



ADDRESS BY THE MINISTER OF HIGHER EDUCATION, SCIENCE, AND INNOVATION DR BONGINKOSI NZIMANDE ON THE OCCASION 6TH TECHNOLOGY AND INSTRUMENTATION IN PARTICLE PHYSICS INTERNATIONAL CONFERENCE, CAPE TOWN

4 September 2023

Programme Director

Distinguished guests;

Ladies and gentlemen:

It is my honour and privilege to address this prestigious conference on Technology and Instrumentation in Particle Physics (TIPP).

As South Africa we regard this opportunity as a great privilege for us to host this year's edition of the TIPP conference.

Since its inception in Japan in 2009, the TIPP conference evolved to become an important platform for critical dialogue and exchange of ideas among scientists and engineers, from various parts of the world.

One of the cardinal lessons that we have learned from the recent global outbreak of the COVID-19 pandemic is that, if we are to improve the quality of life for humanity and in particular, for the people in the developing world, governments will have to give high priority to the funding and resourcing of science.

Across the world, scientists and researchers continue to make groundbreaking advances in physics and its related subcomponents. One of the areas in which significant advances have been made in recent years, is the area of particle.

As you know, this area of physics deals with subatomic particles. These are fundamental building blocks of matter and the forces that govern their interactions. They are also critical for our understanding of the nature of the universe at the smallest scales.

This by investigating the properties and behaviours of these particles and the fundamental forces that mediate their interactions. Further to this, particle physics boasts a number of ground-breaking discoveries for which many Nobel Prizes have been awarded.

For instance, Collider Particle physics experiments are conducted in particle accelerators like the Large Hadron Collider (LHC) at CERN, where particles are accelerated to extremely high energies and collided together.

These collisions can lead to the creation of new particles and interactions that provide insights into the fundamental nature of matter and the forces that shape the universe.

Whereas non-collider particle physics helps to improve our understanding of naturally occurring particles and interactions, often in more controlled environments like laboratories or through astrophysical observations. This has led to the design and construction of a vast number of experiments Worldwide.

The focus of this conference on enhancing our knowledge of physics, resonates with our own and long-standing focus on physics as a country.

Through our South African CERN Programme, we have been able to create a strong local and international footprint and visibility of South Africa in the area of High-Energy Physics.

Since the launch of our CERN Programme in 2008, we have done a lot to ensure that we create first-rate international research opportunities. In the first ten years, this Programme has spread to ten institutions.

This includes Historically Disadvantaged Institutions (HDI) like the University of the Zululand. Additionally, over this period, the number of students increased remarkably. Currently there are more than eighty (80) students and forty (40) researchers.

It pleases us to note that, most of the growth in the SA-CERN programme is driven by students, the majority of whom are South African. Through this Programme, students gain access to an effective network of international collaborations within the experiments that also offer additional mentoring capacity.

In some cases of formal co-supervision, increasing the supervising capacity per senior PI. In addition, providing projects at the honors level has further strengthened the pipeline for succession and natural growth.

This is particularly important for our long term objective of building a critical mass of scientists and researchers in areas that have been designed as critical for our long term scientific and socioeconomic development.

Related to this, is another of our strategic projects that focuses on astronomy and high energy physics-the South African Gamma-Ray Astronomy Programme.

This, as some of you may be aware, is a consortium of South African Universities and research institutions which engage in research in the fields of gamma-ray astronomy and high-energy astrophysics.

A central aspect of the SA-Gamma Ray Astronomy Programme is to coordinate South Africa's involvement in the High Energy Stereoscopic System (H.E.S.S.).

HESS as you know, is the world's leading ground-based very-high-energy gamma-ray observatory located south-west of Windhoek, Namibia, and in the Cherenkov Telescope Array (CTA), the planned next-generation ground-based very-high-energy gamma-ray astronomy facility.

In addition, participation in other high-energy, multi-wavelength and multi-messenger astronomy projects is coordinated and funded, including the Fermi Gamma-Ray Space Telescope and the KM3NeT Neutrino Observatory, currently under construction in the Mediterranean Sea.

SA-GAMMA currently consists of members from North-West University, the University of the Witwatersrand, the University of the Free State, the University of Johannesburg, and the South African Astronomical Observatory as full members as well as the University of Namibia as associate member.

Further to this, the SA-CERN programme has identified the critical need for Technology Transfer as the key implementation strategy to advance and facilitate technology transfer from CERN to South Africa.

The technology transfer strategy symbiotically aligns with the Technology Innovation Platform (TIP) of iThemba LABS, naturally creating a platform for innovation, incubation and industry collaboration and growth.

The Technology Transfer strategy intends to extend and enhance the current limited technology transfer within the National System of Innovation (NSI) and in South Africa.

This will be responding directly to key elements South Africa's 2019 White Paper on Science, Technology, and Innovation, which among others, outlines the need to respond coherently to the significant changes that are associated with the Fourth Industrial Revolution (4IR).

The TIP platform will not start from a blank slate and since the inception of the SA-CERN programme work has commenced in various areas and very good results has been achieved.

It is our belief that investment and inclusion into the Decadal Plan of the DSI will realise that the research community benefit and assist in addressing some of the key challenges faced within the community and South Africa.

In conclusion, the programme for this conference provides an exciting line up of esteem speakers and a vast array of discussion themes.

It is my hope that your deliberations will be productive and that they will not only enhance our knowledge of particle physics, but also how we can become more determined to use scientific knowledge as an instrument to build a more equal and humane world.

I wish you productive conference and look forward to the outcome of your deliberations.

Thank you

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