**Address by the Minister of Science and Technology, Naledi Pandor MP, at the launch of a nanotechnology spectrometer (TOF-SIMS), Rhodes University, 14 November 2014**

The Vice Chancellor of Rhodes University, Prof Sizwe Mabizela;

Dr Peter Clayton, Deputy Vice-Chancellor for Research and Development at Rhodes;

Dr Albert van Jaarsveld, the NRF CEO;

Dr Gansen Pillay, the NRF Deputy CEO;

Distinguished Professor Tebello Nyokong, the DST/NRF Research Chair in Medicinal Chemistry and Nanotechnology,

Dr Makhapa Makhafola, the Mintek General Manager for Research and Development, distinguished guests, ladies and gentlemen.

It's extremely gratifying to see how our country continues on an upward nanotechnology development trajectory, considering where South Africa started only a few years ago.

The publication of the National Nanotechnology Strategy in 2005 was an important first step. Since then the Department has been hard at work establishing a series of programmes to advance the objectives of the strategy. The establishment of the Nanotechnology Innovation Centres based at Mintek and the Council for Scientific and Industrial Research are the most significant steps taken to help advance nanotechnology innovation. These are complemented by programmes focusing on expanding the nanoscience and nanotechnology research base.

South Africa’s National Nanotechnology Strategy has been hailed by the science community as one of the best in the world, given its focus on socio-economic development. It aims to address our challenges in the areas of water, health and energy, as well as to give a competitive edge to some of the country’s strategic industries (mining and minerals, advanced materials and manufacturing, and chemicals and bioprocessing).

Our National Nanotechnology Strategy not only advances the national technology missions that were identified in the 2002 National R&D strategy, but also strengthens the integrated industrial focus of government.

There is little doubt that nanotechnology has an extraordinarily important role to play in shaping our future.

We can only be proud of what we have accomplished in such a short time.

We have produced no less than 170 postgraduate students and published in excess of eleven hundred articles in peer-reviewed journals. We have filed more than twenty patents. I am confident that it is only a matter of time before South African-developed nanotechnology-enhanced products will enter the market.

We are amongst a few countries to have established a formal nanoscience teaching programme. This is a Masters programme in nanosciences, founded in 2012, that had its first cohort of students graduating in the current calendar year. Championed by a consortium of four universities - the University of the Western Cape, the University of Johannesburg, the University of the Free State and the Nelson Mandela Metropolitan University - the programme is touted as the model for future institutional collaboration in formal teaching programmes.

All of this has been made possible by a suite of programmes the Department initiated for nanotechnology development - the National Nanotechnology Equipment Programme, the Nanotechnology Flagship Programme, and the nanosciences and nanotechnologies research chairs. They have catapulted nanotechnology research in the country to a point where we have become global players of note.

The National Nanotechnology Equipment Programme, in particular, has led to the establishment of world-class nanotechnology research facilities in the country. It has given birth to the Centre for High Resolution Transmission Electron Microscopy (HRTEM), which is established at the Nelson Mandela Metropolitan University. This Centre is among the best in the world. The nanotechnology equipment programme has also enabled the creation of world-class nanotechnology research centres in our various universities, namely Rhodes University.

The Time-of-Flight Secondary Ion Mass Spectrometer (TOF-SIMS) is one of the powerful equipment requirements critical for nanotechnology research. It is capable of producing a mass spectral map of a surface area, has extremely high surface sensitivity that is essential for the detection of contaminants, and it provides elemental composition as a function of depth. The TOF-SIMS also provides the sole means to providing information on chemical composition and morphology at the same time. It is based on the fact that ions with the same energy, but different masses, travel with different velocities.

Without access to equipment such as the TOF-SIMS, it is difficult to quantify nanostructured materials. At the moment researchers rely on their overseas collaborators for such studies. The availability of the TOF-SIMS in the country will enhance the quality of research and students training. The equipment will assist in advancing requirements to address the national skills shortage in many key areas of research (such as physics, chemistry, biotechnology and the emerging area of nanotechnology).

It is no surprise that institutions in the Eastern Cape play a key role in nanotechnology development. You find their presence in almost all of the Department’s major nanotechnology initiatives. The province boasts two of the six research chairs in nanotechnology. It plays host to the premium Centre of High Resolution Transmission Electron Microscopy I referred to earlier. It hosts one of the nodes of the Mintek Nanotechnology Innovation Centre, and is part of the consortium that established the Masters programme in nanosciences, which I also mentioned.

I want to challenge institutions in this province to leverage their world-class infrastructure and world-acclaimed researchers to bring essential developments to this Province and the rest of the country.

The Department is considering mechanisms for the creation of a suitable environment for nanotechnology innovation through a roadmap that will help pave way to the conversion of laboratory outputs to products and services that South Africa, and the Eastern Cape, desperately needs.

The Rhodes University node of the Mintek NIC is headed by Professor Tebello Nyokong. Prof Nyokong’s publication record, which is over 500 papers, and her very impressive H-index are a clear demonstration of why she is a recipient of so many awards, which include the prestigious Order of Mapungubwe.

Your contribution to human capital development endeavours, Prof. Nyokong, having trained more than 70 postgraduate students, is also outstanding.

I would like to thank Rhodes University for continuing to provide the environment for researchers such as Prof Nyokong to excel. The university’s significant financial contribution to the acquisition of the TOF-SIMS is an example of the kind of support that will produce the excellence we see in this institution

May I also appeal to the university to ensure that the piece of equipment being unveiled today becomes an asset that supports research not only in this institution. Make sure that it is accessible to researchers from all across South Africa and helps them advance their research work. I also call upon researchers in the country to use these facilities.

It is, therefore, my pleasure, honourable Vice Chancellor and esteemed guests, to launch the TOF-SIMS, acquired through the support of the Department and the NRF, with co-funding from the University. May it provide the necessary environment to advance research in general and nanotechnology in particular.

I thank you.