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## A new D-T neutron facility at UCT

*Tuesday, 4 July 2017 14:00 (20 minutes)*

The Department of Physics at the University of Cape Town has recently installed a new fast neutron facility featuring a Sealed Tube Neutron Generator (STNG) to be used for applied nuclear physics research and education. The MP-320 neutron generator utilises a 90 kV accelerated deuteron beam impinging upon a tritium target, producing 14 MeV neutrons via the  $t(d,n)\alpha$  reaction. Ultimately we will offer a reference facility with fully characterized neutron energy spectra, yield, and calibrated reference detectors. The potential use for such a facility is wide ranging, from nuclear data measurements to elemental analyses to detector development and calibration. We present the design, building, and commissioning of this facility and propose the future uses. We present data for the radiation dosimetry and shielding for our facility, and initial characterization using a calibrated scintillation detector.

**Apply to be considered for a student award (Yes / No)?**

No

**Level for award (Hons, MSc, PhD, N/A)?**

N/A

**Would you like to submit a short paper for the Conference Proceedings (Yes / No)?**

Yes

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