

Women in Science Awards 2013

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Violence against women: the role of science and research

COMMENT
Derek Hanekom

Every year during August, coinciding with the nationwide celebration of women and their achievements, the department of science and technology (DST) hosts the South African Women in Science Awards (WISA) to recognise and reward the achievements of women scientists and researchers in South Africa.

The WISA finalists and winners are profiled as role models for younger women scientists and researchers, the aim being to dispel the myth that science is for men. The DST hopes that the achievements of the award winners will encourage other women to persevere in overcoming gender discrimination to contribute to research and knowledge generation.

We are sure that the finalists and winners will continue to develop the next generation of researchers by mentoring younger scientists, particularly women.

If South Africa is to become a knowledge economy, it cannot afford to neglect the skills and talents of over half its population. These awards are part of our efforts to boost the representation of women in science and technology-related careers, and the generally low graduation rates of women in these fields.

The situation is improving, with women in 2011 constituting 45% of all instruction and research staff in our country's higher education institutions, as well as 48% of all master's graduates and 42% of all doctoral graduates. Unfortunately, many of the positions women hold in research and academia are at lower ranks.

However, approximately 50% of all students supported by the National Research Foundation at both master's and doctoral levels in the period 2009/2010 to 2012/2013 were women.

This year's theme for WISA is aligned to the 2013 theme for the UN Commission on the Status of Women, which is "Elimination and prevention of all forms of violence against women and girls".

We believe that the science community has a lot to contribute to the eradication of such violence through innovations that assist in the prevention of trafficking, the protection and empowerment of women and girls, and the response of the criminal justice system to violence against female victims, among other things.

The categories

The DST alternates the distinguished women scientists and distinguished young women scientists award categories between life sciences, social sciences and humanities in one year, and physical and engineering sciences the next. This year awards will be made in the former. These are the categories:

- **Awards for distinguished women scientists:** Two awards will be made to scientists and researchers for their outstanding scientific contribution to advancing science and building the knowledge base in their respective disciplines. The two awards will be made in (a) life sciences and in (b) humanities and social sciences.

- **Awards for distinguished young women scientists:** Two awards will be made to scientists and researchers under the age of 40 for their outstanding contribution to advancing science and building the knowledge base in their respective disciplines. The two awards will be made in (a) life sciences and (b) humanities and social sciences.

The science community has a lot to contribute to the eradication of such violence



"If South Africa is to become a knowledge economy, it cannot afford to neglect the skills and talents of over half its population," says Derek Hanekom. Photo: DST

- **Fellowships:** Awards will be made to six women under the age of 35 who are currently engaged in full-time research study leading to a master's or doctoral degree. The awards recognise outstanding ability and potential in research and are meant to encourage young women to remain in research. The fellowships will be made to three master's students and three doctoral students.

- **Tata Africa scholarships for**

- women in science, engineering and technology:** Tata Africa will award study grants to women currently involved in full-time research study leading to a master's or doctoral degree in an area where the participation of women is traditionally low. The scholarships will be awarded to three master's students and three doctoral students.

- **Research and innovation that has contributed to combating**

- violence against women:** In line with this year's theme, a once-off category has been designed and two special awards will be made to women scientists in any field for the contribution of their research to combating violence against women. Personal awards will be made to a distinguished researcher and an emerging researcher.

Derek Hanekom is the minister of science and technology



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Women in science
A W A R D S 2 0 1 3

Women in Science Awards 2013

Distinguished women in the life sciences

Professor Soraya Seedat Winner

Professor Soraya Seedat is professor of psychiatry and executive head of the department of psychiatry at the faculty of medicine and health sciences, Stellenbosch University. She has held the department of science and technology and National Research Foundation's South African research chair in post-traumatic stress disorder (PTSD) since 2008. She qualified as a medical doctor at the University of KwaZulu-Natal and completed her specialist training in psychiatry at Stellenbosch University. Through the research chair, she developed a multifaceted, collaborative research and postgraduate training programme of excellence in PTSD, which brings together basic and clinical neuroscience to further understand the aetiology and pathophysiology of this disorder. The programme builds expertise in gene-brain-environment interaction studies in individuals with PTSD by linking the measurement of genetic vulnerability to brain function (using functional magnetic resonance imaging) and brain structure, neurochemical changes, symptom dimensions and subtypes, neuro-cognition and early life stress or trauma.

In addition, Seedat co-directs the Medical Research Council's anxiety and stress disorders research unit. She is currently supervisor of four master's students, eight doctoral students and three postdoctoral students.

She has extensive research experience assessing and treating anxiety disorders, with a special interest in clinical and translational work in childhood and adult PTSD.

She received several awards, including a World Federation of the Society of Biological Psychiatry fellowship, a Lundbeck Institute fellowship in psychiatry, a Medical Research Council mid-career award, a research fellowship from the University of California, San Diego, an Anxiety Disorders Association of America career development travel award and the Humboldt research award in memory of Neville Alexander.

She co-authored more than 220 peer-reviewed journal articles and book chapters. She is editor-in-chief of the *Journal of Child and Adolescent Mental Health* and serves on the editorial board of the *African Journal of Psychiatry*, *PLoS One* (an open-access peer-reviewed scientific journal published by the Public Library of Science) and *Aids Research and Treatment*. Seedat is a National Research Foundation B2-rated scientist.

Professor Maryke Labuschagne First runner-up

Professor Maryke Labuschagne obtained a PhD in plant breeding from the University of the Free State in 1994. She is currently head of the plant breeding division in the department of plant sciences. Her group's research interest is the genetic

improvement of the nutritional quality of staple crops in Africa, as well as more productive crop varieties to ensure food security.

She and her group have done extensive research on the protein quality of maize, cassava and wheat; the beta carotene content in sweet potatoes, maize and cassava; and the bread-making quality of wheat. She actively collaborates with partners in Kenya, Malawi, Zimbabwe, Colombia and the Swedish University of Agricultural Sciences. Her students have released a number of new varieties of cassava and maize in African countries, leading to an increase in food quality and production.

Labuschagne has been the supervisor of 32 PhD and 40 master's students from all regions of Africa. She and her students have authored 126 scientific papers in journals, 56 papers at international conferences and 65 papers at national conferences. She received the African Union Kwame Nkrumah award for life and earth sciences in 2011, the National Agriculturalist of the Year award in 2008, and the National Science and Technology Forum award for research capacity development over the last five to 10 years, also in 2008.

Professor Lynn Morris Second runner-up

Professor Lynn Morris completed her undergraduate degrees at the University of the Witwatersrand and received her PhD in 1988 from the University of Oxford, UK. From 1989 to 1992 she was a postdoctoral fellow at the Walter and Eliza Hall Institute of Medical Research in Australia before returning to South Africa.

Morris is chief specialist scientist and head of the HIV virology laboratory of the centre for HIV and sexually transmitted infections of the National Institute for Communicable Diseases in Johannesburg. She holds a joint position as research professor at the University of the Witwatersrand.

For the past 20 years, Morris has been involved in researching the virological and immunological aspects of South African HIV-1 subtype C strains, which has made significant contributions to our understanding of how the antibody response to HIV develops. This includes the genetic and phenotypic characterisation of HIV strains, as well as measuring neutralising antibodies in infected people. This latter area of interest developed as a result of her sabbatical at the Aaron Diamond Aids Research Centre in New York in 1997, where she examined B-cell function in HIV infection before and after antiretroviral treatment. HIV vaccine development is now a major focus of her research and she is responsible for performing neutralising antibody assays on human clinical trials conducted in South Africa. Her laboratory performs end-point assays for HIV vaccine trials through the HIV Vaccine Trials Network and the centre for vaccine discovery of the Bill and Melinda Gates Foundation.

Morris is a member of the executive committee of the centre for the



Professor Soraya Seedat



Professor Maryke Labuschagne



Professor Lynn Morris

Aids programme of research in South Africa (Caprisa) and was elected to the Academy of Science of South Africa in 2005.

In 2010 she was appointed a member of the board of the South African Medical Research Council and in January 2011 to the *Journal*

of Virology editorial board. She has a broad understanding of the HIV vaccine field, and was closely involved in the annual international Aids Vaccine conferences and the Keystone Symposia on HIV vaccines. She is also a member of the Global HIV Vaccine Enterprise

working group. Morris previously supervised nine master's and 11 PhD students.

She currently supervises one master's and five PhD students. She published more than 150 papers in peer-reviewed journals with a current h-index (citations) of 43.

Women in Science Awards 2013

Distinguished women in the social sciences and humanities

Professor Kholeka Constance Moloji Winner

Professor Kholeka Constance Moloji received her doctorate of education from the then Rand Afrikaans University (now the University of Johannesburg) in 1999. In 2007 she was seconded to the position of acting executive director: student affairs at the University of Johannesburg (UJ) and was instrumental in Eskom bursaries amounting to R9 380 000 being awarded to science and engineering students in the same year.

Moloji is currently professor of education in the faculty of human sciences at the Vaal University of Technology, where she is responsible for the establishment of a new department of education for teacher training. At the beginning of 2013, 90 students registered for the post-graduate diploma in higher education and in 2014 the university will enrol its first students under her leadership.

Moloji has extensive experience in teaching and research in educational leadership and management, as well as in learning organisations and change management.

She has worked with national and international researchers in Gauteng, Mpumalanga, the University of Lincoln and the National College for School Leadership in the UK, and is currently working with researchers from 20 countries on the International Successful School Principalship Project, directed by Professor Christopher Day of the University of Nottingham in the UK.

Moloji has authored and co-authored 23 articles in various refereed national and international journals. She wrote two books based on her doctoral thesis and co-authored a book with researchers from North-West University in 2010.

She contributed five chapters to international academic books and numerous articles to *The Educator's Voice*. She also supervised over 30 postgraduate students and is currently involved in the induction programme for the new master's

and doctoral students at the Vaal University of Technology.

Moloji is a sought-after motivational speaker. Other awards include Best Published Article (2006) in *Educational Management, Administration and Leadership* (SAGE Publications), the Vice-Chancellor's distinguished teacher award from UJ (2008), and the Vaal University of Technology's Research Excellence (2010) and Woman of the Year awards (2012).

Professor Vishanthie Sewpaul First runner-up

Professor Vishanthie Sewpaul managed to rise above her humble beginnings; she lost her father when she was five months old and was raised with six siblings by her mother, who was a domestic servant. She is now senior professor in the college of humanities, school of applied human sciences (in social work) at the University of KwaZulu-Natal. Growing up during apartheid had a profound influence on her choice of emancipatory pedagogical research and community engagement strategies.

Sewpaul is vice-president of the International Association of Schools of Social Work (IASSW), president of the Association of Schools of Social Work in Africa and the former president of the Association of South African Social Work Education Institutions. She was elected president of the South African National Association of Social Workers in 2007 and again in 2009. She has served in several positions on the cutting edge of social work education and practice in post-apartheid South Africa, and chaired the IASSW committee responsible for producing global standards for social work education and training.

These standards, which were translated into several languages and published in three international journals, are used globally to benchmark social work educational standards internationally. Sewpaul currently chairs the international

social work definition committee of IASSW. She delivered keynote speeches and guest lectures in many countries. Special feature articles have been written on her contributions to the social work field in professional magazines in Denmark, Norway and Finland.

Sewpaul published 63 journal articles, 13 chapters in books and two co-authored books. She is committed to African-led globalisation and led the production of three themed issues of internationally recognised journals, such as *Global Standards for Social Work Education and Training*; *Focus on Africa*; and *Child Rights in Africa*. Sewpaul was twice voted one of the top 30 researchers at the University of KwaZulu-Natal. Throughout her teaching career, Sewpaul maintained active practice links in several areas.

An HIV project that she managed was regarded as a best practice model and was filmed and screened on national television.

A community-based, participatory project on children and youth living on the streets of Durban culminated in the production of a film used for schools-based education to prevent children from migrating to the streets.

Professor Amanda Gouws Second runner-up

Professor Amanda Gouws holds a PhD from the University of Illinois in Urbana-Champaign in the US. She is professor of political science at Stellenbosch University, specialising in South African politics, gender politics and political behaviour.

Her co-authored book with James Gibson from Washington University, St Louis, *Overcoming Intolerance in South Africa: Experiments in Democratic Persuasion*, was awarded the Alexander George Book Award for best book in political psychology in 2003. In 2004 she received the Stellenbosch University rector's award for excellence in research.



Professor Kholeka Constance Moloji



Professor Vishanthie Sewpaul



Professor Amanda Gouws

Gouws has published widely on issues in South African politics. Currently, her research focuses on women and citizenship, the national gender machinery (aiming at 50/50 representation) and "care" politics. She is the editor of *(Un)Thinking Citizenship: Feminist Debates in Contemporary South Africa*. This book was selected as book of the month in February 2007 by Constitution Hill, the seat of the Constitutional Court.

In 2007 she was the Edith Kreeger Wolf distinguished visiting professor at Northwestern University, US. In April 2011 she was a resident at the Rockefeller Foundation Bellagio Centre, Italy, where she worked on a book about women's politics and

women's movement in South Africa since 1994. Gouws has published 48 articles in peer-reviewed journals and supervised 24 master's and eight PhD students.

In 2012 Gouws received the Wilma Rule award for the best paper on gender and politics at the International Political Science Association's 22nd World Congress of Political Science in Madrid, Spain, on the issue of gender and multiculturalism. She is the chair of the Women's Forum of Stellenbosch University, as well as the chair of the sexual harassment advisory committee. In 2012 she became a part-time commissioner for the South African Commission for Gender Equality.

TATA Africa would like to congratulate all the 2013 Women In Sciences Awards nominees and winners.
We wish you well and success going forward.



Tata Africa Holdings, 39 Ferguson Road, Corner of Ferguson and Rivonia Road, Illovo, 2196.

Women in Science Awards 2013

Distinguished young women in the life sciences

Dr Marieka Gryzenhout Winner

Dr Marieka Gryzenhout is a University of Pretoria graduate, specialising in mycology, fungal systematics, plant pathology and ecology. On completion of her doctorate, Gryzenhout had already authored or co-authored 25 peer-reviewed papers.

In 2010 she was the recipient of the International Union of Forestry Research Organizations' Outstanding Doctoral Research award. She co-authored a book following on her doctoral research called *Taxonomy, phylogeny, and ecology of bark-infecting and tree-killing fungi in the Cryphonectriaceae* with professors Brenda and Mike Wingfield. The systematic work that culminated in the monograph is instrumental in the field of forest pathology; it enables rapid identification of numerous tree pathogens, some of which are ecologically and economically devastating.

At only 37, Gryzenhout has an h-index (citations) of 13. She has 60 peer-reviewed publications, two chapters in books and a number of popular publications on mycology, including a field guide to South African mushrooms.

Subsequent to her doctorate, Gryzenhout's work has earned her a L'Oréal national fellowship, a Claude Leon Foundation post-doctoral fellowship, an Ethel Mary Doidge Medal for best young mycologist from Africa from the International Mycological Association, the coveted National Research Foundation YI-rating for young researchers and membership of the South African Young Academy of Science.

In 2009 and 2010 she was first runner-up for the department of science and technology's Distinguished Young Woman Scientist award.

She recently established a research programme, Mycotoxicogenic and Phytopathogenic Fungi, at the University of the Free State. She is president of the African Mycological Association, general secretary of the International Society for Fungal Conservation and a member of the nomenclature committee for fungi and a permanent committee of the International Botanical Congress.

Professor Wanda Markotter First runner-up

Professor Wanda Markotter completed her PhD at the University of Pretoria in 2007 and is currently an associate professor in the university's department of microbiology and plant pathology.

Her research focuses on the ecology, epidemiology, pathogenicity and diagnostics of rabies, as well as zoonotic pathogens associated with African bat species. Her research generated new knowledge on the incidence, diversity and pathogenicity of rabies-related viruses in South Africa and other regions of Africa. Her research also led to the first identification of several other families of viruses associated with bat species in Africa.

A new diagnostic method, specifically for African rabies-causing viruses, was published in 2010 in an international journal on microbiology.



Dr Marieka Gryzenhout



Professor Wanda Markotter



Dr Christina Thobakgale

This test is currently used as a diagnostic method in national diagnostic reference laboratories to diagnose suspected human rabies cases and as a confirmatory method for animal rabies cases, specifically

involving degraded samples.

She has published 28 peer-reviewed research papers in international journals. In 2008, she received a L'Oréal South Africa fellowship for women in science.

Markotter serves on the editorial board of *PLoS One*, an open-access resource database published by the Public Library of Science, and plays a key role in other bodies such as the national rabies advisory group. She

is actively involved in creating disease awareness and in promoting the conservation of bat species; she has served on the Gauteng and Northern Regions bat interest group committee since 2008.

Thirteen BSc honours and 12 MSc students graduated under her supervision, six of them cum laude. Currently she is the main or co-supervisor of five PhD and four MSc students. She teaches several undergraduate and postgraduate courses and is regularly involved in training activities to build capacity in South Africa and Africa.

She has been invited to present regional training courses for the International Atomic Energy Agency on the epidemiology, diagnostics and bioinformatics of diseases, as well as training courses for the World Organisation for Animal Health and Ghana's veterinary services directorate.

Dr Christina Thobakgale Second runner-up

Dr Thobakgale is from the rural village Ga-Mashashane in Limpopo and was raised by a single parent. She is the first of eight siblings that entered tertiary level education.

She graduated with a PhD from the University of KwaZulu-Natal in 2012 and was a postdoctoral fellow at the Ragon Institute of Harvard University, as well as the University of KwaZulu-Natal in 2011 to 2012.

Thobakgale was recently appointed senior lecturer and researcher at the University of KwaZulu-Natal's HIV pathogenesis programme. For the past few years her research focused on understanding the cellular and viral factors that influence disease progression in HIV-infected infants.

Findings from her PhD work, which involves children infected with HIV, showed the factors that significantly determine disease outcome in infants are the age at the time of infection, whether viral proteins are recognised by the infant's immune system, the genetic make-up of the transmitting mother or the child and the functionality of the immune cells. Her research has been presented at 10 international and four national meetings and has had an impact in changing treatment guidelines for children worldwide.

Thobakgale's current research focuses on innate immune responses during early and late stages of infection and their impact on controlling HIV. She has authored and co-authored 18 publications in internationally recognised peer-reviewed journals.

Thobakgale has a keen interest in the development of young scientists and currently supervises a laboratory technician and a master's student. She is looking forward to expanding the group as they contribute to finding solutions to the HIV and TB epidemics. She is a recipient of several awards, including from the Doris Duke Charitable Foundation, the Columbia University-Southern Africa Fogarty Aids international training and research program, and the Golden Key international honour society of the University of KwaZulu-Natal. She organised the South African Immunology Society meeting in Cape Town in 2009 and was recently co-chair of the Basic Sciences Track of the 6th South African Aids Conference in Durban in June 2013.

THE L'ORÉAL-UNESCO FOR WOMEN IN SCIENCE PROGRAMME: CHANGING THE FACE OF SCIENCE



Professor Francisca Nneka Okeke
2013 L'Oréal-UNESCO For Women In Science Laureate



Mopo Leshwedi-Radabe
2012 L'Oréal-UNESCO For Women In Science
Sub-Saharan Africa fellow



Brit Drögemöller
2012 L'Oréal-UNESCO For Women In Science
Sub-Saharan Africa fellow



Vivian Boamah
2012 L'Oréal-UNESCO For Women In Science
Sub-Saharan Africa fellow



Gerda Fourie
2012 L'Oréal-UNESCO For Women In Science
Sub-Saharan Africa fellow

Flaunt 6453

The L'Oréal Group is the world's largest cosmetics and beauty company. Since its founding in 1907 by chemist Eugène Schueller, scientific research has remained at the heart of its business strategies. The performance, safety and quality of its products rely on this continuous search for innovative scientific advances. Throughout this time, L'Oréal has focused on helping women develop their self-esteem, and has always sought to give back to the global community, particularly to the world's women.

For Women in Science is born

It was against this backdrop in 1998 that the L'Oréal Foundation established the For Women in Science partnership with the United Nations Educational, Scientific and Cultural Organization (UNESCO) to recognise and promote women in science. The partnership between the L'Oréal Foundation and UNESCO was a natural match. The L'Oréal Foundation promotes scientific research in the fundamental and human sciences; supports education; and helps individuals made vulnerable by alterations to their appearance reclaim their rightful place in society, while UNESCO promotes the creation and sharing of knowledge, particularly scientific knowledge, for a fairer, more inclusive and equitable world.

The World needs science... Science needs women

For Women in Science (FWIS) is a global programme that supports women scientists at different stages of their careers. It does this in two ways: by rewarding established women scientists whose outstanding achievements have contributed to the advancement of scientific knowledge and its benefits to society, and by providing support to promising young women scientists involved in worthy, viable projects. This is facilitated through various platforms, namely the L'Oréal-UNESCO FWIS Awards, which honour five exceptional women scientists each year, and the FWIS International Fellowships, which are presented to 15 doctoral or post-doctoral researchers in the life sciences to enable them to widen their scope of expertise. In addition to these opportunities, National Fellowships are also awarded in almost 50 countries, while in 2010 Regional Fellowships were introduced for the Arab States and Sub-Saharan Africa, including South Africa. These fellowships are designed to assist the recipients in completing their research.

Advancing women who advance science

Every year, 230 women are distinguished worldwide, including five FWIS Laureates and 225 FWIS Fellows. This year, as the programme celebrates its 15th anniversary, it takes stock of its achievements. Over the past 15 years, FWIS has supported more than 1700 women from 108 countries, including two phenomenal women, Professor Elizabeth Blackburn and Professor Ada Yonath, who have gone on to win Nobel Prizes. In Sub-Saharan Africa, those women have included eight laureates, 22 international fellows and 25 Sub-Saharan regional fellows. Since its inception, South Africa's women scientists have been consistently among the recipients of the Sub-Saharan Africa Regional Fellowships. This programme is open to all women scientists up to age 40 across the region who are working towards their PhD in all fields of science, and rewards them with US\$20 000 each to put towards their PhD research.

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Women in Science Awards 2013

Distinguished young women in the social sciences and humanities

Professor Mpfariseni Budeli Winner

Professor Mpfariseni Budeli completed her PhD in commercial law at the University of Cape Town in 2007. She was the first black South African woman to obtain a PhD in commercial law from this previously white South African academic institution. She is currently professor of labour law in the department of mercantile law of the University of South Africa, making her the first black South African woman to be a full professor of law at the university.

Budeli's main research focus is freedom of association and trade unionism. Her work reflects the development and growth of the understanding of the concept of the right to freedom of association in the workplace, to its entrenchment and enforcement in the domestic law of South Africa, as well as at regional and international level. Her work has had an impact on labour law teaching and research in South Africa and other African countries, such as Zambia and Tanzania. Budeli has published 19 research articles in high-profile national and international journals. In 2012, she received a National Research Foundation Y2-rating (for young researchers).

In 2011, Budeli became one of 20 founding members of the South African Young Academy of Science. In 2008, she was invited by the International Labour Organisation (ILO) to join the ILO network of experts on freedom of association and collective bargaining. Budeli has prepared several ILO reports, the most recent being "Freedom of Association and Collective Bargaining in the Rural Sector: The Case of South Africa".

At a regional level Budeli has collaborated with colleagues and organisations in Africa. This led to her election as a member of the scientific committee of the second international conference on regional integration and Southern African Development Community (SADC) Law, organised by the University of Namibia and the University of Cape Town. She is also a member of the editorial board of the *SADC Law Journal*.

Budeli became a member of the African Network of Constitutional Lawyers in 2010 and regularly participates in its activities. She has supervised three master's students and is currently supervising several LIM and LID candidates.

As an attorney of the High Court of South Africa, she also holds membership of the Law Society of South Africa.

Professor Karina Mostert First runner-up

Professor Karina Mostert completed her BCom, BCom (Hons) and MCom (all cum laude) and PhD in industrial psychology at the then-Potchefstroom University for Higher Christian Education (now North-

West University). She is a recipient of numerous awards in the field of industrial psychology and received honorary colours for academic achievement from the university.

The South African Board for Personnel Practice selected her as the best postgraduate student in human resource sciences in 2000. She was also invited to become a member of the Golden Key international honour society, which recognises and encourages academic excellence among the top 15% of university students.

In 2003 Mostert was appointed as a lecturer in the school for human resource sciences. She was promoted to senior lecturer in 2005 and to associate professor in 2007.

She is a registered industrial psychologist with the Health Professions Council of South Africa. She was acknowledged as the most productive junior researcher in the faculty of economic and management sciences from 2009 to 2011, and received an award for the most productive junior researcher at North-West University in 2012. She was promoted to professor on January 1 2012.

Mostert has a strong research interest in the field of employee health and well being. She has published 47 peer-reviewed articles, 18 of which were in international ISI/IBSS/SSCI-listed journals. She supervised 50 master's and five PhD students. She has made 47 presentations at national and international conferences.

Since 2008 she has acted as section editor for the *South African Journal of Industrial Psychology*. She has also served on several national and international committees for scientific journals.

Professor Elmarie Slabbert Second runner-up

Professor Elmarie Slabbert obtained her PhD in tourism management from North-West University in 2005. Slabbert is currently a programme leader and professor in tourism management, as well as leader of the social research programme Tourism Research in Economic Environs and Society (TREES).

She has extensive teaching and research experience in community tourism, tourism marketing and social issues related to tourism. Slabbert is a member of the Southern African Institute for Management Scientists board of directors, a member of the Global Travel and Tourism Partnership South Africa governing board and vice-chairperson of Tourism Educators of South Africa.

Her projects have led to an understanding of how communities experience tourism activities and the influx of tourists and tourism development in their environments (Potchefstroom, Soweto and Clarens).

She has also analysed the social impact of the 2010 FIFA Soccer World Cup on various communities in South Africa. From these research projects, it became clear that tourism contributes not only tangible



Professor Mpfariseni Budeli



Professor Karina Mostert



Professor Elmarie Slabbert

benefits to communities (infrastructure and employment opportunities), but also intangible benefits ("feel good" emotions and pride), the latter often being more important. From these projects a new measuring instrument was developed to analyse the impact of tourism on South African communities. Her research assisted in understanding the needs of communities and highlighted the importance of the tourism industry in creating an atmosphere of prosperity and lifting the spirits of residents.

She also analysed the behaviour of festival visitors to South Africa to assist festival boards in optimising of the festival experience, with specific reference to motivational factors and image. The outcomes of these projects assisted festival organisers to understand their markets and develop focused marketing strategies.

Slabbert received Excellence in Teaching awards in 2003 and 2007 and was selected as one of the North-West University's top academic achievers for the last three

years. Her research in the past 15 years has been funded by the National Research Foundation, TREES and North-West University.

Slabbert has authored and co-authored 22 articles in various refereed journals and presented six papers in conference proceedings. She has presented 29 papers internationally and seven nationally, and has written 56 research reports. Since 2005, 25 master's students and eight doctoral students have completed their studies successfully under her guidance.

Women in Science Awards 2013

Distinguished researcher: violence against women

Professor Nareadi Phasha Winner

Professor Nareadi Phasha obtained her PhD from the University of Cambridge in the UK after completing an MEd in special education at Virginia State University in the US. She is currently chair of the department of inclusive education at the University of South Africa. Phasha's work relates to South Africa's commitment to education for all and the millennium development goals.

Her responsibilities include preparing educators to teach learners who face various challenges that interfere with learning in special and inclusive educational settings.

Her research focuses on why some learners find it difficult to learn in the current education system and on the high rate of sexual victimisation among the school-age population. It promotes an understanding of the links between the emotional consequences of sexual victimisation and school functioning, thereby positioning educators to find solutions, help learners cope educationally and eradicate the huge challenge of sexual exploitation.

Phasha's current research is cross-national in nature. It focuses on school-based violence in special schools for learners with visual, hearing, physical and intellectual impairment in South Africa and Kenya.

She has published her work in 24 journal articles and nine book chapters. She previously supervised five master's and one PhD student and is currently supervising two master's and one PhD student.

One of her recent publications, *School-based sexual violence among female learners with mild intellectual disability in South Africa*, has received recognition from Psychology Progress, a Canadian-based establishment that alerts the scientific community to breaking journal articles considered to represent the best in psychology research.

Professor Deevia Bhana First runner-up

Professor Deevia Bhana completed her PhD in 2002 at the University of KwaZulu-Natal. She is a professor in the school of education of the college of humanities, University of KwaZulu-Natal.

Bhana's research continues to provide strong evidence for early interventions to address violent gendered and sexual cultures among children. In the context of the risk of HIV and girls' particular vulnerability, Bhana's research has deepened analysis of childhood sexuality and highlighted the importance of transdisciplinary approaches to the study of children, gender and violence, encouraging an integrated social response that includes changing the toxic patterns of masculine behaviour in the country.

Bhana has grown a cohort of scholars in the field of gender-based violence and has supervised 29

master's and PhD students to completion. She has co-authored or edited two books and has published over 76 peer-reviewed journal articles and chapters in some of the most prestigious international journals in her field. She is a member of seven international editorial boards and is associate editor of the UK-based *Health Education* journal.

Bhana has received a number of awards for her research. She has twice been a recipient of the Columbia University-Southern African Fogarty Aids International Training and Research Program award, and was until recently a short-term scholar at the Mailman School of Public Health, Columbia University. Bhana was a finalist in the South African Women in Science awards (2011) in the category Distinguished Woman Scientist (Social Sciences and Humanities). She is a National Research Foundation CI-rated researcher.

Professor Lillian Artz Second runner-up

Professor Lillian Artz obtained her PhD in criminology and criminal justice from Queen's University in Belfast, Northern Ireland, in 2008.

She is a founding director of the gender, health and justice research unit (GHJRU) which she established in 2004 in the faculty of health sciences of the University of Cape Town. The unit provides a supportive intellectual location for interdisciplinary research methods, theories and scholarship, and promotes evidence-based reforms and intervention programmes to address gender-based violence, community violence and institutional violence.

Five years after its establishment, the GHJRU was awarded one of the first social responsiveness awards by the University of Cape Town's office of the vice chancellor in 2009.

Prior to establishing the GHJRU, Artz spent 10 years as a chief researcher and lecturer at the centre for criminology in the faculty of law, University of Cape Town.

She has published widely on domestic violence, sexual offences, feminist jurisprudence and women's rights to freedom and security in Africa.

During the past 17 years she has also worked on criminal justice reform and public health responses to violence in southern Africa, with an increasing focus on regional collaboration in Central and East Africa. This includes partnering with local and regional NGOs to improve research, monitoring and advocacy strategies to effect policy change, legal reform and access to health and justice.

Artz strongly encourages collaborative, interdisciplinary research models and practices that stretch traditional disciplinary boundaries. Her current projects include research alliances with colleagues in the disciplines of law, criminology and policing, clinical medicine, psychiatry and mental health, and social work and public health.

Artz conducted the first qualitative attrition study in Africa on why

victims of domestic violence retract from the criminal justice process, drawing on interviews with several hundred victims of domestic violence. She developed the first protocol on research ethics relating to vulnerable groups for South African NGOs and non-academic research institutions.

Her research has been cited in a number of public interest cases and had a demonstrable influence on criminal justice policies, particularly in relation to sexual and domestic violence. She also submitted numerous technical submissions based on empirical research to Parliament and the South African Law Reform Commission, influencing legislative reforms in some aspects of the law relating to sexual and domestic violence.

Artz has published 15 peer-reviewed journal articles and 11 book chapters. She has supervised three master's and PhD students.

She is the vice president of the Criminological and Victimological Society of Southern Africa, and has worked with a wide range of parliamentary structures, law commissions, criminal justice institutions and international donors in southern and East Africa to improve access to justice for victims of crime and violence.



Professor Nareadi Phasha



Professor Lillian Artz



Professor Deevia Bhana

Women in Science

The University of Pretoria congratulates its finalists for the Women in Science Awards. The University prides itself on the contribution of its academics in addressing societal needs through research. We have set ourselves the goal of becoming one of the world's leading research universities and our academics are core in achieving these goals.



Masixolise Pelly Malebe

Ms Malebe is enrolled as a PhD candidate in Biotechnology in the field of Biochemistry. Her research focuses on identifying and developing molecular markers for drought tolerance in the tea plant. A provisional patent was filed on the results of the research conducted for her MSc.



Prof Wanda Markotter

Prof Markotter is an associate professor in Microbiology and Plant Pathology. Her research centres on the ecology, epidemiology, pathogenicity and diagnostics of rabies, as well as zoonotic pathogens associated with African bat species. This research has generated new knowledge on the incidence, diversity and pathogenicity of rabies-related viruses in South Africa and other regions in Africa.



Madeleine Bihina Bella

Ms Bella is a third-year PhD Computer Science student and she does research on digital forensics focusing on applying digital forensic methodology and techniques to the investigation of software failures. In 2013 she received the Google Anita Borg Memorial Scholarship.



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Women in Science Awards 2013

Emerging researcher: violence against women

Dr Maheshvari Naidu Winner

Dr Maheshvari Naidu obtained her honours and master's degrees cum laude from the University of KwaZulu-Natal. Her doctoral work was in the contested field of African feminism, where she applied a Foucauldian lens to inscriptive practices on female bodies.

She was the first person from the University of KwaZulu-Natal to obtain her PhD in the humanities "by publication" (a researcher who has published at least as much as would have been contained in a conventional PhD thesis).

Naidu is a feminist anthropologist and teaches from a critical feminist perspective.

Naidu has published over 50 articles in national and international peer-reviewed journals and has a book, *Gender and Sacred Space*, on the way. The journals she publishes cut across disciplines, reaching both a gender and a social science readership.

In recognition of her prolific research profile, Naidu was awarded the university's humanities college excellence award for top emerging researcher in 2012.

She has been in the University of KwaZulu-Natal's ranking of top 30 researchers for the past four years, being one of the few women researchers in the field of the humanities and social sciences to continuously hold this ranking.

She has acted as guest editor for national and international journals such as *Alternation* and *Journal of Human Ecology*, and is currently guest editing the *Journal for the Study of Religion*.

As a feminist anthropologist, her work is qualitative and ethnographic and deals with women's lived



Dr Maheshvari Naidu

phenomenological experiences by attempting to carve a critical space and voice for women, in both theory and practice.

Naidu won a large research grant in 2012 and headed a project that investigated violence, sexuality and women's empowerment in the context of HIV/Aids and women's health. Aligned with her critical passion for women's health issues is her published research into the subtle structural violence perpetrated by medical practices in terms of patient interaction, especially with terminally ill cancer patients.

One of her studies led to her being invited to a nursing conference in Jordan, where she presented a paper detailing the systemic violence in patient health care models.

To fast-track a critical mass of women with PhDs, she is a facilitator

in the humanities and social sciences PhD cohort supervision programme. Naidu has previously supervised three master's students and is currently supervising one master's and four PhD students.

Elisabet le Roux First runner-up

Elisabet le Roux has a BA in humanities, an MPhil in translation, a post-graduate diploma in theology and an MTh in clinical pastoral care, all cum laude, from Stellenbosch University. Le Roux is currently completing a PhD in sociology.

In 2008 she started working in the unit for religion and development research of Stellenbosch University, focusing on HIV and gender, as well as gender-based vio-



Elisabet le Roux

lence. By doing so, she positioned herself not only as an academic, but as a research partner for national and international civil society organisations conducting research in countries across the globe.

Since 2010 she has done extensive research on sexual violence and the role of the church, in partnership with Tearfund, a UK-based NGO.

The fieldwork she has done in countries such as the Democratic Republic of Congo, Rwanda, Liberia, Burundi and South Africa has made it possible for Tearfund to raise awareness at local, national and international level. It also led to workshops at national and community level and new sexual violence intervention programmes in various countries.

Her research has enabled and motivated civil society, UN agencies

and governments to partner and work with churches to address sexual violence.

Le Roux is one of the editors of the book *Men in the pulpit, women in the pew? Addressing gender inequality in Africa*.

She has authored or co-authored four articles in peer-reviewed journals, produced five research reports, delivered papers at five conferences, authored a chapter in a published book on gender inequality and has another chapter in a book on violence against women in Africa on the way.

In 2011 Le Roux was invited to spend three months at the Stockholm International Peace Research Institute, doing research on peace processes in Africa for the Africa Security and Governance Project.

Fellowships: doctoral degrees

Makhotso Lekhooa

Makhotso Lekhooa is a PhD student in the pharmacology department of the University of the Free State. She received an MPharm at the same institution. The aim of her current project is to develop an animal model through which to characterise Phela, a traditional medicine, to understand its mechanism of action on the immune system.

Phela is herbal mixture of four African traditional medicinal plants, which is under investigation as an immune booster for immune-suppressed patients. The expected outcome is a model using rats to evaluate traditional medicine products scientifically and to understand Phela's mechanism of immunomodulation. This will be used to formulate its appropriate indications, contra-indications and potential drug interactions.

Lekhooa has been nominated as member of the national committee for the International Union of Basic and Clinical Pharmacology and of the board of the International Council for Science in South Africa.

Furthermore, she is an intern at the Medical Research Council's indigenous knowledge unit, participating in metabolic studies and scientific research into traditional medicines. Lekhooa published three articles from her master's project.

She has presented her work at 10 local and international conferences, and has had abstracts accepted at two international conferences taking place later this year.

Masixolise Pelly Malebe

Masixolise Pelly Malebe graduated from the University of Pretoria with a BSc in human genetics and an MSc in biotechnology. She is currently enrolled at the University of Pretoria as a PhD candidate in biotechnology in the department of biochemistry. She worked as a teaching assistant during her honours and master's studies and is a member of the Golden Key international honours society.

Malebe's curiosity as a young child led to her interest in science. She later realised that the answers to many of her questions could be found in genetics textbooks. Her current research focuses on identifying and developing molecular markers for drought tolerance in the tea plant, *Camellia sinensis*.

The potential outputs of this research are robust molecular markers that can be used in a selection process to improve tea yields in the global tea industry.

Malebe's focus is on increasing our understanding of the genetic



Makhotso Lekhooa

basis of drought tolerance in plants, which may lead to drought-tolerant crop varieties and improved food and job security. A provisional patent was filed on the results of the research she conducted during her MSc study. The final filing of this patent with the African Regional Intellectual Property Organization and in India, Sri Lanka, China and South Africa is under way.

Malebe has received awards for outstanding academic achievement from the University of Pretoria and obtained National Research Foundation (NRF) innovation scholarships for her honours, master's degrees. Her doctoral studies are funded by the NRF innovation doctoral scholarship, a fellowship from the Southern African Biochemistry and Informatics for Natural Products Network, funded by the Carnegie Corporation of New York and the



Masixolise Pelly Malebe

University of Pretoria's institutional research theme for genomics.

Leah Matsinha

Leah Matsinha holds a BSc honours in chemical technology from Midlands State University, Gweru, Zimbabwe (2009), and an MSc in chemistry from the University of Cape Town (2012). Her MSc research project focused on the synthesis of water-soluble ruthenium complexes for aqueous biphasic hydroformylation reactions.

Her PhD project at the University of Cape Town is based on preparing a series of coordination rhodium and organometallic compounds as catalyst precursors for the hydroformylation reaction. This forms part of a project that targets the beneficiation of the platinum group metals that



Leah Matsinha

are readily available in South Africa. The motivation for this project is that synthesised catalysts can be recovered and recycled several times. This will not only be economically beneficial, but also environmentally friendly.

Matsinha has also developed expertise in various spectroscopic and analytical techniques for identifying and characterising compounds. She has published two articles in international peer-reviewed journals and has presented her work at various local and international conferences.

Her research interests include synthetic organometallic chemistry, homogeneous catalysis and green chemistry. Matsinha is a member of the Catalysis Society of South Africa (Catsa) and she was the first runner-up for the best poster prize at the 2012 Catsa conference.



The Agricultural Research Council (ARC) is a premier science institution that conducts research with partners, develops human capital and foster innovation in support of the agricultural sector.

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Women in Science Awards 2013

Fellowships: master's degrees

Shameemah Abrahams

Shameemah Abrahams majored in biochemistry and physiology for her BSc at the University of Cape Town and was awarded a place on the dean's merit list in 2008, 2009 and 2010. She completed a BSc honours with distinction in physiology, specialising in neuroscience, in 2011.

She is currently doing the second year of her MSc (Medicine) at the University of Cape Town/Medical Research Council research unit for exercise science and sports medicine.

Her research project involves the non-genetic and genetic predisposing factors in concussion risk in South African adolescent rugby.

Owing to the severity of concussion injury, particularly in young people, her research is geared towards investigating the underlying physiological mechanisms that increase susceptibility to concussion, as well as the neurological changes that occur during recovery.

Abrahams has co-authored two manuscripts submitted recently for peer-review and presented her research work at the 18th annual congress of the European College of Sports Science in Barcelona, Spain, in June 2013.

Valerie Chiriseri

Valerie Chiriseri obtained her BSc in electrical and computer engineering with honours from the University of Cape Town in 2011.

She is currently in the second year of her MSc in electrical engineering in the software defined radio group of the University of Cape Town.

Chiriseri's MSc focus is on building a framework that will enable university researchers and students to develop software defined radio applications easily, using the reconfigurable hardware interface for computation and radio (Rhino) platform.

Her research is aligned with the square kilometre array project. She has co-authored a paper that featured in a regional Institute of Electrical and Electronic Engineers (IEEE) conference.

She has been a tutor for the university's electrical engineering, mathematical and computer science department and the mathematics department's tutor coordinator for all the residences.

Chiriseri was chair of the IEEE University of Cape Town student branch in 2012 and currently oversees all the IEEE student branch activities in the IEEE South African section. She is the current chair of



Shameemah Abrahams



Valerie Chiriseri

the IEEE Women in Engineering student affinity group at the University of Cape Town. She won the best undergraduate project demonstration in the electrical and computer engineering department in 2011.

The university's engineering and the built environment faculty awarded her a faculty grant in 2007 for making it onto the dean's merit list; she was listed again in 2009.

Philile Mlotshwa

Philile Mlotshwa is a first-year MSc student at the University of KwaZulu-Natal. Her field of study is statistics, specialising in survival modelling (the modelling of time-to-event data).

She received funding from the South African Centre for Epidemiological Modelling and Analysis following the comple-

tion of a BSc honours in statistics (cum laude). She is the fundraising director of the Golden Key international honour society and has been on the dean's merit list since 2011.

Mlotshwa is currently conducting research in the area of tuberculosis and HIV co-infection. Her project entails collaborative research with the centre for the Aids programme of research in South Africa.

She will be investigating the effects of different HIV and TB therapies on the time to hepatotoxicity for patients co-infected with HIV and TB.

Additionally, she will look at risk factors affecting the occurrence of adverse events such as immune reconstitution inflammatory syndrome and toxic effects. It is possible that this project may lead to best practice treatment for patients co-infected with HIV and TB.

Mlotshwa comes from a rural area



Philile Mlotshwa

that is burdened by TB and HIV. She aspires to be a top researcher who can influence public health policies for the betterment of the lives of the people in her community and the rest of South Africa.



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WELL-DONE

THE ENTIRE VUT SALUTES YOU

Prof Connie Kholeka Moloi is a Research Professor at the Vaal University of Technology. Her greatest contributions within education, is that she is one of those individuals, who can lay claim to being a "seasoned" teacher. Besides her research activities, she has been highly instrumental in leading the University to fulfil one of its Corporate Strategic Objectives namely, *"to broaden our research base, create and sustain a strong research culture"*.

Given her passion for academia, she has taken upon herself to mentor young researchers on weekends. The fruits of her efforts are beginning to yield very visible results which are evident in the number of successful proposals submitted by students both at Doctoral and Masters Level. This led to the establishment of the Post graduate Education Programme, the first for VUT.

Over and above her academic work Prof Connie Moloi is also very involved in community outreach projects, and her contributions have definitely made an invaluable impact, to the upliftment of the communities she is serving selflessly.

Added to this, she has published widely nationally and internationally. Her scholarly spirit has seen her evident to many international conferences, and she has indeed proved to be a strong academic leader. Among her personal attributes is her dedication and devotion to her work. This has made her to be the preferred mentor to most colleagues and students within the Vaal University of Technology. She is a caring, honest, a keen learner and focuses on task completion whenever required to do so.

She is indeed an asset to the Higher Education Sector, VUT staff and students, the local community and the country as a whole. In light of this great scholarly and community upliftment prestigious award, VUT is highly honoured by having people of her calibre amongst us.

Congratulations and well done!



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Women in Science Awards 2013



Madeleine Bihina Bella



Carien Coetzee



Vuyolwethu Siyo

Tata scholarships: doctoral degrees

Madeleine Bihina Bella

Madeleine Bihina Bella completed her MSc (cum laude) in 2007 in computer science at the University of Pretoria, where she is currently a third-year PhD computer science student.

She is also a research associate at SAP Research in Pretoria in a combined work/study programme. Prior to joining SAP Research, she worked as a business analyst for Atos Origin, an information technology consultancy company, and then as an IT auditor for the audit firm Deloitte & Touche, where she qualified as a certified information systems auditor.

She also gained teaching experience working as an assistant lecturer at the University of Pretoria.

Her PhD research is in digital forensics, which is mainly used to investigate computer crime and IT security incidents.

Her research applies digital forensic methodology and techniques to the investigation of software failure, which can have disastrous consequences and may be fatal. Digital forensics brings scientific rigour and logic to failure analysis and improves its efficiency.

Bella has received a number of awards, including a L'Oréal-Unesco regional fellowship for women in science in 2011, the 2011 *Soul* magazine Woman of the Year award, and earlier this year the Google Anita Borg Memorial scholarship, aimed at female IT students across the globe with strong academic performance and leadership abilities.

She has published several internationally accredited conference and journal papers.

She has presented her research findings and conducted research missions locally and in France, Germany, the UK and Switzerland.

She has received specialised IT training in the US and worked on major IT projects locally, in China and in the Democratic Republic of Congo.

Carien Coetzee

Carien Coetzee received a BSc in viticulture and oenology (cum laude) from Stellenbosch University in 2008. She was awarded the chancellor's medal for her outstanding work towards her MSc in oenology, which she obtained cum laude in 2011. She is currently a third-year PhD oenology student. Her interest lies in white wine chemistry, with a specific focus on the study of flavours.

Coetzee's project investigates the effect of oxidation on Sauvignon Blanc wine composition and quality, with special reference to the chemical composition of the wine and the sensorial impact of oxidation on wine.

Her studies also evaluate the potential effects on the sensorial experience when adding various aromatic compounds alone and in combination.

The results of this study could serve as a definitive model for white wine oxidation and could be applied to determine storage conditions to optimise the quality of wine. It could assist in understanding the interactive effects of aroma compounds in a complex matrix such as wine.

The financial impact could be important for the wine industry, as large volumes of wine are lost due to oxidation.

Part of her research has been conducted at the University of Auckland in New Zealand and the Catholic University of Portugal. In 2011 she was nominated for the S2A3 (Southern African Association for the Advancement of Science) Medal. Coetzee has published three articles in international peer-reviewed journals and has presented her work at numerous local and international conferences. She has a passion for research and enjoys lecturing and working with students.

Vuyolwethu Siyo

Vuyolwethu Siyo completed her BSc in biochemistry, physiology and

psychology in 2009 and was placed on the University of Cape Town dean's merit list.

She received her BSc (Med) honours in 2010 and began her master's at the international centre for genetic engineering and biotechnology's Cape Town component, based at the University of Cape Town, in 2011.

Her master's project was upgraded to a PhD at the beginning of 2013.

Her doctoral research investigates the molecular mechanisms employed by the anticancer compound bisPMB in cancer cells. She aims to characterise the pathways activated by bisPMB in pursuit of improving the efficacy of known anticancer drugs that activate complementary pathways through combination treatment.

She co-authored a peer-reviewed paper on the Roche xCELLigence System. She has presented her work

at the University of Cape Town's department of clinical laboratory sciences human biology research day, the 3rd Advanced Summer School in Africa, and the Non-Communicable Diseases in Developing Countries in Africa course.

She is a member of the University of Cape Town's Obz Square residence third tier executive committee, and oversees all its social responsiveness and outreach activities.

Celebrating women's achievements in science

This year, Unisa is celebrating 140 years of transformation and shaping futures. The university has become a formidable hub of meaningful research output and achievements aligned with national imperatives.

Through its continued investment in research and innovation, the university is increasing Africa's knowledge-generating capacity as well as demonstrating its responsiveness to societal needs.

Unisa, therefore, celebrates and recognises its finalists for the Women in Science Awards, and the impact of research conducted by women. The Unisa nominees for these prestigious awards are:

- Prof Mpfanseni Budeli in the category: *Distinguished Young Women: Life Sciences, Social Sciences and Humanities* and
- Prof Nareadi Phasha in the category: *The Role of Science and Research Against Violence Towards Women: Distinguished Researcher*.

Unisa salutes these two women for upholding the ideals of our university, and for their contribution to the fields of scientific development.



Prof Mpfanseni Budeli in the category: Distinguished Young Women: Life Sciences, Social Sciences and Humanities



Prof Nareadi Phasha in the category: The Role of Science and Research Against Violence Towards Women: Distinguished Researcher

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Women in Science Awards 2013

Tata scholarships: master's degrees

Nontobeko Mvubu

Nontobeko Mvubu received a bachelor of medical science from the University of KwaZulu-Natal in 2009 with seven academic merits and was awarded a dean's commendation in 2008 and 2009.

In 2010 she was awarded the Merck award for best final year microbiology student. She obtained a BSc honours in microbiology in 2010 and enrolled for an MSc in 2011. Her master's project was aimed at understanding the human host immune response to infection by studying cytokine production and gene expression in epithelial cells infected with *Mycobacterium tuberculosis* (Mtb) strains.

Epithelial cells are present in abundance in the alveolar space (lining the lungs) and their contribution to the host immune response during infection by Mtb strains of varying pathogenicity is severely underestimated.

Understanding the immune response to infection by these cells will provide a better understanding of the key players and involvement of other cell types recruited by cytokine/chemokine production in epithelial cells.

Mvubu was awarded the KwaZulu-Natal Research Institute for Tuberculosis and HIV (K-RITH) collaborative grant, which enabled her to do part of her master's at the renowned John Hopkins University in the US in 2012.

Mvubu's work was presented at the K-RITH opening symposium in 2012 and will be presented at the South African Society for Microbiology conference in November 2013.

She is planning to do her PhD on the molecular pathways involved during host response to Mtb infection in pulmonary epithelial cells.



Nontobeko Mvubu

This involves investigating the compounds' activity against haematin formation and, ultimately, activity against malarial parasite growth.

The disease is caused by parasitic protozoans, of which the most virulent reside in Africa. The death rate is highest in poverty stricken areas and mostly occurs among pregnant women, and children under the age of five.

Combating the disease educates women about their rights and empowers them to become more independent.

Mvubu grew up in Esilindini, a rural area in the Eastern Cape, and matriculated in 2008 as the top matric learner at Tlokweg Senior Secondary school.

Mvubu was placed on the dean's merit list at the University of Cape Town in 2010 and was the first black South African top student in her honours class in 2012.

She received the Percy Gordon Memorial award, a Maria Lydia grant scholarship and the James Moir medal.

Heila van der Merwe

Heila van der Merwe received her BSc (2010) and BSc honours (2011) in computer science (cum laude) from Stellenbosch University. In 2012 she started studying towards an MSc in computer science.

Her research focuses on detecting errors and security and energy problems in Android mobile applications. This is an important field of study in South Africa because many people use smart mobile phones as computers and links to the internet. Improved usability and security directly influence economic development in rural areas.

In 2012 she presented a paper on her research at the 20th Foundations of Software Engineering Conference in the US, where she received an award for the best presenter at the Java Pathfinder workshop. She plans to continue her studies towards a PhD. She strives to become a successful researcher in



Nomakhwezi Mvumvu



Heila van der Merwe

her field, not only to further basic academic and applied research, but

also to encourage other women to pursue academic excellence.

Nomakhwezi Mvumvu

Nomakhwezi Mvumvu has a BSc in chemistry and biochemistry and a first-class honours degree in chemistry from the University of Cape Town.

Mvumvu is currently doing her MSc. Mvumvu's research project entails investigating potential anti-malarial compounds – specifically dihydropyridines.

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Women in Science Awards 2013

Knowledge is the new currency of a thriving economy

Transforming the science and research landscape through the Thuthuka programme

In many parts of the world, including South Africa, it is still rare to find female researchers and women working in scientific fields. Even though this picture is changing, women remain grossly under-represented among people who continue to actively practice science after obtaining higher degrees.

It is vital that South Africa, along with other countries, does more. Science and engineering are critical for innovation and economic growth as well as for tackling the developmental challenges that face many of the most vulnerable communities in the world.

The National Research Foundation (NRF) is responsible for supporting the development of human capital for research, technology and innovation in all fields of science and technology.

It is one of the major players in the education and training of a new generation of scientists able to address the challenges both within South Africa as well as across the continent.

One of the NRF's key interventions to transform the science cohort and facilitate the participation of women in science is the Thuthuka programme.

Initiated in 2001, the programme operates in the higher education landscape and aims to develop human capital and to improve the research capacities of designated (black, Indian and Coloured, female and the disabled) researchers to correct historical imbalances.

This is done in partnership with public higher education institutions (HEIs), science councils and other research institutions.

Thuthuka's grant funding decisions are guided by the following principles:

Equity and redress – In keeping with the equity and redress objectives, the Thuthuka grants sets high targets for supporting individuals from designated groups, without compromising on merit;

Developmental – Even though the programme has a developmental focus, only quality proposals that are scientifically sound will be considered for funding;

Achievability – The research proposal must be realistic; in other words, achievable in terms of the research objectives, the resources required and the projected completion times;

Institutional co-funding – To be considered for Thuthuka funding from the NRF, the applicant's insti-

tution must commit in writing to provide 50% of the awarded running costs for all approved projects.

This funding instrument, together with a host of others, is at the forefront of addressing the shortage of women researchers in scientific fields while also addressing broader equity issues in South Africa.

The NRF, as a government agency, is committed to doing more to increase uptake of science careers by women and growing scientific knowledge as this is critical for economic growth.

This Women's Month, the NRF wishes all women in all sectors, especially those in the natural and social sciences, success in their endeavours to contribute towards the improvement of quality of life of all South Africans.

For more on Thuthuka, contact Dr Thandi Mgwebi on 012 481 4022 or thandi.mgwebi@nrf.ac.za

UKZN WOMEN AT THE CUTTING-EDGE OF RESEARCH.



Prof Vishantie Sewpaul
(Distinguished Women:
Social Sciences and Humanities)



Ms Nontobeko Mvubu
(Tata Scholarships: Masters)



Dr Christina Thobakgale
(Distinguished Young Women:
Life Sciences)



Dr Maheshvari Naidu
(The role of science and research
against violence towards women:
Emerging Researcher)



Prof Deevia Bhana
(The role of science and research
against violence towards women:
Distinguished Researcher)



Ms Philile Mlotshwa
(Fellowships: Masters)



We congratulate you all on being nominated as finalists in the Department of Science and Technology's Women in Science awards. You've done us proud.

The programme aims to correct human imbalances

INSPIRING GREATNESS

Women in Science Awards 2013

Tax incentives available for R&D

Consumers, governments and environmental demands are making research and development a stronger imperative for companies every year

Industry growth, fierce competition and mergers are compelling companies to significantly increase their research and development (R&D) investment. R&D is the driver of new products, improved manufacturing processes and innovation. Compa-

nies that conduct R&D can innovate and have a higher global market share, as well as higher growth rates and profitability. As indicated by most R&D performers, investment in R&D is limited by factors such as the appropriateness of R&D results, uncertainty of the outcome of R&D

and the risky nature of R&D.

These factors contribute to R&D departments in companies being apportioned less funds for R&D projects. Even where R&D is the lifeblood of a company, investment is limited to projects that can produce results in the short term, generally from six to 12 months. This type of decision is based on operational needs, cost of investment and level of risk, as well as the payback period impacting on the bottom line.

Governments are encouraging companies to conduct R&D to be

able to compete globally and observe higher safety standards, while protecting the environment. It then becomes important for governments to provide some form of compensating mechanism for companies to conduct R&D.

The motive for government support for private sector R&D revolves around improving conditions under which companies decide to invest in R&D. Incentives are provided as part of policy instruments that address market failures that constrain increased R&D performance.

South Africa has also entered the battle to increase R&D capacity by offering a R&D tax incentive, aimed at building innovative companies that contribute to competence-building and commercialisation of “new to the world” technologies. In the foreseeable future, the R&D tax incentive programme will influence a better understanding of the benefits of R&D, higher commitment to R&D, improved management of R&D, improved business strategy at company level, and increased collaboration with other companies and public research institutions.

The prime objective of the R&D tax incentive programme is to provide an incentive (in a form of a deduction) to encourage scientific and technological R&D and make companies internationally competitive by encouraging the development of innovative products, processes and services; increasing investment in defined R&D activities; promoting the technological advancement of companies focusing on innovation or higher technical risk in defined R&D activities; encouraging strategic R&D planning; and creating an environment that is conducive to increased commercialisation of new processes and product technologies.

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 science & technology
Department: Science and Technology
REPUBLIC OF SOUTH AFRICA

 National Research Foundation

 UNIVERSITY OF THE FREE STATE
UNIVERSITEIT VAN DIE VRYSTAAT
YUNIVESITHI YA FREISTATA

Southern African Young Scientists Summer Program 2013–14

The Southern African Young Scientists Summer Program (SA-YSSP) offers doctoral candidates the opportunity to develop research skills in systems analysis and its application to policy and management. The program takes place in South Africa from 24 November 2013 to 22 February 2014.

RESEARCH AREAS

Each participant works on a project that he/she has proposed and that is aligned to his/her graduate research and in one of the following research areas (details at www.iiasa.ac.at/sa-yssp/themes):

Risk and Governance

- Towards equitable and ecologically sound governance of mining and drilling
- Systems analysis for sustainable green city development
- Resilience in responses to slow- and sudden-onset change

Energy and Climate Systems

- Transformation of the South African energy system
- Energy efficiency in a sustainable mining industry
- Economic growth in South Africa under low carbon constraints
- Mitigation of air pollution and greenhouse gases
- Domestic energy access at the bottom of the pyramid

Ecosystems and Water

- Assessing competing land use options for fuel, food and fibre
- Resilience measures in ecosystems and networks
- Stability and complexity of adaptive ecological networks
- Dynamical systems in ecology
- Modeling mechanisms influencing plant diversity and productivity
- World Water Scenarios Initiative: Southern Africa case study
- Water futures and solutions

Population, Health and Aging

- Integrating Indigenous Knowledge into maternal and child health programs
- New approaches to measuring aging in South Africa
- Educational reform and social justice
- Population–environment–development nexus and differential vulnerability



From interactions with a smart team of peers, to trips to see herds of deer, to working with world-class research advisors; SA-YSSP enriched my life and extended my research skills.

—Emmanuel Mpolya, Tanzania (SA-YSSP 2012–13) working on his PhD in Japan

APPLY NOW

If you can research independently and are an advanced doctoral student studying in South Africa, a Southern African Development Community nation or one of IIASA's 20 member countries, then please submit an application with a research project proposal by 1 September 2013 at the National Research Foundation website.

Funding for travel and living expenses is available.

Supporting R&D in SA

The research and development (R&D) tax incentive programme is the largest single source of government support for R&D in South Africa. Since 2006 the programme has provided over R1-billion in tax reductions to over 300 claimants. Of these, about 49% are small and medium enterprises.

What are the benefits of the programme?

The programme can provide financial incentives by helping to

- fund scientific and technological advancements, keeping your company competitive; and
- keep your company focused on innovation-based R&D.

Who is eligible?

The programme is available to any company operating and conducting R&D in South Africa. Any company involved in basic or applied research, or in developing new or improved materials, devices, products or processes, may be eligible.

How can you get assistance?

The department of science and technology offers the following free services at its offices:

- Information about the programme to new and potential claimants.
- A preliminary opinion on the eligibility of the project.
- Advice is provided and questions are answered on the R&D tax incentive programme.

How to get more information on the programme

The department of science and technology offers the following free workshops:

- Industry associations.
- Individual companies.
- Sector or industry-specific businesses.

Alternatively you can visit www.dst.gov.za/r-d





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Mail & Guardian would like to congratulate all the winners of this year's WiSA' awards - profiling our country's top women scientists and researchers as role models for our younger scientists. Mail & Guardian is committed to uncovering the very best scientific minds in our country in print, on tablet, mobile and the web and through continued dialogue with the role players changing our society.

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TUT women researchers inspire through innovation and leadership

Forty rated researchers prove that this institution is well on its way to become a research institution with excellent leaders, world-class expertise and outstanding knowledge to make a difference on numerous fields of much needed research in our communities, country and even the continent. Three of these forty researchers are women who are considered experts in water research, crop sciences and chemistry.

Proff Sandra Combrinck, Dharini Sivakumar and Maggie Momba are based at the Faculty of Science and are rated Category C* researchers at the National Research Foundation.

>>> **Prof Sandra Combrinck (Department of Chemistry)** is one of only a few women considered to be experts in the field of chemistry. Her research specialisation is analytical chemistry with a focus on chromatography, plant secondary metabolites and postharvest fungal diseases.

Prof Combrinck started her career in 1983 as a researcher at the Medical Research Council in Tygerberg, Cape Town. She specialised in the isolation of mycotoxins from fungal cultures and the development of analytical methods for the determination of mycotoxins in food and feeds. She joined TUT in 1994, where she combined her love for research and teaching.

She obtained her D Tech Chemistry degree in 2007. Her preference is to work towards practical applications of plant products, whether they are volatile metabolites or non-volatile polar metabolites. Together with other researchers, she evaluates the application of essential oils as bio-friendly fungicides in several trials in industry. Lately, she has also become interested in contamination of the environment and the use of plants to mitigate pollution.

Prof Combrinck has a collaborative research project with the University of Lublin (Poland) dealing with secondary metabolites of liverworts from southern Africa. She is also a popular study leader and regularly acts as supervisor for master and doctoral students.

>>> **Prof Dharini Sivakumar (Department of Crop Sciences)**, has an outstanding research interest, namely postharvest of fresh produce; this is a research field contributing enormously towards the reduction of food loss and the sustainability of food security. Her research career started in 1993 as a young research officer at the Ceylon Institute of Scientific Industrial Research (CISIR) at the Postharvest Technology Group, Food Technology Division. During this period she was involved in numerous research projects and was privileged to participate as a resource person representing Sri Lanka at the 25th FAO-IAEA Research, coordination meeting of the Asian Regional cooperative project on food irradiation held in Bangkok.

Prof Sivakumar received her doctoral degree in 2001 from the University of Colombo and since 2001 she worked in the higher education sector. Prior to this she worked in a variety of research-related positions including at the Ceylon Institute of Scientific and Industrial Research and the Industrial Technology Institute in Sri Lanka.

Prof Sivakumar's field of expertise and research specialisation is postharvest technology with focus on improving quality of fruit and vegetables and safety.

>>> **Prof Maggy Momba (Department of Environmental, Water and Earth Sciences)** was born and bred in Bikoro, Province of Equator in the Democratic Republic of Congo. Growing up in the heart of Africa taught her the privileges of having

access to clean running water. Today, after years of specialising in the field of water research, she is the Research Professor and National Chair in Water Quality and Wastewater Management in the Faculty of Science.

Prof Momba obtained both her MSc and PhD in Microbiology from the University of Pretoria. Today, Prof Momba is recognised as an expert in the field of waste water and potable water management. Her field of expertise and research specialisation is biological sciences with focus on applied microbiology, biotechnology microbiology and molecular biology.

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

Prof Momba is a member of not less than 15 national and international scientific committees which include membership of the South African Society of Biochemistry and Molecular Biology in Eastern Cape Water and Water Research Commission (WRC) steering committees.

NRF Category C researchers:

Are 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*
- * *demonstrated the ability to conceptualise problems and apply research methods to investigating them.*



>>> Prof Sandra Combrinck



>>> Prof Dharini Sivakumar



>>> Prof Maggy Momba