

技术及应用

OLAM网络对环境样品 γ 能谱核素活度的计算

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摘要 基于OLAM网络学习机制及解谱原理, 构造了能分析 γ 能谱中核素活度的网络。为获取单质核素能谱用于网络训练, 采用解谱软件所提供的刻度方程模拟核素的特征能谱, 并用其训练网络。用训练好的网络计算环境土壤样品中 ^{238}U 、 ^{226}Ra 、 ^{232}Th 、 ^{40}K 、 ^{137}Cs 等核素的活度, 并将计算结果与SPAS G解谱软件计算结果相比较。结果显示, 两者的平均相对偏差绝对值为2.24%, 表明网络的构造及特征能谱的模拟是成功的。

关键词 [OLAM网络](#); [环境样品](#); [\$\gamma\$ 能谱](#); [活度计算](#); [能谱模拟](#)

分类号

Activity Analysis to Environmental Sample γ spectrum With OLAM Net

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Abstract Based on the learning mechanism of OLAM network and the theory of γ spectrum analysis, an artificial neural network to carry out the activity analysis of nuclides was constructed. For getting γ spectrum of the nuclide of a simple substance to train the net, the characteristic spectra of the nuclide were simulated with the scale equations given in the spectrum analysis software. The well trained net was used to calculate the activities of nuclides ^{238}U , ^{226}Ra , ^{232}Th , ^{40}K and ^{137}Cs in the samples of environmental soil. By comparing the results with the SPAS G calculation, the average relative deviation is 2.24%, and this indicates that both the net construction and the characteristic spectrum simulation are successful.

Key words [OLAM net](#) [environmental sample](#) [\$\gamma\$ spectrum](#) [activity calculation](#) [energy spectrum simulation](#)

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