技术及应用

几套就地HPGe γ谱仪系统的死时间修正

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摘要　　用强源干扰法实验研究了几套就地HPGe γ谱仪系统的死时间修正问题，得到了在不同百分死时间下的修正因子，拟合获得了修正函数，并与谱仪系统的自动修正结果进行了比较分析。结果显示：在实验所控制的死时间范围内，死时间与修正因子间呈线性关系；谱仪系统自动修正结果与实验修正值间的最大相对偏差小于4.4%。这说明，在1.13%～52.95%死时间范围内，这几套谱仪系统的死时间自动修正结果是准确的，也表明现代γ谱仪系统死时间修正技术是有效的，可应用于数据分析中。

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Deadtime Correction of Several in-situ HPGe γ Spectrometers

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Abstract

Deadtime corrections of three in-situ HPGe γ spectrometers were studied by experimental method of interference-method with strong γ source. The linear relationships between the percent deadtime and the correction coefficients were fitted by the least-square-method. The comparisons between the experimental results and the automatic correction values of full-energy-peak count rates were performed. The results show that the maximum deviation of the automatic correction values relatively to the experimental results is less than 4.4%. It indicates that in the deadtime range of 1.13%-52.95%, the automatic correction results of deadtime by these spectrometers themselves are exact and the deadtime correction techniques of modern γ spectrometers are efficacious, which can be used in the data analysis of γ spectra.

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