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## TOWARDS IMPLEMENTATION/DEVELOPMENT OF STATE-OF-THE-ART ELECTRON SPECTROMETER CAPABILITY AT iThemba LABS

An electron spectrometer that implements a Si(Li) detector for the detection of internal conversion electrons and a combination of LaBr<sub>3</sub> detectors for the detection of coincident decays is undergoing development at iThemba LABS, South Africa. For optimization of measurements with the electron spectrometer, electron calibration sources (<sup>207</sup>Bi and <sup>133</sup>Ba) are used in the measurements of energy and momentum resolution of the Si(Li) detectors. Other parameters such as transmission and efficiency which are used in describing the performance of electron spectrometer [1], are also determined during the characterization measurements. Lifetime measurements which provide crucial information needed for the measurement of E0 matrix elements will be performed using LaBr<sub>3</sub> detectors. Electron energy versus magnet current calibration was done by varying the lens current repeatedly to ensure reproducibility. Characterization measurements are presented and discussed for the purpose of commissioning the electron spectrometer for the study of 0<sup>+</sup> states at iThemba LABS.

Keywords: Electron spectrometer, internal conversion electrons, coincident decays, electron energy, magnetic current.

[1] J. Kantele, et al., Nuclear Instrument and Methods, 130(2): 467-474, 1975

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