UCT Fellows Citations

October 2017

Vision of the University of Cape Town

UCT is an inclusive and engaged research-intensive African university that inspires creativity through outstanding achievements in learning, discovery and citizenship; enhancing the lives of its students and staff, advancing a more equitable and sustainable social order and influencing the global higher education landscape.

Mission of the University of Cape Town

UCT is committed to engaging with the key issues of our natural and social worlds through outstanding teaching, research and scholarship. We seek to advance the status and distinctiveness of scholarship in Africa through building strategic partnerships across the continent, the global south and the rest of the world.

UCT provides a vibrant and supportive intellectual environment that attracts and connects people from all over the world.

We aim to produce graduates and future leaders who are influential locally and globally. Our qualifications are locally applicable and internationally acclaimed, underpinned by values of engaged citizenship and social justice. Our scholarship and research have a positive impact on our society and our environment.

We will actively advance the pace of transformation within our university and beyond, nurturing an inclusive institutional culture which embraces diversity.

UCT Fellows 2017 — Citations

Citation: Professor Bruce Hewitson, Department of Environmental and Geographical Science

After completing his PhD at Pennsylvania State University, USA, Professor Bruce Hewitson joined the University of Cape Town in 1992 as a lecturer and rose through the ranks to be promoted *ad hominem* to full professor in 2005. He was appointed to be the holder of the South African Research Chairs Initiative (SARChI) Chair in Climate Change in 2008.

Not long after moving to UCT he established the Climate Systems Analysis Group (CSAG) in the Department of Environmental and Geographical Science. CSAG is now the largest research group on the African continent with a focus on physical climate change and the science–society interface (with 18 staff plus 15–20 postgraduate students and collaborators from across the world). CSAG became an accredited University Research Committee centre in 2016.

Hewitson's research interests focus on regional climate downscaling and include seasonal forecasting, extremes and regional climate processes, all with the intent of understanding climate change and natural variability. Through his research he is internationally respected for his contributions to climate projections, limits to predictability, uncertainty and probability, climate extremes, synoptic processes, interface with society, and ethics of services.

His international recognition is reflected in him being invited to participate in a leadership role in a number of influential international bodies: the Intergovernmental Panel on Climate Change (IPCC), the World Meteorological Organization (WMO) and the World Climate Research Programme (WCRP). He has served as coordinating lead author in the IPCC third, fourth and fifth assessment reports (1997–2014), as co-chair of the IPCC Task Group on Data and Scenario Support for Impact and Climate Analysis (TGICA) and as co-chair of the WCRP Working Group on Regional Climate (WGRC). He serves on the technical advisory board for the Climate and Development Knowledge Network's (CDKN) international project on climate resilience and water management, and he serves on the Science Review Group for the world-leading UK Meteorological Office's Hadley Centre.

Importantly, through these key opportunities he has been able to provide an African perspective in processes often dominated by Western scientists' views. Hewitson's research career was kick-started by one of his early seminal papers, published in 1996 in *Climate Research* (vol 7, 85–95). Titled "Climate downscaling: techniques and application", the paper described a set of techniques that relate local- and regional-scale climate variables to the larger scale atmospheric forcing.

The paper has received over 580 citations and the downscaling approach developed in this paper was created specifically to address needs (at the time) in global environmental change research, and the need for more detailed temporal and spatial information from global climate models. This approach remains central to local and regional climate change research across the world.

Much of Hewitson's research is framed by seeking to advance knowledge to serve the science–society interface. In this approach he is an international leader contributing to local, regional and international developments. IPCC publications represent the pinnacle of international climate science and cohesively integrate the global body of knowledge, and they are by far the most extensively peer-reviewed publications. Hewitson has been invited to serve as coordinating lead author on no fewer than three IPCC assessment reports. The fourth assessment report, which integrated across global models, observations, process understanding, and downscaling on regional climate projections, has received over 3 200 citations.

Hewitson's approach of integrating research for society has generated a significant number of international invited keynote addresses, and he is recognised as an international leader in this sub-area of his overall research endeavour. This approach is encapsulated in his recent paper: "Interrogating empirical-statistical downscaling" (Hewitson et al, 2014).

A substantial portion of the paper discusses the larger perspective and presents important overarching concepts from his work. The paper is a milestone marker and a fundamental reframing for future research on information distillation and translational research. Through his interests in translational research, he has been instrumental in initiatives to better engage with regional scales models, and developing new guidance materials based on the emerging understanding of downscaled models.

His work integrates across physical climate research and the impact and adaptation sectors and regions. Complementing this work have been new products from his downscaling methodology, new observational data sets to support the assessment of regional change and model evaluation, and his Climate Information Portal. The latter is widely used as a research and training tool (approximately 250 user sessions per month across Africa).

This is a unique contribution on the continent and beyond, and has influenced aspects of the international science agenda with important relevance for societal uptake.

Hewitson currently holds a National Research Foundation (NRF) A rating. He has authored some 144 peer-reviewed papers and numerous policy reports. His bibliometrics are impressive with his International Scientific Indexing (ISI) / Scopus publications having over 3 200 citations, leading to an H-index of 25. Given the many policy documents that draw on his research, his Google Scholar citation record of over 17 000 citations and H-index of 42 is perhaps more reflective of the international impact of his research.

In all, Hewitson has published four articles that have received more than 1 000 citations, and 20 that have received more than 100 citations. This in itself is an exceptional record.

It is clear that Hewitson's international research standing and his career-long contribution to understanding the rapidly changing world climate, particularly at regional scales, make him a very worthy recipient of a UCT Fellowship.

Citation: Professor Chris Reason, Department of Oceanography

Professor Chris Reason obtained his PhD in atmospheric science and applied mathematics from the University of British Columbia in 1989. In 1998 he was appointed as a senior lecturer at UCT. Prior to this he held a position in ocean climate modelling at the Commonwealth Scientific and Industrial Research Organisation's (CSIRO) Division of Marine and Atmospheric Research in Australia, where he contributed to developing the first coupled climate model in Australia in 1991.

In addition, in 1995 he lectured applied mathematics at Murdoch University and was later offered a tenured senior lectureship at the University of Melbourne.

Since his appointment at UCT, Reason has moved through the academic ranks and became a full professor in 2006. His research focuses on the scales of climate variability over southern Africa and its neighbouring oceans, and the meteorology of severe weather events. The former aims to better understand the complex nature of intra-seasonal to inter-annual variability of the atmosphere and oceans in the southern African region, particularly on time scales that impact local communities.

Recent attention has focused on the influences of South Africa's regional oceans on climate and rainfall, as well as on the local impacts of the El Niño Southern Oscillation (ENSO) and other large-scale climate modes. His research on meteorology comprises theoretical and numerical modelling of various weather systems and extreme weather events in the southern African and Australian/Indonesian region. Particular focus is given to meso- and synoptic-scale events, such as cut-off lows, tropical–extratropical cloud bands and tropical cyclones, and their rainfall impacts on local communities.

Evidence of Reason's reputation as a leader in international ocean-climate research is shown by his past and ongoing involvement in a large number of international committees. He is the chair of the highly prestigious World Climate Research Programme / Climate Variability and Predictability (WCRP CLIVAR) Variability of the African Climate System (VACS) panel, the chair of the American Meteorological Society Committee for Southern Hemisphere Meteorology and Oceanography, and lead author on Chapter 9 of the International Panel on Climate Change / Fifth Assessment Report / Working Group I (IPCC AR5 WGI) report, which is tasked with evaluating climate models.

On a national front, he continues to serve on the South African government's Global Change Science Committee. In addition to these leadership positions, Reason served as the editor of *Geophysical Research Letters*, the most prestigious journal in his field, from 2002 to 2007.

He currently serves on the editorial boards of the *International Journal of Climatology, the Geophysical Data Journal, the African Journal of Marine Science, the Western Indian Ocean Journal of Marine Science*

and on numerous American Geophysical Union prize committees. He continues to be the South African node leader of the Carnegie Regional Initiative in Science and Education (RISE) Marine Science Network for the Western Indian Ocean (funded $1.25 million) and is a member of several European Union Seventh Framework Programme for Research and Technological Development (FP7) consortia.

Much of Reason's research has been conducted through a large cohort of postgraduate students. Many of these students are from other African countries and often from the meteorological service of their respective countries.

Since arriving at UCT, he has graduated a total of 16 PhD students and 24 MSc students. All of his PhD graduates have taken up high-profile positions after graduation, including directors general at the national meteorological services of Tanzania and Mozambique; lectureships at the universities of Dodoma, Eduardo Mondlane and Zambia; postdoctoral fellowships at the Jet Propulsion Laboratory (US), Yale University, Reading University, Imperial College, and as a research scientist at Plymouth Marine Laboratory.

Reason currently holds a National Research Foundation (NRF) A rating. He has authored some 194 peer-reviewed papers, the vast majority in the top echelon of journals in his field. His bibliometrics are impressive with his International Scientific Indexing (ISI) / Scopus publications having over 3 700 citations, with an H-index of 34. In all, Reason has published four articles that have received more than 100 citations, and 17 that have received more than 50 citations. This in itself is an excellent record.

It is clear that Reason's international research standing and his career-long contribution to understanding southern hemisphere atmospheric dynamics make him a very worthy recipient of a UCT Fellowship.

Citation: Professor Chuma Himonga, Department of Private Law

Professor Chuma Himonga's scholarship on customary law spans nearly 40 years. It is a remarkable record of engagement with vernacular justice. Long before concepts like 'living customary law' and ubuntu were popularised or adopted by our highest courts, Himonga was studying, writing about and critically engaging with these complex aspects of African customary law.

It is fair to say that she has been at the forefront of reconceptualising customary law from its appropriation by colonial and apartheid authorities to its central role in the current South African legal order.

Her research centres on the law of persons and marriage, African customary law, legal pluralism, and women's and children's rights under customary law in southern Africa.

It is a body of work that reflects four strong imperatives: to demonstrate the operation of law in practice; to debunk the enduring primacy of common law over customary law and, in so doing, to engage with the complex interplay of common law and customary law in people's lives; to reclaim from the formal codified colonial versions of 'official' customary law, a complex, responsive and vibrant legal system that reflects African values; and to illustrate the need and advocate for reform of both systems to better serve those who are most disadvantaged.

These priorities are readily apparent in her most recent book: *Reform of Customary Marriage, Divorce and Succession in South Africa: Living Customary Law and Social Realities* (Juta, 2015), co-authored with UCT sociologist Elena Moore.

The regulation of marriage represents an intervention by the state into the social fabric of people's lives, regulating with whom and how relationships that are recognised by state institutions are formed. This recognition has far-reaching implications for access to a range of social goods attaching to 'spouses', including pensions and equitable distribution of the marital estate upon divorce.

It becomes particularly complex in the context of polygyny and of marriages formed over time through complex social processes, rather than the binary married/unmarried system enshrined in Western law. Himonga's work has been deeply influential in shaping the post-1994 recognition of customary marriages, engaging critically on the overarching value of ubuntu and on the implications of regulating practices like polygyny and lobola.

Infusing her research has been a concern with the places where customary law and norms butt up against recalcitrant state practices – particularly where the latter are informed by patriarchal notions of 'official' customary law or binaries imported from Western common law.

Himonga and Moore's book looks in fine empirical detail at the impact of interventions into the customary law of marriage and succession in the lives of people upon whom the law operates, and state and non-state institutions tasked with implementing the law. Enormously ambitious in scope, it draws on multiple data sources, from in-depth interviews with women on their decisions whether or not to register their customary marriages, through an examination of registration practices at the Department of Home Affairs, and the mechanisms used by traditional leaders to decide on the existence of a valid marriage, to formal divorce cases and 'informal' dissolutions, happening outside the courts.

One reviewer writes, "(This book) makes a remarkable contribution to our understanding of how law reform affects communities, how effective it is, and most importantly how it becomes absorbed as part of 'living Customary Law'."

Her writing spans the terrain of personal law: the consequences of marriage, the dissolution of marriage, the rights of women living in or entering into polygynous marriages, the meaning of lobola, land grabbing in the context of inheritance, customary rights of succession, and the rights of children. Always, there is the pressing question of how to reconcile rights to culture and gender equality, and to give full effect to the constitutional recognition of customary law.

A number of post-1994 interventions have sought to align customary law with the Constitution. Himonga has been one of a small group of legal academics who have been particularly influential in this regard. As an expert on both common law (she is one of the leading scholars in South Africa on the law of persons and family – her contributions to the seminal *Wille's Principles of South African Law* are illustrative) and customary law, she is uniquely placed to speak to the overlaps and engagements between these systems of law.

She has contributed to various legislative reforms, including the Recognition of Customary Marriages Act and the reform of the Child Care Act. She has been a leading commentator on Constitutional Court decisions and has been regularly invited to address parliamentary committees and houses of traditional leaders on questions of customary law.

Himonga's work is marked by collaboration with other academics, across disciplines, and with a number of civil society organisations. In addition to working with the UCT Department of Sociology, she has recently worked with the UCT School of Public Health and Family Medicine to develop new perspectives on the right to health drawing on ideas rooted in African philosophies, including ubuntu.

Her work with the National House of Traditional Leaders engages traditional leaders as co-researchers on the co-existence of aboriginal/indigenous and non-aboriginal/non-indigenous legal cultures. With the National Movement of Rural Women she has collaborated on the collection of data on marriage and succession in five South African provinces, with community-based researchers playing a central role in research design, collection and analysis. This collaborative instinct – and a strong commitment to mentoring young scholars – is reflected in her publications.

There is a long history of impact: In 1988 Himonga co-founded Women and Law in Southern Africa (WLSA), an activist-research organisation that works in Botswana, Lesotho, Mozambique, Swaziland, Zambia and Zimbabwe. WLSA has had a significant influence on law and scholarship across the region, promoting the rights of millions of women living under customary law. She continues to work with the organisation, providing methodological support and training for a number of empirical studies, including on gender-based violence and on women and the administration of justice.

As warden of All Africa House she initiated a fellowship programme for African scholars, through which she has hosted upwards of 20 scholars from the continent for extended visits and interactions with UCT staff and students.

While a UCT Fellowship rightly rewards outstanding research, it would be remiss not to comment on Himonga's role as a teacher. She is quite possibly the first (and certainly among the first) black African woman to be appointed to the rank of professor at UCT. She is an Africanist who has long seen the value of building collaborative relationships with other institutions on the continent.

In 2003 she pioneered a regional postgraduate programme on women, social realities and family, based at the University of Zimbabwe, and drawing on faculty from universities in eastern and southern Africa. She currently holds the South African Research Chairs Initiative (SARChI) Chair in Customary law, indigenous values and human rights. In this capacity, she is facilitating a rich and forward-thinking research agenda.

She has taught a generation of UCT lawyers the importance of customary law: under her guidance UCT has consistently been one of the few law faculties to offer customary law as a compulsory LLB subject. Moreover, as a teacher of the law of persons and family, she was well ahead of her time in entrenching customary law – and so, African experiences of law – into her teaching.

Drawing on this vast experience, she and Professor Thandabantu Nhlapo have recently co-edited a new Oxford University Press textbook, *African Customary Law in South Africa: Post-Apartheid and Living Law Perspectives* (2014). In this way her influence continues to reach a new generation of young lawyers and scholars.

Citation: Professor Crick Lund, Department of Psychiatry and Mental Health

During his training as a clinical psychologist in the mid-1990s, Professor Crick Lund became interested in how mental health services were organised and delivered, and the exclusion of poor and socially marginalised groups from cost-effective mental healthcare.

This spurred his desire to develop rigorous scientific methods for the study of public mental health. His PhD (awarded in 2002) provided the first post-apartheid situation analysis and norms for mental health services in South Africa. These norms were later adopted by the Department of Health to guide national mental health service provision.

In 2000 Lund was invited by the World Health Organization (WHO) to collaborate in developing international mental health policy and service delivery guidelines in low- and middle-income countries (LMIC), and he worked for WHO until 2005.

He then returned to UCT, and he and Professor Alan Flisher were awarded a major grant on mental health policy and services in LMIC: the Mental Health and Poverty Project (MHaPP) (2005–10), funded by the UK's Department for International Development (DFID). The consortium developed and evaluated mental health policy in poor countries to provide new knowledge regarding comprehensive approaches to breaking the negative cycle of poverty and mental illness.

Lund developed an interest in the key role that poverty plays as both a cause and consequence of mental illness. As a result, he led the first systematic literature review of poverty and common mental disorders in LMIC, published in S*ocial Science and Medicine* in 2010.

He was invited by the WHO Commission on the Social Determinants of Health to contribute to a volume on the social determinants of depression and was invited by the *Lancet* to lead an article on breaking the cycle of poverty and mental illness in LMIC as part of the 2011 *Lancet* series on global mental health.

Since 2011 Lund has led the Programme for Improving Mental Healthcare (PRIME), funded by the DFID (£6 million, 2011–17), which is developing, evaluating and scaling up core packages of mental healthcare in primary healthcare settings in Ethiopia, India, Nepal, South Africa and Uganda.

Since 2011 he has also led a collaborative hub for mental health research in sub-Saharan Africa funded by the National Institute of Mental Health ($2.5 million, 2011–16): the Africa Focus on Intervention Research for Mental Health (AFFIRM). As CEO of PRIME, principal investigator of AFFIRM and director of the Centre for Public Mental Health at UCT, Lund now leads public mental health research in eight countries, with responsibility for a budget of over R180 million.

The very high quality of Lund's work is affirmed by a number of indexes: He has published well over 100 papers in the international literature (attesting to his significant research output), he has an H-index of 33 (attesting to his wide influence on the field), he has a National Research Foundation (NRF) B rating

(attesting to his national and international expertise), and he is the winner of the TW Kambule-National Science and Technology Forum (NSTF) Award for 2016 for research over the past decade (indicating that he is at the very top of the echelon of South African scientists).

Within the field of global mental health, he is one of a handful of the most eminent leaders and researchers.

To summarise, Lund's research has pioneered the development of mental policies and services to address the growing burden of mental illness in South Africa and other low- and middle-income countries.

His scientific work has had a significant impact on the development of norms for mental health services, drafting of national mental health policies, development of WHO guidelines for mental health policy and services, identification of major social determinants of mental illness in LMIC, interventions that address the cycle of poverty and mental illness, and delivery and evaluation of new models of mental healthcare.

Citation: Professor Graeme Meintjes, Institute of Infectious Disease and Molecular Medicine

Professor Graeme Meintjes has made important original scientific contributions in four areas of clinical research in patients with HIV infection.

First, he has conducted a series of studies on the clinical presentations, immunopathogenesis, treatment and prevention of the tuberculosis-associated immune reconstitution inflammatory syndrome (TB-IRIS). TB-IRIS is a condition affecting patients with HIV-associated TB who initiate antiretroviral therapy. The condition manifests with new or recurrent inflammatory features and symptoms of TB during early immune recovery.

He led the development of international consensus case definitions for TB-IRIS. His major work was leading a randomised controlled trial which demonstrated that prednisone results in more rapid symptom resolution when used to treat TB-IRIS. He has published studies on the immunological signature associated with TB-IRIS, and its response to prednisone. Most recently he led a randomised controlled trial which demonstrated that prednisone used prophylactically in high-risk patients reduces the incidence of TB-IRIS by 30% without significant risks of adverse events.

This body of research has influenced international guidelines. As recognition of his work in this field, he was appointed to serve as a member of the TB subject group of the National Institutes of Health/Centers for Disease Control and Prevention/HIV Medicine Association/Infectious Diseases Society of America (NIH-CDC-HIVMA/IDSA) Guidelines for Prevention and Treatment of Opportunistic Infections in Adults and Adolescents (since 2010).

His second major area of research has been on a common severe HIV-associated opportunistic infection: cryptococcal meningitis. He has conducted studies on diagnosis and treatment and timing of antiretroviral therapy in patients with this condition. He was the Cape Town principal investigator and senior author on the manuscript arising from the Cryptococcal Optimal ART Timing (COAT) trial that was published in the *New England Journal of Medicine*. This trial demonstrated that the very early initiation of antiretroviral therapy (ART) in patients with this cryptococcal meningitis increases mortality.

This work has influenced international guidelines. As recognition of his work in this field, he was appointed as a member of the World Health Organization's (WHO) Guidelines Development Group for Guidelines on the Diagnosis, Prevention and Management of Cryptococcal Infection in Adults and Children (2011–12).

His third research area is the incidence, risk factors and clinical features of adverse events related to antiretroviral therapy (hyperlactataemia) and TB treatment (drug-induced liver injury) in South Africa. These findings have influenced national clinical guidelines.

Finally, he has conducted research on understanding delays in the diagnosis of tuberculosis in HIV-infected people and evaluating novel strategies to improve tuberculosis diagnostic yield in hospitalised HIV-infected patients.

Citation: Professor Karen Barnes, Division of Clinical Pharmacology

Professor Karen Barnes has made important and original scientific contributions that have informed national and international malaria treatment policies and practice. Her research has focused on three areas: the comprehensive evaluation of changes in malaria treatment policy and how these impact on antimalarial resistance; optimising dosing in vulnerable populations in order to delay drug resistance; and the clinical development of much-needed novel antimalarials.

Barnes's research in malaria started on appointment as a member of the South African National Malaria Advisory Group in 1996 at the time of a relentless malaria epidemic in South Africa, fuelled by drug and insecticide resistance.

She identified the contribution of high levels of drug resistance in KwaZulu-Natal, and played a pivotal role in KwaZulu-Natal becoming the first ministry of health in Africa to deploy artemisinin-based combination therapy (ACT). Her sentinel study of this policy change found a marked improvement in cure rates and decrease in gametocytes (transmissible malaria parasites) that contributed to the observed rapid and dramatic (greater than 95%) decrease in malaria morbidity and mortality.

This policy change was cost-saving for government, prevented households from incurring catastrophic malaria-related costs and paved the way for similar improvements in malaria treatment across the region, for which Barnes was a keen advocate.

Her first major study was in patients with more severe malaria, showing that artesunate suppositories were more effective than quinine. Rectal artesunate has since been shown to reduce malaria mortality in African children. Barnes later initiated a national programme to ensure access to injectable artesunate, which substantially reduces malaria-related deaths but is not yet registered for use in South Africa.

Resistance has been confirmed to all currently available antimalarial drugs, highlighting the urgent need for novel antimalarials. The notable absence of African participants in early antimalarial drug development, despite our region carrying the heaviest malaria burden, motivated Barnes to lead Phase I clinical trials, including the first-in-human clinical trial on MMV390048 (a novel aminopyridine discovered by an international team led by UCT's Professor Kelly Chibale).

This clinical trial found that MMV390048 may be suitable for being part of a single-dose cure or preventive treatment (www.mmv.org/newsroom/film/mmv390048).

Barnes's research has contributed substantially to understanding antimalarial drug exposure among the vulnerable target populations carrying the highest malaria burden in Africa (young children, pregnant women, and those with co-morbid HIV infection), among whom suboptimal dosing could fuel the spread of antimalarial resistance.

Barnes has led the pharmacology module of the WorldWide Antimalarial Resistance Network (WWARN) since its inception in 2009. This is a collaborative platform generating innovative resources and reliable evidence on the factors affecting the efficacy of antimalarial medicines. WWARN has been a pioneer of data sharing, and has demonstrated the power of pooled individual patient data analyses to inform malaria treatment policy, including optimising dosing in vulnerable populations. These findings led to changes in the latest World Health Organization (WHO) Guidelines for the Treatment of Malaria.

This high-impact, multidisciplinary field- and hospital-based antimalarial drug research, in collaboration with multiple partners, nationally and internationally, led to the recognition of her research group as a South African Medical Research Council Collaborating Centre for Optimising Antimalarial Therapy (www.ccoat.uct.ac.za).

Citation: Professor Lucy Gilson, School of Public Health and Family Medicine

Over the past four decades Professor Lucy Gilson has worked in, and played a role in developing, what has become known as the field of Health Policy and Systems Research (HPSR), a still young, applied and interdisciplinary field that has a particular focus on low- and middle-income countries.

The major contribution of Gilson's over 150 edited books, book chapters and peer-reviewed journal papers lies in illuminating the ethical, political and social dimensions of health policies and health systems. She has specifically investigated the decision-making processes of various health policy and system actors, the socio-political and organisational forces influencing these processes and whether and how their decisions influence health system equity.

Her in-depth empirical work includes a system-wide assessment of primary healthcare in Tanzania, a three-country investigation of the implementation of community financing mechanisms, and an examination of how using healthcare influenced household livelihood status in Sri Lanka, as well as South African work considering how primary care nurses implemented user fee removal and investigating the sense-making role of mid-level health managers.

Building on her empirical work, she has also published a range of seminal, conceptual papers that have had significant impact on the field. These include papers addressing the political economy of health policy change, the importance of trust relationships in health systems, and equity as a health system goal.

Overall, through this body of work, she has shown, first, how formal health policy documents and statements are translated through the practices of those responsible for implementing them, in ways that often undermine and sometimes support the achievement policy goals. Second, she has thrown light on the critical 'software' dimensions of health systems – the relationships, behaviours, values, norms and customs that always influence the effectiveness and outcomes of healthcare delivery.

Perhaps most critically, beyond her research Gilson has sought to stimulate and encourage younger researchers to be interested in, and develop their skills for, HPSR. She has published methodological papers, for example, on how to investigate power in policy implementation and how to conduct stakeholder analysis, papers that specifically delineate the contribution of social science perspectives to HPSR, and she edited the first HPSR methodology reader (www.who.int/alliance-hpsr/resources/reader/en/).

She has also led formal postgraduate teaching programmes, researcher mentoring programmes, and curriculum development work. The Consortium for Health Policy and Systems Analysis in Africa (www.hpsa-africa.org) is particularly noteworthy for its specific efforts to develop HPSR teaching capacity within African universities, including through the development of HPSR teaching materials as open educational resources (materials that are now being used worldwide).

Citation: Professor Malcolm Collins, Department of Human Biology

Professor Malcolm Collins is head of the Department of Human Biology at UCT. He obtained a BSc degree majoring in biochemistry and human physiology from Stellenbosch University. In 1988 he received a BSc(Hons) degree cum laude in biochemistry, also from Stellenbosch University, followed by a PhD in medical biochemistry on collagen gene expression from UCT in 1993.

After completing postdoctoral work in extracellular matrix protein gene expression at the University of Washington in Seattle, USA, he was appointed initially as a senior scientist within the South African Medical Research Council (SAMRC)/UCT Research Unit for Exercise Science and Sports Medicine in 1998 and rose through the ranks with the SAMRC to chief specialist scientist. During this period he had various appointments at UCT, becoming an associate professor in 2007 and a full professor in 2013.

His doctoral and postdoctoral work in extracellular matrix biology, in particular collagen gene expression, stimulated his current research focus in elucidating the molecular mechanisms causing common exercise-associated musculoskeletal soft-tissue (tendons, ligaments and skeletal muscle) injuries.

He has developed a very productive research team at UCT, which has published several seminal papers on the identification of genetic risk-associated factors for common tendon and ligament injuries. This UCT-based research group is currently internationally recognised as the pioneers and authority in this area of research.

Under his leadership, the research group were the first researchers internationally to demonstrate that specific genetic variants modulated the risk of exercise-associated musculoskeletal soft-tissue injuries, specifically chronic Achilles tendinopathy.

Although they have extensively published on the identification of several genetic risk factors for chronic Achilles tendinopathy, anterior cruciate ligament injuries, carpal tunnel syndrome, and other exercise-related phenotypes, the group has primarily focused on the identification of variants within the three prime untranslated region (3'-UTR) of the collagen type V alpha 1 chain (COL5A1) and a regulatory region within the first intron of the collagen type I alpha 1 chain (COL1A1) which modulate the risk of injuries.

These associations have been repeated in these and/or other injuries by other researchers. The UCT-based research group is also starting to determine how these variants modify risk and proposed mechanisms of injury.

He has developed an international and national interdisciplinary network of research collaborators, consisting of clinicians and scientists. He has supervised, or is currently supervising, several postdoctoral fellows and nearly 40 master's and doctoral students.

He has also published more than 130 peer-reviewed papers, review articles and book chapters. He has presented over 60 keynote or invited talks at international and local conferences as well as other professional and academic events. Several patents have also been filed because of the research, and the practical application of the work is currently being developed in collaboration with several stakeholders.

He is a National Research Foundation (NRF) B-rated scientist, a fellow of the European College of Sport Science and a member of editorial teams of several international sports medicine and exercise science journals, including the prestigious *British Journal of Sports Medicine*, and a non-executive board member of the Sports Science Institute of South Africa. He was recently elected as a member of the Academy of Science of South Africa (ASSAf) and is a member of the international steering committee of the Athlome (Athletic Genome) Project Consortium.

Citation: Professor Michael Lambert, Department of Human Biology

Michael Lambert is a professor in the Division of Exercise Science and Sports Medicine (ESSM) based at the Sports Science Institute of South Africa (SSISA).

He has a BSc (Agric) Animal Science degree from the University of Natal (1978). He worked for two years as a research technician for the Natal Parks Board and then went to Rhodes University, getting an honours degree with distinction in 1982.

He then studied at the University of South Carolina, USA, where he graduated with an MSc in exercise physiology in 1984. He returned to the University of Cape Town and completed a PhD in exercise science in 1990.

His research focused on the biological adaptations and maladaptations that occur after exposure to regular exercise. The main message from this work was that adaptation to exercise is individualistic and needs to be carefully monitored to prevent any signs of distress. This became an important thread embedded in his research after the UCT Exercise Science and Sports Medicine Research Unit moved to the Sports Science Institute in 1995.

He developed a test to monitor the fitness/fatigue status of players in collaboration with the High Performance Centre of SSISA. This test was novel because it used heart-rate recovery as a marker of autonomic nervous system function. The test was inexpensive, relatively easy to administer, non-aversive for the players and had the potential to track changes with reasonable precision.

The uptake of the test was good, with evidence of it being used to monitor elite athletes in different sports in South Africa and other countries (Australia, USA, UK, Netherlands). This area of research was productive, yielding three PhD qualifications and about 15 manuscripts. A review paper he wrote on this topic has been cited 135 times.

The next milestone in Lambert's research career was in 2008 when a PhD graduate he supervised was appointed to the position of general manager for Boksmart. This is a programme within the South African Rugby Union which is designed to make rugby safer and, in particular, reduce the risk of catastrophic injury.

This started a productive research relationship and provided several opportunities for MSc and PhD students under his supervision. Three PhD students working in this area were awarded the prestigious Desmond Tutu National Research Foundation doctoral scholarship, which allows them to do their research at UCT and Vrije University, Amsterdam.

The Dutch collaborators on these projects are world leaders. The research has had a positive impact on safety in rugby and has contributed to rule changes in the game and a lower incidence of catastrophic injuries.

Lambert is the editor-in-chief of the *South African Journal of Sports Medicine* and has been since 2000. In 2005 he was made a life member of the South African Sports Medicine Association (SASMA) in recognition of his services to the organisation.

In October 2015 he received a merit award from SASMA with the citation: "For your exceptional contribution as editor-in-chief of the *South African Journal of Sports Medicine* to sports and exercise medicine in South Africa."

In summary, Lambert has an international presence. He has supervised/co-supervised 21 PhD students. He has been invited as keynote speaker to four international events. He has published 210 papers in peer-reviewed journals. His research outputs have been cited 4 294 times, and his H-index is 37 (Scopus, 23 March 2017).

Citation: Professor Peter Dunsby, Department of Mathematics and Applied Mathematics

Professor Peter Dunsby has had two main areas of impact in research in cosmology. Firstly, he has developed aspects of the elegant 1+3 covariant perturbation method in cosmology in a number of papers that have been widely cited. Importantly, this was the basis of perturbation methods used by the Cambridge team of Anthony Lasenby and Anthony Challinor in their CAMB code that is widely used to analyse anisotropies of the cosmic microwave background radiation – a cornerstone of present day cosmology.

Secondly, the nature of dark energy in cosmology is one of the key unsolved issues in cosmology. Dunsby has steadily developed a specialist niche area in studying a class of alternative theories of gravity – called f(R) theories – that can potentially provide an effective solution to this problem without the need for dark energy.

He has studied the dynamics of such theories in depth in various contexts, and also in terms of their effects on perturbations. He has worked on this project with many colleagues from around the world, and is regarded as being an international leader of research in this area.

Additionally, it is important to remark that Dunsby's contribution to astronomy in this country has been outstanding through his development and advocacy of the National Astrophysics and Space Science Programme (NASSP), a truly cooperative national venture to support the Southern African Large Telescope (SALT) developments, and later also preparedness for when MeerKAT (originally the Karoo Array Telescope) comes online, both with good African connections.

It is critical for South Africa to have a strong cohort of local research students available to support the observations theoretically, and the NASSP has been providing just that. It has been well tailored to national needs and developed with much hard work and care. This is a major contribution to the development of astronomy in South Africa, and as such has earned Dunsby a major award from the South African National Science and Technology Forum (NSTF).

Overall, this represents a considerable body of achievement and a solid degree of international recognition of his work that make him a good candidate for a UCT Fellowship.

Citation: Professor Peter Ryan, Percy FitzPatrick Institute of African Ornithology

Professor Peter Ryan is the director of the Percy FitzPatrick Institute of African Ornithology, a Department of Science and Technology/National Research Foundation (DST-NRF) Centre of Excellence at UCT. His research focuses on understanding and managing environmental issues, primarily those that affect birds.

Ryan was born in the UK in 1962 and has had a stellar academic career since school level, when he was silver medallist in the 1979 Mathematics Olympiad. He obtained both his BSc and BSc(Hons) degrees from UCT with distinction and was awarded the Purcell Memorial Prize for the best zoological dissertation at UCT for both his 1986 MSc (which resulted in eight papers) and for his PhD (in 1992).

After undertaking his postdoctoral studies at the Museum of Vertebrate Zoology, University of California, Berkeley, he was appointed as a lecturer in the Department of Zoology at UCT in 1993. He rose through the ranks to professor in the Department of Biological Sciences and director of the FitzPatrick Institute in 2014.

Over his career Ryan has authored or co-authored more than 330 peer-reviewed papers (126 as first author) in 88 scientific journals. His main research themes include plastic pollution (35 papers), seabird–fishery interactions and bycatch mitigation (46 papers), seabird monitoring and conservation (40 papers), foraging ecology of seabirds and other marine predators (54 papers), seabird breeding biology (13 papers), other aspects of seabird biology (19 papers), island biology and conservation (45 papers), and avian systematics and evolution (24 papers).

He has also written 12 books, several of which are best sellers; 36 book chapters; and 193 popular and semi-popular articles. He has supervised or co-supervised 19 PhD students, 19 MSc students by dissertation, plus 59 MSc students who are conducting their degrees by coursework and dissertation.

Ryan's H-index is 53 (Google Scholar), and his work has been cited more than 11 300 times (over 5 400 times since 2011). He has an A2 rating from the South African National Research Foundation (2017–22).

Ryan is without doubt a leading international expert on the ecology of seabirds (particularly on direct and indirect human impacts on seabird populations), as well as on plastics pollution in the marine environment.

His many books and popular articles have also inspired a generation of amateur birders and naturalists. For these many remarkable contributions he richly deserves to be awarded a UCT Fellowship.

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