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技术及应用

单粒子灵敏度标定阈下修正技术及其应用

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摘要 单粒子标定技术是电流型探测器灵敏度标定的重要手段，本文通过对电流型探测器能量响应特性及探测器信号脉冲形成过程的研究，提出了阈下修正方案，解决了单粒子标定技术在低能领域的应用。通过该方法测得的钴源灵敏度与电流标定法测量结果在1.1%内一致，钴铯灵敏度比值与理论结果在7.0%内一致。

关键词 单粒子 能量响应 灵敏度 电流型探测器

分类号

Principle and Application of Sub-threshold Correcting for Sensitivity Calibration by Single Particle

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Abstract The technique of calibration by single particle is very important for the current detector on the energy response research. Based on the analysis of the energy response characteristic and pulsed signal producing process, a method was proposed for the sub-threshold correcting, which extended the calibrating technique to much lower energy range. According to the correcting technique, the measured sensitivities to ^{60}Co by single particle calibration and traditional current calibration match each other within 1.1% difference. The sensitivity ratio of ^{60}Co to ^{137}Cs matches the theoretical value within 7.0% difference.

Key words single particle energy response sensitivity current detector

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