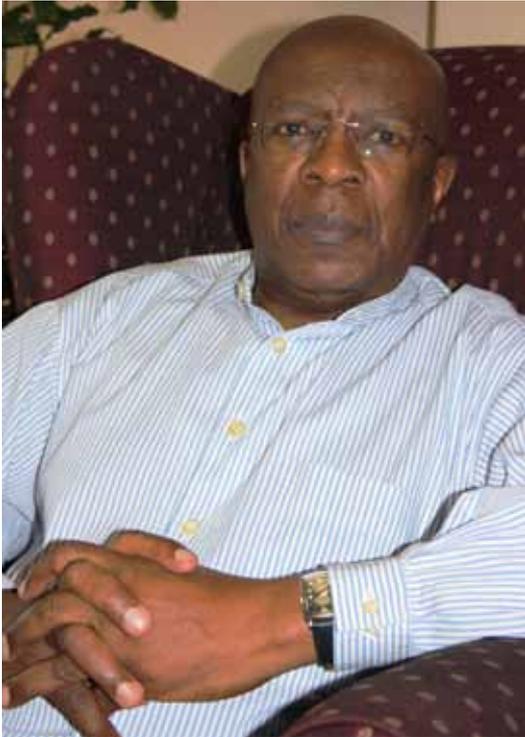
He is a member of ECSA, SAIEE and IEEE and his research on power applications for electric machines, power systems and renewable energy has led to many research outputs published in accredited and non-accredited journals, peer-reviewed and non-peer-reviewed conference papers.

His field of expertise and research specialisation is natural sciences and engineering, with the focus on:

- Electrical motor drives
- Energy audit
- Power electronics
- Power quality
- Simulation and control

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PROF MOKUBUNG NKOMO TUT Management

C rating

Prof Mokubung Nkomo, is currently the Deputy Vice Chancellor Teaching, Learning and Technology as well as Extraordinary Professor in the Department of Education Management and Policy Studies at the University of Pretoria as well as a Senior Research Fellow at the Human Sciences Research Council.

Besides UP and now TUT, Prof Nkomo has academic ties with a number of local and international universities, including the University of North Carolina, the University of Massachusetts and the New School for Social Research, New York.

His passion for education is clear from the variety of courses he has taught, and the fellowships, research and other academic awards he has been awarded.

He has completed research projects on topics such as perspectives in the classroom, student culture at black universities, best practices in desegregated schools and diversity education. Since 1988 he received annual funding support from organisations and institutions such as the Ford Foundation, Global Perspectives, SANPAD, the National Department of Education and the NRF.

He is well known as supervisor for postgraduate students and as author and co-author of numerous publications, and he enjoys reviewing manuscripts, serving on advisory boards and sharing his knowledge and expertise with other members of professional and academic associations.

Prof Nkomo is a teacher, lecturer, academic, professor and expert in the true sense of the word.

His field of expertise and specialisation is education, political sciences and public policy with the focus on:

- Diversity in education
- Diversity management
- Educational management
- School integration
- Educational policy
- International education

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PROF JONATHAN OKONKWO

Faculty of Science

C rating

Professor Jonathan Okonkwo, originally from Nigeria, was appointed in 2002 as Research and Innovation Professor at the Faculty of Science and leader of a focus and niche area research group in Pollution and Waste Management and Water Resources.

He obtained his PhD in 1992 for a thesis on *A surface study of uncoated and stearate coated precipitated calcium carbonate* at the Brunel University in the United Kingdom.

His achievements and the acknowledgements he received as a result of his outstanding research speak for themselves. In 2006 he received the TUT Senior

Researcher of the Year Award. In 2008 the College of Agriculture and Environmental Science, South Africa, invited Prof Okonkwo to present a memorial lecture entitled *The impact of global warming on food security, human environmental health and safety* in honour of the late Prof Godfrey Humphrey. He was invited to deliver a keynote address at the 26th African Health Sciences Congress held in Egypt in 2005. His address was entitled *A continent in confusion: Africa's environmental health problems as related to pollution and waste management*. At the Seventh Eurasia Conference on Chemical Sciences that took place in March 2002 in Karachi, Pakistan, Prof Okonkwo chaired a session on Physical and Polymer Chemistry.

In 1999 and 2010 he became a Chartered Chemist (CChem) and a Fellow of the Royal Society of Chemistry (FRSC) of Great Britain, respectively. He is a member of the National Research Foundation (NRF) review panel for the Thuthuka programme for Earth Sciences, Engineering and Mathematics and Environmental Science.

His field of expertise and research specialisation includes chemical sciences, technologies and applied sciences, with the focus on:

- Analytical Chemistry
- Chemistry
- Ecology and environmental science
- Environmental analytical chemistry

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PROF MAURICE ONYANGO
Faculty of Engineering and
the Built Environment
Y rating

Prof Maurice Onyango, originally from Kenya, always had a personal interest in water, and later a professional interest as well, clearly reflected in his research during the past ten years.

About ten years ago, Prof Onyango started with research to improve the quality of water contributes to improving the lives of people. One of his first projects was to improve the properties of zeolite adsorbent. Following this research, Prof Onyango focused mainly on the improvement and development of new absorption media (surface-tailored, superparamagnetic and nanostructured) with tailored properties for treating drinking water

and industrial waste streams.

At the moment, Prof Onyango is using some of the materials he developed. He is evaluating two kinds of POU (point of use) systems for treating 20 litres of fluoride- and nitrate-containing water per day. These systems can easily be adapted to environments where communities are not connected to water mains.

In addition, he is tapping enormously from the advantages presented by metal-based nano materials. Metal nano materials can be interfaced with polymeric materials to form nanocomposites. Prof Onyango is focusing on developing a synthesis route that is environmentally friendly and on applying the materials in water or wastewater treatment.

Prof Onyango obtained his DEng in Chemical Engineering from the Nagoya University, Kenya, in 2006.

His work has been published in several leading national and international journals. So far, 32 peer-refereed articles have been published in journals and a similar number of papers have been read at national and international conferences. He has also contributed two chapters to books.

Numerous awards, bursaries, fellowships and scholarships are frequently bestowed on him in recognition for his work.

His field of expertise and research specialisation is natural sciences and engineering, with the focus on reaction-separation engineering.

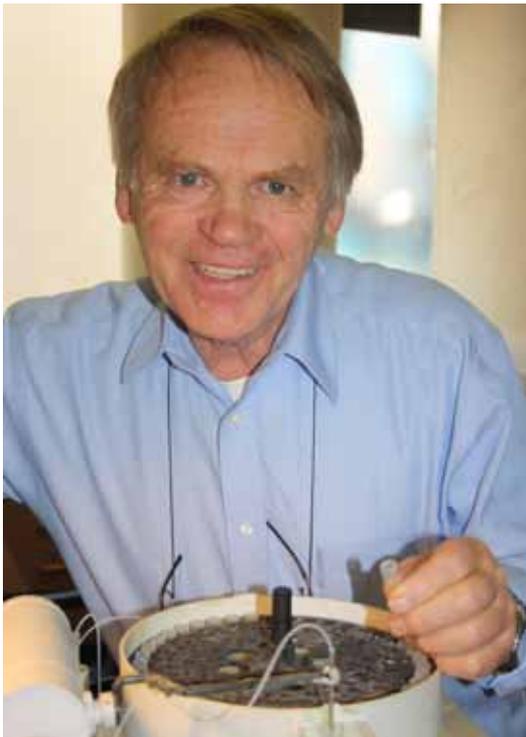
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DR NIKOLAY PANICHEV

Faculty of Science

C rating

Dr Nikolay Panichev was born in Leningrad in the former USSR. He graduated from the Chemistry Department of Leningrad State University in 1961. He obtained his PhD in Atomic Emission and Atomic Absorption Spectroscopy in 1973.

His career has taken him to many countries around the world. He has worked as senior laboratory assistant at the Chemistry Department of the University of Leningrad, and was a secondary school teacher at Acherensua Secondary School in Ghana for two years before returning to Leningrad. He also spent some time in Cuba at the Orient University in Santiago-de-Cuba and was invited to work at the

National Research Council in Canada before he was appointed research supervisor at TUT.

He was the scientific secretary of the St Petersburg branch of the Russian Academy of Sciences from 1985 to 1995.

Dr Panichev's love for chemistry is clear from the subjects he is keen to lecture. They include Analytical Chemistry, Chemical Methods of Analysis, Analytical Atomic Spectroscopy, Methods of Metals Determination in the Environment and Environmental Chemistry.

His scientific interests are related to the development of new analytical methods for speciation of metals with AAS detection, determination of metals in atmospheric air and biotransformation of chemical forms of elements in the environment.

He has published about 100 scientific articles, obtained five Inventors Certificates from the USSR of Metals Determination in Atmospheric Air, and supervised the postgraduate studies of more than 50 master's and four PhD students.

His field of expertise and research specialisation includes chemistry and environmental studies, with the focus on:

- Analytical chemistry
- Environmental analytical chemistry

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PROF GUOYUAN QI

Faculty of Engineering and the Built Environment

Y rating

As Visiting Professor at TUT in 2006, Prof Qi decided to extend his stay in South Africa and find an academic haven within the Faculty of Engineering and the Built Environment. He obtained his PhD in 2004 at the Nankai University, Tianjin, China. He did his master's degree and PhD on control theory and control engineering.

His academic and research career started in 1992 as assistant researcher at the Jiamusi University in China. In 2001 he worked at the Department of Electronic Information and Automation, Tianjin University of Science and Technology, as associate professor. He later joined the City University in Hong Kong as senior

research assistant. Since June 2006 he has been working at F'SATIE as postdoctoral fellow.

Prof Qi has authored over 30 journal papers in international authoritative journals, such as *Chaos, Solitons & Fractals*, *International Journal of Bifurcations and Chaos*, and *The Chinese Journal of Electronics*.

Awards for outstanding work include the Googol Application Research Award by Control Theory Speciality Council of Chinese Automation Association in 2004 and an Advanced Academic Staff Award in Science and Technology (three times) by the Tianjin University of Science and Technology.

Prof Qi is the reviewer of a number of journals, including *IET Control Theory and Application*, *International Journal of Bifurcation and Chaos*, *IEEE Transaction on Circuits and Systems -1*, *Acta Physica Sinica*, *Acta Automatica Sinica* (in Chinese) and *Control Theory and Application* (in Chinese).

His field of expertise and research specialisation is mathematics, with the focus on:

- Control theory
- Control engineering

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PROF ROBERT RUGIMBANA
Faculty of Economic and
Finances
C rating

Professor Robert Rugimbana, Research and Innovation Professor at the Business School, is currently one of only nine academics to be rated in the specialised academic field of marketing in South Africa, thus becoming part of the exclusive Marketing Intellectuals Club. With his C2 NRF rating, Prof Rugimbana became the second highest rated academic in this field in the country.

Much of Prof Rugimbana's research has a distinct multidisciplinary nature. With a PhD that straddles anthropology, consumer psychology and sociology, some of his works can be classified as being interdisciplinary too. This explains the title of his

doctoral thesis in marketing, obtained in 1998: *Values, perceptions and consumer preference patterns for personal banking technologies in Australia and Malaysia.*

Prior to joining TUT, Professor Rugimbana taught at several Australian universities, including Griffith University, Macquarie University, Newcastle University and University of Technology Sydney. He has researched, taught and supervised students in a range of business, marketing and entrepreneurship areas. He has also previously held important university governance roles such as associate dean, director of a graduate school and head of department.

In addition, Prof Rugimbana has been a senior consultant for several large Australian organisations including one of the four largest banks in Australia, the Australian New Zealand Banking Group (ANZ), the South Australian Association of Credit Unions, and, more recently, One Steel – a steel-manufacturing concern.

He is the author of more than 100 publications in the form of book chapters and internationally refereed and accredited journal and conference publications, and he serves on the editorial boards of several international journals.

Prof Rugimbana's field of expertise and research specialisation is marketing, with the focus on:

- International consumer psychology
- Technology acceptance
- Cross cultural marketing
- Poverty, microfinance and entrepreneurship

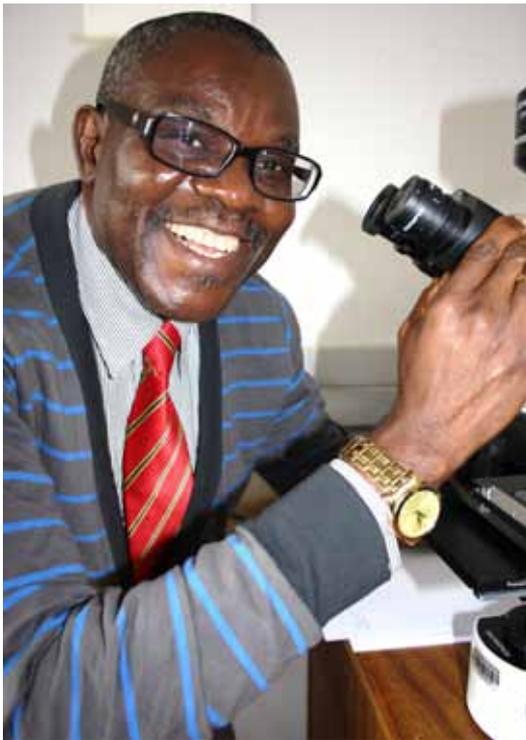
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PROF ROTIMI SADIKU

Faculty of Engineering and the Built Environment

C rating

Professor Rotimi Sadiku is well known in polymer circles in Nigeria, Scotland, Italy, Germany, Sweden and South Africa. Although he spent some time in industry, Prof Sadiku prefers the classroom and laboratories, sharing his knowledge and expertise with postgraduate students. He has been the R&D Professor at the Department of Polymer Technology, based at the CSIR, since 2004.

He started his academic by successfully completed a National Diploma in Textile Technology at the Kaduna Polytechnic in Nigeria and then accepting a scholarship to enrol for a BSc (Hons) in Fibres and Polymer Science at the University of Strathclyde in

Glasgow, Scotland. His PhD followed soon after at the same institution. The theme of his thesis was *Optical and mechanical properties relationships of polypropylene films*.

Prof Sadiku was based in Sasolburg where he worked as a principal scientist at Sasol, but he preferred lecturing and research and development work. What is fascinating about polymer, or as we know it, plastic, is the fact that scientists are always trying to make it better, cheaper and stronger. There is always room for improvement.

Two of the world's best known polymer scientists, Gert Strobl from Germany and Ulf Gredde from Sweden, played a major role in Prof Sadiku's love, understanding and knowledge of polymer. He spent quite some time with both of them while doing research in their countries.

Prof Sadiku is the author and co-author of many articles and chapters on aspects relating to polymer. His has successfully supervised master's and doctoral students.

His field of expertise and research specialisation is material sciences and technologies and polymer sciences, with the focus on:

- Mixing of polymers
- Nanoclay polymers
- Rheology polymers
- X-ray diffraction of polymers

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DR MICHAEL SHATALOV
Extraordinary Professor
Faculty of Science
C rating

Dr Michael Shatalov was born and raised in Russia but he left that country to live and work in sunny South Africa. He made this decision in 1994 when he became an employee of the CSIR. He later joined both TUT and the University of Pretoria where he conducts scientific research, lectures and supervises postgraduate students.

His impressive list of work experience includes posts as engineer, junior and senior researcher, principal scientist, extraordinary lecturer and professor.

He completed his PhD studies in 1982 with a thesis entitled *Mechanics of dynamically tuned gyroscopes*

at the Russian Academy of Sciences in Moscow.

To mention some courses he presents at TUT and UP include Theory of Oscillations, Advanced Theory of Vibrations and Modern Gyroscopic Instruments.

His research awards and prizes include the Russian State Prize in Aerospace Technology, the CSIR Manufacturing and Materials Technology Outstanding Achiever Award, the Manufacturing and Materials Technology Achiever Award, the CSIR Outstanding Contribution by an Individual Award, and the CSIR Materials Science and Manufacturing Excellence Award 2010 for an outstanding contribution by a team.

Dr Shatalov is the author and co-author of numerous books and articles on a variety of topics, including *Mechanics of dynamically tuned gyroscopes*, *Theory of free and forced vibrations of a rigid rod based in the Rayleigh mode*, *Analysis of an n-stepped Rayleigh bar with sections of complex geometry*, *Another approach to vibration analysis of stepped structures*, *Electronic transactions on numerical analysis and Dynamics and control of vibratory gyroscopes*.

His field of expertise and research specialisation is science, with the focus on:

- Applied mathematics
- Gyroscopes
- Structural dynamics
- Linear and nonlinear acoustics

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PROF BRANDON SHAW Faculty of Science

Y rating

Prof Shaw obtained his DPhil in Biokinetics in 2005 from the University of Johannesburg. After spending a number of years in the private sector, he joined TUT in 2005 as a lecturer. He is currently an associate professor managing the research in the Department of Sport, Rehabilitation and Dental Science.

His research has focused primarily on exercise and its role in disease prevention, the treatment of chronic and orthopaedic diseases and sports performance. This led to almost 100 scientific publications in both local and international journals including journals such as *Obesity Reviews*, *Journal of Strength and Conditioning Research*, *Science and Sports* and *International Journal of Exercise Science*. He is a reviewer for several national

journals, such as the *African Journal for Physical, Health Education, Recreation and Dance* and the *South African Journal for Research in Sport, Physical Education and Recreation*, and international journals such as *Chronobiology International*, *American Journal of Sports Medicine*, *Lung*, *International Journal of Sport Nutrition and Exercise Metabolism*, *Cardiovascular Journal of Africa*, *Scientific Research and Essays* and the *Asian Journal of Exercise & Sports Science*. He serves on the editorial boards of the following international journals: *International Journal of Therapy and Rehabilitation* (formerly *British Journal of Therapy and Rehabilitation*), *Advances in Physical Education*, *Acta Kinesiologica* and *Sport Science* and he is the director of the African Chapter of the International Physical Activity Projects (IPAP)

Prof Shaw is a popular speaker at national and international conferences and has presented or been invited to present papers in Africa, North America, Europe and Asia. He has featured on USA National Public Radio, morning edition, where he presented his research. Also in the USA, he scientifically contributed to a number of health magazines including *America's Woman's Health Magazine*, *Prevention Magazine*, *Muscle and Fitness* and *Runners World Magazine*. This has led to an invitation to develop information booklets for health and slimming products.

Prof Shaw is an accredited Sports Information and Science Agency Exercise Scientist and Certified Strength and Conditioning Specialist (CSCS) with the National Strength and Conditioning Association (NSCA) in the United States of America.

His field of expertise and research specialisation is health and medical sciences, with the focus on:

- Exercise and health
- Rehabilitation medicine
- Health promotion and disease prevention
- Health behaviour
- Cardiopulmonary diseases
- Sports medicine

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PROF DHARINI SIVAKUMAR Faculty of Science

C rating

Prof Sivakumar's research interest is the postharvest technology of fresh produce. This research field makes an enormous contribution towards the reduction of food loss and the sustainability of food security. Her research career started in 1993 at the Food Technology Division of the Postharvest Technology Group at the Ceylon Institute of Scientific Industrial Research (CISIR). During that period she was involved in numerous research projects and participated as a representative of Sri Lanka in the 25th FAO-IAEA Research Coordination meeting of the Asian Regional Cooperative Project on Food Irradiation held in Bangkok.

Another successful project undertaken and completed was on the *Postharvest management of foliage plants* in order to promote Sri Lanka's export of foliage. She also undertook research projects to alleviate poverty in the farming community by introducing proper harvesting, handling, pre-cooling, storage and transportation practices. This research project ensured Prof Sivakumar of a research fellowship by the British Council in Sri Lanka.

Prof Sivakumar received her doctorate from the University of Colombo in 2001 and she has been working in the higher education sector ever since. Prior to this she held various research-related positions, among others at the Ceylon Institute of Scientific and Industrial Research and the Industrial Technology Institute in Sri Lanka.

She has received some outstanding awards, including the Commonwealth Science Council Award and the MASSV award from the Israeli Foreign Affairs Department. A variety of research opportunities evolved from these awards, such as opportunities in New Zealand, Israel, Sri Lanka and the USA.

Numerous scientific articles on postharvest diseases, quality of packaging, postharvest treatments and many others have come from her pen.

Prof Sivakumar's field of expertise and research specialisation is postharvest technology with the focus on:

- Improving quality
- Safety

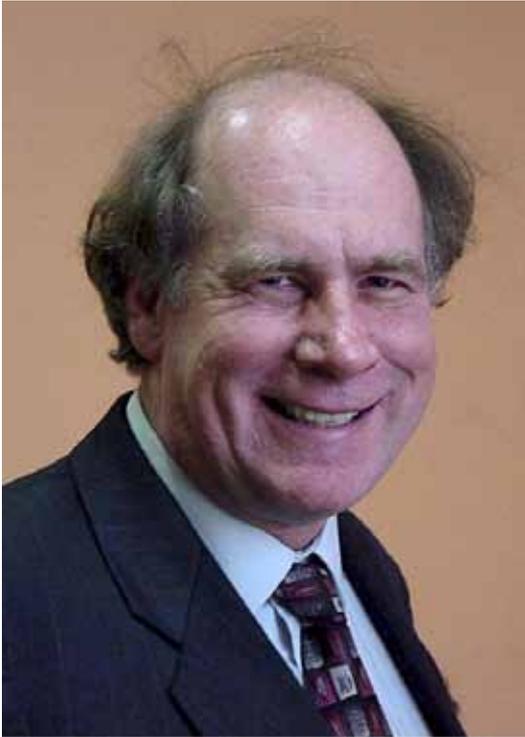
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PROF LUKAS SNYMAN

Faculty of Engineering and the Built Environment

C rating

Monolithic integrated circuit and silicon LED matrix are difficult concepts most people struggle to pronounce correctly, but Prof Lukas Snyman is an expert on these and other electronic concepts.

Prof Snyman obtained his BSc, BSc (Hons), MSc and PhD (1987) in semiconductor physics at the University of Port Elizabeth. He is a current member of the International Institute for Electrical and Electronic Engineers, the Society for Photonic and Instrumentation Engineers (USA) and the SA Federation for Electronic Industries.

Since October 2001, Prof Snyman has been Research Professor at the Faculty of Engineering and the Built Environment. Before joining TUT, he lectured at the universities of Port Elizabeth and Pretoria. He also spent some time at the Paul Scherrer Institute in Zürich, Switzerland, as guest scientist, thanks to his expertise in semiconductor physics and electronic engineering.

His current research involves the development of optoelectronic devices such as optical sources, waveguides, modulators and detectors that can be integrated into future CMOS optoelectronic integrated circuits. He has started a new initiative at TUT for developing novel electronic products at a systems and a subsystems level that can lead to SMME development in South Africa. His laboratory is currently also providing development services for the TIA Technology Station in Electronics at TUT.

Prof Snyman has published about thirty papers in accredited journals and has delivered more than forty papers at international conferences. He has delivered several guest lectures on CMOS light-emitting device design at various research institutions in the USA, Switzerland, Japan and Finland. He is the main author of two approved USA patents and thirty South African patents on CMOS light-emitting devices and innovative electronic products. He has been supervising postgraduate students since 1992.

His fields of expertise and focus areas include

- semiconductor devices
- opto-electronics
- micro-electronics
- electronic engineering
- high-frequency electronics
- telecommunication systems and engineering mathematics

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PROF PUFFY SOUNDY Faculty of Science

C rating

Prof Puffy Soundy, a horticultural specialist, obtained his doctorate from the University of Florida in 1996. He is also an alumnus of the universities of Natal and Fort Hare.

He started his academic career as teacher at Bankuna High School, moving to Charles Mathoni Secondary School before he joined the University of Fort Hare followed by the University of Florida, the University of Pretoria and then TUT, as professor at the Department of Crop Sciences.

Currently, Prof Soundy is project leader of two impressive projects. The first is a project on the agronomy of indigenous aromatic and medicinal plants that have commercial potential and the second is a project on the production of vegetables under protection.

His professional membership includes the American Society for Horticultural Science (ASHS), International Plant Propagators' Society (IPPS), Southern Society of Crop Production (SASCP) and the International Society for Horticultural Sciences (ISHS), and he is the vice-president of the Southern African Society for Horticultural Sciences (SASHS).

Prof Soundy is a regular reviewer for *Water SA*, the *South African Journal of Botany* and the *Journal of Phytopathology*.

He has received numerous awards for outstanding papers delivered at international conferences. One such an award was for a paper delivered on *Improving lettuce transplant quality in response to nitrogen in a floatation production system* at an international conference held in Florida, United States

His fields of expertise and focus areas include natural sciences and engineering, with the focus on:

- electronic commerce
- soil and water sciences
- vegetable production

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PROF GERALD STEYN

Faculty of Engineering and the Built Environment

L rating

Prof Steyn, a professional architect with years of experience in the private sector, is today an academic researcher par excellence with vast experience in and outside the classroom. His architectural career started in 1975 when he completed his first degree at the University of the Free State. A master's degree followed a few years later, in 1978. In 1995 he obtained a PhD from the University of Pretoria.

His keen interest in research started soon after he obtained his first qualification, when he joined the CSIR in 1979 as chief research officer. But he had a great talent for architectural design and soon joined the private sector to co-establish Grobler-Steyn

Architects and Engineers Consultancy, where he held the position of principal for nearly 18 years. But the calling to become more involved in the academic side became stronger as the years went by and in 1998 Prof Steyn went back to the classroom, this time in another capacity.

He was appointed a part-time lecturer, later senior lecturer and then research professor at the Department of Architecture. In his relatively short academic career, Prof Steyn has distinguished himself as a committed and enthusiastic researcher, producing numerous peer-reviewed publications, technical publications in popular press and presentations locally and internationally. Since 2000 he has run several research projects funded by the NRF and he has acted as supervisor for more than fifty postgraduate students.

Prof Steyn is a member of the Pretoria Institute of Architecture and the South African Institute for Architects. He is also a second-term councillor of the South African Council for the Architectural Profession and chairperson of its heads of schools, validation, registration and research committees.

His field of expertise and research specialisation is architecture, with the focus on:

- African urbanisation
- Social settlements
- Urban design
- Urbanisation

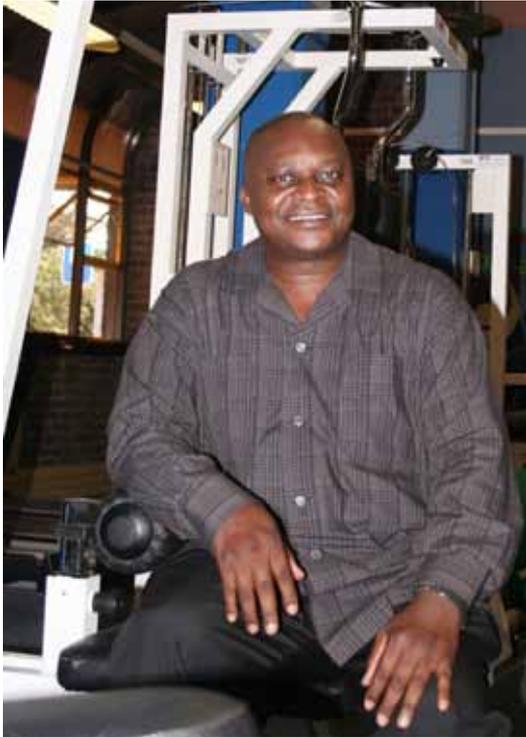
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PROF ABEL TORIOLA Faculty of Science

C rating

Prof Abel Toriola attended the University of Ife and graduated with a first class honours to obtain a BSc in Physical Education in 1980. He subsequently completed his master's and doctoral degrees from the same institution also with distinction in 1983 and 1988, respectively.

In his academic career spanning over 27 years, Prof Toriola has taught and conducted research at university level in four African countries, namely Botswana, Nigeria, South Africa and Zimbabwe. He pioneered the BSc Physical Education Programme at the University of Zimbabwe in 1995 and worked at the University of Limpopo as professor and head of

the Department of Kinesiology and Physical Education from 1998 to 2002. Currently, Prof Toriola heads the Department of Sport, Rehabilitation and Dental Sciences at TUT.

His passion for research has led to numerous awards, achievements, grants and international recognition. One success story is the leading role he played in the establishment of the Limpopo Academy of Sport and the successful proposal he compiled to secure R1m from the National Lotteries Distribution Trust Fund in order to run the academy successfully.

His love for sport is visible in his research projects and involvements, such as the one where he was a research team leader at the All Africa Games Kinanthropometric Research Project, which did physical and physiological measurements of elite African athletes at the Games held in Harare, Zimbabwe, and Abuja, Nigeria.

Another mentionable project is when he was commissioned by the International Table Tennis Federation in Lausanne, Switzerland, to carry out official experiments on the new table, called "longer reach table tennis" that he had designed for the federation.

Prof Toriola's field of expertise and research specialisation is health sciences, with the focus on sport sciences.

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PROF NEELS VAN HEERDEN

Faculty of Management
Sciences
C rating

Prof Neels van Heerden, head of the Department of Marketing, Logistics and Sport Management at the Faculty of Management Sciences, obtained his doctorate from the University of Pretoria in 2001. His thesis, *Factors affecting decision-making in South African sport sponsorships* is known for pioneering results in the South African sport environment.

Before joining TUT, Prof Van Heerden was employed at the University of Pretoria where he first worked as marketing and public relations officer and later became lecturer, senior lecturer and professor.

He is currently associate editor of the *South African Journal of Economic and Management Sciences (ISI Journal)* and *African Journal of Business Management*, and a member of the editorial board of the *International Retail and Marketing Review*, the *South African Business Review* and *Commercium Journal*.

Prof van Heerden was a member of the Sport Sponsorship Portfolio Committee of the Association of Marketers who instituted the Raptor Awards that recognise excellence in South African sponsorship management.

He is an excellent study leader and was supervisor for a large number of M Com, MA and PhD postgraduate students.

Prof Van Heerden's field of expertise and research specialisation is communication and media studies, with the focus on:

- Corporate image
- Higher education marketing
- Leisure marketing
- Sports marketing
- Sport sponsorship
- Tourism marketing

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PROF ALVARO VILJOEN Faculty of Science

C rating

Since he matriculated with distinction, Prof Alvaro Viljoen has completed everything he did “*cum laude*”, including his own university studies, research, supervision of postgraduate students and work in general.

Prof Viljoen joined the School of Pharmacy as research professor in 2005 and took leadership of the Focus Area on Intervention Technologies in Health Sciences. He obtained a BSc, BSc (Hons) and MSc from the Stellenbosch University and a PhD from the University of Johannesburg. Before joining TUT, he lectured at the University of the Witwatersrand.

He is passionate about research and his interests include the phytochemistry and biological activity of medicinal and aromatic plants, which have led to extensive international collaboration with scientists in the USA, Italy, Portugal, France, Turkey and many countries in Africa. This explains the topic of his PhD, namely *The chemotaxonomy of the genus aloe*. Sixteen research papers emanated from this study, and, due to the commercial interest in aloe, Prof Viljoen visited the International Aloe Science Council (IASC) in Texas in 1999 and was invited back to Dallas in 2000 to present his research results on aloe to an international meeting of the IASC.

His expertise and knowledge are rated among the very best in the country and therefore he is frequently requested to review papers for journals and projects for the NRF and the Medical Research Council of South Africa.

Prof Viljoen has authored and co-authored seventy peer-reviewed papers, mostly on phytochemical exploration and the biological activity of indigenous medicinal and aromatic plants. He has delivered more than 140 papers at various scientific conferences, including two plenary lectures at international meetings.

He has supervised and co-supervised many students to complete their postgraduate studies successfully.

Prof Viljoen’s field of expertise and research specialisation is botany, with the focus on:

- Chromatography
- Natural products from plants

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PROF BEN VAN WYK

Faculty of Engineering and the Built Environment

C rating

Prof Ben van Wyk joined the French South African Technical Institute in electronics (F'SATIE) at TUT in January 2004 as an associate professor. During his time at F'SATIE he played a pivotal role in the establishment of two TUT research niche areas, the re-launch of the Centre of Excellence in Telecommunication, the establishment of an interdisciplinary NRF focus area in non-linear and non-stationary multidimensional systems and signals, an Xilinx FPGA training centre, the establishment of industrial research links with Denel Dynamics and the CSIR, several NRF projects and a THRIP project as well as SAFeTI projects jointly funded by DST and the French Ministry of Foreign Affairs.

Prof Ben van Wyk has three diplomas and five degrees: a National Diploma in Telecommunications, a National Diploma in Tertiary Education from Technikon Witwatersrand, a National Diploma, a B Tech and an M Tech, all in Electrical Engineering and obtained from TUT, a BCom from UNISA and an MSc from the University of Southern Mississippi. He obtained his PhD in Electrical Engineering at the University of the Witwatersrand in 2003.

Prof van Wyk was employed by Telkom SA from 1987 to August 2001, where he was involved in activities ranging from the compilation and lecturing of functional courses on new technologies, the selection and testing of new radio technologies, network optimisation and teletraffic research, line management and the management of centres of excellence at several universities and technikons. He also spent some time at Kentron and the University of Johannesburg before joining TUT.

Prof van Wyk is a member of the Institute for Electrical and Electronic Engineers (IEEE), the International Association for Pattern Recognition (IAPR) and the Pattern Recognition Society of South Africa (PRASA) and he is a registered professional with the Engineering Council of South Africa.

His field of expertise and specialisation is computer science and electronic engineering, with the focus on:

- Intelligent control and signal processing
- Machine intelligence
- Telecommunication networks

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DVC RESEARCH, INNOVATION AND PARTNERSHIPS

Dr Prins Nevhotalu

Tshwane University embraces the culture of research and innovation, and promotes strategic partnerships to enhance its internal research efforts. Research and Innovation are the heartbeat of this university and strategic partnership a key lifeline in these efforts, as encapsulated in the mission of the university. On various fronts the institution is proactive and futuristic in its research efforts and outlook, breaking ground on new and future science and technology challenges. TUT is also making its mark in responding to national and global challenges such as alternative energy, food and information technology. It has clearly defined focus and niche areas, which not only position the institution strategically in the national research and innovation system, but also gives it an edge in applied research.

The institution also boasts a steadily rising galaxy of research leaders whose spin-offs are manifest not only in their individual research outputs, but also in an increase in postgraduate graduations. TUT also encourages and demands publishable research outputs by post-graduate students, which also boosts its publication profile and inculcate the culture of research. Concerted efforts are mounted to maintain and improve the essential research infrastructure. TUT is part of the hub of cosmopolitan city of Tshwane and enjoys multicultural campus environment, where international academics and students converge to enhance the research culture. We provide enabling environment for people to optimize and actualize in their research and innovation endeavors and aspirations.



DIRECTOR OF RESEARCH AND INNOVATION

Dr Mandla Msibi

TUT's vision is to be a quality-driven university of technology at the cutting edge of innovation. One of the strategic goals in achieving this vision is to enhance the development of capacity, knowledge, the economy and society, through focused engagement, research and innovation (R&I).

As a new university of technology the focus is on the development of R&I capacity in strategically selected areas of strength (niche areas) that are relevant to national and regional needs, priorities and opportunities.

Staff development, increasing the number of postgraduate students and postdoctoral fellows, strengthening leadership and platforms for R&I, building an enabling environment and institutional culture for R&I, facilitating knowledge transfer and commercialization and increasing R&I funding and output are some of the priorities. TUT is continuously seeking to improve the systems and incentives to support these priorities. All our R&I endeavors are supported and sustained through collaborative networks and partnerships.

R&I is regarded as an integral part of the activities of all academic staff. Not only does it ensure authoritative instruction with a career focus, but it also enhances the quality of teaching, contributes to the development of technology and makes the University's expertise available to the broader community. By its very nature, R&I need to comply with international standards to be able to make a credible contribution to South African society. In exploring new avenues of R&I excellence, TUT is committed to the highest quality. For this purpose, we benchmark our efforts against those of other leading institutions, both locally and internationally.

As many of the higher education institutions in the country TUT also faced many challenges over the past five years due to the changes in the higher education landscape. Yet, we managed to embrace these challenges and over this period managed to, name a few, attract excellent R&I expertise, substantially increase the number of postgraduate graduations, almost double the production of subsidized research output units, receive recognition for R&I and technology transfer in various ways and to engage in a number of strategic partnerships that enhanced our internal research efforts.

