

# NSTF-South32 Awards



## Winners of the 2023/2024 NSTF-South32 Awards

**Recognising, celebrating and rewarding excellence in science, engineering, technology (SET) and innovation in South Africa**

The hybrid gala events of the prestigious NSTF-South32 Awards took place on Thursday, 11 July 2024. It is the 26<sup>th</sup> celebration of South African excellence through this flagship project of the National Science and Technology Forum (NSTF).

- Outstanding contributions to SET and innovation were awarded and celebrated in the following broad areas under 15 categories:
- Scientific research
  - Innovation and development
  - Management and related activities
  - Capacity development in engineering research
  - Environmental sustainability and biodiversity conservation
  - Science diplomacy
  - Medical research
  - Water research and innovation
  - Data for research
  - Science communication

**Special Annual Theme Award:** The NSTF theme for 2024 is the Fourth Industrial Revolution (4IR) in South Africa (SA). A **Special Annual Theme Award** was made recognising a contribution in this regard.

**About the NSTF and the awards:** The NSTF is the most representative multi-stakeholder non-profit forum in SA promoting SET and innovation. The NSTF-South32 Awards showcase the research and development capacity of our nation. The excellent output of the winners supports SA's advancement, economic growth and the social upliftment of our people.

**Why are these awards different?** The national NSTF-South32 Awards are the largest SET and innovation awards in SA since 1998. They are known as the 'Science Oscars' and were the first science awards in the country after the change of government in 1994. An important aspect of the Awards is the showcasing of South African SET and innovation to the public, which includes the year-long engagement programme between the winners and school learners, called the **NSTF Share 'n Dare Programme**. These top scientists share their knowledge and experiences with young people, 'daring' them to follow in their footsteps.

The **NSTF Brilliants Programme** recognises at least two outstanding Grade 12 performers in physical science and mathematics from each province exposing them to the award winning scientists and the world of professional SET work. They are also introduced to the public through the NSTF-South32 Awards Gala Event and publicity campaign.

### Award winners

The finalists and awardees were honoured, announced and celebrated at the **hybrid gala dinners** held in Johannesburg and Cape Town simultaneously, via live broadcast on the **NSTF YouTube channel**. It is an honour to be **nominated**, an achievement to reach the **finals** and an exceptional milestone of excellence to be a winner.

The NSTF and its **sponsors** congratulate the 2023/2024 NSTF-South32 Award winners.

#### Lifetime Award

- **Prof Ben-Erik van Wyk** – Chair, Department of Science and Innovation (DSI)/National Research Foundation (NRF) South African Research Chairs Initiative (SARChI) in Indigenous Plant Use, University of Johannesburg (UJ)  
For his contribution as a botanist and an authority on traditional and commercial uses of plants, with numerous books and publications covering all or most of the socially relevant and commercialised plant species of the world.

#### TW Kambule-NSTF Award: Researcher

- Prize sponsor: **proSET** (Professionals in SET), a sector of the NSTF representing more than 45 professional societies
- **Prof Patience Mthunzi-Kufa** – Research Group Head: Biophotonics; Manager: Photonics Centre, Council for Scientific and Industrial Research (CSIR); Professor Extraordinarius: University of South Africa (UNISA)  
For her research on the construction and application of photonics-based diagnostic devices for point-of-care detection of HIV-1, TB, COVID-19, as well as non-communicable diseases in order to achieve early detection, and to facilitate timely treatment.

- TW Kambule-NSTF Award: Emerging Researcher (two winners)**  
Prize sponsor: **South African Young Academy of Science (SAYAS)**
- **Dr Tiisetso E Lephoto** – Lecturer and Principal Researcher: School of Molecular and Cell Biology, Faculty of Science, University of the Witwatersrand (Wits)  
For her investigation of biological control agents (natural enemies for pests) which can help solve identified challenges, and the identification of new insect-killing microscopic worms called entomopathogenic nematodes, which have the potential to infect and kill problematic soil-dwelling insects in farms within 24-48 hours upon invasion.

- AND**
- **Prof Tebogo Mashifana** – Associate Professor and Head of Department (Dept): Chemical Engineering Technology, University of Johannesburg  
For her research which focuses on innovative circular economy principles to remediate the environmental impact caused by wastewater and solid wastes and the conversion of such wastes generated by different industries, which pollute our environment, contaminate water, soil and the air, into new products that can be used for various applications.

#### Management Award

- **Prof Bernard Slippers** – Professor: Dept of Biochemistry, Genetics and Microbiology; Director: Tree Protection Co-operative Programme; Director: Forestry and Agricultural Biotechnology Institute (FABI), University of Pretoria (UP); Director: Innovation Africa @UP  
For his leadership and participation in several substantive research programmes and his role in the foundation of the Future Africa Institute, the Africa Science Leadership Programme and Innovation Africa @UP, and in the global young academy movement and the Global Young Academy and SAYAS.

#### Engineering Research Capacity Development Awards (two winners)

- Sponsor: **Eskom** since 2003
- **Prof Claudia Polese** – Associate Professor: Aerospace Manufacturing and Design; Head: Aeronautical Engineering Stream; Deputy Director: African Research Universities Alliance Centre of Excellence in Materials, Energy and Nanotechnology; Advisory Aerospace Research Director: National Aerospace Centre, Wits  
For her leadership of several strategic South African initiatives to strengthen the research in the area of advanced manufacturing technologies and primarily the cutting-edge Laser Shock Peening (LSP) process, furthering substantial infrastructural and human capital development.
- AND**
- **Prof Emmanuel Iwuoha** – Professor: Chemistry, University of the Western Cape (UWC); DSI/NRF SARChI Chair for NanoElectrochemistry and Sensor Technology; Director: SensorLab, UWC  
For his exploitation of the capacity of the SensorLab at UWC for research on disease diagnostic sensor devices, lithium-ion battery/supercapacitors and solar cell technology to achieve a significant throughput of researchers under his guidance for applications in solar cells and gas sensing.

- NSTF-Water Research Commission (WRC) Award**  
Sponsor: **WRC** since 2017
- **Prof Timothy Dube** – Director: Institute for Water Studies, UWC; Adjunct Professor: United Nations University, Flores, Germany  
For his pioneering and innovative methods using satellite technology merged with machine learning (AI) to monitor water resources in semi-arid regions, enhancing ecological sustainability and community resilience.

- NSTF-SAMRC Clinician-Scientist Award**  
Sponsor: **South African Medical Research Council (SAMRC)**
- **Dr June Fabian** – Director: Wits Donald Gordon Medical Research Institute; Post-doctoral Researcher; Co-Lead: Clinical Research Platform: SAMRC/Wits Rural Public Health and Health Transitions Research Unit; Lecturer: Dept of Internal Medicine, School of Clinical Medicine, Faculty of Health Sciences, Wits  
For her leadership and coordination of the multi-country and multi-dimensional ARK project, which challenged outdated, biased, and unscientific diagnostic tools and developed new, evidence-grounded methodologies to achieve greater impact in the early detection and management of chronic kidney disease.

- Green Economy Award**  
Sponsor: **Technology Innovation Agency (TIA)**
- **Prof Linda Godfrey** – Manager: Circular Innovation SA, Principal Scientist: Circular Economy, CSIR; Extraordinary Professor: Faculty of Natural and Agricultural Sciences, North-West University (NWU)  
For her leading role in shaping and driving SA's waste and circular economy science, technology and innovation agendas, encompassing the development and implementation of the Waste Research, Development and Innovation Roadmap for the DSI and having been instrumental in shaping strategic local and international waste and circular economy initiatives.

- Science Diplomacy for Africa Award**  
**NEW Sponsorship: Science Diplomacy Capital for Africa initiative (SDCIA)**
- **Prof Irvy (Igle) Gledhil** – Visiting Adjunct Professor: School of Mechanical, Industrial and Aeronautical Engineering, Wits  
For her work to build vibrant, supportive environments in which women and men as scientists can make real contributions, leading the international working group on Women in Physics and her leadership within the Global Gender Gap Project and the convening of African and South African scientists to engage with wicked problems.

- Data for Research Award**
- **uLwazi Node, South African Environmental Observation Network (SAEON) Open Data Platform, NRF** – Mr Leo Chiloane, Manager  
For the management of a metadata repository that facilitates the FAIR publication, discovery, dissemination, and preservation of earth observation and environmental data in SA, certified as a trusted repository by the CoreTrustSeal in 2023.

- Innovation Award: Corporate Organisation**
- **Nuclear Medicine Research Infrastructure (NuMeRI) NPC** – Prof Mike Satheke, Chief Executive Officer and President  
For a facility which represents a paradigm shift in its field, offering a one-stop-shop for medical imaging and theragnostics dedicated to drug development and clinical research, which provides consolidated expertise in nuclear technologies, in medicine and the biosciences, creating significant research, development and innovation capacity in SA.

- Innovation Award: Small, Medium and Micro Enterprise**  
Sponsor: **National Intellectual Property Management Office (NIPMO)** since 2019
- **Jonker Sailplanes (Pty) Ltd** – Co-Founder, Shareholder and Director: Prof Attie Jonker, School of Mechanical Engineering, NWU  
For their design, manufacture, further development of, and for building on their success celebrated for the first time 11 years ago, and for their export success of internationally competitive sailplanes.

- Communication Award**
- **Prof Jennifer Fitchett** – Professor: Physical Geography, Wits  
For her involvement in both communicating her own science to the public and in training early career researchers in science communication, notably through a Science Blog, articles in The Conversation and podcasts.

- Non-Governmental Organisation (NGO) Award**
- **OLICO Maths Education** – Director: Maths Education, Dr Lynn Bowle  
For their project to make sense of mathematics through high quality programmes and resources for thousands of South African school children from disadvantaged backgrounds.

- Special Annual Theme Award: 4IR in SA**
- **Inter-University Institute for Data Intensive Astronomy (IDIA)** – a partnership of the Universities of Cape Town (UCT), UWC, and UP – Prof Patrick Woudt, Interim Director: Dept of Astronomy, UCT  
For their cutting-edge infrastructure and its management which facilitates global collaboration in astronomy empowering researchers to analyse complex SET data with unprecedented efficiency.

**Read all about it:** The NSTF partners with **Mail & Guardian** and **Business Report** to publicise the winners and their work since 2009. Both newspapers are media sponsors of the NSTF-South32 Awards.

Buy your copy of the newspapers of Mail & Guardian (12 July 2024 edition) and Business Report (the latter is an insert in The Star, Pretoria News, Cape Times and The Mercury on 19 July 2024). The Mail & Guardian supplement is also available online making the articles accessible throughout and to anyone interested. The winners will feature in a digital magazine that will be available on 31 July 2024 on the IOL website.

These supplements are made possible by advertisements from **members of the NSTF** and the finalists' organisations.

**Please note:** *The NSTF does not gain financially from these supplements. The intention is to increase awareness among the public of the outstanding work being done in SA by top scientists and related professionals.*

- Awards partners and sponsors:**
- **South32** (co-branding sponsor)
  - **Business Report, Mail & Guardian and the Department of Journalism and Integrated Communication, Tshwane University of Technology (TUT)** (media sponsors)
  - **Eskom, NIPMO, WRC, SAMRC, TIA, and SDCIA** (category sponsors)
  - **DSI** (platinum sponsor)
  - **DSI and the South African Council for Natural Scientific Professions (SACNASP)** (youth outreach sponsors)
  - **proSET, NIPMO and SAYAS** (prize sponsors)

**About the NSTF**

The National Science and Technology Forum (NSTF), established in 1995:

- is a broadly-representative stakeholder body for all science, engineering and technology (SET) and innovation organisations in South Africa
- gathers stakeholders around burning issues of national and global interest, across the public and private sectors, including matters of public policy
- includes a network of professional societies in SET and STEM education (STEM = science, technology, engineering and mathematics) - the NSTF proSET membership sector
- recognises, awards and profiles the outstanding contributions of individuals and groups to SET and innovation through the prestigious NSTF Awards
- runs and supports collaborative projects and youth outreach, including recognition of top performance in mathematics and science, role modelling, bursary and STEM career information
- runs and supports the STEM4all.org which attracts youth and educators to Explore>Discover>Learn the world of STEM including careers. (Established by NSTF proSET)

**For more information**  
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