

技术及应用

# 高分辨粉末衍射仪数据采集系统研制

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收稿日期 修回日期 网络版发布日期:

**摘要** 介绍了中国先进研究堆(CARR)旁高分辨粉末衍射仪数据采集系统的整体设计和硬件组成, 阐述了各单元电路的结构和设计。加载输入信号对电路进行了调试, 测试了电路的各项性能, 测试结果满足设计要求。从探测器、前置放大器、主放大器、甄别器、计数卡到计算机的整个系统, 实现了对信号的获取、放大、滤波成形、甄别、定标计数和存储全过程, 多达65路的数据采集系统已研制成功。

**关键词** [数据采集](#) [电路设计](#) [电路分析](#) [性能测试](#) [高分辨粉末衍射仪](#)

分类号

## Design of Data Acquisition System for High Resolution Powder Diffractometer

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**Abstract** The holistic design and hardware components of data acquisition system for high resolution powder diffractometer based on China Advanced Research Reactor(CARR) were introduced. The structures and features of each unit circuit were described in detail. The circuit was debugged using input signal and the performance was tested. The results satisfy the requirements of pre-design. The whole system including detector, preamplifier, main amplifier, discriminator, counter and computer fulfill the process of signal acquiring, amplifying, shaping, discriminating, counting and storing. Besides, the data acquisition system with up to 65 channels has been successfully manufactured.

**Key words** [data acquisition](#) [circuit design](#) [circuit analysis](#) [performance testing](#) [high resolution powder diffractometer](#)

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