

Motivational and role model talks

6 September 2024

Speakers' biographies:



10:10-10:40

Navigating the Transition: Insights and Strategies for Success in University STEMI Programmes

Prof Tebogo Mashifana is an esteemed academic and leading researcher in Circular Economy. As the Head of the Department of Chemical Engineering Technology and an Associate Professor at the University of Johannesburg (UJ), her research focuses on the Circular Economy, pioneering innovative solutions for environmental sustainability.

Prof Mashifana holds a Doctoral degree in Engineering, a Master of Business Administration, and a Postgraduate Diploma in Higher Education. She is a registered Professional Engineering Technologist with the Engineering Council of South Africa (ECSA), and a National Research Foundation (NRF) rated researcher, bringing specialised expertise and technical acumen to her groundbreaking work. She is a publishing scholar with more than 60 peer reviewed articles and conference papers.

Prof Mashifana has received several awards, including the UJ Vice-Chancellor's distinguished award for Promising Young Teacher of the Year, the Dean's Award for the top achieving staff member in the Faculty of Engineering and the Built Environment, the NRF award for Research Excellence Award for Early Career/Emerging Researchers and recently the prestigious TW-Kambule NSTF Emerging Researcher Award of the NSTF-South32 Awards also known as the 'Science Oscars' of South Africa. She was also featured by Mail&Guardian as one of 200 Young South Africans, a winner of the Gauteng Premier's Women Excellence Award, 50 inspiring South Africans, Top 10 Southern African Women in Leadership Trailblazers, and a finalist for TransUnion Rising Star.

She steadfastly believes in lifting others as she rises.



10:40-11:10

Science on the edge: an exploration


Prof Irvy (Igle) Gledhill is Visiting Adjunct Professor of Flow Physics at the University of the Witwatersrand (Wits), South Africa. She was born in Makhanda in the Eastern Cape province, South Africa. She completed her BSc with distinction in physics in 1976, followed by an Honours degree in Physics, at Rhodes University. She completed her PhD in Plasma Physics at the University of Natal, Durban, South Africa (now UKZN). She did her post-doctoral work at the University of California, Los Angeles, on magnetic confinement and plasma simulation, and at Stanford on Space Shuttle physics. She was awarded a D.Sc. (honoris causa) by Rhodes University in 2024 and was the recipient of a National Science and Technology Forum award for science diplomacy in Africa in 2024.

For 30 years, she specialised in transonic computational fluid dynamics at the South African Council for Scientific and Industrial Research (CSIR). She also contributed as an applied computational physicist within multidisciplinary collaborations including rational drug design, ocean engineering, and coal mine safety.

She is a Past President of the South African Institute of Physics (SAIP), and chaired the International Union of Pure and Applied Physics (IUPAP) Working Group 5 on Women in Physics. She has a strong commitment to improving the work environment for all scientists and served on the executive of the Gender Gap collaborative project funded by the International Science Council, 2017-2020. She is co-founder and Secretary of IUPAP Working Group 21, physics for climate change action and sustainable development.

She is Vice-President for International Relations and Scientific Affairs of the Network of African Science Academies, interim Vice President of the Academy of Science of South Africa (ASSAf), and a member of the American Physical Society Committee on International Scientific Affairs. She serves on the SA-UNESCO Science Sector Committee, and the World Cultural Council Interdisciplinary Committee.

Recently, she led the South African government Department of Science and Innovation (DSI)

	<p>Expert Working Group on the science strategy for the National Institute for Theoretical and Computational Sciences (NITheCS). She has been elected as a Fellow of the SAIP, and a Fellow of the American Physical Society.</p> <p>Her present interest is in the novel fluid dynamics of bodies undergoing significant acceleration.</p>
 <p>11:10–11:40</p> <p><i>"Opportunity and Opportunity Cost"</i></p>	<p>Prof Emmanuel Iwuoha is presently an A-Rated Scientist (i.e. a leading international researcher) of the National Research Foundation (NRF) of South Africa (SA), the SA Research Chair for NanoElectrochemistry & Sensor Technology and Professor of Chemistry at the University of the Western Cape (UWC). He is the Founder and Director of the UWC Sensor Laboratories (SensorLab) since 2002, which is a centre of excellence in electrochemistry. His research focuses on smart functional materials for electro-photovoltaic energy and disease diagnostic biosensor applications. He has supervised more than 80 PhD graduates in his area of specialisation. He was admitted as a Chartered Chemist (CChem in 1990), Fellow of the Royal Society of Chemistry, UK (FRSC in 1999), Fellow of the African Academy of Sciences (FAAS in 2018) and Fellow of the Royal Society of SA (FRSSAf in 2023). In 2020, the Council of the Royal Society of Chemistry, UK, conferred on him an Honorary Fellow of the Royal Society of Chemistry Award (HonFRSC). The award citation read in part, for "His academic achievements are exceptional given the transformational landscape in SA that he has worked in over the last 20 years." (Announcing our new Honorary Fellows (rsc.org). He was also a winner of the 2020 NRF Champion of Research Capacity Development and Transformation Award, the 2015 UWC Vice-Chancellor's Distinguished Researcher Award and the maiden edition of the UWC & Faculty Research Excellence Awards for Best Established Researcher in 2018, among many others. In 2024, he won the 2023/2024 National Science and Technology Forum (NSTF)-</p>

	<p>South32 Award for Engineering Research Capacity Development.</p>
<div data-bbox="285 367 715 1003" data-label="Image"> </div> <div data-bbox="424 1037 576 1068" data-label="Text"> <p>11:40-12:10</p> </div> <div data-bbox="218 1102 782 1176" data-label="Text"> <p><i>Leveraging Networking and Collaboration for Career Growth</i></p> </div>	<p>Mr Leo Chiloane manages the uLwazi Node at NRF-SAEON, which is responsible for the implementation of data and information platforms. He is an information management specialist with diversified experience in Information Systems (IS) projects and research data infrastructures. He holds an MSc in Project Management from the University of Cape Town (UCT), focused on systems modelling. Leo also worked as the Data Curation Lead at uLwazi, overseeing data governance processes and digital objects hosted in NRF-SAEON's infrastructure. Leo has contributed locally and internationally to several IS projects and working groups, including the South African Spatial Data Infrastructure metadata catalogue, the National Oceans and Coastal Information Management System (OCIMS), the Group on Earth Observations (GEO) Data and Knowledge Working Group, the International Long-term Ecological Research Network Information Management Committee, the CoreTrustSeal Assembly of infrastructure reviewers, and the DataCite Metadata Working Group.</p>
<div data-bbox="269 1292 729 1919" data-label="Image"> </div> <div data-bbox="424 1953 576 1984" data-label="Text"> <p>12:10-12:40</p> </div>	<p>Prof Patience Mthunzi-Kufa (OMB) holds a PhD (2010) in Physics (Biophotonics) from the University of St. Andrews, Scotland, UK. She is the first known person in SA to qualify for a PhD in this field of study. She is currently employed by the CSIR Photonics Centre (PC) as a Research Group Head for Biophotonics, specialising in advancing Point-of-Care Diagnostics and is part of PC's Management Team. Her work is varied, involving strategic leadership of her research group, project management, stakeholder engagement, securing funding, editing, and reviewing for international journals, external moderator, and member of the postgraduate committee at local universities, chairing grant review panels at the NRF, giving keynote addresses at international and local conferences, organising local and international conferences and student supervision among other things. She has published several popular science papers, peer reviewed journal and conference articles (some invited), filed patents and secured technology demonstrators and graduated many</p>

A journey into 2034

postgraduate students. She has received many awards and accolades, including:

- 2012: She was bestowed the Order of Mapungubwe in Bronze for her contribution in Biochemistry and Biophotonics both locally and internationally by President J. G. Zuma, making her the youngest recipient of such an honour.
- 2012: inducted into the South African Young Academy of Science (SAYAS). 2014: elected to serve as a co-chair of SAYAS
- 2012: selected by the DSI to represent SA young scientists and give recommendations to the Director-General on issues around SA – Europe (EU) Science and Technology cooperation
- 2012: listed as one of the “20 Youngest Power Women in Africa 2012” in the Alexander Forbes Magazine
- 2013: named as one of the 100 “World Class South Africans” in the City Press Newspaper
- 2013: SA’s Most Influential Woman in Business and Government Award by CEO Communications.
- 2014: inducted into the Global Young Academy
- 2014: received the TechWomen Award from the government of the USA
- 2015: became a TED Fellow, an international group of specialists sharing their novel ideas in Technology, Entertainment and Design
- 2016: the Department of Basic Education (DBE) named the Block of Science within the Zojazem School of Specialization after her in recognition of her contribution to the Sowetan community
- 2023: DSI WiSA Award under the category Distinguished Women Researchers, Harnessing Technological Change, and Innovation
- This was followed by her appointment as Professor Extraordinarius at the University of South Africa (UNISA)
- 2024: Winner in the [2023/2024 NSTFSouth32 Awards category TW Kambule-NSTF Award: Emerging Researcher](#)

	<p>Currently, she serves on the following international steering committees: BRICS (Brazil, Russia, India, China, and South Africa) Photonics Working Group as the Nodal point, Society of Photo-Optical Instrumentation Engineers (SPIE – Committee Member and Student Chapter Advisor), L’Oréal Women in Science Awards, (Jury Member), and is the Chair for the IEEE Photonics Diversity Overseeing Committee.</p>
<div data-bbox="240 790 759 1422" data-label="Image"> </div> <p data-bbox="427 1480 576 1509">12:40-13:10</p> <p data-bbox="240 1547 759 1576"><i>Lifelong learning, the scientific experience</i></p>	<p data-bbox="820 546 1417 965">Prof Nozipho E. Nyakale is the chairperson of the board of directors of the Nuclear Medicine Research Infrastructure (NuMeRI)*. She is a Nuclear Medicine physician at Jack Persad and Partners Inc. and also serves as a research associate for the Sefako Makgatho Health Sciences University (SMU). She is the former Head of the Nuclear Medicine Department at the SMU and Dr George Mukhari Academic Hospital complex. She is the honorary secretary of the Council of Nuclear Physicians and member of senate of the College of Nuclear Medicine.</p> <p data-bbox="820 1010 1417 1644">Prof Nyakale has multiple peer-reviewed published articles, abstracts and book chapters, has presented at multiple conferences and hosted updates and training workshops. She has been instrumental in areas of curriculum development and accreditation in the field of Nuclear Medicine as well as in introducing new procedures and therapies in the departments she has headed. She has also played a pivotal role in increasing access to Nuclear Medicine to patients in the public sector and, among other awards, was a recipient of the Discovery Foundation Rural Distinguished Visitor Award. She has served on several boards and gained a broad knowledge of the industry side of the field of Nuclear Medicine. Her teaching and supervision experience is also vast and stems over the many years’ experience in the field.</p> <p data-bbox="820 1688 1417 1823">*NuMeRI is the 2024 winner of the Innovation Award: Corporate, of the NSTF-South32 Awards, with Prof Mike Sathekge as its Chief Executive Officer and President.</p>
	<p data-bbox="820 1868 1417 2040">Dr Tiisetso Elizabeth Lephoto is a visionary leader and an influential figure in the scientific community. As the founder of Nematech Pty Ltd and a lecturer in microbiology and biotechnology at Wits University, Dr Lephoto blends academic</p>



13:30 – 14:00

Science and innovation: my journey

rigour with real-world innovation. She achieved her PhD in cell and molecular biology from Wits University by the age of 26, making her one of the youngest PhD graduates in this field. Her international research presentations span continents, including South Africa, the USA, Saudi Arabia, Kenya, Australia, and Dubai. Dr Lephoto's passion for science is matched by her dedication to agricultural advancement and innovation. Her pioneering work in the development of biological methods for pest control is particularly notable. She discovered indigenous microscopic worms capable of eliminating pests within 24 to 48 hours, revolutionising pest management in farming and agricultural industries.

A trailblazer in her field, Dr Lephoto has earned multiple awards and has a strong presence in both national and international academic journals. She has successfully supervised over 30 postgraduate students in Wits University's School of Molecular and Cell Biology. Through her leadership at Nematech Biosciences Foundation, and supported by the Department of Science and Innovation, she has mentored over 600 graduates, enriching the scientific community.

Dr Lephoto's contributions extend beyond research and mentoring. She has served on the National Advisory Council on Innovation and the South African Council for Natural Scientific Professions. Her global influence was further recognised in 2016 when she was selected to participate in the prestigious TechWomen Emerging Leaders Programme in the USA, where she was mentored as a consultant at Illumina Inc in California. In 2019, she distinguished herself at the Entrepreneurship World Cup, advancing to the semi-finals among over 106,000 entries.

Recently, Dr Lephoto obtained her MBA at the University of Reading and graduated in the United Kingdom in 2023. Her multidisciplinary approach continues to impact the fields of biotechnology and legal studies, positioning her as a pivotal figure in shaping the future of bioinnovation and legal frameworks in science.

	Dr Tiiisetso Elizabeth Lepphoto is the 2024 NSTF-South32 TW Kambule-NSTF Award: Emerging Researcher winner.
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