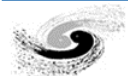
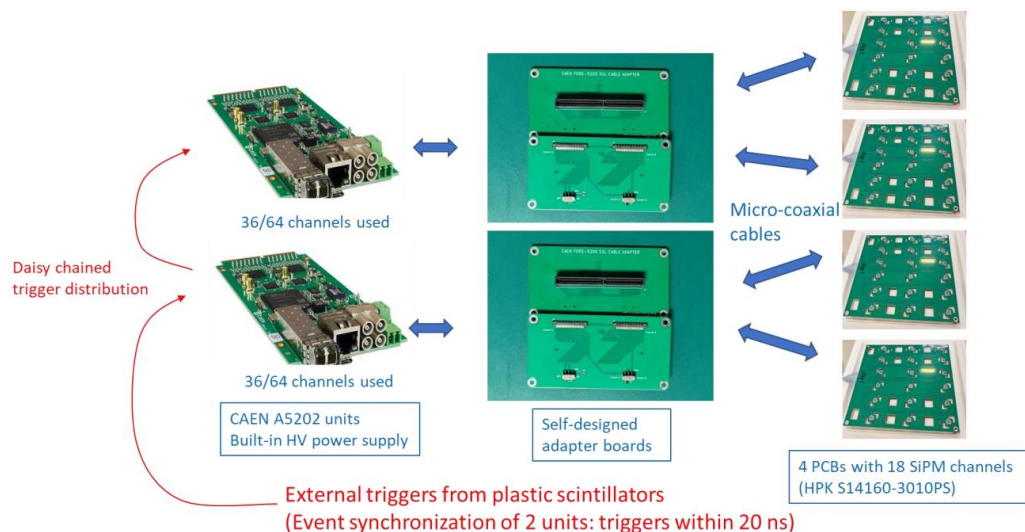
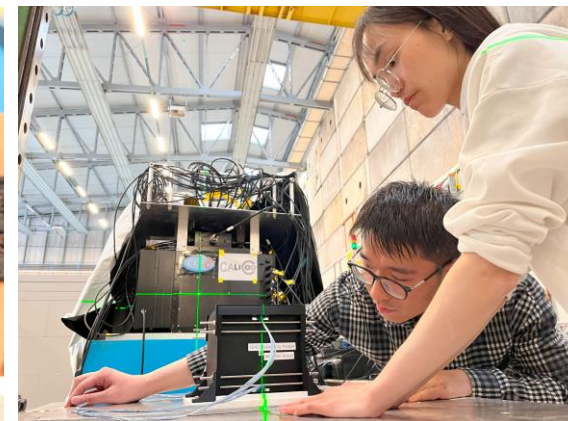
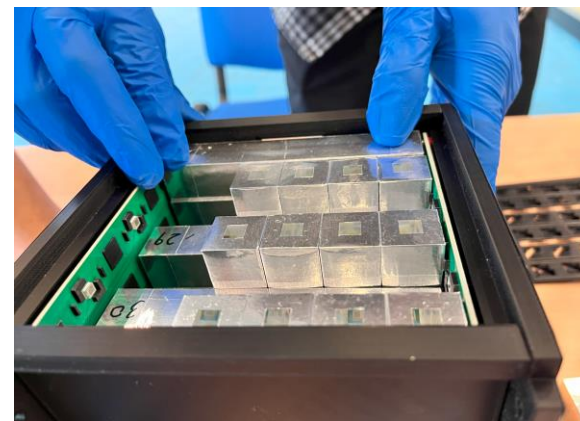
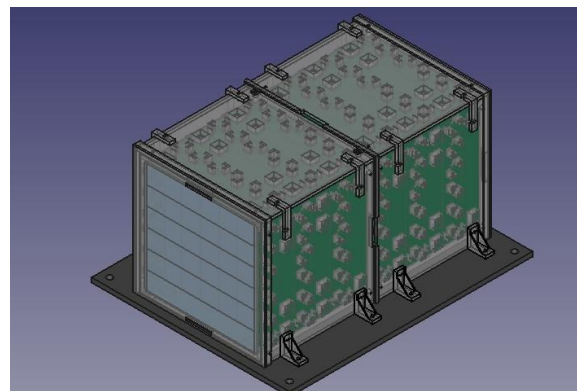
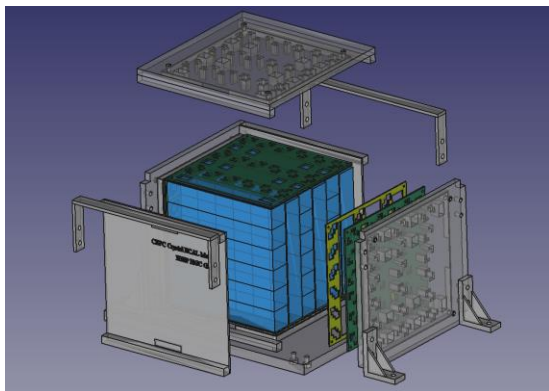


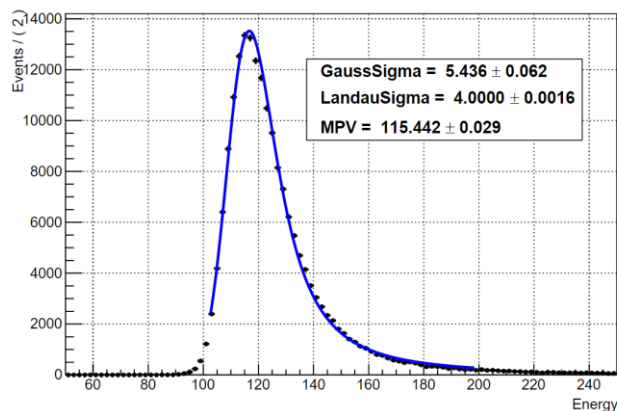
# 小型晶体量能器模块研发与束流实验

- 研究目的：量能器系统集成、解决硬件设计上的关键问题
- 关键问题：机械设计、读出、刻度、动态范围、温度监控等
- CERN T9束线，单个模块，低能mu-/e-/pi-测试
- DESY T22束线，两个模块，1~6 GeV e-测试



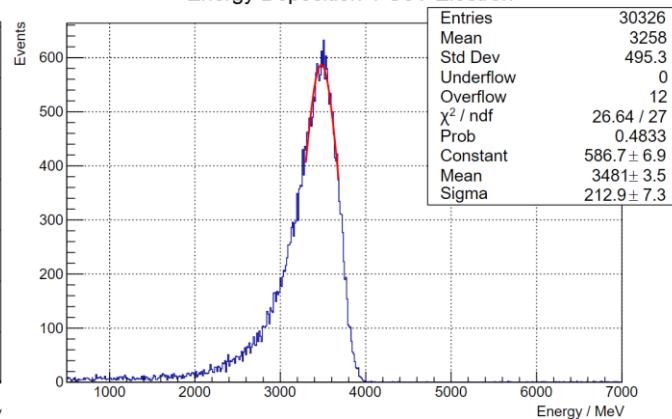
# 小型晶体量能器模块研发与束流实验

Energy Deposition 10 GeV Muon-



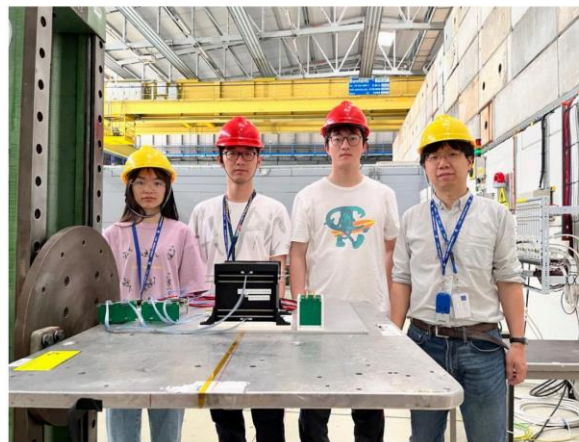
CERN测试得到的MIP响应

Energy Deposition 4 GeV Electron

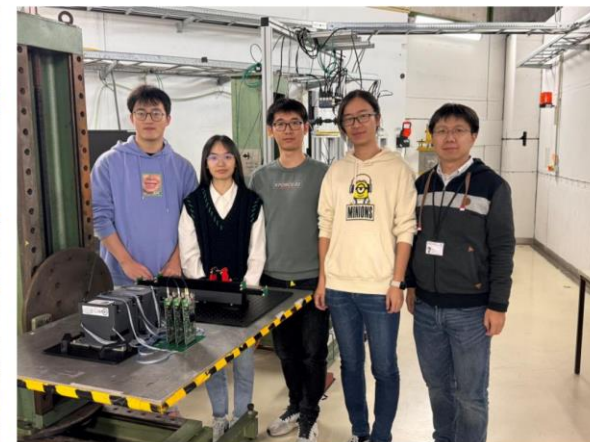


CERN测试得到的电子能谱

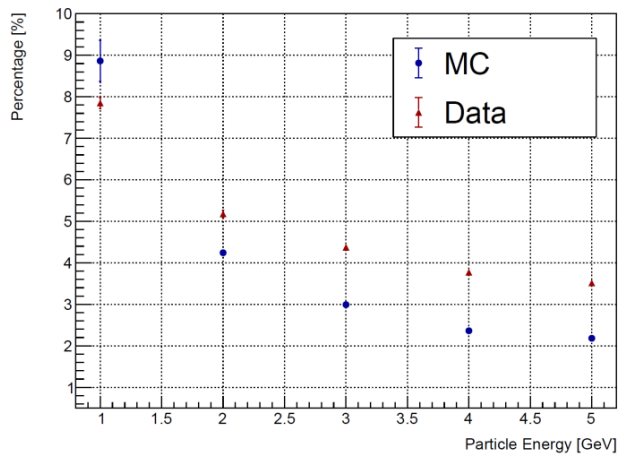
CERN PS-T9 May. 2023



DESY TB22 Oct. 2023

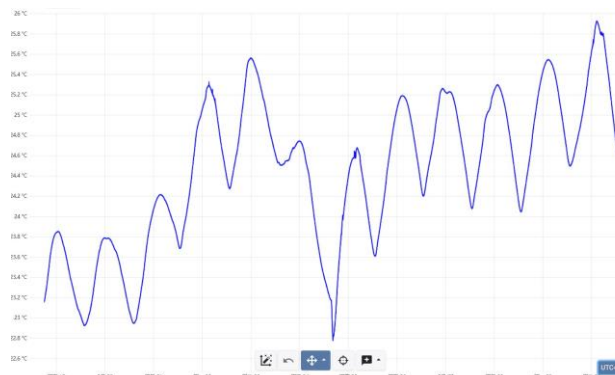
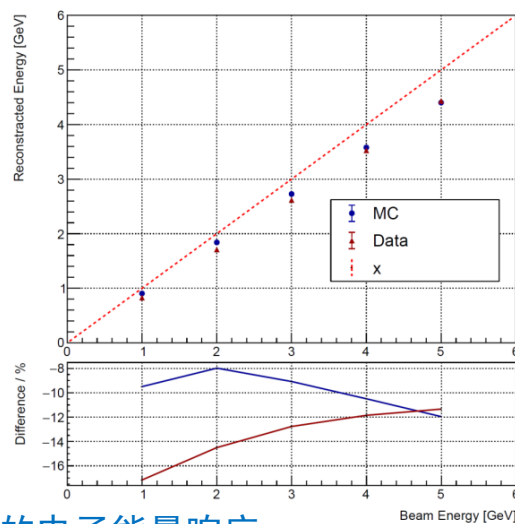


Energy Resolution

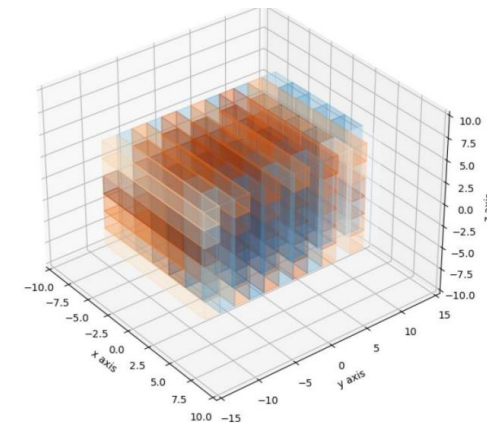


DESY测试初步得到的电子能量响应

Energy Linearity



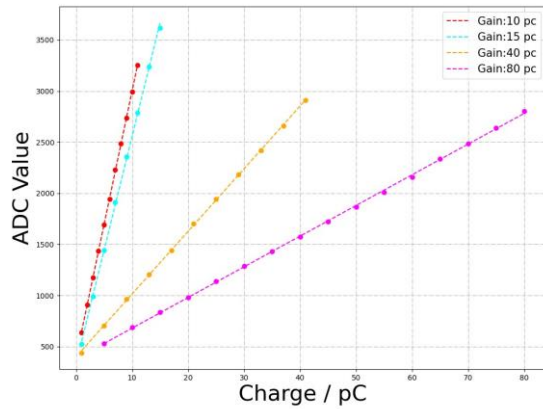
温度监控



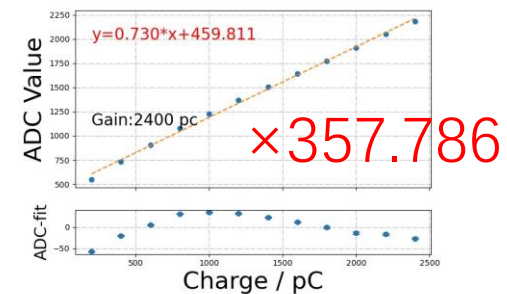
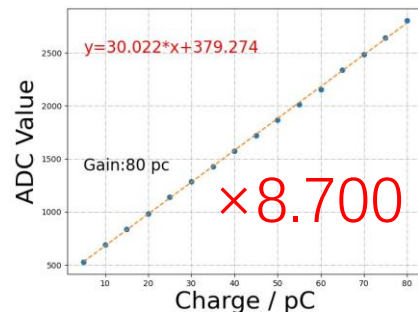
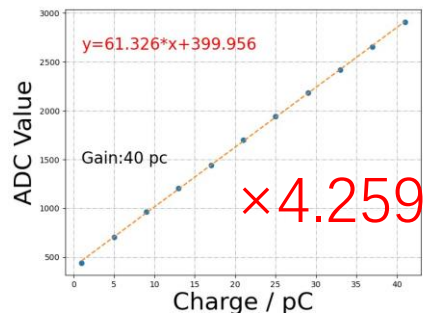
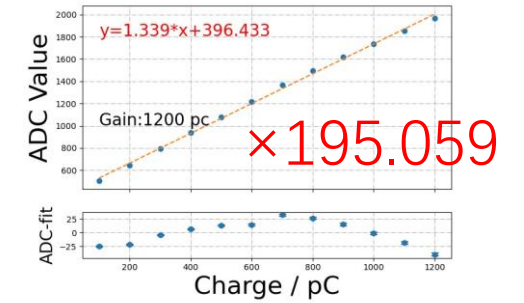
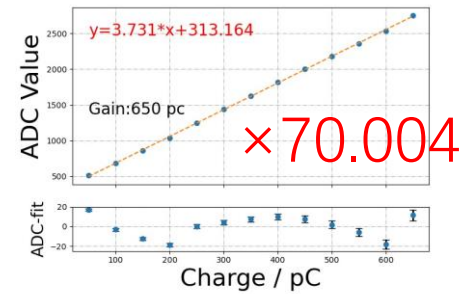
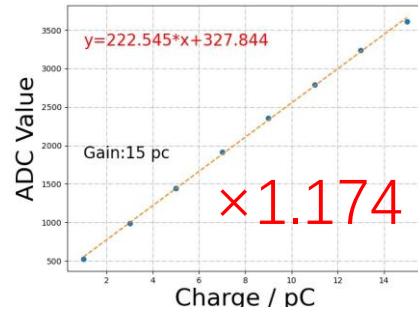
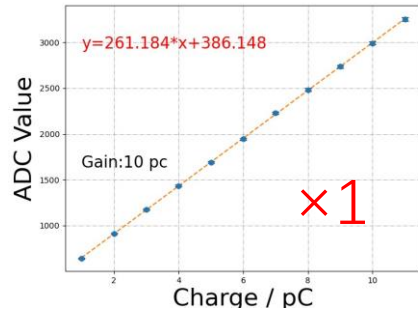
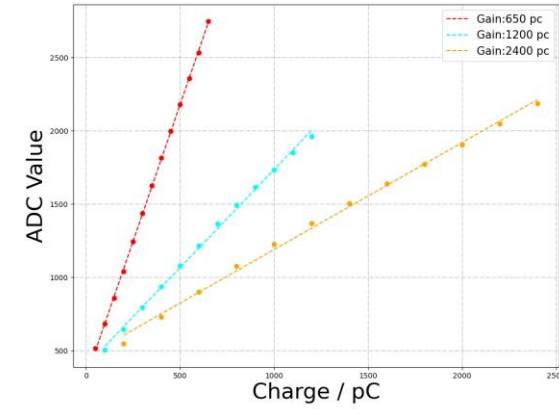
电子事例显示



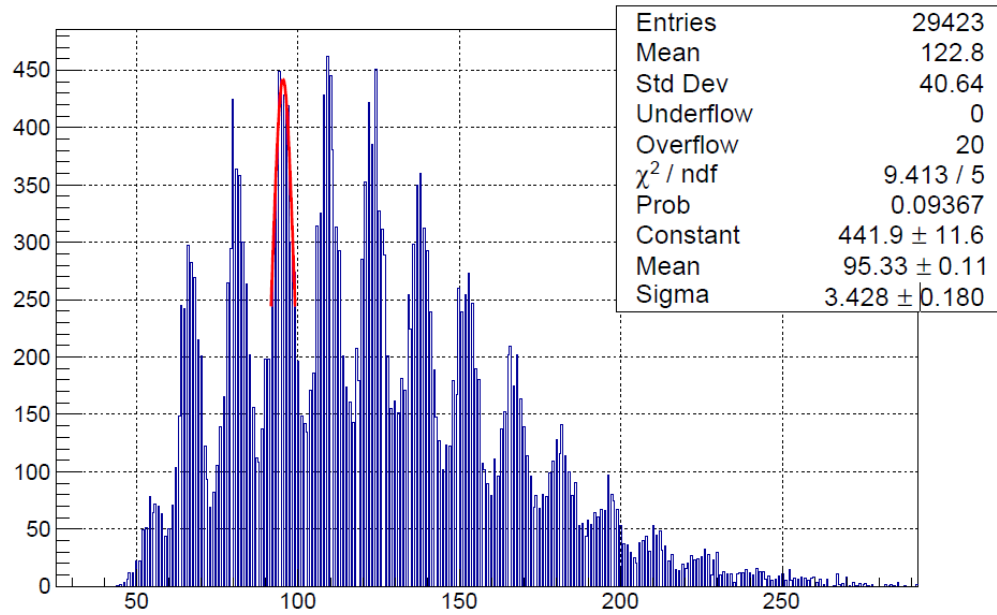
# MPT动态范围测试



不同Gain下电荷注入刻度, 以 10pC Range为 $\times 1$



# MPT动态范围测试

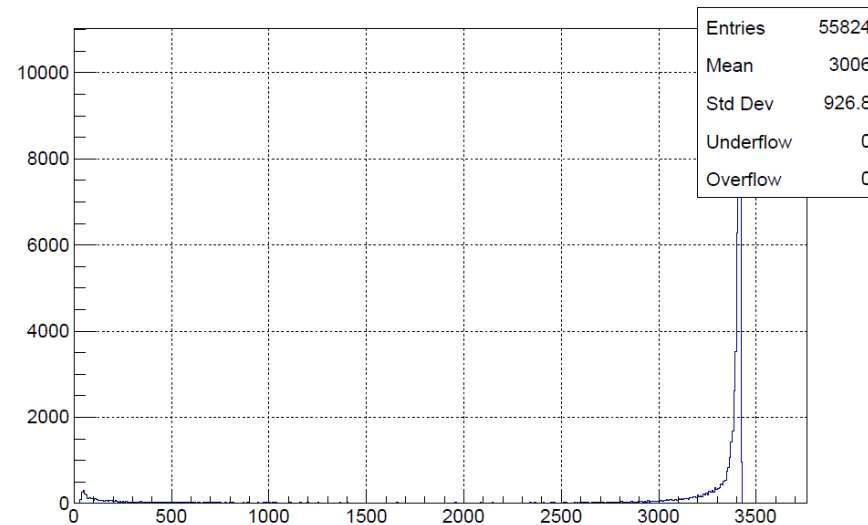


S13360-3025PE单光子ADC

MPT ULG

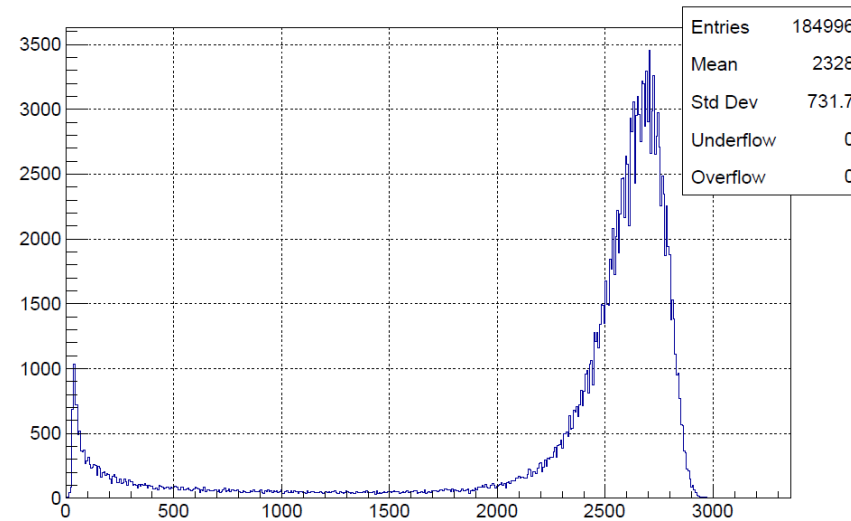
10pC: 14.295  
1.2nC(A): 0.07329  
2.4nC: 0.03995

650pC  
1.2nC(A)  
1.2nC(B)  
2.4nC



1.2nC(A)

折合约46391  
光子饱和,  
ADC约3400



2.4nC

峰位折合约  
67584光子,  
ADC约2700,  
5GeV未测到  
饱和, 理论上  
SiPM响应早已  
非线性

