



Contribution ID: 300

Type: Oral Presentation

Depletion voltage measurements of the iThemba LABS segmented clover detector.

Tuesday, 9 July 2013 16:20 (20 minutes)

Abstract content
 (Max 300 words)

J.L. Easton^{1,2}, O. Shirinda¹, E.A. Lawrie¹, T. D. Bucher¹, S.P. Noncolela^{1,2}, N. Orce²,

¹ iThemba LABS, PO Box 722, 7129 Somerset West, South Africa

² University of the Western Cape, Private Bag X17, 7535 Bellville, South Africa

The measured depletion voltages of the four crystals of the iThemba LAB segmented clover detector was compared to the manufacturer specifications. We measured the depletion voltage by measuring the peak centroids and peak areas as a function of applied voltage. We had used three sources namely ¹³⁷Cs, ⁶⁰Co and ²⁴¹Am. A reduced chi squared analysis was then used to infer depletion voltages. It was found that the depletion voltage was higher than the manufacturer specifications for all four crystals. The depletion voltages depend on the amount of the impurities in each crystal, which are very important for simulating correctly the gamma-ray interaction points inside the detector.

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

yes

Level for award
 (Hons, MSc,
 PhD)?

PhD

Main supervisor (name and email)
and his / her institution

E.A. Lawrie¹, elena@tlabs.ac.za

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

no

Primary author: Mr EASTON, Jayson (iThemba LABS and University of the Western Cape)

Presenter: Mr EASTON, Jayson (iThemba LABS and University of the Western Cape)

Session Classification: NPRP

Track Classification: Track B - Nuclear, Particle and Radiation Physics