

技术及应用

## 乳腺专用PET连续采样电子学系统设计与性能测试

帅磊<sup>1, 2</sup>; 丰宝桐<sup>1, 2</sup>; 胡婷婷<sup>1</sup>; 李道武<sup>1</sup>; 魏书军<sup>1</sup>; 黄欢<sup>1</sup>; 李可<sup>1</sup>; 柴培<sup>1, 2</sup>; 李琳<sup>1</sup>; 单保慈<sup>1</sup>; 魏龙<sup>1</sup>; 徐文贵<sup>3</sup>

1.中国科学院 高能物理研究所 核分析技术重点实验室和高技术研发中心, 北京100049 2.中国科学院 研究生院, 北京100049 3.天津医科大学附属肿瘤医院, 天津300060

收稿日期 修回日期 网络版发布日期:

**摘要** 对乳腺专用PET进行了简单介绍, 详细叙述了系统中连续采样电子学系统的设计和性能测试。该电子学采用子母板设计结构, 包含了模数转换、时间数字转换和CAN控制等多个模块, 具备对前端探测器模拟信号进行连续采样、处理和传输功能。实验表明, 该系统能完全满足乳腺专用PET对连续采样的需求。该系统还有集成度高、通用性强、配置灵活等优点。

**关键词** [乳腺专用正电子发射断层扫描仪](#) [连续采样系统](#) [电子学](#)

分类号

## Design and Performance of Continuous Sampling Module for Positron Emission Mammography

SHUAI Lei<sup>1, 2</sup>; FENG Bao-tong<sup>1, 2</sup>; HU Ting-ting<sup>1</sup>; LI Dao-wu<sup>1</sup>; WEI Shu-jun<sup>1</sup>; HUANANG Huan<sup>1</sup>; LI Ke<sup>1</sup>; CHAI Pei<sup>1, 2</sup>; LI Lin<sup>1</sup>; SHAN Bao-ci<sup>1</sup>; WEI Long<sup>1</sup>; XU Wen-gui<sup>3</sup>

1. Key Laboratory of Nuclear Analysis Techniques and R&D Center, Institute of High Energy Physics, Chinese Academy of Sciences, Beijing 100049, China; 2. Graduate University of Chinese Academy of Sciences, Beijing 100049, China; 3. Tianjin Medical University Cancer Institute and Hospital, Tianjin 300060, China

**Abstract** Design and performance of data processing electronics (continuous sampling module, CSM) for positron emission mammography (PEM) was introduced. Sub-module of ADC and TDC was allocated on daughter board and mother board of CSM, respectively. There was also a CAN controller on mother board. Continuous sampling of front-end analog signals, data processing and transmission were implemented in the design. Evaluation and performance show that the CSM is fulfilled the requirement of high-rate data processing in our PEM. The high-integrated CSM can be configured flexibly and can be extended to other system easily.

**Key words** [positron emission mammography](#) [continuous sampling module](#) [electronics](#)

DOI

### 扩展功能

#### 本文信息

▶ [Supporting info](#)

▶ [\[PDF全文\]\(1193KB\)](#)

▶ [\[HTML全文\]\(0KB\)](#)

▶ [参考文献](#)

#### 服务与反馈

▶ [把本文推荐给朋友](#)

#### 相关信息

▶ [本刊中 包含“乳腺专用正电子发射断层扫描仪”的 相关文章](#)

▶ [本文作者相关文章](#)

· [帅磊](#)

· [丰宝桐](#)

· [胡婷婷](#)

· [李道武](#)

· [魏书军](#)

· [黄欢](#)

· [李可](#)

· [柴培](#)

通讯作者