

Abstract Submitted
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Calibration of the E Si detector in a DE-E telescope with a ^{212}Pb pin source¹ KA PANG CHAN, The Chinese University of Hong Kong and the National Superconducting Cyclotron Laboratory, Michigan State University, East Lansing, MI 48864 — In nuclear physics experiments, telescopes composed of two or more large area silicon strip detectors are used to identify charged particles. To use the energy loss method for particle identification, a thin ($\sim 0.065\text{mm}$) silicon detector (DE) is mounted in front of a thicker E detector ($\sim 1.5\text{ mm}$). The DE Si detector can be calibrated with 8.785, 6.778, 6.288, 5.685 and 5.423 MeV alpha particles emitted from a ^{228}Th source. However, this method cannot be used to calibrate the E detector as the alpha particles cannot penetrate the front DE detector. We have developed a method to calibrate the E detector by inserting a small irradiated dowel pin between the two Si detectors. The pin source is electroplated with ^{212}Pb nuclei which emit alpha particles with 8.785 MeV, 6.090 and 6.051 MeV. Insertion of the dowel pin is designed and guided so that the head of the pin lies near the center of the detector at a distance of 2.72 mm away from the surface of the E detector. In addition to providing two strong alpha peaks for calibrations, the close distance and high pixilation of the E detector allows accurate determination of the front dead layer of the E Si strip detector. This technique has been implemented successfully in calibrating the E Si detectors in the NSCL High Resolution Array (HiRA) consisting of 20 closely pack DE-E-CsI telescopes.

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