Contribution ID: **115** Type: 海报展示

Energy and timing resolution boost with waveform analysis

摘要

在中微子或暗物质实验中，为了在液闪探测器中重建事例的能量和时间，我们需要分析 PMT 读出的波形。快速随机匹配追踪（FSMP）可以对每个波形从光电子（PE）时间序列的后验分布采样。它在 GPU 上得以加速，最终在液闪探测器中提升能量和时间分辨率。能量的分辨率的提升为降低 12% 的相对分辨率。

关键词

波形分析, 重建, GPU 加速

Abstract

To reconstruct the energy and time of events in the liquid scintillator detector, in a neutrino or dark matter experiment, we need to analyze the waveforms from photomultiplier tubes (PMTs). Fast Stochastic Matching Pursuit (FSMP) samples the posterior of PE time sequence for each waveform. It gains acceleration on GPU, and improves the energy and time resolution of LS detectors. The energy resolution is improved by decreasing 12% of relative resolution.

Keywords

waveform analysis, reconstruction, GPU acceleration

Author: 王, 宇逸

Presenter: 王, 宇逸

Session Classification: 海报展示

Track Classification: 02 海报展示: 海报展示