

NRF Next Generation  
and Emerging  
Researchers  
**SYMPOSIUM**  
**2025**  
**BROCHURE**



science, technology  
& innovation

Department:  
Science, Technology and Innovation  
REPUBLIC OF SOUTH AFRICA



National  
Research  
Foundation



# CONTENTS

Acronym/List of abbreviations.....	B
Welcome and Foreword by the CEO.....	1
Corporate Executive Team and Steering Committee.....	3
Organising Committee.....	4
Speakers .....	6
Programme.....	20
Day 0 .....	20
Day 1 .....	20
Day 2 .....	20
Day 3 .....	21
Poster Presenters.....	22
Oral Presenters.....	24
Sponsors .....	25
Funding Partners.....	26



## ACRONYM / LIST OF ABBREVIATIONS

4IR	4th Industrial Revolution
ASSAf	Academy of Science of South Africa
ATERMIS	African Tissue Engineering and Regenerative Medicine International Society
CSIR	Council for Scientific and Industrial Research
DBE	Department of Education
DHET	Department of Higher Education and Training
DSI/DSTI	Department of Science, Technology and Innovation
DUT	Durban University of Technology
ECSA	Engineering Council of South Africa
EMET	Energy Mobility Education Trust
FEROSA	Future Earth Regional Office for Southern Africa
FRF	First Rand Foundation
LAS	La-Africa Soother
MBA	Master of Business Administration
NDP	National Development Plan
NGER	Next Generation and Emerging Researchers
NRF	National Research Foundation
NSAID	Non-steroidal anti-inflammatory drugs
NSF	National Skills Fund
NSI	National System of Innovation
RIISA	Research, Innovation and Impact Support and Advancement
RSSA	Royal Society of South Africa
SAICE	South African Institution of Civil Engineering
SARCHI	South African Research Chairs Initiative
STEM	Science, technology, engineering, and mathematics
TIA	Technology Innovation Agency
TUT	Tshwane University of Technology
UCT	University of Technology
UJ	University of Johannesburg
UKZN	University of Kwa-Zulu Natal
UP	University of Pretoria
USAf	Universities South Africa



## WELCOME AND FOREWORD BY THE CEO



Welcome to the National Research Foundation's (NRF) **Next Generation and Emerging Researchers 2025 Symposium**. We are thrilled to gather brilliant minds and passionate young researchers under the inspiring theme “**research for a better society**.” This year, we aim to explore innovative ideas and impactful solutions that can shape a brighter future for our communities and the world at large.

The NRF has an admirable track record of achievement and success in supporting South Africa's national science system. The organisation continues to actively pursue its mandate to transform the country's research landscape to one that is equitable, inclusive and excellent. This transformation prioritises fairness in terms of race, gender, and disability, while upholding the highest standard of research quality and knowledge production for the benefit of society. This has been no easy task due to South Africa's historical social and economic imbalances which presents deep-rooted barriers that require sustained commitment, strategic collaboration,

and bold innovation. It has not been an easy road that we have travelled, but we have overcome many challenges to ensure that society reaps the benefits of excellent research.

The NRF is a statutory body mandated to support and promote research through funding, human capacity development and the provision of the necessary research facilities aimed at facilitating the creation of knowledge, innovation and development across all fields of science and technology. One of the business units that is a key driver of this mandate is the Research, Innovation and Impact Support and Advancement (RIISA) unit, which plays a pivotal role in enabling impactful research and innovation outcomes.

In pursuit of its mission to nurture emerging researchers, the NRF has hosted a number of national symposiums and forums for postgraduate students and postdoctoral fellows until 2017. These initiatives played a key role in providing a platform for engagements, academic and grant writing, publication, ethical research, research collaboration, networking and professional development opportunities. However, these were discontinued as a result of organisational restructuring. The discontinuation of both the South African PhD Project and the National Postdoctoral Forum has resulted in the absence of a national platform that can aid in the career development of next generation and emerging researchers as well as receiving valuable feedback from the NRF's stakeholders and beneficiaries on improving service culture of the organisation.

To address this gap, the NRF Symposium is being reimaged as a dynamic and inclusive platform. It will offer varied opportunities for networking, creating local and global workforce connections, knowledge exchange, and the sharing of topics of their interest and thought-provoking research projects aligned with the NRF's vision 2030 “**research for a better society**” and the thematic areas outlined in the DSTI decal plan.

The objectives of the symposium are to develop and support the next generation and emerging researchers through the following: One-stop-shop clearing house; Encouraging Innovation and Impact; Interdisciplinary Collaboration and Knowledge Exchange; Mentorship; Providing a Platform for Science Communication; and Leadership and Strategic Direction in Research.

Our distinguished keynote speakers, include Dr Mlungisi Cele, Prof Sabelo Mhlanga, Dr Olebogeng Selebi, Mr Tseliso Mohlomi, Ms Tshiamo Legoale, Ms Yolanda Mngcongco, Dr Nomcebo Mthombeni, Prof Kirti Menon, Dr Andrew Kaniki, Dr Nozipho Gumbi, Dr Prudence Makhura, Dr Ndivhuwo Luruli, Prof Thandiwe Sithole, Prof Buyisiwe Sondezi, Prof Nomali Ngobese, Dr Sello Manoto, Dr Bloodless Dzwairo, Prof Keolebogile Motaung, Dr Moloko Mathipa-Mdakane, Dr Tanya Hughes, and Ms Zamambo Afrika who will address critical sociological analytical frameworks for understanding academic engagement to the role of young academics in addressing the challenges faced by today's society.

The symposium will plunge into broad categories, such as health innovation, agriculture, energy innovation, humanities and society, as well as ICT. These focus areas reflect the NRF's commitment to fostering inclusive, interdisciplinary research that addresses South Africa's most pressing Societal Grand Challenge. This platform will empower the next generation and emerging researchers to connect, collaborate, and exchange innovative solutions across the following topics

- From Research to Entrepreneurship
- Future of work
- SciComm – Short Presentations
- Interdisciplinary Research: Solving Real-World Problems
- Shaping the Future Professoriate
- A Break for the Mind in Motion
- Making Your Research Talk to the Public
- Science Diplomacy and International Collaboration
- Strategic Research Ecosystems: Enabling Impactful and Inclusive Innovation
- Lessons for Early Career Researchers
- Bridging the Gap: Academia-Industry Collaboration

We are honoured to bring together a diverse group of up to 300 delegates, featuring the next generation and emerging researchers funded by the NRF, stakeholders from South African universities and across the National System of Innovation (NSI), along with senior NRF executives, A and B-rated NRF researchers, and industry leaders who will provide invaluable support.

We extend our heartfelt gratitude to all those who have contributed to making this symposium a success. Join us in shaping the future of research and innovation, where solutions to our most pressing challenges emerge from the minds of those who hold the power to transform our future. Together, we look forward to a transformative event that will inspire innovative solutions, steer positive change, and support the fundamental role of research in shaping a better future.



2025 - NRF SYMPOSIUM COMMITTEES:  
Corporate Executive Team and Steering Committee



*Dr Fulufhelo Nelwamondo*  
**Chief Executive Officer (CEO)**



*Mr Bishen Singh*  
**Group Executive:**  
*Finance and Supply Chain Management*



*Dr Gugu Moche*  
**Group Executive:** *Digital Transformation and Acting*  
**Deputy CEO:** *Research, Innovation, Impact Support and*  
*Advancement (RIISA)*  
*Project Sponsor*



*Dr Thandi Mgwebi*  
**Group Executive:**  
*Business Advancement*



*Dr Angus Paterson*  
**Deputy CEO:**  
*National Research Infrastructure Platform (NRIP)*



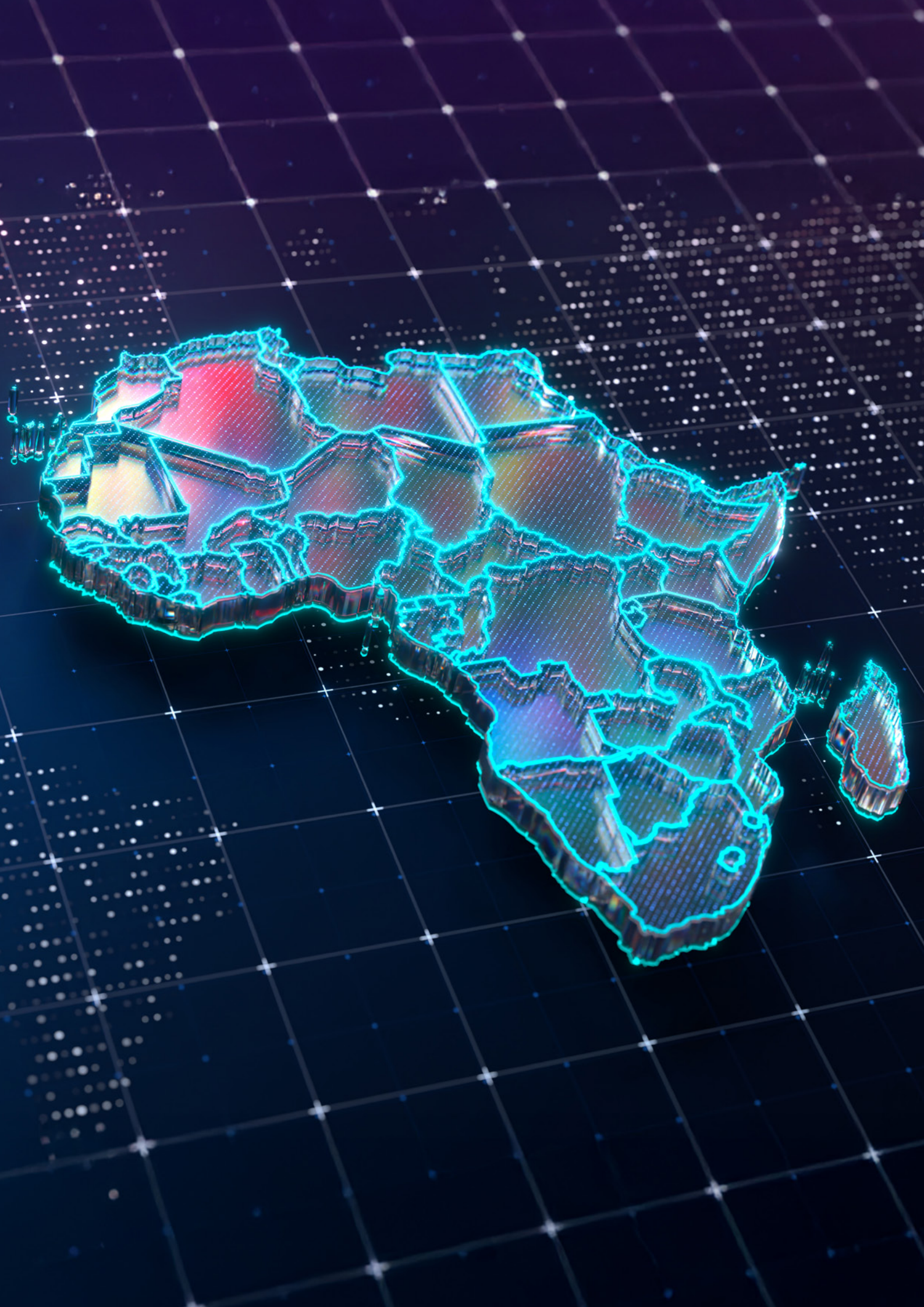
*Mr Kedirang Oagile*  
**Group Executive:**  
*Corporate Services*

## 2025 - NRF SYMPOSIUM COMMITTEES: Organising Committee



*Front row (l to r): Nkateko Maringa, Lizeka Ncudu, Shadi Phatudi-Mphahlele, Moshidi Mosena, Zodwa Mahlangu, Gomotsegang Monaise, Nontokoza Kunene and Tshepiso Masemola.*

*Back row (l to r): Katleho Ralehoko, Sello Manoto, Sello Moloji, Unathi Nongxa and Mbulelo Ncango (Chairperson).*



## SPEAKERS

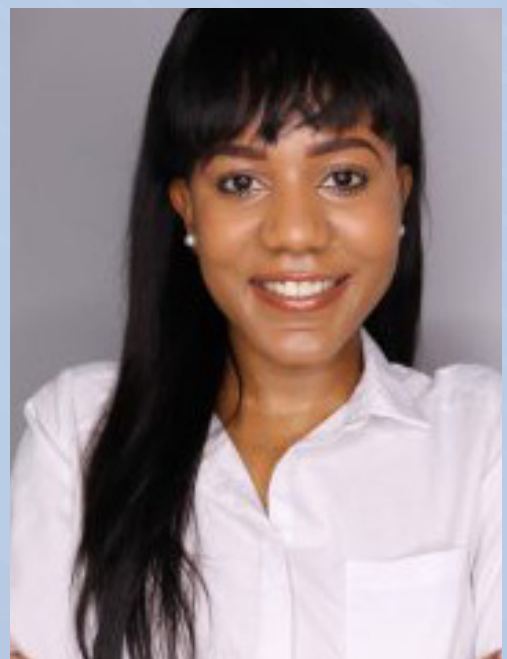


### **From Research to Entrepreneurship: Professor Sabelo Mhlanga: CEO of SabiNano**

Professor Sabelo Mhlanga (PhD, Wits) is the founder and CEO of SabiNano (Pty) Ltd, a nanotech manufacturing and research company based in Randburg, Johannesburg, South Africa (Inside Mintek). He has held numerous positions including being a Director and Board Member including being current Chairperson of the South African Nanotechnology Initiative (SANi) Advisory Board, advisory board member of OBA Global Citizens, and the European Commission Horizon 2020 South African National Contact Point (NCP) – Nanotechnology (2016 – 2018). He has worked at several universities as a lecturer and researcher including Wits, UJ and UNISA. He is a Visiting Professor/Research Associate at the Chemistry Department, Nelson Mandela University, Gqeberha, SA since 2022. Prof Mhlanga has vast experience and success in the commercialization of research, particularly nanostructured materials and nano-enhanced technologies and specialty chemicals. His company supplies a wide range of nanoproducts and specialty chemical products to industries such as the chemicals sector, agriculture, energy storage, coatings, mining, building and construction and others. He is a C2 NRF-rated researcher with high-impact research outputs cited close to 4500 times and an H-index of 37 (google scholar). His research and business interests involve developing nanotech-based solutions for water-energy-food/agriculture nexus, environmental, construction problems as well as light-weight materials for sustainability.

### **Future of Work: Dr Olebogeng Selebi, UP**

Dr Olebogeng Selebi, from the University of Pretoria's Department of Business Management, is Deputy Director of the Centre for the Future of Work. Her research and advisory work focus on shaping future work environments in response to technological, economic, and social change. A specialist in strategic communication, she promotes research-driven strategies aligned with stakeholder needs. She has taught over 2,000 students annually and held a visiting lectureship in the Netherlands. She serves on the boards of Momentum FundsAtWork and GIBS, and formerly co-ordinated the South African SDG Hub.



## SPEAKERS



### **Future of Work: Mr Tseliso Mohlomi, TUT**

Mr Tseliso Mohlomi is the Senior Director for the Tshwane University of Technology's (TUT) Institute for Future of Work. He has over twenty years of experience in global senior management roles, spanning the NGO, corporate, and public sectors.

He also served as Vice President: Africa Operations at the American-based Christian publishing company, Our Daily Bread/Discovery House Publishing. In this role he oversaw operations in Kenya, Nigeria, Zimbabwe, and South Africa. He led a process of change management through developing business processes, governance structures, human capital development strategies, business development and financial management.

At TUT, he is responsible for spearheading the university's initiative to bridge the gap between academia and industry. This is to aid the university in its quest to produce high impact research, develop high tech solutions in partnership with the industry and to produce future ready graduates. He joined the university direct from the public sector, where he worked for the Gauteng Department of Economic Development as the Director: Strategic Partnerships, Special Projects, and International Relations.

In this role, he was responsible for sourcing and forging strategic partnerships between government and the corporate sector, as well as lobbying for the integration of SMMEs into the mainstream economy through market access initiatives. He also liaised with the embassies, multilateral, and bilateral development agencies to facilitate collaborations and leverage foreign direct investment.

Mr Mohlomi is also a freelance Executive Coach/Consultant focusing on intercultural leadership and integration. He has freelanced for organisations such as Dwellworks University in New York, Cartus Intercultural and Language Solutions (UK) and NetExpat (UK). In this capacity, he offers training and coaching to Senior Executives coming to South Africa or going out of South Africa to work with the Multinational Companies.

## SPEAKERS



### **Future of Work: Ms Tshiamo Legoale**

Ms Tshiamo Legoale is employed as a Social Manager in the Projects Environment Section of the Project Management and Implementation Division at the Trans-Caledon Tunnel Authority (TCTA). She is responsible for the integration of social sustainability in projects, through amongst others developing organisation-wide social policies, strategies and frameworks as well as providing social management technical guidance during the planning, design, implementation, and close-out of projects.

With an academic background in Environmental management, Mineral Resource Management and Geology, she has been communicating science to large infrastructure affected communities for 15 years. This started in the mining sector, where she was responsible for technology development and transfer to small scale miners. During that time, she was crowned the South African Famelab winner and went ahead to represent the country in the International Famelab competition, where she was crowned the 2017 Famelab winner.

### **Future of Work: Ms Yolanda Mngcongco**

Ms Yolanda Mbalentle Mngcongco is a Master's Candidate in Environmental Health (Nanomedicine) at Nelson Mandela University, conducting her research in collaboration with the CSIR. Her work focuses on developing eco-friendly nanoparticles using indigenous medicinal plants to improve healthcare air quality and reduce healthcare-acquired infections.

Yolanda is also a passionate science communicator who believes that research should be accessible and meaningful to society. She is the 2024 winner of the South African FameLab competition, 2024 First Runner-Up, and Audience Choice of the FameLab International competition, where she shared her work on green nanotechnology in a way that engaged and inspired the public. Through initiatives such as the Eskom Expo for Young Scientists, she mentored young learners and sparked their interest in STEM fields.

Her journey reflects a commitment not only to scientific innovation but also to bridging the gap between research and communities, ensuring that science contributes to healthier environments and brighter futures.



## SPEAKERS



### **Interdisciplinary Research: Solving Real-World Problems:**

Dr Nomcebo Mthombeni, DUT

Dr Nomcebo Mthombeni currently serves as the Interim Director: Research and Postgraduate Support at the Durban University of Technology (DUT). With a deep commitment to fostering a robust research culture at DUT, Dr Mthombeni leads strategic initiatives aimed at increasing research output, enhancing postgraduate supervision, and strengthening partnerships locally and globally.

### **Shaping the Future Professoriate:**

Professor Kirti Menon, UJ

Associate Professor Kirti Menon is the Programme Director for the University of Johannesburg - Department of Higher Education Future Professors Programme Phase 2. She is the Project Lead for UJ on the EU funded project the Potential of Microcredentials in Southern Africa. Until 2024, she was the Senior Director of the Division for Teaching Excellence at the University of Johannesburg. She has served on several national task teams, and her research focus is higher education with a focus on access, exclusion and redress. She is a Research Associate affiliated to the UJ Faculty of Education. She is widely published in the field of higher education, curriculum transformation, social exclusion and access. More recently, publications include a focus curriculum transformation commissioned by the Council on Higher Education (CHE) based on institutional audit reports.



## SPEAKERS



### **Shaping the Future Professoriate:** [Dr Andrew Kaniki, UJ](#)

Dr Andrew Kaniki is a part-time Academic Advisor for the University of Johannesburg-managed Future Professors Programme Phase 2 (FPP2). He is also a Research Associate of the UJ SARCHI in Teaching and Learning (PSET). In addition, he operates as an independent Research Management and Higher Education Consultant.

He retired from the NRF in 2021, having served for over 19 years as an executive responsible for a variety of portfolios at different times in research funding, capacity development and reviews. Prior to joining the NRF he worked for 11 years at the then University of Natal (now the University of KwaZulu Natal) as Professor of Information Science, and for the last three years of service (2000-2002) served as Pro-Vice Chancellor and later Acting Deputy Vice Chancellor: Academic Affairs.

He also taught at the University of Zambia. He worked as Science Information Specialist at Carnegie-Mellon University, Pittsburgh USA. Dr Kaniki holds a PhD and Agricultural Information Specialist Certificate from the University of Pittsburgh, Master of Science in Information Science, University of Illinois, USA and Bachelor of Arts degree, University of Zambia. Over the years he has served on several boards and expert committees including among others: as Ministerial appointee on the Council of the University of Zululand (2018- to date); the TENET Board; CHE Board; HEQC the SALI Trust; Chaired the National Council for Library and information Services (2015-2018); President of the Southern African Research and Innovation Management Association - SARIMA (2003-2006). Most recently, Dr Kaniki served on the CHE writing team that prepared the **National Review of South African Doctoral Qualifications: 2020 – 2021**.

### **Employee Wellness Services:** [Mr Tebogo Digwamatje, NRF](#)

Mr Tebogo Digwamatje is an Employee Wellness Service Coordinator at NRF. He is passionate about the wellbeing of the diverse and believes that a wholistic healthy individual creates a healthy environment for all and this has a ripple effect that reaches organisation and life's bottom line.



## SPEAKERS

### **Making Your Research Talk to the Public:**

Dr Nozipho Gumbi, UNISA

Dr Nozipho Gumbi is a Senior Lecturer of Membrane Science and Technology at Unisa's Institute for Nanotechnology and Water Sustainability at the University of South Africa. She also serves as a Communications and Marketing Specialist for University of South Africa's College of Science, Engineering and Technology. Dr Gumbi is a seasoned science communication practitioner, who advocates for sciences to reach wider non-expert audiences. She has previously received several Awards and Scholarship grants. Her passion for Public Speaking has seen her Represent South Africa and young African scholars at international events such as FameLab International Finals in Cheltenham (United Kingdom) and at the International Year of the Periodic Table (IYPT2019) opening ceremony at the UNESCO headquarters in Paris (France). She has facilitated various panel discussions locally and internationally, including the annual Stockholm World Water week discussion held in Stockholm, Sweden.





### **Science Diplomacy and International Collaboration:**

*Dr Prudence Makhura, NRF*

Prudence Makhura is currently the Senior Manager for international grants and partnerships at the National Research Foundation (NRF). In this capacity she is responsible for unlocking international research and innovation funding opportunities and leveraging additional funding for the South African National System of Innovation (NSI). She does this through the management of research grants with international partners (i.e. at bi-, tri-, multi-lateral levels), the private sector, development aid agencies and state owned enterprises. Dr Makhura serves on several committees and Boards such as: the Future Earth Governing Council, Advisory Board for the Swiss Alliance for Global Research Partnerships (GRP-Alliance), Interim Steering Committee for the Soil Carbon International Research Consortium (IRC), Co-Chairs the Global Research Council (GRC) Multilateral Engagement

Working Group (MEL-WG) and is South Africa's National Contact Point for both the Marie Skłodowska-Curie Actions (MSCA) and the European Research Council (ERC).

She has previously held different portfolios within the South African Higher Education, Research and Innovation Sector. These includes working for the South African Department of Higher Education and Training (DHET) managing the higher education partnerships within the African continent (e.g. AU, SADC, COMEDAF, ADEA, AAU etc.), and Universities South Africa (USAf) being responsible for strengthening the Higher Education Sector's Research, Innovation and Technology capabilities; and international and continental collaborations. Prior to joining USAf, Dr Makhura was a Manager for Higher Education Quality Committee of the Council on Higher Education (CHE) and a Junior Researcher at the Human Sciences Research Council (HSRC) and the Centre for Sociological Research (CSR) based at the University of Johannesburg. She holds a Doctorate of Management in Technology and Innovation with the DaVinci Institute for Technology Management.

## SPEAKERS

### **Strategic Research Ecosystems: Enabling Impactful and Inclusive Innovation:** [Dr Ndivhuwo Luruli, NRF](#)

Dr Ndivhuwo Luruli, is the Chief Strategist in the Office of the CEO at the NRF. Prior to joining the NRF, Dr Luruli was the Executive Director of Research Development and Support at the University of Johannesburg (UJ) in South Africa. In this leadership role, she was responsible for the university's research initiatives, driving its commitment to advancing research, innovation, and technological development. Her responsibilities included the promotion of cutting-edge research, fostering interdisciplinary collaborations, and the establishment of partnerships with industry stakeholders and other academic institutions. Under her leadership, UJ has strengthened its reputation as a prominent research institution in South Africa and globally. She played a vital role in the facilitation of high-impact research that addresses critical societal challenges and driving the University's research strategy.



Dr Luruli holds a PhD in Science and Technology Studies from the Centre for Research on Evaluation, Science and Technology (CREST), as well as an MSc (cum laude) in Conservation Ecology, both from Stellenbosch University. Her professional career in Research Management and Administration, in fact, started at the NRF more than 17 years ago, and since then, she has worked in senior positions at institutions such as the National Institute for the Humanities and Social Sciences (NIHSS), and the Department of Higher Education and Training (DHET). She has also worked as a Consultant in Research Administration for a private university in the Kingdom of Saudi Arabia. In these roles, she has remained committed to the advancement of innovation in higher education, technological development, and societal impact. Dr Luruli is passionate about creating an inclusive and diverse research environment that supports emerging scholars. Her leadership emphasises mentoring, capacity building, and enabling early-career researchers to reach their full potential. She actively cultivates collaborations with local and international research organisations, government agencies, and the private sector. These partnerships are essential for advancing large-scale research projects and securing funding for ongoing innovation efforts.

## SPEAKERS



### **Lessons for Early Career Researchers:**

Prof Thandiwe Sithole, UJ

Prof Thandiwe Sithole is an Associate Professor in Chemical Engineering at the University of Johannesburg, where she also serves as Vice Dean: Global Engagements. Her research focuses on waste valorization, circular economy, and wastewater remediation, transforming industrial waste into sustainable construction materials. She is driven by the UN Sustainable Development Goals, particularly SDG 6 (Clean Water and Sanitation) and SDG 3 (Good Health and Well-being).

Prof Sithole holds a PhD in Chemical Engineering, a Postgraduate Diploma in Higher Education, and is currently pursuing an MBA. She's a recipient of the NRF Research Excellence Award and a finalist for the SAWISA Distinguished Young Woman Researcher Award, recognised for her groundbreaking work in environmental

sustainability and her commitment to mentoring emerging researchers.

### **Lessons for Early Career Researchers:**

Prof Buyisiwe Sondezi

Prof Buyisiwe Sondezi is a groundbreaking South African physicist and the first African woman to earn a PhD in experimental physics of highly correlated matter. Her research focuses on quantum criticality and the behavior of rare earth magnetic materials under extreme conditions such as ultra-low temperatures and high magnetic fields<sup>2</sup>. She lectures at the University of Johannesburg, where she also serves as Head of the Physics Department.

Raised in Newcastle, KwaZulu-Natal, Prof Sondezi's journey from a rural school with no lab to global recognition is a testament to her resilience and brilliance. She's been honored with the Department of Science and Technology's Women in Science Award, featured in Mail & Guardian's 200 Young South Africans, and celebrated for her contributions to transformation in STEM.



## SPEAKERS



### **Lessons for Early Career Researchers:**

Prof Nomali Ngobese, NWU

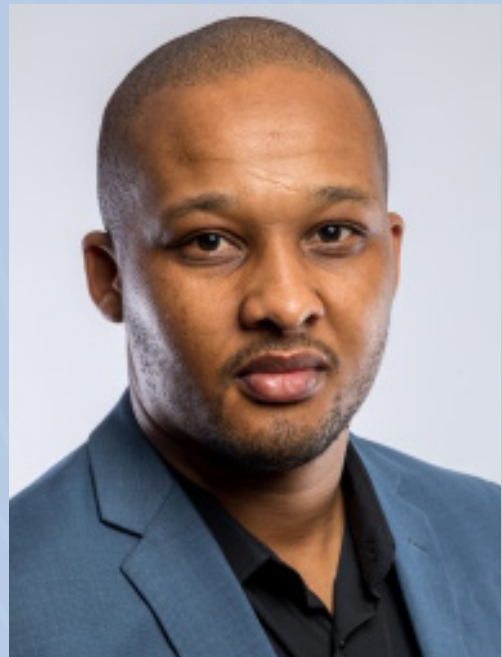
Prof Nomali Ngobese is an Associate Professor in the Unit for Environmental Sciences and Management at North-West University (NWU), Potchefstroom campus. A plant physiologist, she holds a PhD in Bioresource Systems from the University of KwaZulu-Natal. Her expertise lies in agronomy, with a focus on the production of both staple and underutilised food crops. Her research addresses the optimisation of widely cultivated crops, such as potatoes, under climate change, while highlighting the role of underutilised crops in building resilient food systems that enhance food and nutrition security.

Recognised for her contributions to food security and agriculture, she was named one of Mail & Guardian's 200 Young South Africans in 2022 and received the 2023 Community Engagement Awards from NWU's Unit for Environmental Sciences and Management and the Faculty of Natural and Agricultural Sciences. She is an NRF-rated researcher. Prior to joining NWU, she served as a Senior Lecturer and Deputy Head of the Botany and Plant Biotechnology Department at the University of Johannesburg.

### **Lessons for Early Career Researchers:**

Dr Sello Manoto, NRF

Dr Sello Manoto a seasoned research professional with over ten years of experience across medical diagnostics, biophotonics innovation, and research management. Currently, he serves as Manager of the Next Generation and Emerging Researchers (NGER) Unit at the National Research Foundation (NRF) of South Africa, where he led a team of research management experts. In this role, he oversees the acquisition and strategic deployment of funding instruments totalling R200 million annually. These initiatives are designed to strengthen research infrastructure at public institutions and enhance access to national and international research facilities, thereby supporting the development of globally competitive, locally relevant research.



Dr Manoto's responsibilities also include the development and implementation of strategic policies aimed at expanding and renewing the researcher and scholar base within South Africa's public research institutions. He acts as the primary liaison between the NGER Unit and a broad network of stakeholders, including funding bodies, industry partners, academic institutions, and international collaborators.

Prior to joining the NRF, he was a Senior Researcher at the Council for Scientific and Industrial Research (CSIR), where his work focused on biophotonics, bionanophotonics, micro/nanofabrication, lab-on-a-chip technologies, microfluidics, biosensing, and their applications in drug discovery, health diagnostics, and mobile point-of-care systems. He recognised for his expertise in point-of-care diagnostic technologies and received specialized training as a visiting scientist at the University of Illinois at Urbana-Champaign, which resulted in the development of a smartphone-based biosensor demonstrator at Technology Readiness Level 6.

Dr Manoto's research has been published in peer-reviewed international journals and presented at numerous conferences. He has supervised postgraduate students and mentored emerging researchers. He holds a PhD in Biomedical Sciences with a focus on Biophotonics, as well as executive education qualifications from Wits Business School and Stellenbosch University in management and strategic development.

## SPEAKERS



Dr Bloodless Dzwairo, DUT

Dr Bloodless Dzwairo is the Research Grants Manager at the Durban University of Technology, within the Research and Postgraduate Support Directorate, Grants Management Division. She has an academic affiliation as a Research Associate in the Department of Civil Engineering, Durban University of Technology. She is also an Adjunct Professor at BiT-BDU, Ethiopia. Her water research is mainly targeted at South Africa's three river basins: Vaal, uMngeni, and Limpopo. She has collaborated with major water utilities such as Rand Water, Sedibeng Water, and Midvaal Water, and her supervision of students is mainly in Civil Engineering water, with strong multi-disciplinary alignment. Her systems-thinking approach and commitment to environmental sustainability make her a key figure in shaping South Africa's water futures.

She has collaborated with India, Brazil, Ethiopia, Italy, Norway, Sweden, as well as East and Southern Africa. She holds NRF C2 rating and has published since 2006, looking at groundwater pollution from pit latrines, acid mine drainage, and water resources/water quality modelling. She has been awarded fellowships and scholarships as follows: UNESCO-IHE MSc grant, NRF doctoral scholarship, NRF postdoctoral fellowship, SASAC High-level System Analysis Capacity Strengthening grant, and CV Raman International Visiting Scientist Fellowship at IITB.

## SPEAKERS

### **Bridging the Gap: Academia-Industry Collaboration:**

Ms Zamambo Afrika, CSIR

Ms Zamambo Afrika is a dynamic operations executive with over 15 years of experience leading transformation and driving operational excellence across petrochemical, telecommunications, and research sectors. As Operations Manager at the CSIR, she oversees strategic planning, operational excellence, and business process optimization for the Manufacturing & Mining Cluster, ensuring alignment with the organisation's objective and innovation goals.

Her career is defined by her ability to deliver high-impact outcomes—streamlining operations, restoring critical systems under pressure, and securing strategic partnerships that enhance organizational resilience and growth. Zamambo excels in leading cross-functional teams, embedding digital tools for real-time decision-making, and fostering collaboration across government, industry, and research ecosystems.

She holds a Postgraduate Diploma in Management Practice from the University of Cape Town, a Postgraduate Diploma in Business Administration (Cum Laude) from UNISA, and a BSc (Hons) in Industrial Engineering from The University of the Witwatersrand. Zamambo is passionate about enabling inclusive industrial development through data-driven strategies, digital transformation, and sustainable innovation.



## SPEAKERS



### **Bridging the Gap: Academia-Industry Collaboration:**

Prof Keolebogile Motaung, CEO, Global Health Biotech

**Professor Keo Motaung** is a leading Biomedical Scientist, Full Professor, and Chair Holder of the FALF-FREF-NMU Research Chair in Entrepreneurship and Financial Inclusion at Nelson Mandela University. She is also the Founder and CEO of Global Health Biotech (PTY) Ltd. With over 26 years of experience in higher education, her work bridges research, innovation, commercialisation and entrepreneurship especially in empowering women in STEAMI (Science, Technology, Engineering, Arts, Mathematics, and Innovation).

A passionate researcher and mentor, Professor Motaung is known for transforming scientific discoveries into real-world solutions. Her company, Global Health Biotech, is best known for *La-Africa Soother*, a plant-based anti-inflammatory

ointment developed from her pioneering research into medicinal plants and musculoskeletal injuries. Her work exemplifies the integration of indigenous knowledge and biotechnology for accessible, sustainable healthcare.

She serves in national leadership roles including Chairperson of OWSD South Africa, Board Member of the Technology Innovation Agency, Chairperson of the EDHE Community of Practice for Entrepreneurship Research, and Chair of NIPMO's Advisory Board. Research Fellow at the School for Data Science and Computational Thinking at Stellenbosch University, reinforcing her commitment to interdisciplinary, data-driven innovation. Professor Motaung continues to influence policy, foster inclusive innovation ecosystems, and champion gender equity in science making her a transformative force in South Africa's knowledge economy. For her ground-breaking innovation, she has received recognition from a wide spectrum of institutions because she has thrown the gauntlet in bridging the gap between science, commercialisation and entrepreneurship.

## SPEAKERS



### **Bridging the Gap: Academia-Industry Collaboration:**

Dr Moloko Mathipa-Mdakane, CSIR

Dr Moloko Mathipa-Mdakane is a postdoctoral fellow and policy researcher affiliated with the CSIR and NRF. Her work focuses on research equity, capacity building in HDIs, and bioengineered probiotics. She's a published author and advocate for inclusive research ecosystems. She's a published author in the *South African Journal of Science* and a passionate advocate for inclusive research ecosystems and evidence-based policymaking.



### **Bridging the Gap: Academia-Industry Collaboration:**

Dr Tanya Hughes

Dr Tanya Hughes is the Capacity Development Manager: Research & Technology at Sasol. Through this position, she interacts with universities across the country focussing on skills development in the Science and Engineering fields and bridging the gap between academic and industrial research. Her involvement in this area has created a platform for industrial participation at the NRF and DSI, creating opportunities for funding that increase academia-industry collaboration.

Tanya is an avid Scientist with a PhD in Organic Chemistry from the University of Johannesburg. She has over 12 years of experience in various disciplines within the Petrochemical Industry. She is passionate about science and how science holds the key to changing the energy landscape. She is committed to support Capacity Development not just within Sasol, but in the broader South African Landscape. She is a devoted wife, and loving mother, with a love for reading and running. She also believes that everything is better with coffee.

# PROGRAMME

## DAY 0

Arrival and registration		10:00-11:00
Welcome Remarks	Dr Mamoeletsi Mosia: Managing Director at the South African Agency for Science and Technology Advancement (NRF-SAASTA)	11:00-11:15
Role Modelling Campaign		11:15-12:15
Tea Break and Exhibition		12:15-12:30
Science Show		12:30-13:30
Closing Session	Head of Department: KZN Department of Basic Education (DBE)	13:30-13:45
Lunch Break and Departure		13:45-14:30

## DAY 1

Arrival and Registration		12:00-13:00
Welcome Remarks	Dr Fulufhelo Nelwamondo: Chief Executive Officer of the National Research Foundation (NRF)	13:00-13:15
Opening Plenary	Dr Mlungisi Cele: Director General (DG) of the Department of Science, Technology and Innovation (DSTI)	13:15-13:45
Invited Speaker	“From Research to Entrepreneurship” Prof Sabelo Mhlanga: CEO of SabiNano	13:45-14:15
Invited Speaker	“Future of Work” Dr Olebogeng Selebi: Centre for the Future of Work (UP) Tseliso Mohlomi: Senior Director, Institute for Future of Work (TUT)	14:15-15:00
Short Presentation	“SciComm” Tshiamo Legoale: Science Communicator (TCTA)	15:00-15:30
Sponsor Session	Scientific and Precision Solutions and Thermofisher Scientific	15:30-15:45
Break		16:00-18:00
Poster Viewing Session, Networking & Cocktail Dinner		18:00-21:30

## DAY 2

Aerobics		06:15-06:45
Arrival and Registration		08:00-8:30
Invited Speaker	“Interdisciplinary Research: Solving Real-World Problems” Dr Nomcebo Mthombeni: Interim Director, Research and Postgraduate Support (DUT)	08:30-09:10
Invited Speaker	“Shaping the Future Professoriate” Prof Kirti Menon: Director, Future Professors Programme Phase 2 (UJ) Dr Andrew Kaniki: Academic Advisor, Future Professors Programme Phase 2 (UJ)	09:10-09:50
Mental Rest Break	“A Break for the Mind in Motion” Tebogo Digwamatje	09:50-10:00
Tea Break		10:00-10:20
Invited Speaker	“Making Your Research Talk to the Public” Dr Nozipho Gumbi: UNISA	10:20-11:00
S1: Agriculture and Environment	Oral Presentations	11:00-12:20 (15 min)
Lunch Break		12:30-13:30
Breakaway Sessions (Oral presentations)		
S2: Health Innovation	13:30-15:30 (20 min)	S3: Humanities and Society 13:30-15:30 (20 min)
Tea Break		15:30-15:45
S3: Energy Innovation	15:45-16:45 (15 min)	S4: ICT 15:45-16:45 (20 min)
Gala Dinner		18:30-23:00

# PROGRAMME

## DAY 3

Kickboxing		06:15-06:45
Arrival, Registration and Tea		08:00-08:30
Invited Speaker	“Science Diplomacy and International Collaboration” Dr. Prudence Makhura (NRF)	08:30-09:15
Invited Speaker	“Strategic Research Ecosystems: Enabling Impactful and Inclusive Innovation” Dr Ndivhuwo Luruli (NRF)	09:15-10:00
Tea Break		10:00-10:20
Panel Discussion Facilitator: Dr B Dzwauro (DUT)	“Lessons for Early Career Researchers” Prof Thandiwe Sithole: Vice-Dean, Global Engagements (UJ) Prof Buyisiwe Sondezi: Head of Department, Physics (UJ) Prof Nomali Ngobese: Associate Prof and Chair (NWU) Dr Sello Manoto: Manager Emerging Researchers	10:30-11:30
Panel Discussion Facilitator: Mrs Z Afrika (CSIR)	“Bridging the Gap: Academia-Industry Collaboration” Prof Keolebogile Motaung: CEO, Global Health Biotech Prof Sabelo Mhlanga: CEO of SabiNano Dr Moloko Mathipa-Mdakane: Information Scientist (CSIR) Dr Tanya Hughes: Manager, Capacity Development, Research & Technology (SASOL)	11:30-12:30
Closing Session	Dr Gugu Moche (Acting DCEO: RIISA and Group Executive: Digital Transformation)	12:30-12:45
Lunch and Departure		

## POSTER PRESENTERS

Applicant	Institution	Topic	Abstract
Alida Van der Walt	Stellenbosch University	Bearing witness to sexual and gender-based violence in South Africa through opera: resonant feminist listening in/and/through Cape Town Opera's 'Trial By Media' (2024)	<a href="#">View</a>
Amanda Morris	Cape Peninsula University of Technology	Collage as pursuit of social justice in Extended Curriculum Programmes	<a href="#">View</a>
Adeniyi Amos	Cape Peninsula University of Technology	Synthesis of triblock terpolymer nanofiltration membrane for nitrate removal from drinking water	<a href="#">View</a>
Anthea David	University of the Western Cape	Simultaneous Seawater Pretreatment and Fermentation of bioethanol using lignocellulosic residues	<a href="#">View</a>
Azole Sindelo	Rhodes University	Multifunctional Phthalocyanine-Based Covalent Organic Frameworks for Photodynamic Antimicrobial Activity and Electrochemical Sensing in Water Treatment	<a href="#">View</a>
Bianca Tame	University of Cape Town	Pandemic panic and power: Reconfigured domestic work in South Africa during the Covid-19 pandemic	<a href="#">View</a>
Bongani Prince Ndlovu	University of KwaZulu-Natal	Beyond Disciplinary Boundaries: Positioning Teacher-related Science Content Knowledge as Powerful Knowledge in Teacher Education	<a href="#">View</a>
Bongolwethu Mabusela	Cape Peninsula University of Technology	Vacuum Ultraviolet Photolysis as a Sustainable Strategy for Ethylene Removal and Shelf-Life Extension in Postharvest Fruit Storage	<a href="#">View</a>
Bonke Phathekile	University of the Western Cape	Development of pH sensitive polymer nanoparticles for sustained released AMPs at low pH conditions.	<a href="#">View</a>
Carolyn Nadasen	University of Pretoria	Characterising Venom-Induced Coagulation and Blood Cell Alterations in Health and Disease: A Multidisciplinary Approach to Snakebite Diagnostics	<a href="#">View</a>
Denise Scholtz	Stellenbosch University	Challenges in diagnosing MSMD-like phenotypes: Genomic and transcriptomic insights from South Africa	<a href="#">View</a>
Elaine Goosen	Stellenbosch University	The Potential of Lignin Derivatives as Green Road Construction Materials	<a href="#">View</a>
Jeshika Luckrajh-Williams	University of Cape Town	Unilateral elongated styloid process: a case report	<a href="#">View</a>
Johannes Sibeko	Nelson Mandela University	Measuring Text Readability in Sesotho	<a href="#">View</a>
Kayode Emmanuel Oyetade	Vaal University of Technology	Leading the Shift by Rethinking Education for Future Skills in the Generative AI Era	<a href="#">View</a>
Kefilwe Vanessa Mokwebo	University of Cape Town	Molecularly imprinted electrochemical nanosensor for HIV drugs micropollutants monitoring in water	<a href="#">View</a>
Khuthadzo Mudzanani	Mintek	Geopolymerization of Mine Tailings: Transforming Waste into Sustainable Resources	<a href="#">View</a>
Koena Moabelo	University of the Western Cape	Nanotechnology-based approaches for efficient anti-obesity drug delivery, bioimaging and therapy	<a href="#">View</a>
Kopelo Mabunda	Tshwane University of Technology	Phytochemistry and biopharmaceutical studies of plant species for anticancer activity	<a href="#">View</a>
Kwanele Ngece	University of Fort Hare	Synthesis, Characterization, and in vitro biological evaluation of compounds with effective antimicrobial activity against Co-infections associated with COVID-19	<a href="#">View</a>
Langanani Rakhunwana	University of Pretoria	Supporting first-year teaching and learning of electrochemistry	<a href="#">View</a>
Lawrence Koech	Tshwane University of Technology	Spray Dry Scrubbing of SO <sub>2</sub> from Industrial Flue Gas Using Raw Trona and Waste Black Ash	<a href="#">View</a>
Lebogang Mokotedi	Sefako Makgatho Medical University	High fructose intake exacerbates cardiac remodelling in a rat model of rheumatoid arthritis	<a href="#">View</a>
Lucinda Pypers-Baatjies	Medical Research Council	Repurposing Anti-inflammatory, Antifungal, Sulfonamide and Boronic Acid Agents for tuberculosis treatment	<a href="#">View</a>
Manyasha Ntsoane	Tshwane University of Technology	Preservation of Fresh Figs through Application of Dielectric Barrier Discharge Atmospheric Cold Plasma for a Sustainable Food Future	<a href="#">View</a>
Maria Banda	Tshwane University of Technology	The exploration of phytoremediation technology for restoration of coal fly ash dams	<a href="#">View</a>
Marlon Oranzie	University of the Western Cape	Aptamer-Functionalized Quantum Dot for Enhanced C-Reactive Protein Sensing and Quantification	<a href="#">View</a>

## POSTER PRESENTERS

Applicant	Institution	Topic	Abstract
Mary Nkosi	University of Limpopo	Examining the influence of Soil map resolution on the performance of a hydrological model at X22J QC	<a href="#">View</a>
Mbulelo Jokazi	Rhodes University	The effect of TiO <sub>2</sub> nanoparticles on the catalytic activity of a porphyrin towards electrochemical sensing and photoelectrodegradation of pentachlorophenol.	<a href="#">View</a>
Melitta Gqada	University of the Western Cape	Tiny Babies, Heavy Hearts: Unpacking Successful Emotional Support Activities for Parents in the NICU, An integrative review	<a href="#">View</a>
Mokgadi Hlongwane	Tshwane University of Technology	Rhizobacteria: A sustainable strategy for extreme climate resilient <i>Lessertia frutescens</i>	<a href="#">View</a>
Mthokozisi Mnguni	University of Johannesburg	Generation of resorcinol-formaldehyde hollow spheres from micro- to sub-100 nm as sorbent in adsorptive removal of heavy metals from water	<a href="#">View</a>
Ngwako Joseas Waleng	University of Johannesburg	Removal of pharmaceuticals from the environment using hollow carbon nanospheres	<a href="#">View</a>
Nthabiseng Jane Ramanamane	University of South Africa	Development and Optimisation of Quartz-Based Membranes for Efficient Oil-Water Separation in Industrial Wastewater Treatment	<a href="#">View</a>
Sandile Hadebe	University of Limpopo	Coupling Hail Disruption Intensity and Cultivar-based Influences in Potato Yield, Tuber Grading and Nutritional Quality Decision Making	<a href="#">View</a>
Taahirah Boltman	Stellenbosch University	Exploring Mitochondrial Function and Subclinical Atherosclerosis in HIV: Preliminary Findings from the MitoSAKen Study	<a href="#">View</a>
Tarish Jagwanth	Nelson Mandela University	A guidance framework for assessment practices - classmark requirements in first-year accounting	<a href="#">View</a>
Thandi Mbuyazi	University of KwaZulu-Natal	Photocatalytic degradation of malachite green and trypan blue by Fe <sub>3</sub> O <sub>4</sub> @BC/APTES: Optimization by Box-Behnken design	<a href="#">View</a>
Thulani Nyathi	University of Cape Town	Fuel cell hydrogen 'clean-up' over manganese cobalt oxide catalysts: An in-situ study	<a href="#">View</a>
Tracey Jooste	Stellenbosch University	Mining the transcriptome for clues into TB treatment response	<a href="#">View</a>
Yolanda Mayma	University of the Western Cape	Beyond the Virus: COVID-19's Systemic Impact on HIV Care, Mental Wellness, and Vaccine Uptake and Hesitancy Among Adolescent	<a href="#">View</a>
Zwelakhe Maseko	University of Zululand	Exploring Gentrification in Durban CBD, Point Precinct and Its Impact on the Access to Low-Cost Housing in Durban Central	<a href="#">View</a>

## ORAL PRESENTERS

Applicant	Institution	Topic	Abstract
Amy Padayachee	Cape Peninsula University of Technology	Politics of Promotion: Unpacking Trade Union and SGB Roles in Educator Appointments in South Africa	<a href="#">View</a>
Festus Fameso	Tshwane University of Technology	Numerical Investigation of Biogas Production Potential in Household Septic Systems: Toward Improved Community-Based Environment and Energy Management	<a href="#">View</a>
Halalisani Mlambo	University of Johannesburg	Technology at the border: Benefits, Problems and Prospects	<a href="#">View</a>
Hlologelo Climant Khoza	University of Pretoria	Pre-service science teachers' adaptive pedagogical reasoning with AI-Generated Lessons	<a href="#">View</a>
Innocentia Mkhize	Durban University of Technology	Hybrid 3D-Printed Microbial Fuel Cells with Piezoelectric Enhancement for Acid Mine Drainage Remediation in the Bushmen's River, Estcourt, KwaZulu-Natal Province, South Africa	<a href="#">View</a>
Ishmael Jaja	University of Fort Hare	Molecular characterization of <i>Vibrio</i> species obtained from commercial fish specimens sold in retail markets in the Eastern Cape region, South Africa: Implications for food and public health safety	<a href="#">View</a>
Karabelo Moloantoa	University of KwaZulu-Natal	Exploration of indigenous bacteria from Industrial wastewaters for bioremediation application	<a href="#">View</a>
Karishma Naidoo	University of KwaZulu-Natal	Investigating the effects of gossypetin on cardiovascular function in diet-induced prediabetic male Sprague Dawley rat	<a href="#">View</a>
Khuthala Mnika	University of Cape Town	Building a Genetic Resource for Inherited Kidney Diseases in Africa: Biorepository and Genetic Diagnosis Utility	<a href="#">View</a>
Lebogang Thobakgale	Council for Scientific and Industrial University	High-Throughput molecular screening of medicinal waste to support circularity in the advanced pharmaceutical manufacturing industry	<a href="#">View</a>
Lungelo Cynthia Mdletshe	University of Zululand	Institutional Failures: Underreporting of Sexual Harassment Against Female Students in South African Universities	<a href="#">View</a>
Mochelo Lefoka-Mphahlele	University of Cape Town	Modelling Adoption of Digital Technologies and Productivity in South African Construction Industry	<a href="#">View</a>
Moses Basitere	University of Cape Town	Integrated Enzymatic–Anaerobic–Membrane System for Decentralised Treatment of High-Strength Abattoir Wastewater	<a href="#">View</a>
Nandipha L. Botha	iThemba Labs	Synthesis of metal sulphide nanomaterials and their applications as nanofertilizers	<a href="#">View</a>
Ngoako Monyela	Stellenbosch University	Enhancing the storage stability of 'Forelle' pears using cold plasma-activated sodium alginate edible coatings: effects on biochemical, physicochemical, visual, and microbial quality	<a href="#">View</a>
Salvation Muthubi	Vaal University of Technology	Green Synthesis of Zn-Based MOF Derived from Waste for CO <sub>2</sub> Capture Application	<a href="#">View</a>
Sinaye Akhumzi Mtimba	Nelson Mandela University	Proposed Hypothetical Model Investigating the Role of Cognitive Impulsiveness, On Responsible Financial Behaviour and Financial Goal Achievement Among Young South African Adults.	<a href="#">View</a>
Tammy Ras	University of the Western Cape	The link between maternal smoking and alcohol use and cardiovascular risk in their children.	<a href="#">View</a>
Tatum Matthews	University of the Western Cape	Design and Development of Functionalised Metal-Organic Frameworks (MOFs) as Efficient Heterogeneous Catalysts for Sustainable Biodiesel Production from Biomass in South Africa	<a href="#">View</a>
Tebatso Moepa	University of South Africa	A Computational Approach to Analyze South African Languages Diversity in Kinship Domain	<a href="#">View</a>
Tebogo Bokaba	University of Johannesburg	Enhancing clinical emergency department workflow using machine learning	<a href="#">View</a>
Vuyiseka Ntsalu	Nelson Mandela University	Nanotheranostics for Antimicrobial Testing in Diabetic Foot Infections in Nelson Mandela Bay	<a href="#">View</a>
Zamani Cele	Council for Scientific and Industrial University	BioInspired Polymer Conjugates as a Weapon for the Fight against Antimicrobial Resistance (AMR)	<a href="#">View</a>

## FUNDING PARTNERS

We extend our heartfelt gratitude to our funding partners for your continued support and partnership in funding the next generation and emerging researchers. Together, we are fostering an environment of collaboration and excellence that benefits the broader community and enhancing the National System of Innovation, making a significant impact. We look forward to continuing our partnership and achieving even greater milestones together. Thank you for your invaluable support and dedication to advancing the national research agenda.

- Department of Higher Education and Training
- Department of Science, Technology and Innovation
- Energy Mobility Education Trust
- First Rand Foundation
- German Academic Exchange Service
- International Institute for Applied Systems Analysis
- Ikusasa Student Financial Aid Programme
- Mandela Institute for Development Studies
- National Skills Fund
- Sasol Foundation
- South African Qualifications Authority
- Science Granting Councils Initiative
- British council




---

## SPONSOR

We extend our sincere gratitude for the generous sponsorships for the NRF Next Generation and Emerging Researchers Symposium 2025 Gala Dinner and Cocktail Event and delegates gifts. Your invaluable support has been instrumental in ensuring the success of this event that offers varied opportunities for next generation and emerging researchers to connect and exchange innovative solutions to solve Societal Grand Challenges.

- Scientific and Precision Solutions







## science, technology & innovation

Department:  
Science, Technology and Innovation  
**REPUBLIC OF SOUTH AFRICA**



**National  
Research  
Foundation**

 NRF Building, South Gate  
CSIR Complex, Meiring Naudé Road  
Brummeria, Pretoria  
South Africa

 +27 (0)12 481 4000

 [info@nrf.ac.za](mailto:info@nrf.ac.za)

 [www.nrf.ac.za](http://www.nrf.ac.za)

 @NRFSouthAfrica

 @NRF\_News

 The National Research Foundation  
of South Africa (NRF)

 @NationalResearchFoundation