

TURNING
INTO

SCIENCE
BUSINESS



One of the winners of the National Science and Technology Forum's NSTF–South32 Awards hopes to help South Africa's scores of unemployed youth by inspiring others to follow in his footsteps, turning a scientific idea into a viable business.



SMMes winner: Tshepo Mangoele

South Africa continues to grapple with persistently high levels of unemployment, with the burden of joblessness being carried by women and young people. Unemployment figures for August 2023 have been disclosed by Statistics South Africa. The official unemployment rate in the second quarter of 2023 was 32.6%, a decline of 0.3 of a percentage point from the 32.9% recorded in the first quarter of 2023. The youth are hit hard by the unemployment rate. The current rate is 61% of 15- to 24-year-olds and a staggering 71% if you count those who are no longer trying to find employment.

The bleak outlook on the unemployment rate for students suggests a challenging future. To address this issue, there has been a push to encourage many young individuals to engage in entrepreneurship as a pathway to participating in the economy.

Tshepo Mangoele is the Chief Executive Officer and founder of LignOrganic; and he was a 2023 NSTF-South32 Award Winner in the category for Small, Medium and Microenterprises (SMMEs). Mangoele has a strong passion for the realm of business. During his motivational talk entitled 'Starting a business with a scientific idea', he sparked a fervour for innovation among NSTF Briliants students.

At the online meeting of the students, the perceptive entrepreneur argued, "It's crucial to begin with a problem that people encounter, then devise a solution that addresses it – ensuring there's a user base for the solution."

Emphasising the necessity for sustainable businesses, Mangoele highlighted the significance of profitability. He also underscored the importance of collaboration. He expressed the idea of "learning the importance of not working in isolation and establishing a team in business."

Furthermore, for a business to thrive, essential components include marketing and sales. Mangoele pointed out that the absence of marketing and sales leads to the failure of the business. He advised the students that before initiating a business, there are several crucial considerations. Mangoele emphasised, "In order to reach

commercialisation, various tasks need to be accomplished, such as obtaining market validation."

To youths feeling disheartened about commencing a business because of financial constraints, he offered this advice, "If you lack support from friends and family for investment, another alternative is to explore incubators based on the nature of your project." Mangoele mentioned an alternative, which involves venture capital investing funds into your business in exchange for equity, in the form of shares within your business.

Mangoele received the prestigious 2023 NSTF-South32 Award through his revolutionary biomass conversion technology. The company is helping to replace chemicals derived from fossil fuels with biochemicals such as lignin, which they produce and have successfully formulated and commercialised as a skincare brand.

Article compiled from press materials provided by the National Science and Technology Forum (NSTF) Briliants Programme. The Briliants Programme is a youth outreach project of the NSTF. It recognises at least 18 first-year students who achieved 90% or more in grade 12 physical science and mathematics, and chose to follow a career in the science, medicine or engineering fields. This year a total of 26 Briliants students were identified. The NSTF Briliants Programme is sponsored by the Department of Science and Innovation (DSI) and the South African Council for Natural Scientific Professions (SACNASP).

Yo mongwe wa bafenyi ba Foramo ya Bosetšhaba ya Mahlale le Theknolotši (NSTF) ba Lenaneo la Briliants la 2023 o holofela go thuša masome a bafsa ba Afrika Borwa bao ba sa šomogo ka go hlohleletša ba bangwe go latela dikgatong tša gagwe, go fetoša kgopolo ya mahlale go ba kgwebo ye e šomago.

Translated into Sesotho sa Leboa/Northern Sotho by Tebatso Isaac Makwala

The Centre for Astro-Particle Physics (CAPP) at the University of Johannesburg (UJ)

The Centre for Astro-Particle Physics (CAPP) at the Department of Physics, University of Johannesburg (UJ), is dedicated to research in Gamma-ray Astrophysics, Neutrino Astrophysics, Neutrino Physics, and Gravitational Wave Physics. The Centre is home to scientists and students whose focus is on these research areas. The researchers perform theoretical studies, as well as data analysis and modelling. They are also involved in three experimental facilities, namely the Fermi Gamma-ray Space Telescope; the Cherenkov Telescope Array (CTA), and the KM3NeT Neutrino Telescope, to perform cutting-edge research.

Working at CAPP can provide students and postdoctoral fellows with opportunities to get involved in state-of-the-art science experiments, learn analysis techniques of data collected with various instruments, and interpret with theoretical modelling. Research in Astro-Particle Physics requires a strong background in Physics, Mathematics, and computer programming. Although some theoretical studies are still done on papers with pencils, numerical computations and simulations on computers are the main tools to make theoretical predictions these days. Data analysis and modelling also require significant computer skills and learning specialised software. Students who would like to pursue postgraduate studies in Astroparticle Physics should choose Physics and Mathematics for their BSc degree.

The BSc Honours programme at the Department of Physics offers a wide range of advanced courses, including Astrophysics courses, that can prepare students for future MSc and PhD research in Astro-Particle Physics. Honours students also get a taste of research by doing a project that helps them to prepare for MSc and PhD studies. A limited number of top-up bursaries are available for MSc and PhD students from CAPP.

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