

基于电子探针背景的精确定量方法

姚立^{1,2}, 田地¹, 姚杰²

1. 吉林大学 仪器科学与电气工程学院 长春 130061; 2. 吉林大学 测试科学实验中心, 长春 130022

收稿日期 2007-8-30 修回日期 2007-12-7 网络版发布日期 2009-1-3 接受日期 2007-12-12

摘要 由于X射线谱线的背景干扰和曲率变化, 使得电子探针定量分析会产生误差, 且元素质量分数越低误差越显著。为准确测量和扣除X射线谱线背景, 研究了谱线背景的测量和扣除方法, 并设计了相应控制测量软件。首先通过完善的元素特征X射线波长数据库判断出测量元素的背景干扰情况, 对有干扰或有曲率变化的谱线背景进行多点精细测量,

再采用线性或多项式拟合方法计算扣除背景。对标准样品III-HN8520和I-E078I进行了测试, 结果表明, 该方法比原方法降低了谱线干扰, 提高了定量分析数据的准确性。

关键词 [地质学](#) [精细测量](#) [曲线拟合](#) [电子探针背景](#)

分类号 [P575.1](#)

Accurate background measurement on electron probe

YAO Li^{1,2}, TIAN Di¹, YAO Jie²

1. College of Instrumentation and Electrical Engineering, Jilin University, Changchun 130061, China; 2. Testing Center, Jilin University, Changchun 130022, China

Abstract Due to the existence of interference and non-linear background in X-ray spectrum, there are errors in the results of quantitative analysis on electron probe, especially for the lower element content. In order to measure and deduct the X-ray background intensity exactly, the background measurement and deduction method was investigated and corresponding software of control and measurement was designed. It was combined with several methods, including determining the interference through the characteristic X-ray spectral database of the measured element, scanning the spectrum accurately by adding measurement points, simulating spectrum by linear and polynomial fitting. It was approved by standard samples, III-HN852 and I-E0781. Compared with the regular method, the interference was reduced and the accuracy of quantitative analysis was improved.

Key words [geography](#) [accurate measurement](#) [curve fitting](#) [electron probe background](#)

DOI:

通讯作者 田地 tiandi@jlu.edu.cn

扩展功能

本文信息

▶ [Supporting info](#)

▶ [PDF\(381KB\)](#)

▶ [\[HTML全文\]\(0KB\)](#)

▶ [参考文献](#)

服务与反馈

▶ [把本文推荐给朋友](#)

▶ [复制索引](#)

▶ [文章反馈](#)

▶ [浏览反馈信息](#)

相关信息

▶ [本刊中 包含“地质学”的 相关文章](#)

▶ [本文作者相关文章](#)

- [姚立](#)
-
- [田地](#)
- [姚杰](#)