

A new 30 MeV cyclotron facility for radioisotopes and research

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The UCT Proton Therapy Initiative has as its primary goal the re-establishment of a proton therapy facility in Cape Town. In addition, the project aims to establish a complementary facility featuring a 30 MeV cyclotron capable of proton, deuteron and alpha-particle beams. This new facility will manufacture a range of short and longer-lived radioisotopes and related products that complement those already available from the NRF's iThemba LABS, and other cyclotron facilities in the region. In particular the production of radioisotopes suitable for Targeted Alpha Therapy for cancer is of particular interest. Beyond radioisotope production for medical use, the new 30 MeV facility will also provide a unique platform for fundamental and applied nuclear physics research in the mid-energy range, complementing higher-energy research at iThemba LABS. A dedicated research vault will include dual beamlines: one for charged-particles, and one for neutron production, optimised for time-of-flight (TOF) measurements. Together, these beamlines will support, for example, activation and radiation damage studies, radiobiology, and instrumentation development with applications across fundamental science, metrology, engineering, medicine, and industry.

I provide a status report on this project and seed an audience discussion on the design of the facility and how it might best serve the broadest user base in South Africa.

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