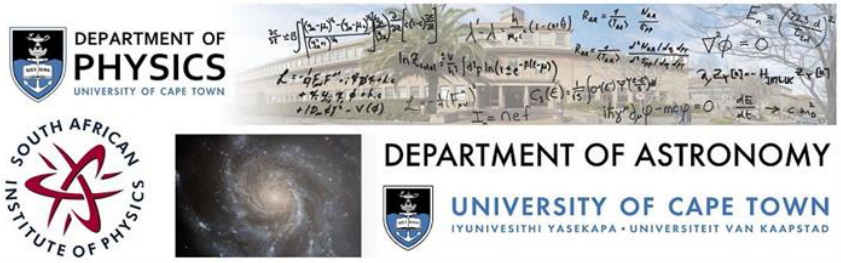

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Feasibility Study of Electron Source Production at iThemba LABS

Tuesday, 5 July 2016 16:10 (1h 50m)

Abstract content
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Under certain conditions it is more favourable for an exited atomic nucleus to decay by the internal conversion (IC) process rather than by the emission of a gamma-ray. The IC process involves the emission of conversion electrons. A project was initiated to commission electron spectrometers for use in conjunction with high-resolution gamma-ray detectors at iThemba LABS, in order directly measure internal conversion electrons. In order to energy calibrate these spectrometers mono-energetic sources of electrons are required.

The sources should ideally be ‘’open”, having the active material “bare” with minimal covering material that would lead to deteriorated electron energies, from effects such as energy-straggling . In this presentation we present results from our study of the feasibility of producing such sources with methods and materials available at iThemba LABS (e.g. neutron or proton induced reactions)

-Radiation Detection and Measurements 4th Edition- Glenn F. Knoll September 2012
-Principle of Nuclear Radiation Detection-John W Poston 1 August 1985

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