

Invited Speaker: Igle Gledhill

Day 1 (21 March 2018)



**Affiliation:** University of the Witwatersrand

**Bio:** Igle Gledhill holds a PhD in plasma physics, and completed the Executive National Security Programme in 2001. At UCLA and Stanford University, she wrote simulations for use in plasma fusion and space shuttle physics. She is Visiting Adjunct Professor in Flow Physics at the University of the Witwatersrand, and works on the aerodynamics of sharp manoeuvre. As an applied computational physicist, she has worked in collaboration with teams within the biosciences, in infrastructure engineering, and in non-linear optics. She is a Past President of the SA Institute of Physics and immediate past chair of the IUPAP Working Group on Women in Physics.

**Talk Title:** A Global Approach to the Gender Gap in Mathematical and Natural Sciences: How to Measure It, How to Reduce it?

Invited Speaker: Ismail Akhalwaya

Day 1 (21 March 2018) Breakaway Venue 1



**Name:** S. Khuluse

**Affiliation:** CSIR (Council of Science and Industrial Research)

**Contact:** [smakhanya@csir.co.za](mailto:smakhanya@csir.co.za)

**Bio:** Sibusisiwe Makhanya (maiden Khuluse) is a Senior Researcher in Statistics at the CSIR. She has been with the CSIR for 11 years, devoting a substantial portion of that time pursuing graduate studies. This includes being Harvard University Graduate School of Arts and Sciences student fellow in the 2010/11 academic year. She holds a doctoral degree in

Spatial Statistics from the University of Twente. She is a registered Chartered Statistician with the Institute of Certified and Chartered Statisticians of South Africa; Graduate Statistician with the Royal Statistics Society (United Kingdom) and an ordinary member of the South African Statistical Association. She currently has ten peer-reviewed scientific papers published in journals and conference proceedings and over thirty technical reports and non-peer reviewed talks. Her core research interests are in statistical risk analysis including extreme events as well as general statistical applications involving the analysis spatiotemporal data. She has experience in consulting on projects that utilize statistical methods for decision support in industry and in scientific research where statistical evidence is required to further scientific enquiry. Applications at the interface of the environment and society are of interest to her.

**Talk Title:** Air Quality Exposure Analysis - Data Challenges, Findings And Recommendations From A Case Study In South Africa.

## Invited Speaker: Ismail Akhalwaya

Day 1 (21 March 2018)



**Affiliation:** IBM Research - Africa

**Bio:** Ismail obtained his B.Sc. Mathematics, Physics and Computer Science (2003) and his B.Sc. Honours Mathematics of Computer Science with Physics (2004) from UCT on the beautiful foothills of Table Mountain. He then joined the Quantum Research Group (QRG) at the balmy UKZN for his M.Sc. Theoretical Physics (Quantum Computation & Information, 2006, awarded cum laude with the S2A3 Bronze Medal). Ismail was then fortunate to be awarded a Canon Collins-Mamphele Rampele Scholarship for a one year studentship (non-credit course work & intensive research) at the Centre for Quantum Computation, Department of Applied Mathematics and Theoretical

Physics, University of Cambridge in the perpetually overcast UK. After much soul-searching, Ismail completed his Ph.D. Theoretical Physics (Classical Noise in Quantum Systems, 2014) at the QRG, UKZN. At IBM Research Ismail is engaged with three primary tasks: engage in fundamental SKA physics/astronomy research especially through a machine-learning lens, explore quantum information research and supervise/co-supervise Wits postgraduate students. To facilitate the latter the University of the Witwatersrand has appointed Ismail as a Visiting Lecturer in the School of Computer Science and Applied Mathematics. On the SKA front, Ismail has forged ties with a number of SKA researchers and is currently working on Bayesian Interferometry and Unsupervised Machine Learning.

**Talk title:** Artificial Intelligence and Quantum Computing in Africa

## Invited Speaker: Jesika Singh

Day 1 (21 March 2018)



### **Affiliation: University of Limpopo**

**Bio:** Prof Rachael Jesika Singh works at the University of Limpopo as the Deputy Vice-Chancellor: Research, Innovation and Partnerships. Her focus area is on Research Development of staff and postgraduate students. She has a doctorate in teacher education from the University of Johannesburg. Her career in education spans over 26 years. In basic education, she has worked as a teacher, head of department, deputy principal and principal. In higher education and training, she has worked as a senior lecturer in Geography Education; a head of department in languages and social sciences, research developer and Director of Research. Her publications are in the field of teacher education. She

is widely published and is a supervisor of masters and PhD students. She is particularly dedicated to promoting women in research and management. In this regard, she participates in the activities of ULWASA (University of Limpopo Women's Academic Solidarity Association) and HERS-SA (for women in management in higher education).

**Talk Title:** Women in Management: Our role in advancing and sustaining the STEM ecosystem.

## Invited Speaker: Yoseph Getachew

**Day 1 (21 March 2018)**



**Affiliation:** Department of Economics, University of Pretoria

**Bio:** Yoseph Getachew has obtained a Ph.D. from UNU MERIT Maastricht University in October 2009. He had been a Research Fellow in Durham University, the UK, between August 2010 and December 2013. He is currently Associate Professor at the University of Pretoria, South Africa. His expertise lies in both theoretical and empirical development macroeconomics. His main research interests are Economic Growth, Public Policy, Inequality and Mobility. He has published peer-reviewed papers in

reputed international journals including the Journal of Macroeconomics, Macroeconomic Dynamics, Research in Economics and Economics Letters.

**Talk Title:** Share the Love: Parental Bias, Women Empowerment and Intergenerational Mobility

## Invited Speaker: Heidi Prozesky

Day 1 (21 March 2018)



**Affiliation:** DST-NRF Centre of Excellence in Scientometrics and Science, Technology and Innovation Policy, Centre for Research on Evaluation, Science and Technology

**Bio:** Heidi Prozesky holds a PhD in Sociology, on gender differences in the publication productivity of South African scientists, a research interest she has pursued since 2003. Her other research interests and teaching specialisations include social research methodology and ethics, as well as environmental sociology. In 2015 she was appointed as research manager of

the DST-NRF Centre of Excellence in Scientometrics and STI Studies, where she is also conducting her own research on women in science and other topics within the field of the sociology of science.

**Talk Title:** A gender perspective on career challenges experienced by African scientists

**Abstract:** The aim of this paper is to describe the career challenges that confront women scientists in Africa. Our analysis of questionnaire-survey data on approximately 5 000 African scientists shows that women are not more challenged than men by a variety of career-related issues, with the exception of balancing work and family, which the majority of women, regardless of age, region and field, experience. Contrary to expectations, women are not only less likely than men to report lack of funding as having impacted negatively on their careers, but have been more successful at raising research funding. These results, as well as those from a comparison of women according to age, region and field, lead us to recommend priorities for future interventions aimed at effectively ensuring the equal and productive participation of women in the science systems of Africa.

## Invited Speaker: Amal Amin

**Day 2 (22 March 2018)**



**Affiliation:** Ass. Prof. Dr. Amal Amin Ibrahim  
Member of Advisory and Steering Committee of Egyptian Young Academy; Young Affiliate of the Academy of Sciences for the Developing World (TWAS); Co-founder and Alumni for Global Young Ycademy (GYA)  
Coordinator of Arab Materials Science and Nanotechnology Network  
President of Egyptian Society of Advanced Materials and Nanotechnology (ESAMNT); Nanostructured Polymers-Center of Excellence-National Research Center, Cairo, Egypt

**Bio:** Dr. Amal Amin is an associate professor for nanotechnology/ polymers at national research center at Cairo- Egypt with large number of publications, projects, awards and other research activities. She studied in, worked at and travelled to several countries including-but not limited to-Germany (PhD-DAAD), USA, France, etc. She was cofounder and executive committee member of GYA and EYAS. She was president and cofounder of the Egyptian society for advanced materials and nanotechnology (ESAMNT) and ex-coordinator of the Arab Materials Science and Nanotechnology Network (AMSN-ASTF). She was TWAS young affiliate and TWAS-AAAS science diplomacy alumni. She was invited to and actively participated at WEF (Summer Davos), IAP meetings, TWAS meetings including TWAS-TYAN, GYA meetings, WSF, AAAS, UNESCO meetings, INGSA- EU conference on science and policy making in Brussels, and other big scientific high level meetings. Now, she is advisory board member of Egyptian young academy, founding chair of women in science without borders' initiative/conference (WISWB), founding fellow of the academy of engineering and technology for the developing world (AETDEW), member of TWAS-TYAN network and member of other reputable organizations. She is especially interested in science communication, increasing public awareness/literacy for science, science advice/diplomacy, innovation, science policy, etc.

**Talk Title:** Development of society with science-another aspect for science diplomacy (personal experience)

## Invited Speaker: Daya Reddy

**Day 2 (22 March 2018)**



**Affiliation:** University of Cape Town

**Bio:** Daya Reddy was born in Port Elizabeth, South Africa. He holds a bachelor's degree in civil engineering from the University of Cape Town and a Ph.D. from the University of Cambridge. He currently holds the South African Research Chair in Computational Mechanics in the Department of Mathematics and Applied Mathematics at UCT, and also serves as Director of the Centre for Research in Computational and Applied Mechanics.

Daya Reddy recently completed a term as President of the Academy of Science of South Africa. He is also an elected fellow of TWAS, and of the African Academy of Sciences. He serves as co-chair of IAP-Research, formerly the InterAcademy Council, a component of the InterAcademy Partnership that produces reports on scientific issues for governments and global organizations. He also serves on the executive board of the International Council for Science (ICSU).

Daya Reddy is a recipient of the Award for Research Distinction of the South African Mathematical Society, the Order of Mapungubwe, awarded by the President of South Africa for distinguished contributions to science, and of the Georg Forster Research Award from the Alexander von Humboldt Foundation in Germany.

**Talk Title:** Women (in Science) and the Sustainable Development Goals

## Invited Speaker: Yusuf Baran

**Day 2 (22 March 2018)**



**Affiliation:** Abdullah Gul University, Kayseri, Turkey

**Bio:** Prof. Dr. Yusuf Baran has been working as a full professor and vice rector at Abdullah Gul University, Kayseri, Turkey since 2015. He is also a member of advisory board at Yunus Emre Institute, Department of Science Diplomacy.

After receiving his bachelor degree in Dicle University, Department of Biology between 1994-1998, he earned his M.Sc. and Ph.D. degrees in 2002 and 2006, respectively, in the Middle East Technical University. During his Ph.D. studies, he worked in the Medical

University of South Carolina, for 6 months in 2005 and 2006. He worked as a Faculty at Izmir Institute of Technology, from 2007 to 2015.

Dr. Yusuf Baran has been involved in more than 30 research projects, has authored or co-authored in more than 300 papers in peer-reviewed journals and abstracts and has been recognized and awarded for more than 100 awards.

Prof. Dr. Yusuf Baran has been honored as "2013 Young Scientist" by World Economic Forum (WEF) in 2013 and earned "Outstanding Young Person of Turkey in Scientific Leadership Award", by International Young Leaders and Entrepreneurs in 2014, Dr. Baran also earned "Outstanding Young Scientist Award" by Experimental Hematology Association in 2016, by Science Heroes Association in 2014, and by Turkish Academy of Sciences in 2010; and "2017 Science Encouragement Award" by Turkish Academy of Pharmacy. Prof. Dr. Yusuf Baran is a member of The Global Young Academy; an Executive Committee member of The World Academy of Sciences Young Affiliate Network; a founder member of the Academy of Engineering and Technology for the Developing World; a member of World Association of Young Scientists; a member of the World Economic Forum, Young Scientist Program. In his research, Dr. Baran focused on molecular biology of cancer, multidrug resistance mechanisms and reversal of resistance, science and technology policies.

**Talk Title:** Science diplomacy: Soft power to connect the world through science

## Invited Speaker: Sunita Facknath

**Day 2 (22 March 2018)**



**Affiliation:** University of Mauritius

**Bio:** Sunita Facknath, BSc, MSc, PhD (UK), PhD (Mauritius) is a Professor in Sustainable Agriculture and the Dean of the Faculty of Agriculture, University of Mauritius. She has expertise in the field of sustainable agroecosystems (including coastal ecosystems) and climate change, and has also worked in the areas of aquaculture and sustainable forestry.

She has earned two doctorates, one from the University of Middlesex in UK and one from the University of Mauritius. She is an active researcher, heading several research teams, and supervising student research.

Prof Facknath has completed several consultancies for regional and international bodies (EU, FAO, UNDP, UNEP, SADC FANRPAN, CTA), as well as for the Government of Mauritius and local private companies, and has been invited to a large number of international conferences/ symposia in many parts of the world to present her work and/or make keynote addresses.

Prof Facknath is also very active in social projects: she was a founder member of the Rotary Club of Ebene Mauritius, and a former Chairperson of the Rotary Foundation Committee and member of the Project Services Committee.

**Talk Title:** Women and the SDGs

## Invited Speaker: Hassina Mouri

**Day 2 (22 March 2018)**



**Affiliation:** Department of Geology, University of Johannesburg, Auckland Park Campus, South Africa

**Bio:** Hassina Mouri studied and graduated (Cum Laude) in Algeria in 1990. She completed her PhD (University Paris 7, France) (Cum Laude) in January 1995. Hassina joined the University of Helsinki, then the Geological Survey of Finland (1995-1999) for a research position. In June 1999, she was awarded a 2 years NSF Research Grant for a Post Doctoral Associate at the University of Minnesota (USA). However in October 2000, Hassina decided to come back to Africa in order to contribute to the Research and Development of Earth Science

Education in Africa. She accepted a tenured senior lectureship in the Department of Geology at the University of Pretoria until July 2008. She was the 1st female academic in geology to join the department.

In August 2008, she joined UJ for a senior lecturer position, where she was also the only female academic (PhD) until recently.

Since 2008, she has been very active at International level. In 2008, Hassina was elected Secretary General of the Geological Society of Africa (GSAf) for 4 years. During the same period, she was leading the organization of the 23rd Congress on African Geology (CAG23), which took place in January 2011 at the University of Johannesburg. In 2012, Hassina was elected Councillor for the International Union of Geological Science (IUGS) for 4 years. She was nominated for this position (IUGS Councillor) by the Geological Society of London (UK) and supported by the 4 adhering countries including France, USA, Canada, India and South Africa. In 2013, she was elected Councillor for the International Medical Geology Association for 2 years and in 2017, she was elected Chair of the South African National Committee for IUGS for 4 years.

Hassina is a metamorphic geologist by training. However, in 2013, she started developing interest in the emerging field of Medical Geology and established the

South African Medical Geology Chapter. In 2014, she organized the 1st International Symposium on Medical Geology in Africa at the university of Johannesburg and she is planning to organize the 2nd one in November 2018.

Since the development of this emerging field, she has been actively involved in the training of Postgraduate students. For example, in 2014 the Council for Geoscience supported 2 part time students from SA; in 2015 and 2017, the University of Johannesburg supported 3 more students (2 from Kenya and 1 from Pakistan) through the Global Excellence and Stature (GES) Prestigious Program, and in 2016 she obtained bursaries to train up to 12 MSc students from South Africa, Namibia, Nigeria and Ghana to work under her supervision and co-supervision on projects related to Medical Geology.

Hassina was invited to give keynote and public lectures on her work in Medical Geology at several International institutions and conferences including the University of Kashmir in 2014, the Chinese Academy of Science and the 35<sup>th</sup> International Congress of Geology in Cape Town in 2016 and the 6<sup>th</sup> International Conference in Medical Geology in Russia in 2017. She is currently leading a special session in this field to be held in Vienna at the European Geoscience Union Meeting in 2018.

Hassina's works has been recognised at international level through a number of awards and distinctions, including the African & European Union Joint Prestigious Women in Science Regional Award (Earth and Life Science) in 2010, a Stimulus Chapter Award by the International Medical Geology Association in 2013 and a Dux Award by the University of Johannesburg Vice-Chancellor Executive Leadership Development Program Award in 2014.

**Talk Title:** Medical Geology and its relevance in Africa

Medical geology is a field of science that is dealing with the influence of natural geological factors, process and material on humans and animals health [1]. This field is based on a multi-disciplinary, cross-disciplinary and inter-disciplinary approach bringing together experts from various fields of science including public health, epidemiologists, toxicologists, geoscientists, environmental scientists..etc. Medical Geology has seen an important growth in some parts of the world during the recent years. However, in Africa, this field is still not yet well developed although it is in Africa that the application of research would be most relevant. The African continent is characterized by a very complex and dynamic geological history including frequent earthquakes, volcanic activities in tectonically active regions, pervasive dust, water toxicity due to interaction with the geological environment etc. etc. All these naturally occurring processes and materials could have short and/or long term impact on humans and animals health. The situation on the African continent can be aggravated by the fact that most of the

population live in rural areas, thus rely mostly on groundwater and locally produced food grown from soil that can be either enriched in toxic elements or deficient from essential elements, which are required for a healthy plants growth. We also know that a large number of population on the African continent suffers from serious health issues such as thyroid disorder, asthma, cardio-vascular diseases, cancer, neurological disorders etc.. and the causes are still unknown in most of the cases.

Thus, considering the significance of such health problems on the continent, we strongly believe that it is necessary to develop medical geology through research collaborative projects and training of a new generation of researchers in Africa. This initiative will result in a number of socio-economic benefits, amongst:

- (i) A better understanding of the natural environment and its impact on human and animals health,
- (ii) Education of the population (especially those who live in rural areas) and warning on the number of possible health issues that can be caused by (hidden) geological problems,
- (iii) Broadening the understanding of the diagnostic spectrum as well as therapy for many common health issues (such as certain types of cancer, asthma, thyroid issues..etc) on the African continent and contribute to the prevention of further health risks and even loss of life in future generations.
- (iv) Recommendations by relevant experts for possible remediation and solutions to the problems.

References:

[1] Essentials of Medical Geology: Revised Edition 2013th Edition by [Brian Alloway](#) (Adapter), [Jose Centeno](#) (Adapter), [Robert Finkelman](#) (Adapter), [Ron Fuge](#) (Adapter), [Ulf Lindh](#) (Adapter), [Pauline Smedley](#) (Adapter), [Olle Selinus](#) (Editor)

## Invited Speaker: Regina Maphanga

Day 3 (23 March 2018)



**Affiliation:** Council for Scientific and Industrial Research, Pretoria

**Bio:** Regina Maphanga is a Principal Researcher at the Council for Scientific and Industrial Research (CSIR) in South Africa. Prior to joining CSIR she was an Associate Professor of Physics at the University of Limpopo, SA. Also, she is appointed as a Junior Associate at the Abdus Salam International Centre for Theoretical Physics in Italy. Her research focuses on using computer simulations (classical and quantum mechanical) methods to probe materials properties and design new materials, particularly for energy storage. She is an alumni member of South African Young

Academy of Science and Global Young Academy – the voice of the young scientists around the world. Amongst various professional committees she serves, she is an Honorary Secretary and Executive Council Member for South African Institute of Physics; and an international Steering Committee Member for the workshop on Women in High Performance Computing during Supercomputing and International Supercomputing conferences. She is one of the founding members of University of Limpopo Women Academic Solidarity Association. Recently she was elected a member for C20 Commission on Computational Physics of International Union of Pure and Applied Physics (IUPAP). She received distinguished awards for her outstanding contribution in Science, Engineering and Technology in South Africa. She made continuous contributions to a number of programmes on promotion of public understanding of science, engineering and technology in SA. Regina has been invited to participate in various young scientists' activities, amongst others World Economic Forum Young Scientist and BRICS Young Scientists Forums. She is involved in various outreach activities on encouraging youth to become future scientists. She is passionate about science communication and often writes science communication essays for Science Magazine of American Association for the Advancement of Science.

**Talk Title:** Li<sub>2</sub>O<sub>2</sub>/Graphene as a material for energy storage

## Invited Speaker: Beneah Odhiambo

**Day 3 (23 March 2018)**



**Affiliation:** University of Venda, School of Environmental Sciences, Department of Geography & Geo-Information Science, South Africa.

**Bio:** Professor of Applied Geomorphology and Environmental Studi. Doctor of Philosophy (Geography), University of Waterloo, Ontario, Canada, 1993; Master of Science (Geology), University of Nairobi, 1989; Postgraduate Diploma; (Geomorphology), I.T.C., the Netherlands, 1983; - Certificate of Achievement in Remote Sensing, G.D.T.A/C.N.E.S, Toulouse, France, 1981; Bachelor of Science (Hons.),

University of Nairobi, 1980; E.A.A.C.E, Kagumo High School, Kiganjo, Kenya.

### PROFESSIONAL & TECHNICAL COMPETENCE:

1. Assessment of Natural Resources; including hydrogeological, hydrogeomorphological surveys and mapping, Climate Change, Land Capability Studies, Vegetation Mapping, and Animal Habitat Mapping, using Remote Sensing and GIS techniques.
2. Implementation of Integrated River Basin and Watershed Management practices.
3. Environmental Biogeochemistry (heavy metal analyses in hydrological, geological, geochemical, and biological materials with an emphasis on geomedical and toxicological implications).
4. Exploration of Economic Mineral Deposits, using Biogeochemical and Geobotanical Techniques.

### AREAS OF ON GOING RESEARCH

1. Quantification of Soil Erosion and Siltation Rates into the Nandoni and Tzaneen Dams in Limpopo Province, South Africa from Sept 2015 to present.
2. Limpopo River Basin Curriculum Innovation Network. Task is to infuse aspects of climate change into curricula of Institutions of Higher Learning (IHL) that occur within the basin.
3. Acting Coordinator of The Univen/Mopani District Municipality Disaster Risk Reduction study within the Mopani District Municipality

4. Developed the Centre for Climate Change at Moi University in 2015; Sponsored by the International Social Science Research Council (ISSRC).
5. A collaboration research between Geography Department at IUPUI, USA and Department of Geography, Moi University, Kenya. 2013. Project title, 'Using High Resolution Imagery to Identify Cropping Signatures of Small Farms in Western Kenya'.
6. Swedish Secretariat for Environmental Earth System Sciences (SSEESS): 2013 to Present, collaborative project title, 'Regional Centre for Hazards, Disaster Monitoring & Climate Change'.

**Talk Title:** Natural and Human-induced Hazards and Disasters in Africa and the Role of Women in Curriculum Development

Invited Speaker: Ogunade Davidson

**Day 3 (23 March 2018)**

**Affiliation:**

**Bio:**

**Talk Title:** Women and Climate Change: Africa Perspectives