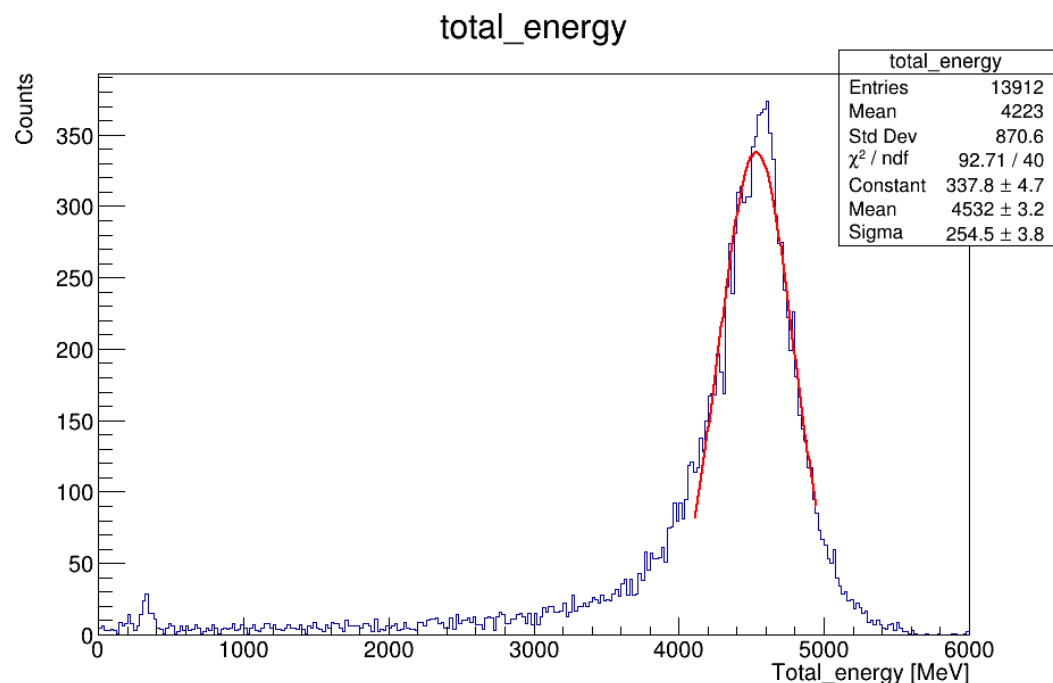


HEIC-Cube data analysis

张研硕

2025.06.24

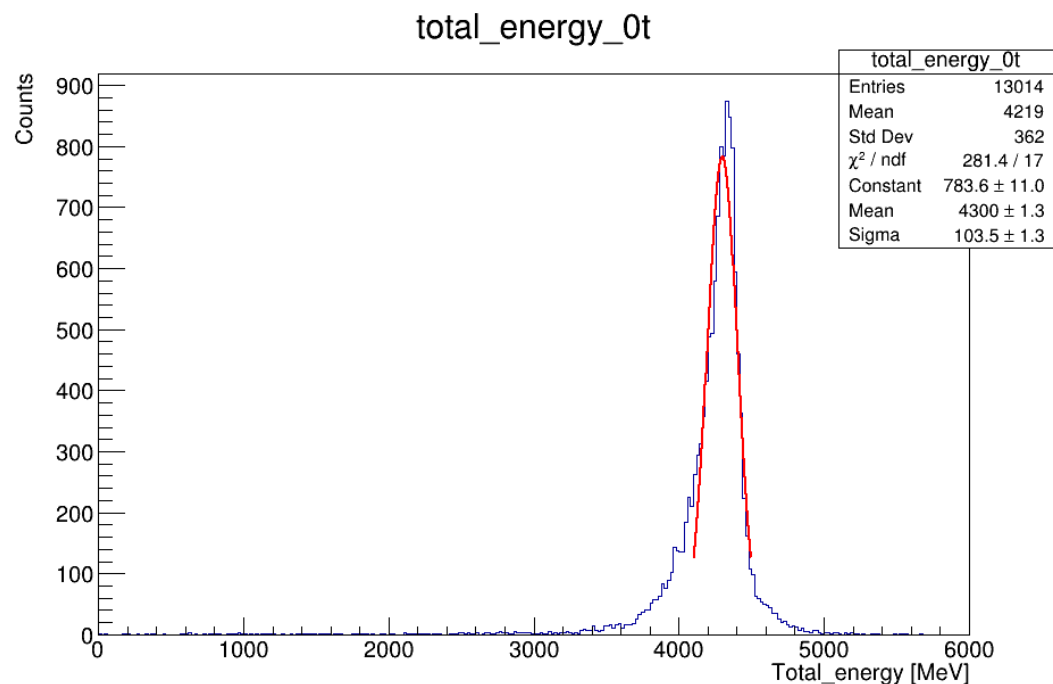
Beam test result



Energy resolution: 5.6%

- RunID 20301, 5GeV/c electron;
- ANC-Si downstream track;
- 筛选条件：第0层晶体顶面和第9层晶体底面的(x,y)坐标都在(-15mm,15mm);

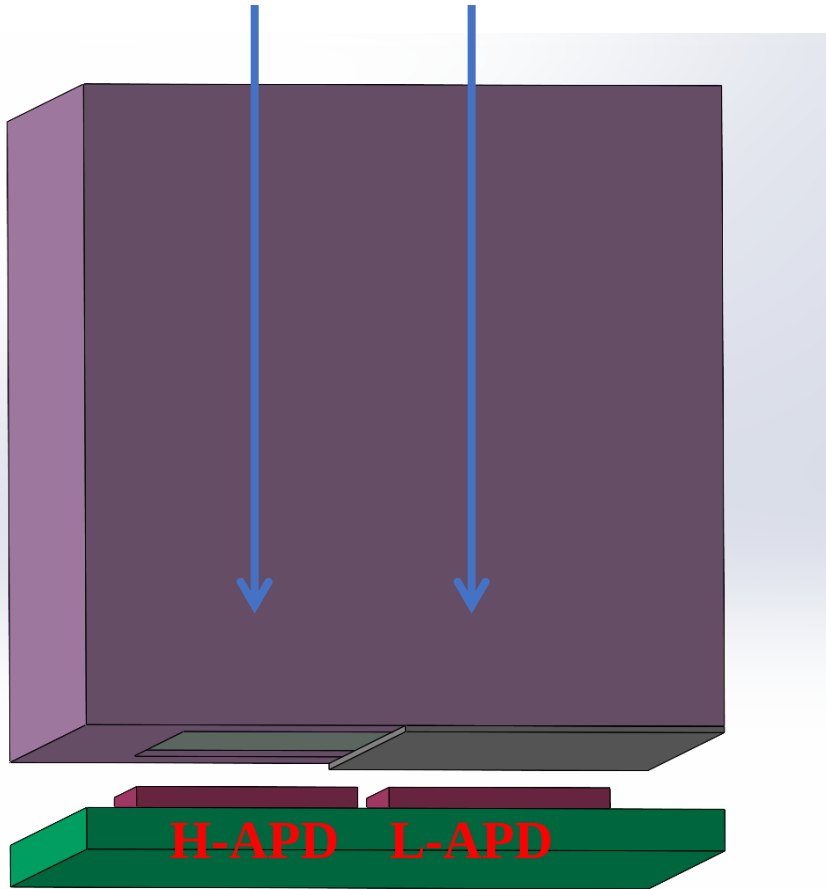
Simulation result



Energy resolution: 2.4%

- 5GeV/c electron;
- 粒子的初始径迹;
- 筛选条件: 第0层晶体顶面和第9层晶体底面的(x,y)坐标都在(-15mm,15mm);

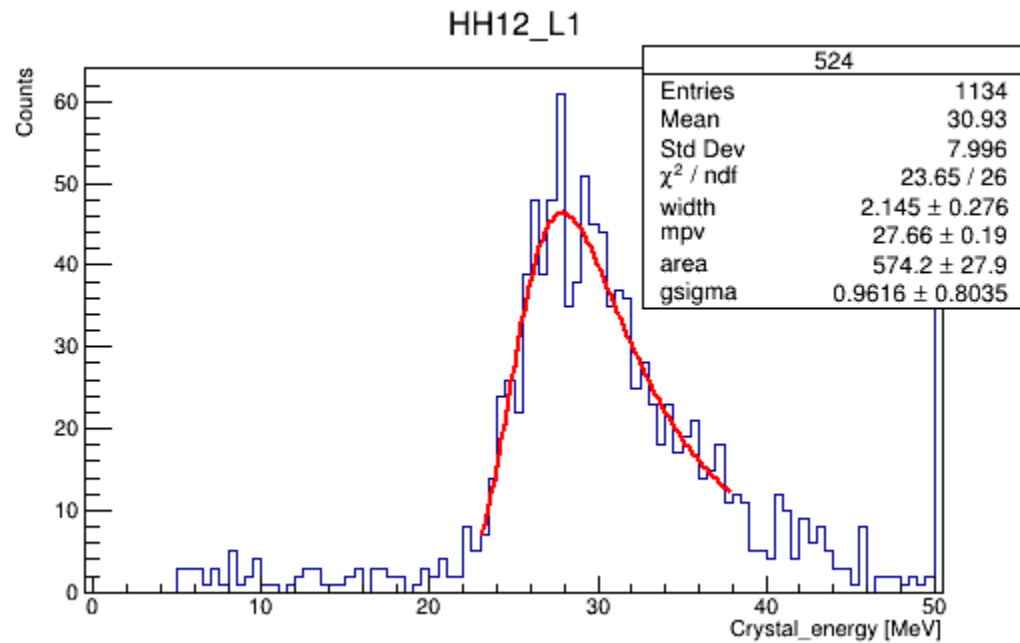
Fluorescence non-uniformity



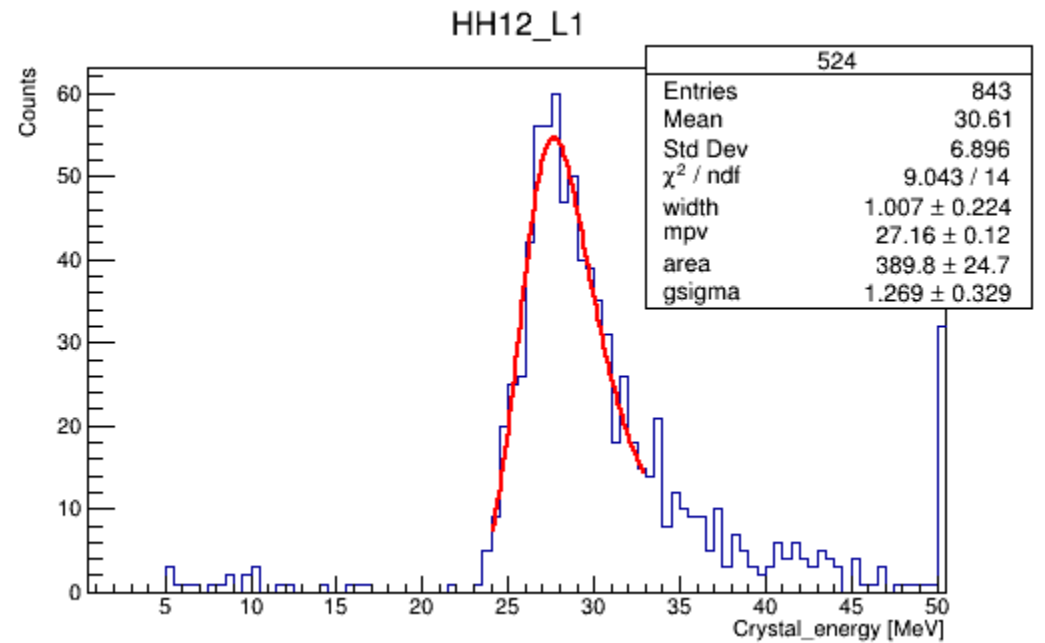
- 粒子径迹上发生能损发出荧光;
- 不同位置产生不等量的荧光;
- 晶体体积受限, 荧光不均匀;
- H-APD收集到的荧光有差异;

MIPs distribution

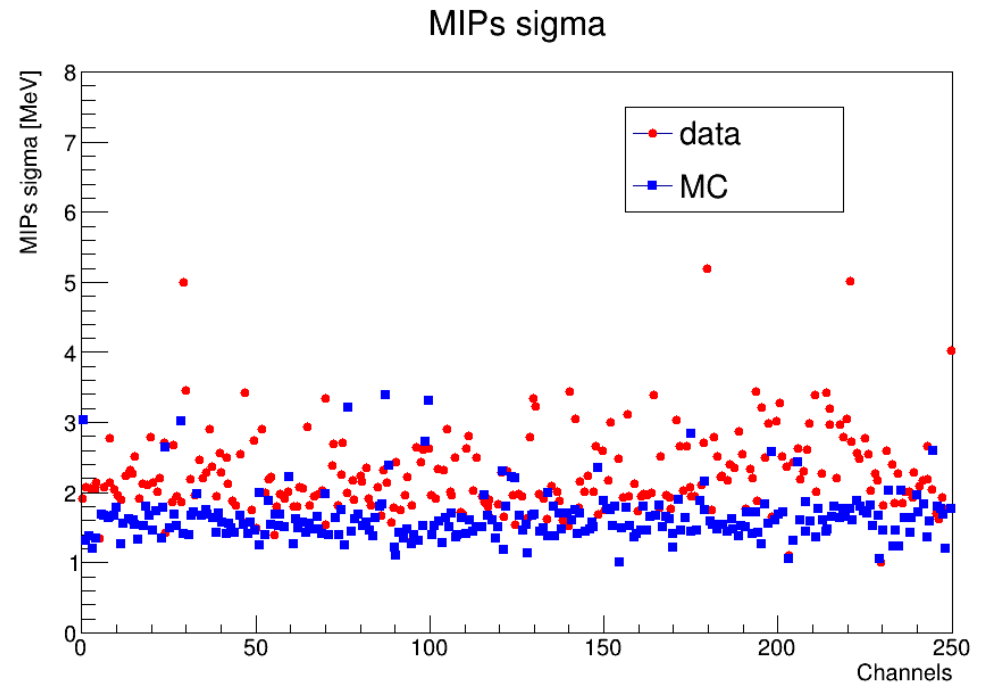
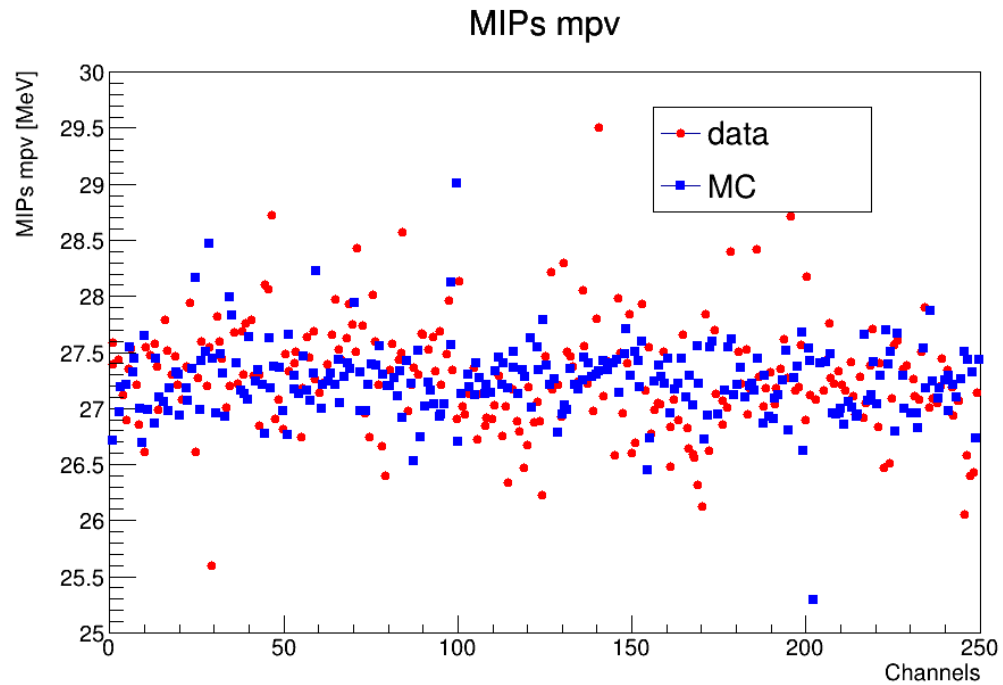
Beam test data



Simulation

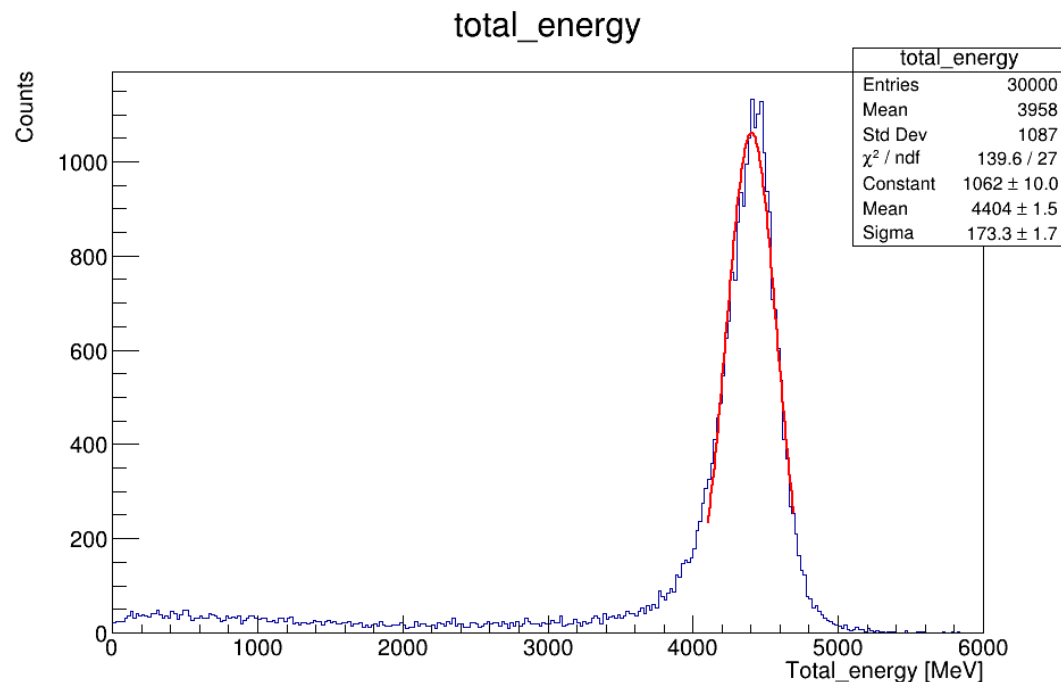


MIPs difference



Result

- 模拟数据经过数字化后;
- $\text{par} = \sqrt{\text{sigma_data}^2 - \text{sigma_mc}^2}$;
- $\text{crydep} = \text{gRandom} \rightarrow \text{Gauss}(\text{crydep}, \text{crydep}/\text{mpv} * \text{par})$;



Energy resolution: 3.9%