

Towards design of beam delivery systems for the proposed Proton Therapy Centre in Cape Town

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The University of Cape Town recently declared its intention to “design the technical specifications and business case for a proton therapy centre to be established in Cape Town, near to both the Red Cross War Memorial Children’s Hospital and Groote Schuur Hospital.” [1]

Currently, all of the 131 proton therapy centres operating globally are located in the northern hemisphere, with only two under construction in the southern hemisphere – in Argentina and Australia. The proton therapy centre in Cape Town will be designed to benefit from the very latest technological advances in both accelerator design and beam delivery. As such, centre in Cape Town will be a unique world-leading resource not only for South Africa, but for the African continent.

We explore the different technical aspects that need to be considered in the design of such a centre, in particular the different options presently available, or under development, for the delivery of the beam in the treatment room. We also discuss how radiation transport modelling using GEANT4, for example, can assist with understanding both the primary and secondary dose delivered by such systems.

[1] https://www.news.uct.ac.za/images/userfiles/downloads/media/2024_02_26_Cancer.pdf

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