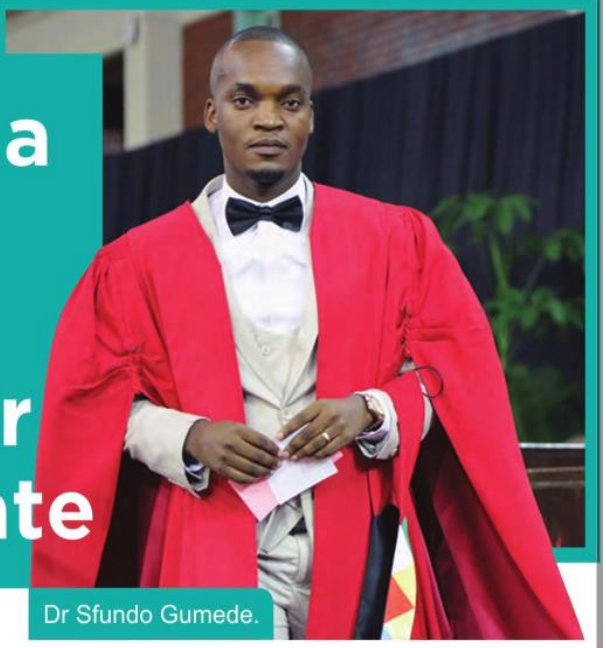
Publication: Maritzburg Sun - Main
Title: PhD is a dream come true for graduate
Publish date: 19 May 2023
Page: 6

Reach: 29956
AVE:R 41298.18
Author: Staff Reporter

PhD is a dream come true for graduate



Dr Sfundo Gumede.

Not only is Dr Sfundo Gumede the first in his family to get a university degree but he also graduated with a PhD.

For the Mangosuthu University of Technology (MUT) lecturer, attaining his PhD in applied mathematics for research on relativistic shear-free fluids - important fluids in astrophysics and cosmology - is a step towards propelling his career in academia.

'For me, obtaining a PhD is a dream come true and the culmination of my hard work and resilience,' said Gumede.

An academic career was an unfamiliar concept to Gumede's family, but they trusted his decision to pursue this path and lent him all their support. He was born and raised in Mtubatuba in northern KwaZulu-Natal, where he completed all his schooling.

Gumede grew up curious about the structure and the origin of the universe and what underpinned the behaviour of astronomical objects like stars.

He initially set out to qualify as a mathematics and science educator, but an encounter with someone at the University of Zululand's (UNIZULU) admission office who saw his excellent results in mathematics led him to enrol for a Bachelor of Science that broadened his career options.

As Gumede studied mathematics further, he learnt about the branch that concerned astrophysics, which he said fit in with his curiosity about the workings of the universe. As he delved further into the subject, he learnt that the physics of the world and astronomical objects can be described using the laws of mathematics.

At UNIZULU, Gumede completed his Bachelor of Science in mathematics and statistics and Bachelor of Science honours in mathematics with distinction before going on to complete a postgraduate diploma in higher education at Rhodes University.

Having learnt about what an academic career entailed, Gumede aspired to end up in academia and wanted to study to PhD level full time, but his responsibility to support his mother and siblings led to him joining the workforce after he completed his honours degree, achieving all of his subsequent degrees part-time.

Gumede joined MUT in Umlazi as a junior lecturer and chose to continue with master's studies at UKZN thanks to its proximity to MUT and its high rating in terms of its postgraduate offerings, especially in mathematics. He has now chalked up more than ten years' experience as a lecturer.

He graduated with his master's from UKZN summa cum laude and continued with PhD studies under the supervision of Professors Sunil Maharaj and Kesh Govinder. His topic tackled the Einstein-Maxwell field equations, part of Einstein's theory of General Relativity that describes gravitational interactions between bodies.

Gumede sought to find new solutions to these equations for relativistic fluids since exact solutions to the field equations can be used to investigate the physical properties of observable cosmological phenomena like stars. His research applied mathematical equations to the study of physical phenomena as part of his interest in using various techniques to solve differential equations.

This research resulted in new exact solutions to the Einstein-Maxwell field equations in four-dimensional and higher-dimensional spaces, a significant advance in the subject. He has published papers, on First Integrals of Shear-Free Fluids and Complexity and on Charged Shear-Free Fluids and Complexity in First Integrals in the Entropy journal, with a third publication forthcoming.

Achieving such excellent results for his PhD was challenging primarily in terms of time management as Gumede had to balance full-time lecturing with his studies, as well as prioritise time with his wife and two young children.

Gumede is committed to his career in academia, aiming to develop his research expertise further to progress in the field and gain new insights into the universe that has always fascinated him. He plans to initiate research collaborations with the contacts he has made through his own studies and supervise postgraduate students as he expands his own research.

He credited Maharaj and Govinder for their support throughout his studies and thanked his family, friends and colleagues for the motivation, inspiration and contributions they provided.