

物理

^{235}U 裂变电离室法及金箔活化法测量热中子注量率的不确定度分析

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摘要 文章简述 ^{235}U 裂变电离室法及金箔活化法测量热中子注量率的基本原理, 并对测量过程中的各项不确定度因素进行了分析评定, 包括中子衰减、裂变计数率、全谱平均反应截面、金箔活性等。计算出的两种注量率测量相对合成标准不确定度满足2%~5%的要求。对减小中子注量率测量不确定度的方法进行了讨论。

关键词 [不确定度分析](#) [中子注量率](#) [裂变电离室](#) [金箔活化法](#)

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Uncertainty Analysis of Measuring Thermal Neutron Fluence Rate by Using ^{235}U Fission Ionization Chamber And Gold Foil-Activation Methods

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Abstract The basic principle of measuring the thermal neutron fluence rate by using ^{235}U fission ionization chamber and gold foil-activation methods was discussed in the paper. And the standard uncertainty factors in the measuring process, such as the neutron decay, the fission count rate, the total average reactive cross section, and the gold foil-activity were evaluated. The calculated relative combined standard uncertainty for both measuring methods can meet the requirement of 2%-5%. The ways on minimizing the uncertainty of measuring results were discussed.

Key words [uncertainty analysis](#) [neutron fluence rate](#) [fission chamber](#) [gold foil-activation method](#)

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