



Communication and Marketing Department  
Isebe loThungelwano neNtengiso  
Kommunikasie en Bemerkingsdepartement

Private Bag X3, Rondebosch 7701, South Africa  
Welgelegen House, Chapel Road Extension, Rosebank, Cape Town  
Tel: +27 (0) 21 650 5427/5428/5674 Fax: +27 (0) 21 650 5628

[www.uct.ac.za](http://www.uct.ac.za)

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## **UCT's proton therapy centre to be the hub of Africa's clinical and research needs**

The University of Cape Town (UCT) is set to transform cancer treatment and research in Africa with the establishment of a proton therapy centre in Cape Town.

This groundbreaking initiative will provide long-desired access to cutting-edge treatment for children with cancer and provide many opportunities for unique multi-disciplinary research within the African context. The UCT's Proton Therapy Initiative was launched on Wednesday, 29 January 2025 at UCT's [Neuroscience Institute](#). This pioneering project will position UCT at the forefront of medical innovation on the continent.

Proton therapy is the most precise form of radiation treatment which utilises a high-energy beam of protons from a cyclotron. Unlike X-rays, the proton beam can be adjusted to stop inside the tumour, with no exit dose, resulting in less radiation to healthy tissue and organs. In children in particular, proton beam therapy is now recognised as superior to conventional radiotherapy techniques with less damage to normal tissue and reduced risk of secondary malignancy.

In Africa, mortality from cancer remains high, and the disproportionate survival is most striking for childhood cancers, where mortality may be as high as 80% in Sub-Saharan Africa compared to 20% in countries such as the USA and Canada.

"I want to acknowledge where we are standing, in the Neuroscience Institute, which in itself is the first of its kind in Africa, launched in 2020 with the goal of Africanising Neuroscience, and we are hoping that the proton therapy centre will do the same in terms of Africanising the latest in cancer treatment," said Professor Mosa Moshabela, UCT Vice-Chancellor.

"This initiative is an important step forward for us in terms of the nation, and one that we would like to share with all of you, to serve Africans with the latest available technologies to address life-threatening diseases such as cancer. This is our commitment, and I just want to make it clear that this is not a commitment we are making only to UCT or the Western Cape, but it's also a commitment we are making to the country and the continent," he said.

Professor Moshabela acknowledged the significant contributions made by the project leaders, Professor Andy Buffler, director of the Metrological and Applied Sciences Research Unit, Department of Physics; Professor Jeannette Parkes, head of Radiation Oncology, and Professor Graham Fieggen, director of the Neuroscience Institute.

In providing some background on the role UCT has played over the years in X-ray sciences, Professor Buffler traced the history of UCT's involvement in X-ray physics from Professor RW James, after whom the building housing the Department of Physics is named. James, a pioneer X-ray crystallographer of worldwide reputation, was professor of physics at UCT from 1937 to 1956. Posthumously, he achieved a distinction that has come to few scientists anywhere with two of his ex-students from UCT winning Nobel Prizes.

Buffler told how one of James' students, Allan Cormack, who learned his X-ray physics within UCT's Department of Physics and worked at the Medical School at Groote Schuur as a medical physicist in the X-ray treatment facility, realised the difficulties they had at the time to determine where the tumour was in space, using two dimensional X-rays instead of three dimensional X-ray images. He pioneered the development of the CT-scanner which brought about his Nobel Prize in 1979. In his own words, his motivation was "If you can't see it, you can't treat it".

President and CEO of the South African Medical Research Council (SAMRC), Professor Ntobeko Ntusi, said that apart from the clinical advantages, there were also research opportunities for the centre. He said he hoped that the establishment of such a facility on the African soil would bring about "a uniquely African scholarship into our own understanding of the epidemiology of cancers" and provide "appropriate outcomes, the ability to undertake re-stratification and most importantly to understand appropriate treatment modalities for cancers amongst Africans."

"In addition, it will be an important platform for the training of a new generation of scientists who can lead their own scholarship; not just in this country but throughout the African region in relation to oncology." He said he was excited and committed the MRC to support this endeavour in many ways.

Western Cape MEC for Health and Wellness, Ms Mireille Wenger, said: "This milestone shines as a beacon of hope, innovation and determination.

"Globally, low- and middle-income countries like South Africa account for 90% of the world's childhood cancer cases, while having less than 5% of the global resources for paediatric oncology. The disparity in resources plays a key role in differences in childhood cancer mortality rates."

Currently, all 136 proton therapy centres operating globally are located in the northern hemisphere, with only two under construction in the southern hemisphere – in Argentina and Australia.

Professor Zebulon Vilakazi, vice-chancellor of the University of the Witwatersrand, said the proton therapy centre was actually long overdue because when he was seconded from UCT to iThemba LABS more than a decade ago, they had been a leader in terms of proton therapy research and development. However, this programme had lapsed

about 10 years ago due to an aging cyclotron. He would be excited to see the re-emergence of proton therapy in Africa.

***Ends***

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**Thami Nkwanyane**

**Media Liaison and Monitoring Officer**

Communication and Marketing Department

University of Cape Town

Rondebosch

Tel: (021) 650 5672

Cell: (072) 563 9500

Email: [thami.nkwanyane@uct.ac.za](mailto:thami.nkwanyane@uct.ac.za)

Website: [www.uct.ac.za](http://www.uct.ac.za)