



S.E.T. for socio-economic growth

## National Science and Technology Forum (NSTF)

# media release

## Empowering tomorrow's STEM stars: Insights from 2023 NSTF-South32 Award Winners

The transition from high school to university life can be a challenging journey, often requiring several months for students to fully adapt to their new academic environment. Research has shown that this transition is a crucial phase of personal development, even though it can be fraught with difficulties. Many students embarking on higher education courses lack the coping skills necessary for a smooth transition.

On 11 September 2023, the [National Science and Technology Forum \(NSTF\)](#) hosted [NSTF-South32 Award winners](#) to engage with the students of the 2023 [NSTF Brilliants Programme](#). The virtual gathering was aimed at informing and motivating students in their studies and for their future careers.

The six distinguished speakers made a lasting impact on the students' lives as they presented the following thought-provoking talks:

1. **Access to opportunities for impact and leadership in STEM:** Prof Usisipho Feleni, Associate Professor and Thematic Area Leader: Applied Electrochemistry, Institute for Nanotechnology and Water Sustainability, University of South Africa (UNISA); and 2023 [TW Kambule-NSTF Award: Emerging Researcher](#) winner. In her compelling talk, she emphasised the importance of proactive research involvement, collaboration, and seizing opportunities. Prof Feleni contended: *"Early engagement in leadership roles and continuous learning are crucial for shaping the next generation of STEM leaders"*.
2. **Outliers, living with success:** Prof Salome Maswime, Obstetrician, Gynaecologist and Head: Global Surgery, Department of Medicine, University of Cape Town (UCT); and 2023 [NSTF-SAMRC Clinician-Scientist Award](#) winner. She urged students to remain authentic and true to themselves. Prof Maswime highlighted the significance of surrounding oneself with inspirational individuals who can contribute positively to your academic and career journey. She also cautioned against becoming complacent with success, encouraging a growth mindset over a fixed one. Prof Maswime emphasised, *"As you progress in this world, consider altering your social circle. Surround yourself with individuals with whom you can engage in meaningful discussions and mutually guide each other towards the right path."*
3. **Attributes required to be successful in the 4IR era:** Prof Nosipho Moloto, DSI/NRF/Nedbank SARChI Chair in Energy Materials; and Research Professor: Inorganic Chemistry, University of the Witwatersrand; and 2023 NSTF-South32 [Engineering Research Capacity Development Award](#) winner. She hails from

Kwa-Mashu, a township in Durban, KwaZulu-Natal. Prof Moloto recounted her experiences of initially grappling with culture shock and imposter syndrome when commencing her studies at the University of Zululand (UNIZULU). She stated: *“These challenges ultimately fostered my appreciation for diversity and self-belief”*. Her journey led her to nanoscience, a field where she made significant contributions, including publications and collaborations with research institutions.

4. **Starting a business with a scientific idea:** Mr Tshepo Mangoele, Chief Executive Officer and Founder: LignOrganic; and 2023 NSTF-South32 [Innovation Award](#): SMME winner. Mr Mangoele advised seeking funding from diverse sources and utilising tools like Udemy, ChatGPT, and Opportunity Desk to build a robust business model. He argued: *“It is essential to pinpoint a societal issue, develop a viable solution, and then endeavour to promote it in order to establish a science-based business”*.
5. **What is the difference between being educated and being trained?** Prof Jonathan Jansen, Distinguished Professor: Education; and President: Academy of Science of South Africa; and 2023 NSTF-South32 [Lifetime Award](#) winner. He highlighted the prevalence of training-oriented approaches in early tertiary education, leading to students who prioritise memorisation for grades, resulting in a lack of originality and depth of understanding. Prof Jansen underscored the importance of fostering a genuine passion for learning and pursuing multidisciplinary knowledge. He encouraged students to embrace a comparative mindset, explore various fields of study, and leverage travel experiences to broaden their perspectives. Prof Jansen concluded: *“An educated person will stretch himself or herself intellectually to do more than is required”*.
6. **The National System of Innovation and how YOU are part of it:** Dr Philemon Mjwara, Director-General: Department of Science and Innovation (DSI); and [2023 NSTF Ukhozi Awardee](#). One of the DSI functions is to generate and dispense knowledge for socio-economic impact while including indigenous knowledge systems. Dr Mjwara said: *“The DSI has laid out its priorities in a white paper and decadal plan for 2021-2031, focusing on building a robust science and innovation system, utilising knowledge for improvement, and fostering a secular and digital economy”*. He concluded key initiatives include the application of artificial intelligence (AI) in various sectors, such as mining, health, and agriculture, as well as a district development model to enhance the quality of life in communities across the country.

**About the NSTF Brilliants Programme:** The Brilliants Programme is a [youth outreach](#) project of the NSTF. It recognises at least 18 first-year students who achieved 90 percent or more in Grade 12 physical science and mathematics, and chose to follow a career in the science, medicine and engineering fields. A young man and woman are chosen from each of the nine provinces based on their marks in physical science and mathematics in the previous year's (2022) National Senior Certificate Examinations (Grade 12). This year 8 more students are recognised due to ties in high marks in several provinces, resulting in a group total of 26 Brilliants students!

The NSTF Brilliants Programme is sponsored by the [DSI](#) and the [South African Council for Natural Scientific Professions](#) (SACNASP).

For a more in-depth exploration of motivational and inspirational conversations with award winners and their interactions with Brilliants students, be sure to visit the [NSTF YouTube channel](#).

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## References/Sources

[https://etd.uwc.ac.za/bitstream/handle/11394/6127/Stroud\\_MA\\_CHS\\_2017.pdf?sequence=1&isAllowed=y](https://etd.uwc.ac.za/bitstream/handle/11394/6127/Stroud_MA_CHS_2017.pdf?sequence=1&isAllowed=y)

## 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 STEMulator.org which attracts youth and educators to Explore>Discover>Learn the world of STEM including careers. (Established by NSTF proSET)

### For more information

[www.nstf.org.za](http://www.nstf.org.za)

E-mail: [enquiries@nstf.org.za](mailto:enquiries@nstf.org.za)

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