Brief Biography - Prof. Zenixole Tshentu

Prof. Tshentu completed his PhD studies in Inorganic Chemistry in 2005 focusing on the coordination chemistry of rhenium. He obtained his degrees at the former University of Port Elizabeth. During his PhD studies, he was employed as was a junior lecturer under the "growing your own timber" programme for two years. He was then employed as a lecturer and then senior lecturer at Rhodes University for seven years before returning to the Nelson Mandela University in 2013 as associate professor. He has been the Director of the School of Biomolecular and Chemical Sciences from 2019 to 2021 and Head of Department of Chemistry from 2016 to 2018. He is currently the Deputy Dean in the Faculty of Science since May 2022. He is also currently the Vice President of the South African Chemical Institute (SACI) (2021-2023). He previously served as the Chairperson of the SACI Eastern Cape Coordination Committee (2011-2015) and as the Executive Secretary of SACI for two terms in the period 2017- 2021. He is also a member of the Catalysis Society of South Africa (CATSA), the International Association of Advanced Materials (IAAM) and the Royal Society of Chemistry (RSC).

Prof Tshentu is passionate about learning and teaching and has done some courses towards a Postgraduate Diploma in Higher Education at Rhodes University. He is currently teaching inorganic and analytical chemistry topics from second to fourth year at the Nelson Mandela University. He is a firm believer in disciplinary context as an approach to decode what seems to be hidden in chemistry as a discipline.

Prof Tshentu is an NRF C2-rated Scientist since 2015. He has a Google h-index of 19 and an i10-index of 40. His focus is on beneficiation of mineral and secondary resources especially precious metals recovery through hydrometallurgical processing. Final stage metal beneficiation strategies are also undertaken in producing "value-added" products such as catalysts for fuel processing and metal-based therapeutic materials. To date, he has published 98 research manuscripts including articles, communications and reviews, four book chapters and has two patents. He is a guest editor for the journal Minerals and is currently editing a second volume of a special issue on "Recovery of Precious Metals, Rare Earth Elements and Special Metals from Spent Secondary Products". Prof Tshentu received the Raikes Medal from the South African Chemical Institute and the International Association of Advanced Materials Scientist's Medal, both in 2016, and a Research Excellence Award from NMU in 2015. He

also collaborates with several universities and institutions nationally and internationally such as Rhodes University, Walter Sisulu University, University of the Western Cape, Stellenbosch University, University of the Witwatersrand, University of Venda, University of Cape Town, University of Florence (Italy), University of Lisbon (Portugal), Advanced Industrial Science and Technology (AIST) in Japan, Joint Institute for Nuclear Research (JINR) in Russia, Mokpo National University (South Korea) and Lappeenranta University of Technology (Finland). He has industry partners, namely, Sasol, Sibanye-Stillwater and Haldor-Topsoe (Denmark).

Total funding received over almost two decades is > R20 million from different NRF streams, MRC, THRIP and industry funding from South African Minerals to Metals Research Institute (SAMMRI) at Mintek as well as Sasol Technology through the Sasol-University collaboration. International grants through the NRF-JINR funding instrument and International Foundation of Science have been received. Most recently, a grant has been approved for an August 2022 start date from the Federal Ministry of Education and Research in Germany (BMBF) through Helmholtz Zentrum Berlin (HBZ) for the consortium, led by the UCT Catalysis Centre (SA), that will be producing green gas from CO_2. NMU has been awarded R5.7m of this funding for the catalyst development work to be undertaken. This brings the tally to about R26 million of funding attracted for research over the years between Rhodes University and Nelson Mandela University.