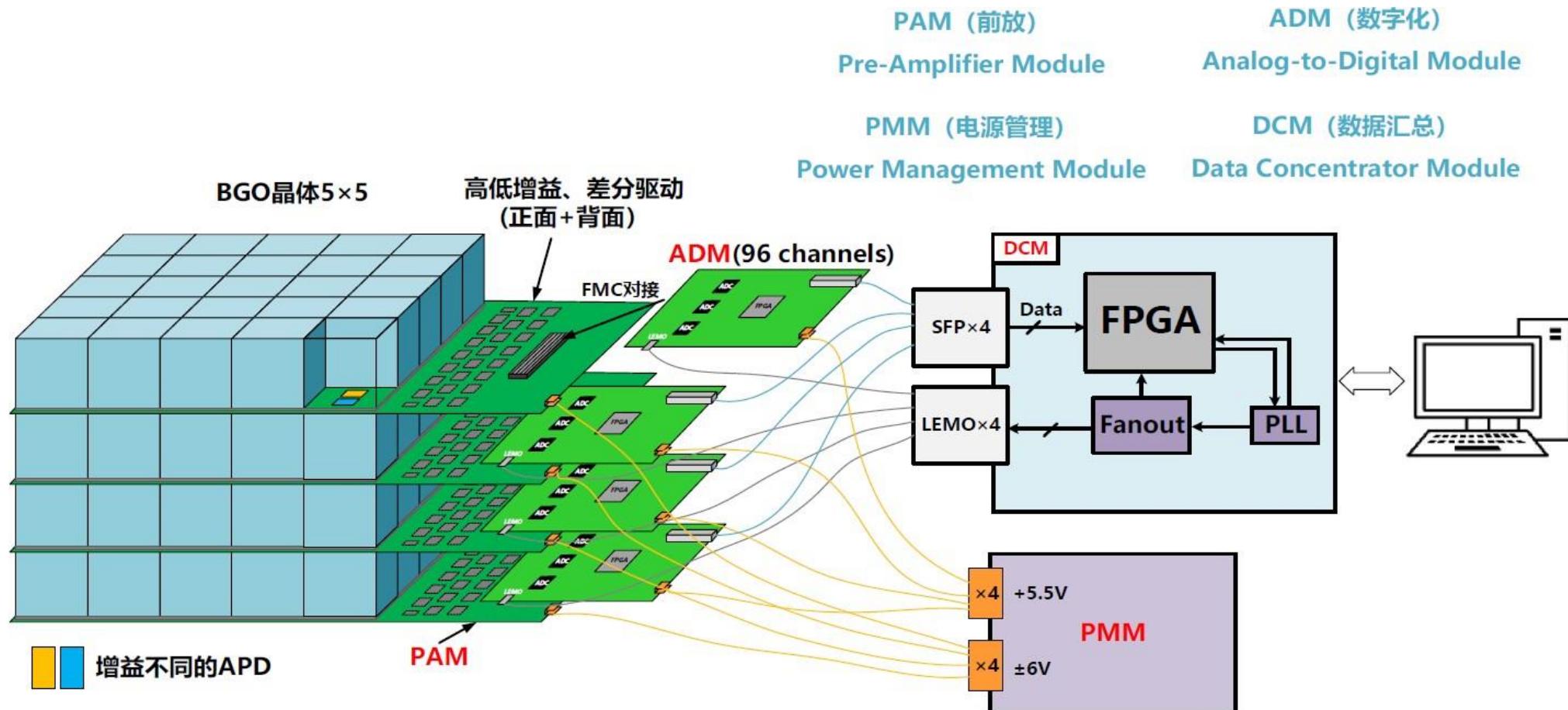


HEIC-Cube PS beam test data analysis

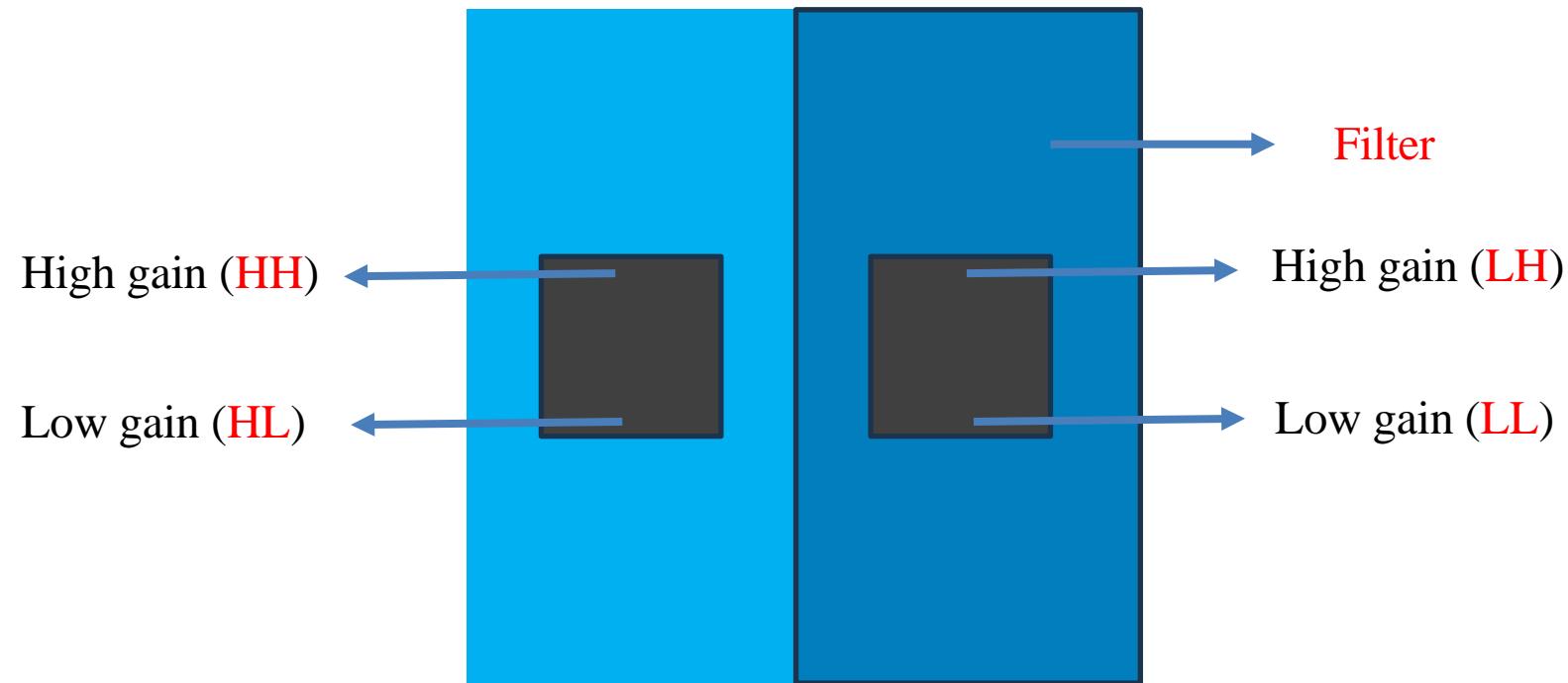
Yanshuo ZHANG

2023.11.03

HEIC-Cube structure



Readout scheme of HEIC-Cube

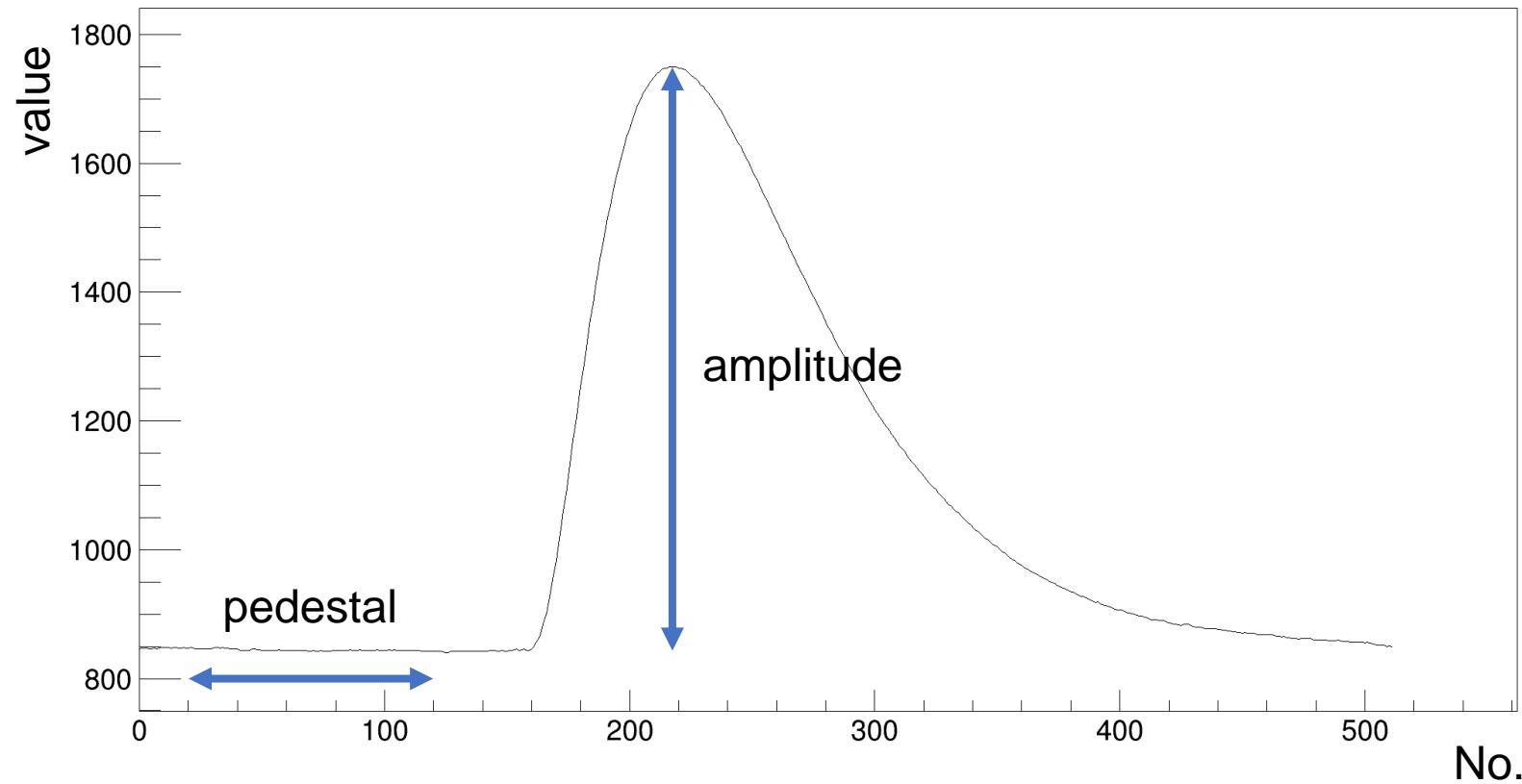


Different APDs use **filters** to realize high-low gain.

One APD realizes high-low gain by **electronics**.

Waveform sampling

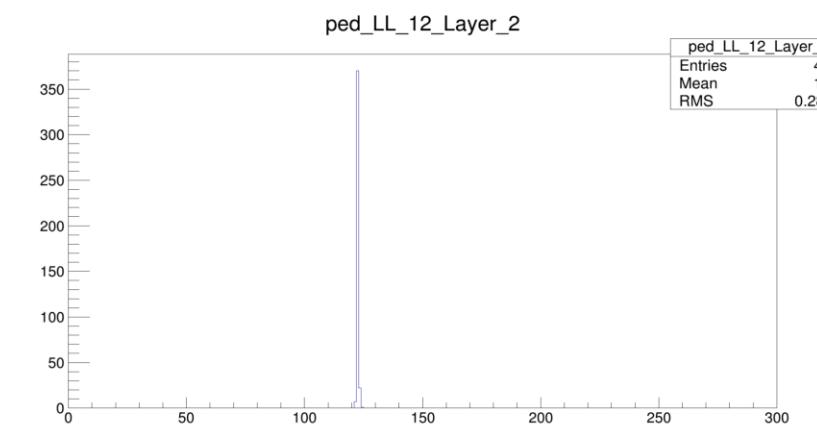
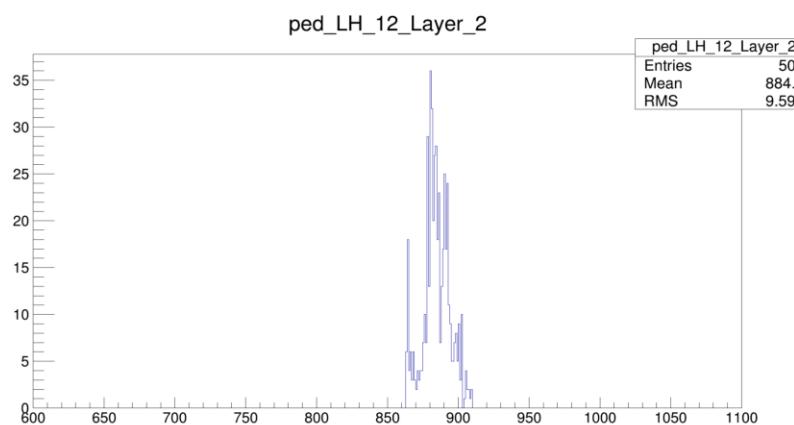
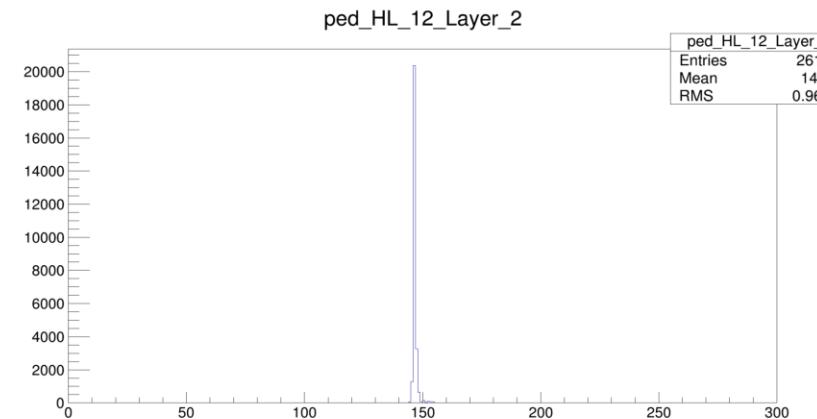
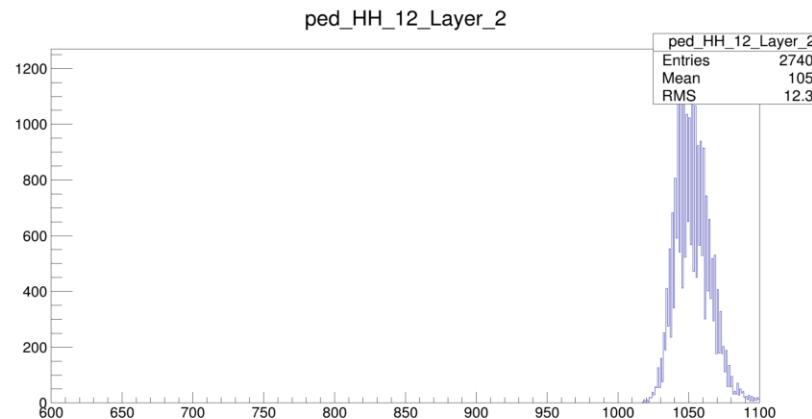
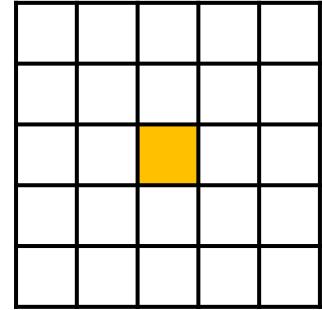
Particle	Energy (GeV/c)	Total Counts
e^-	1, 2, 3, 4, 5	1,012,152
μ^-	5	327,294
π^-	10, 12	409,269
γ	1	7,890



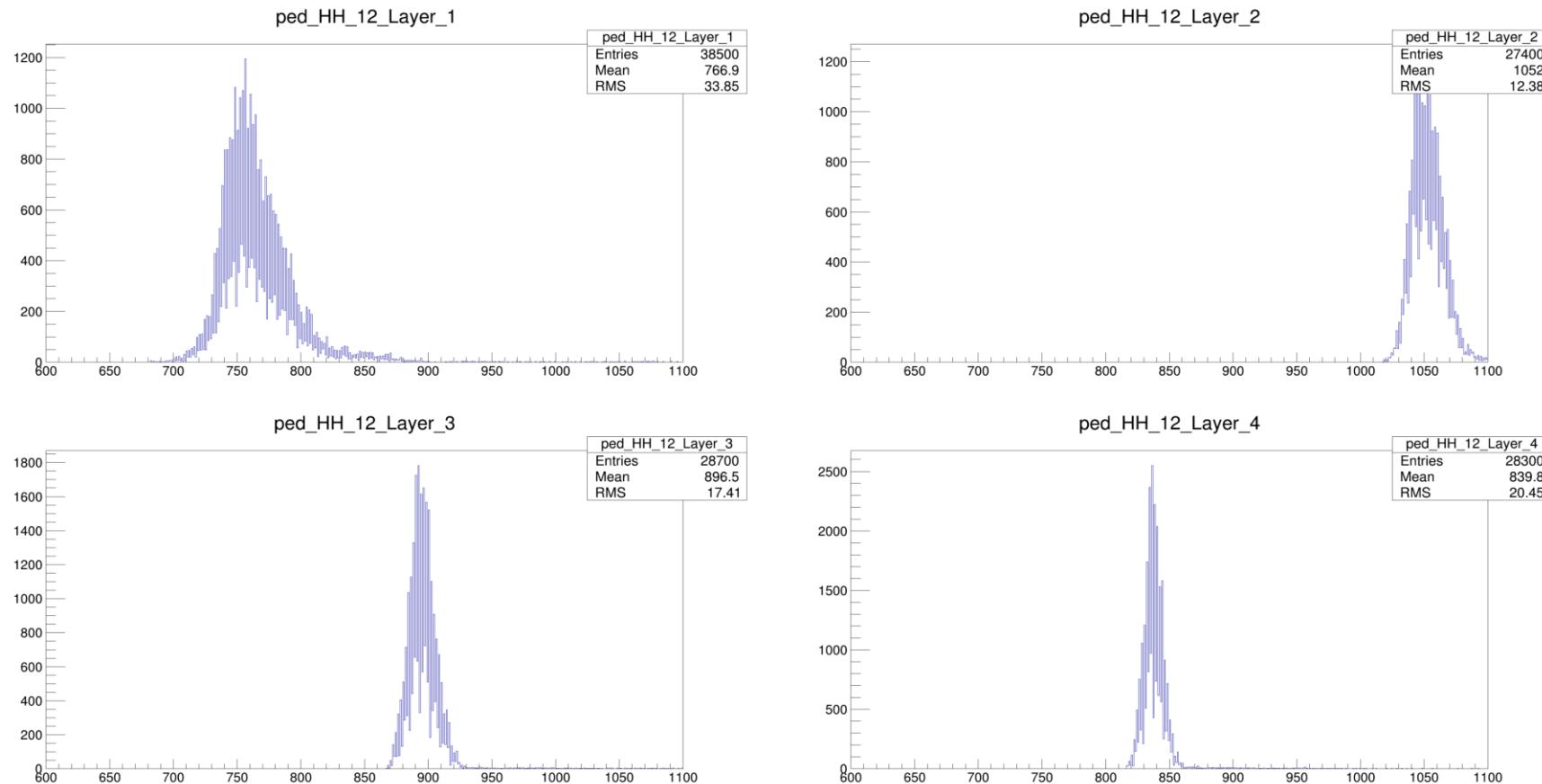
Muon data summary

- 汇总了 25 个等间距位置扫描的数据文件，粒子入射位置分别位于 25 个小晶体的中心，RunID 从 10004 到 10032，总共获得 192686 个有效事例。

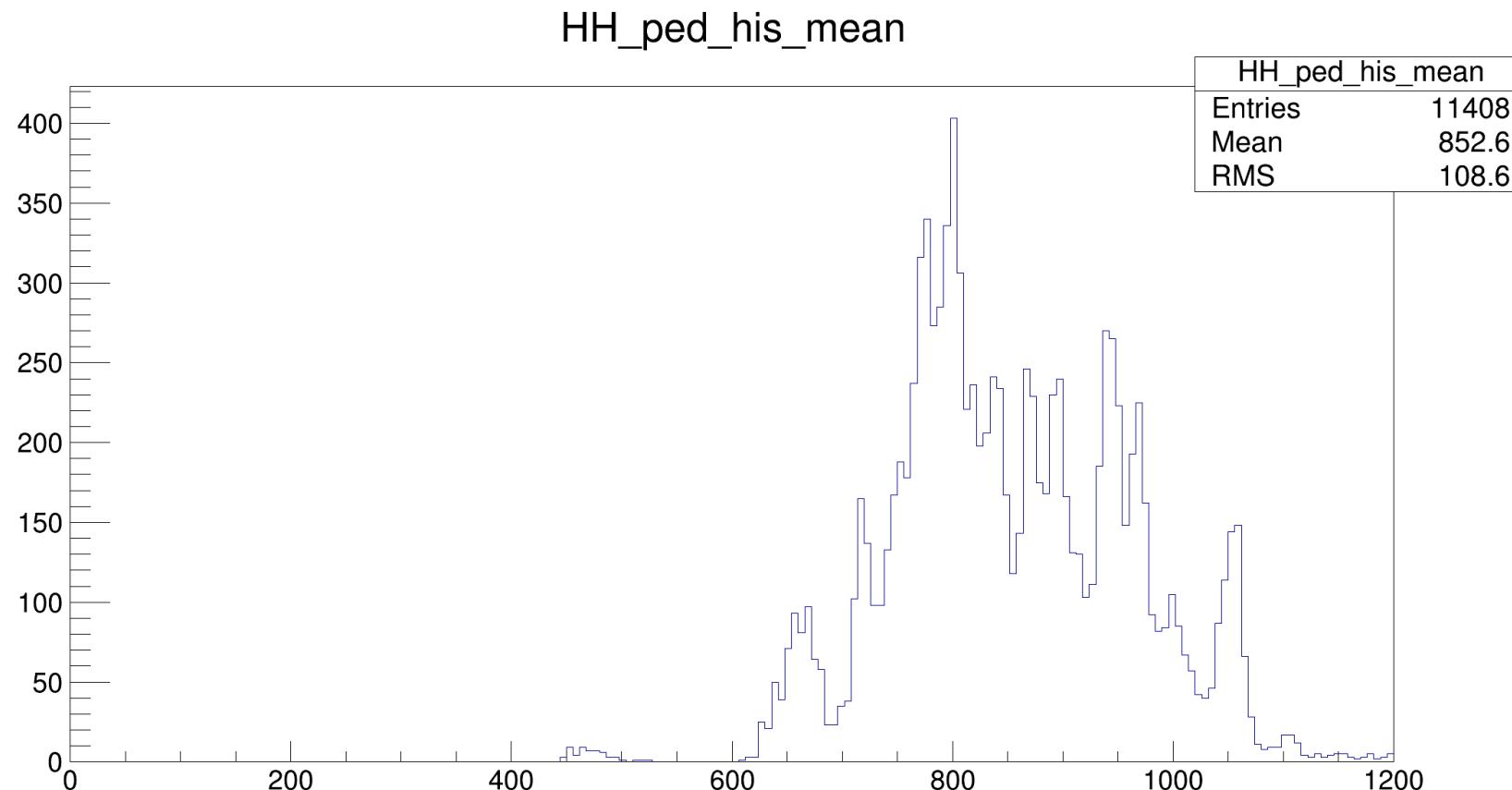
Muon pedestal (one APD)



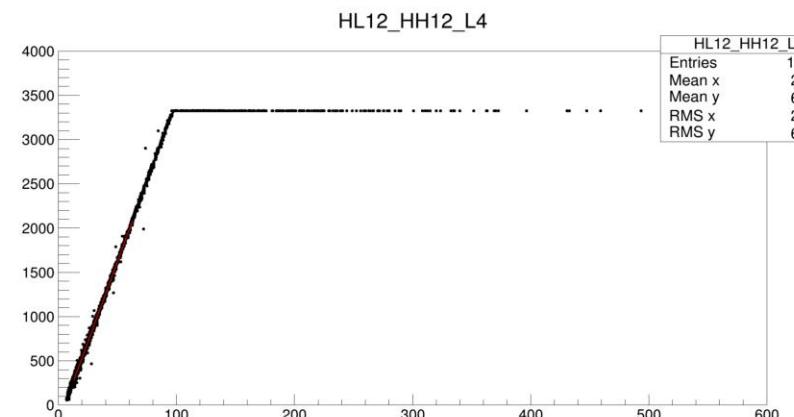
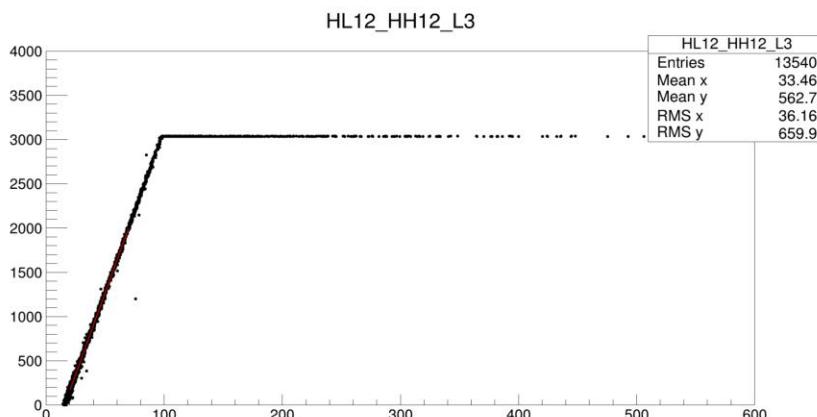
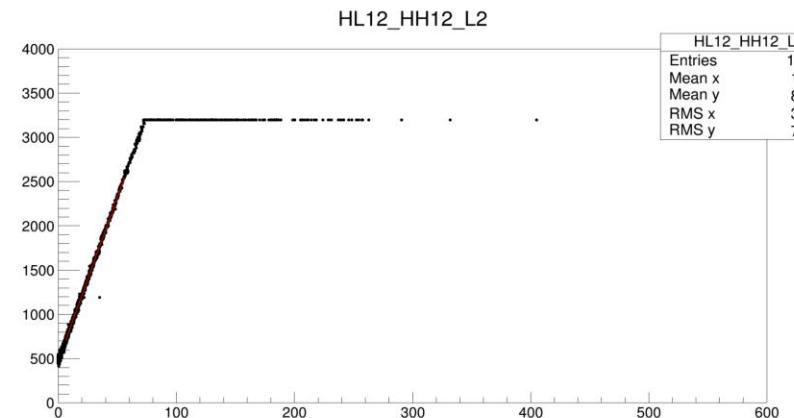
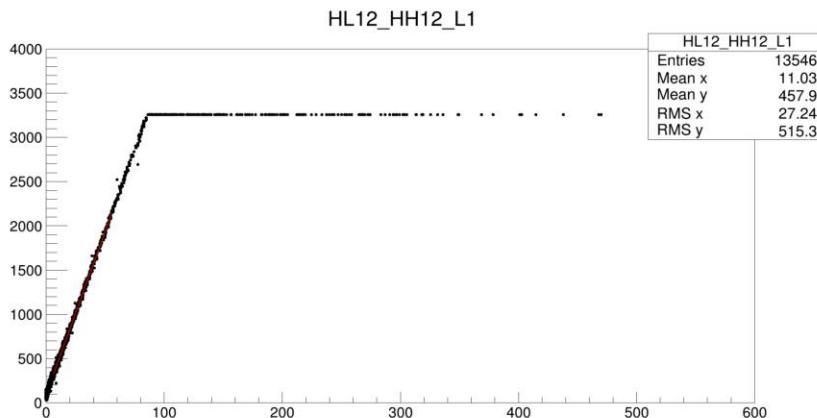
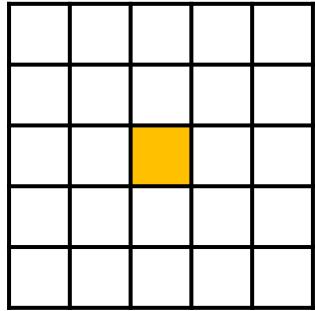
Muon pedestal (one channel)

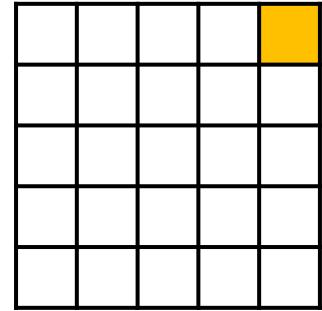


Muon pedestal (HH channels)

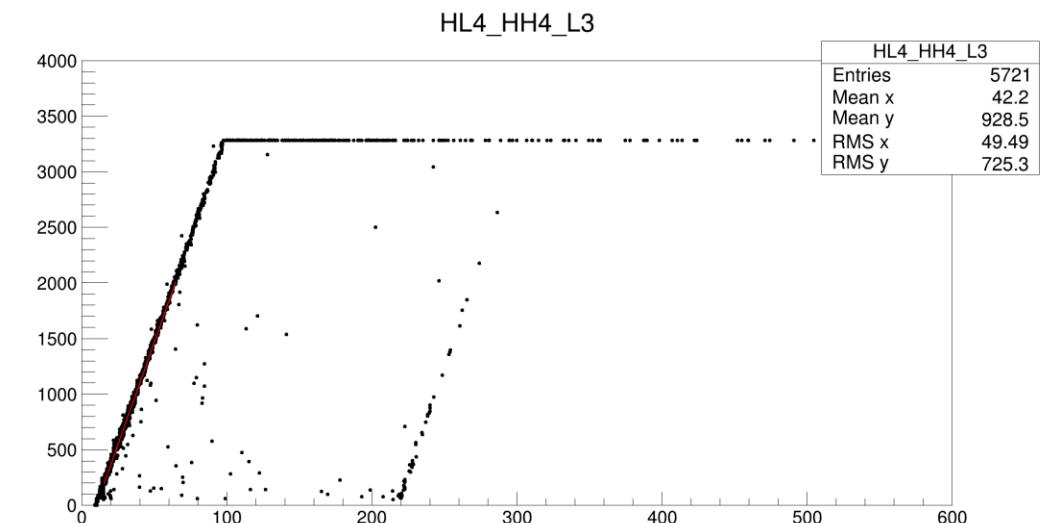
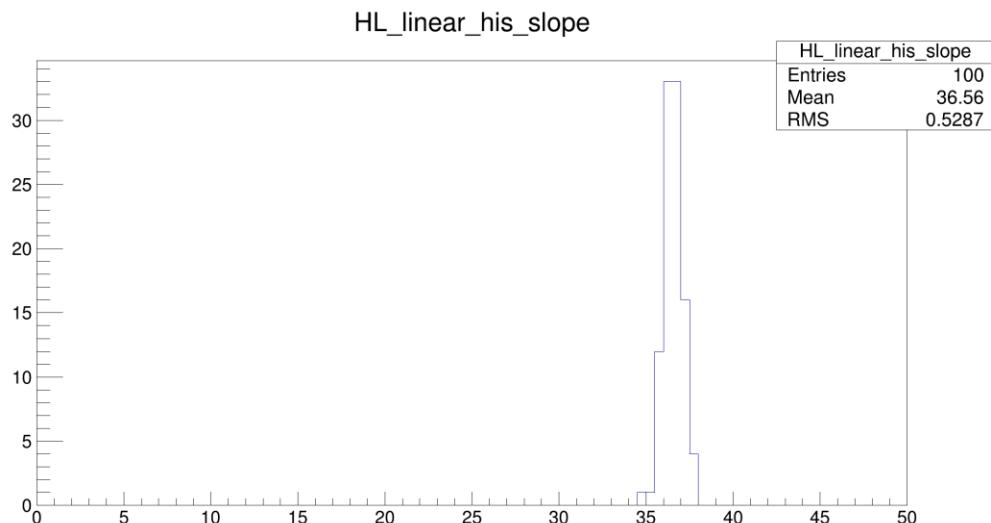


Muon channels' linearity

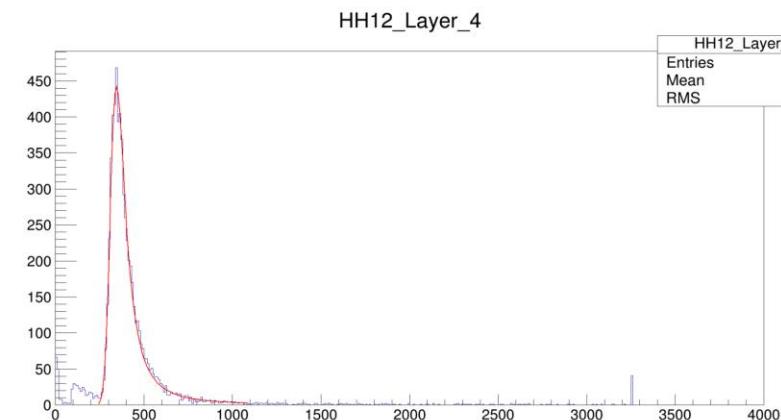
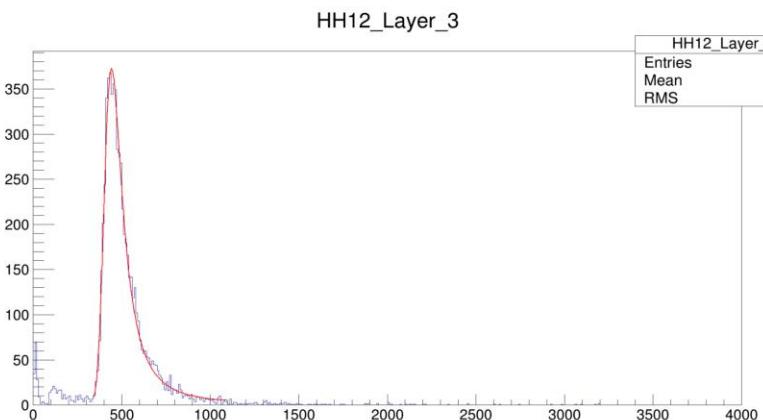
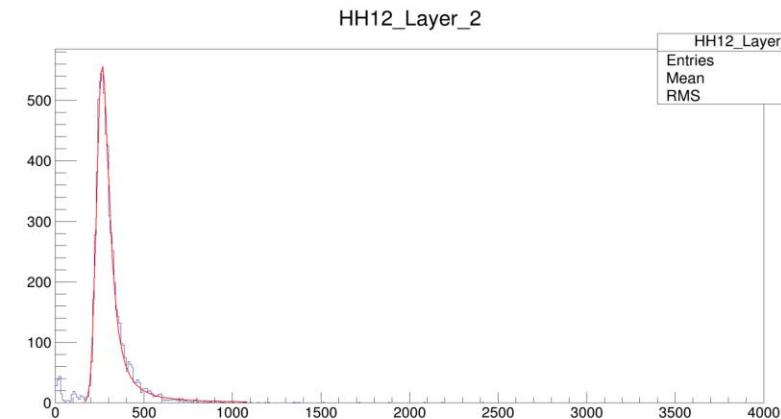
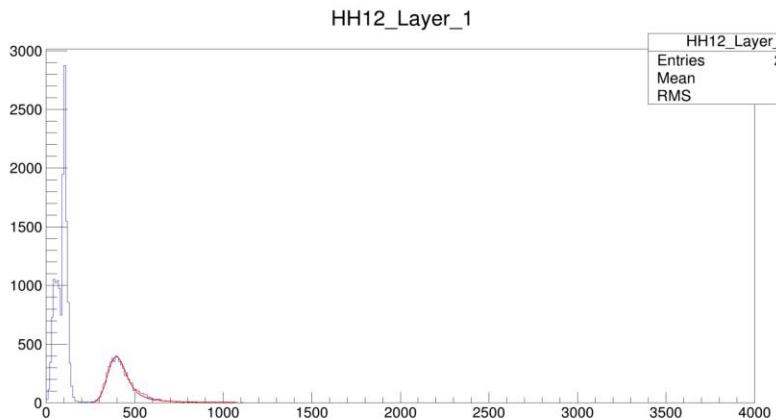
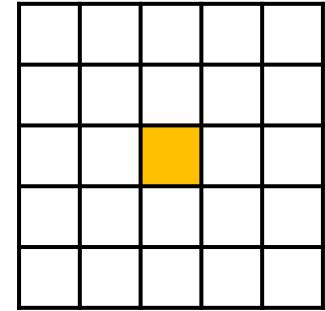




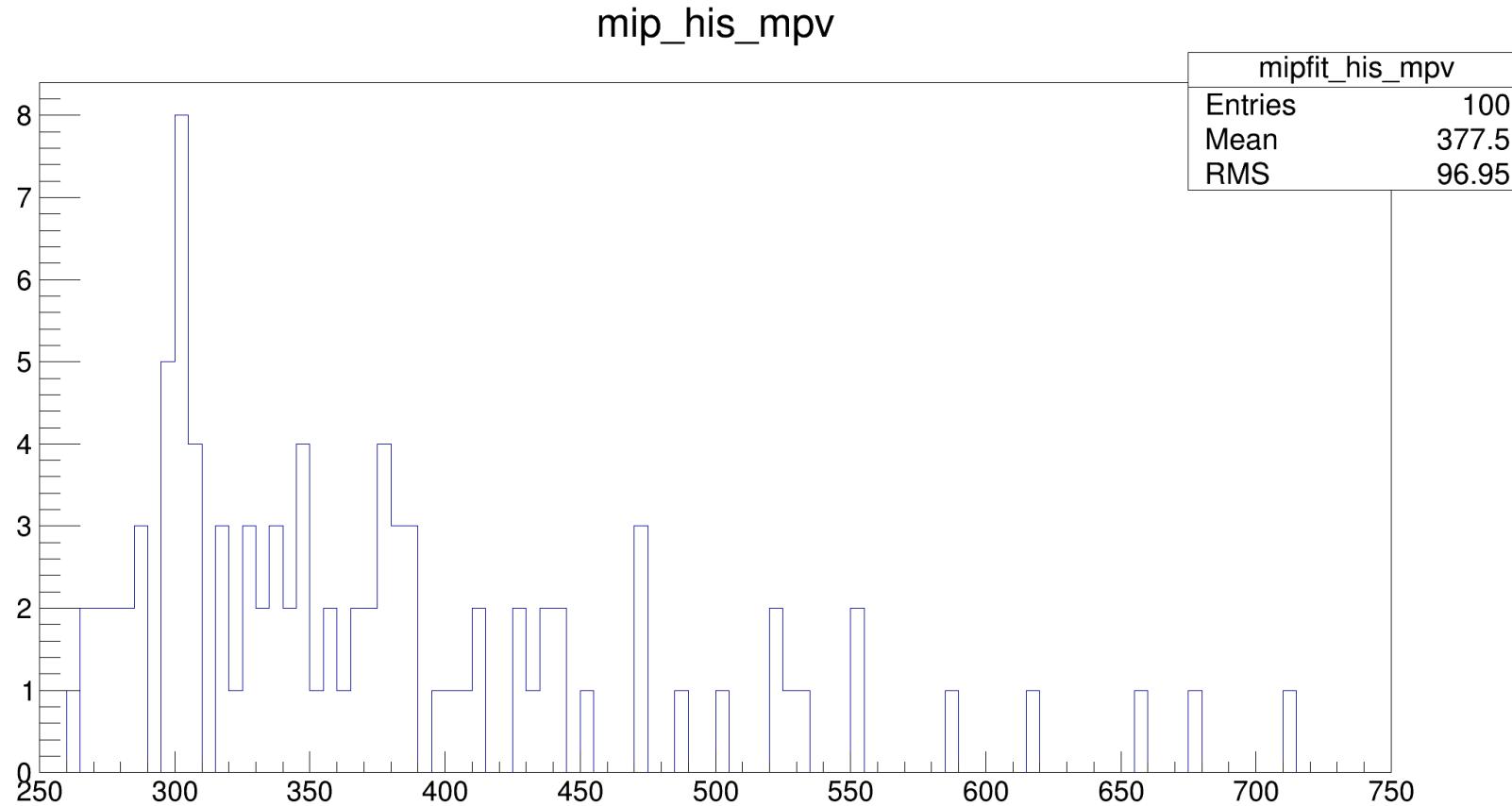
Muon channels' linearity



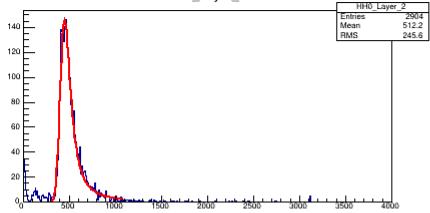
Muon MIPs (one channel)



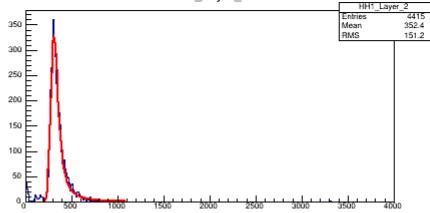
Muon HH MIPs



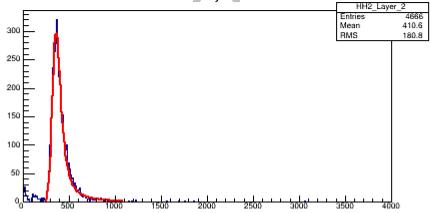
HH0_Layer_2



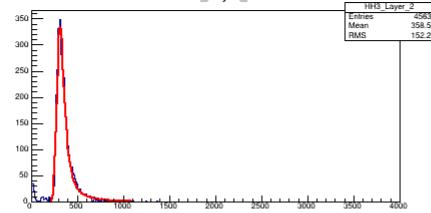
HH1_Layer_2



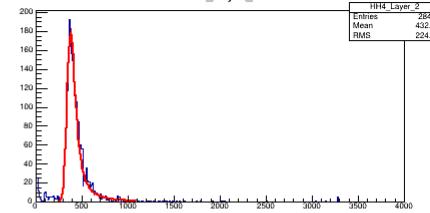
HH2_Layer_2



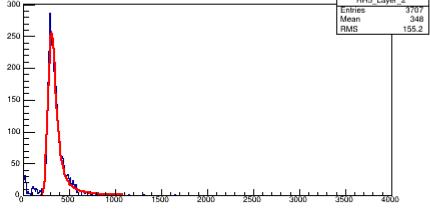
HH3_Layer_2



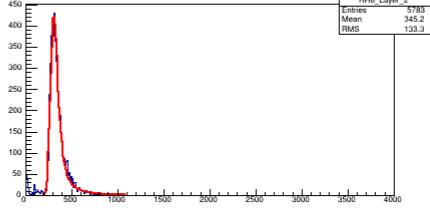
HH4_Layer_2



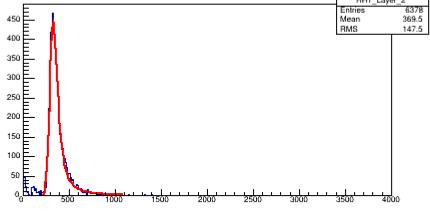
HH5_Layer_2



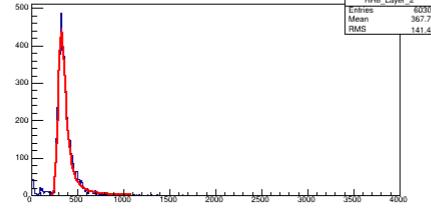
HH6_Layer_2



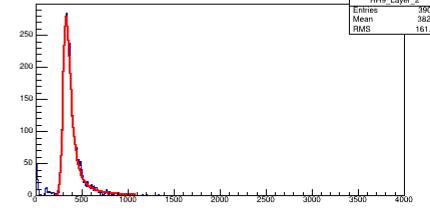
HH7_Layer_2



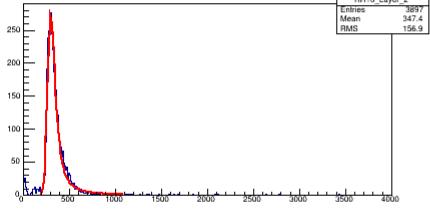
HH8_Layer_2



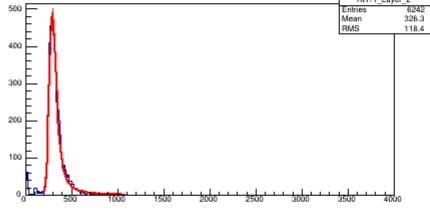
HH9_Layer_2



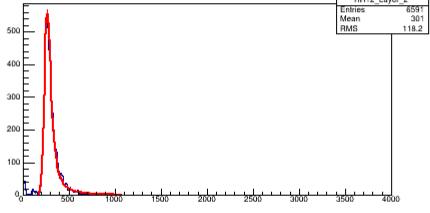
HH10_Layer_2



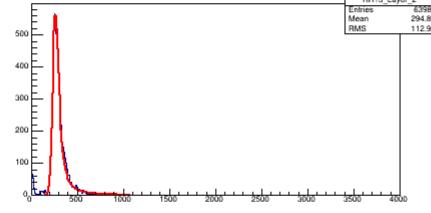
HH11_Layer_2



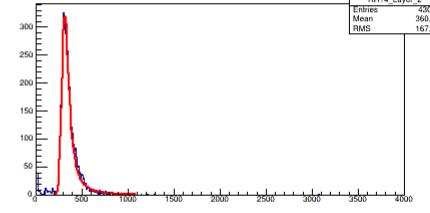
HH12_Layer_2



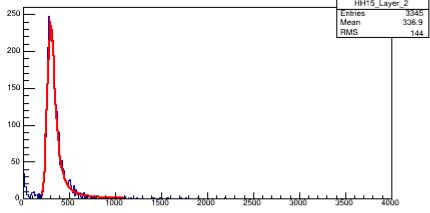
HH13_Layer_2



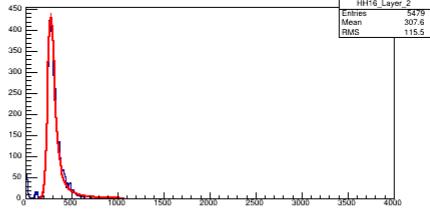
HH14_Layer_2



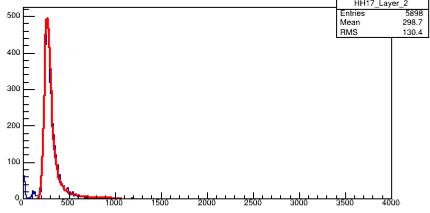
HH15_Layer_2



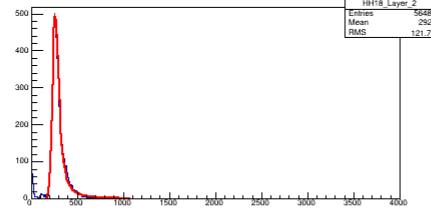
HH16_Layer_2



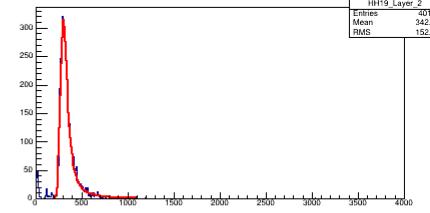
HH17_Layer_2



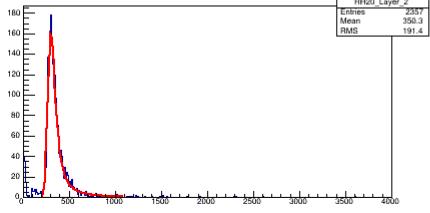
HH18_Layer_2



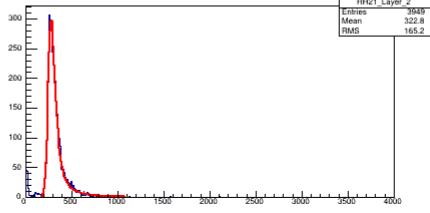
HH19_Layer_2



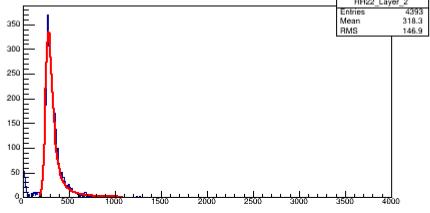
HH20_Layer_2



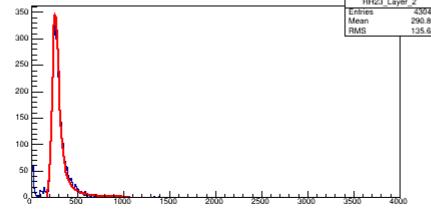
HH21_Layer_2



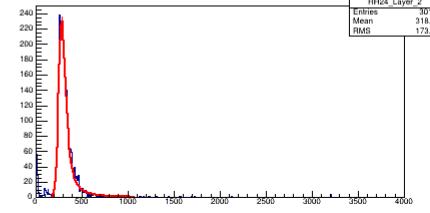
HH22_Layer_2



HH23_Layer_2



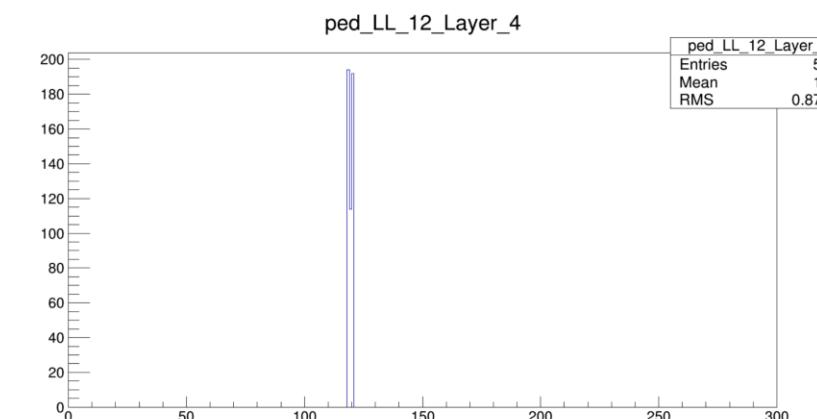
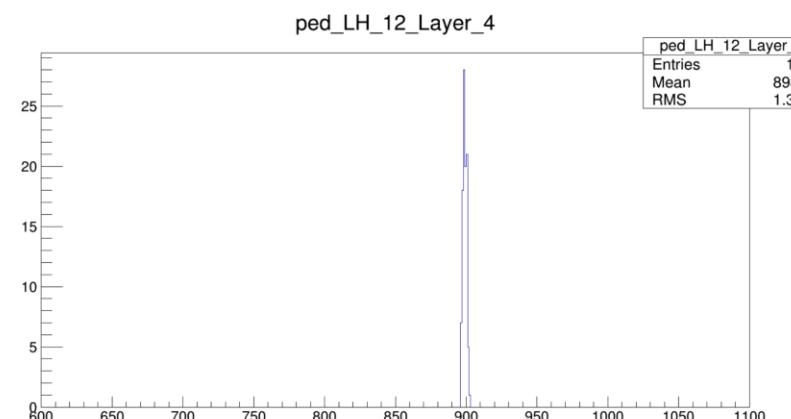
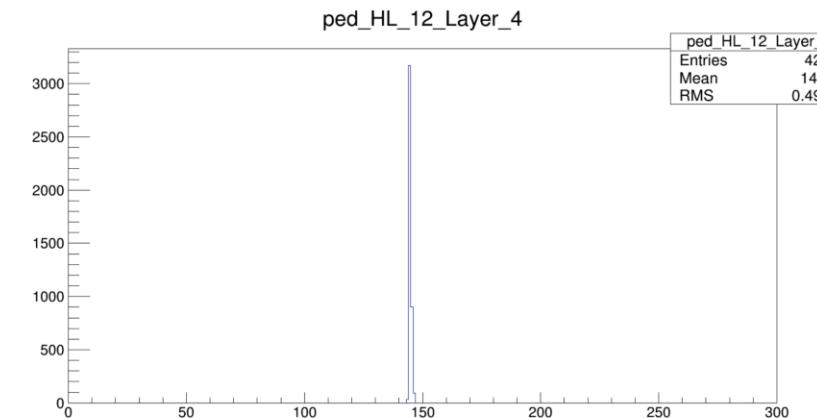
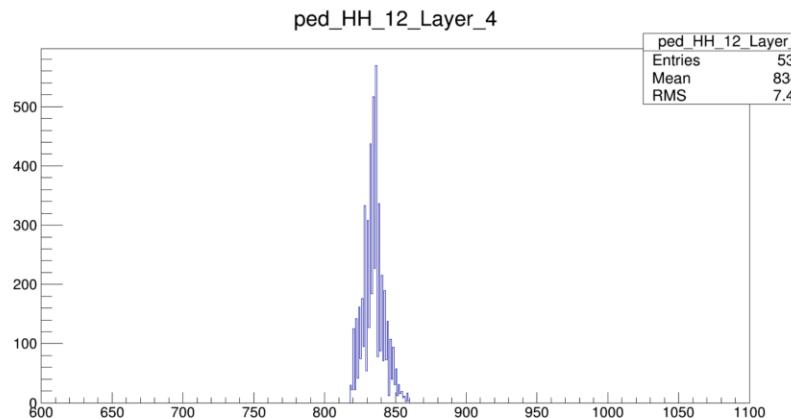
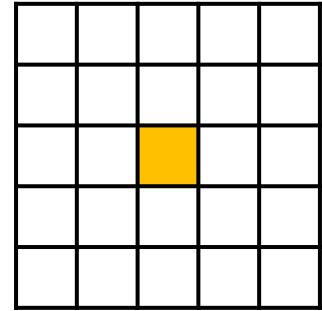
HH24_Layer_2



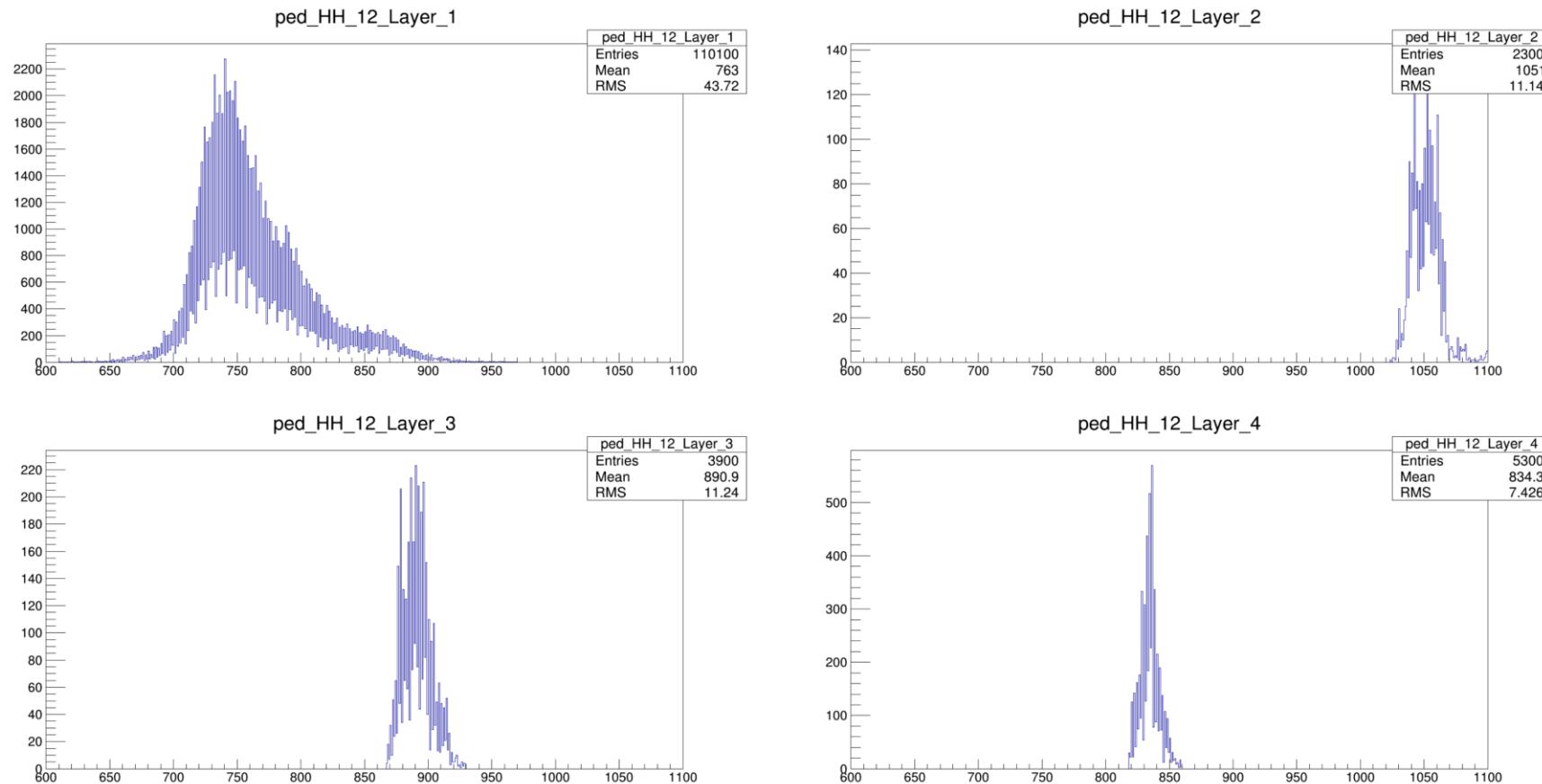
Pion data summary

- 汇总了 25 个等间距位置扫描的数据文件，粒子入射位置分别位于 25 个小晶体的中心，RunID 从 10045 到 10069，总共获得 232844 个有效事例。

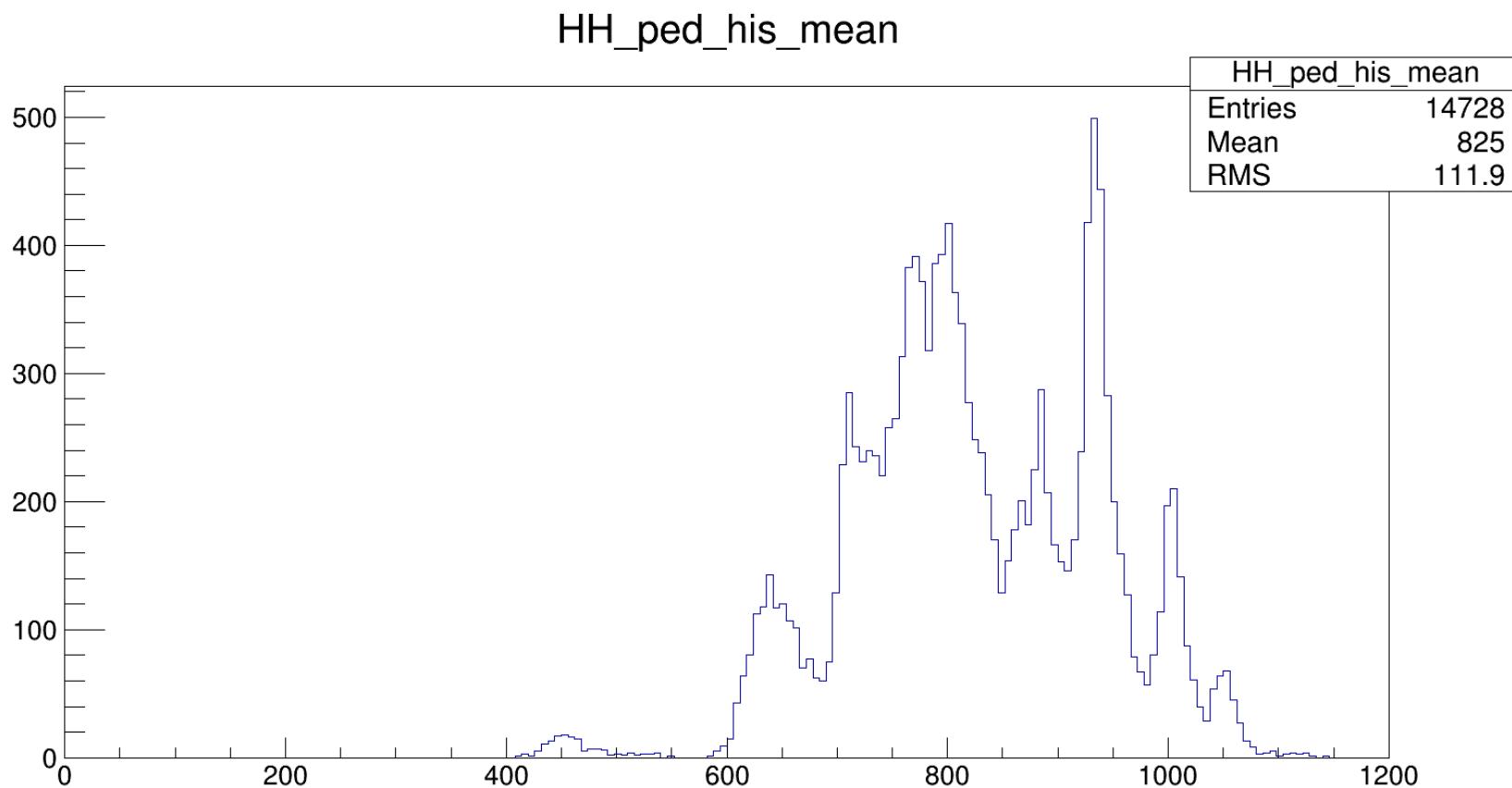
Pion pedestal (one APD)



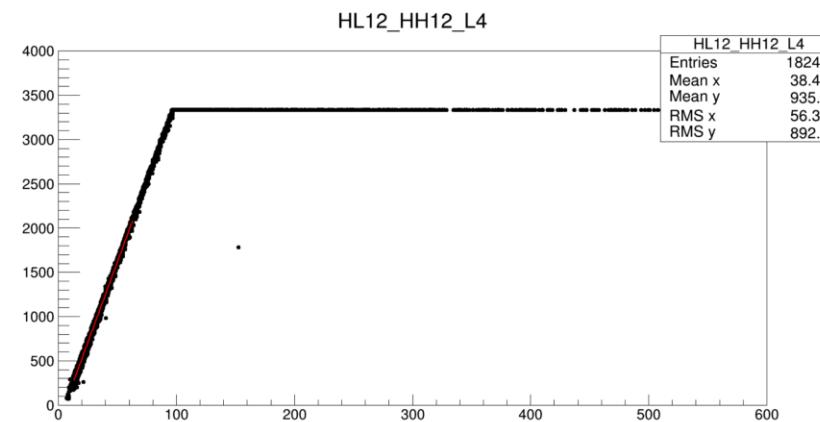
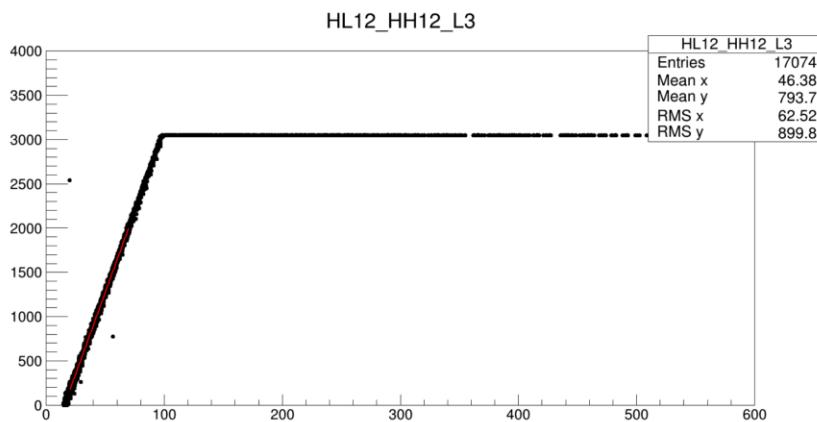
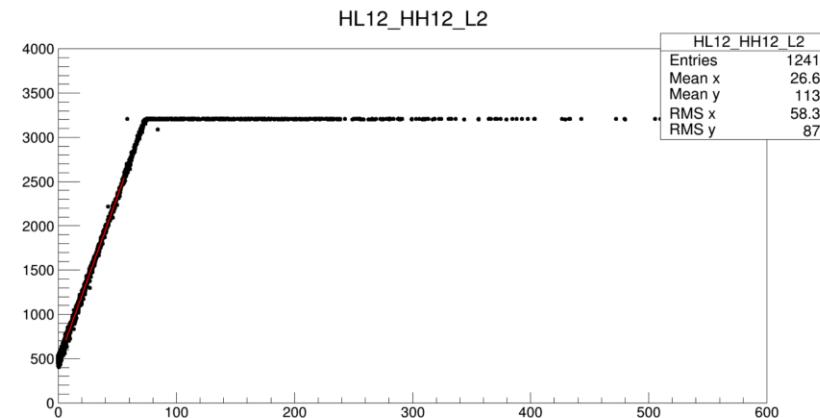
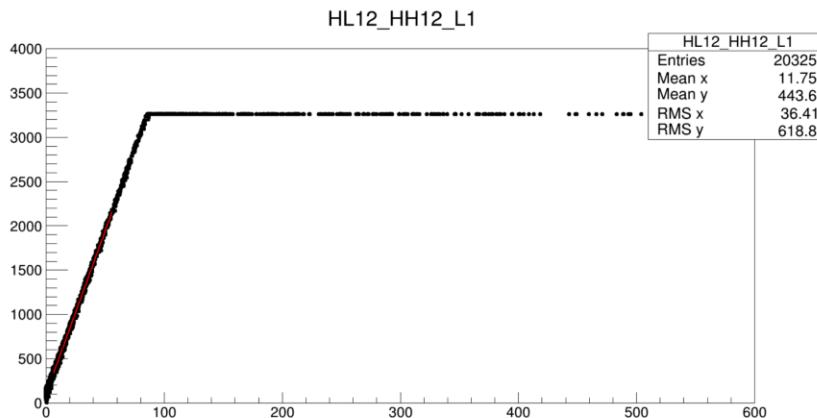
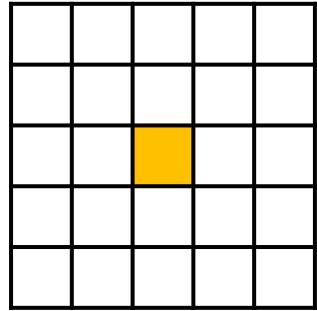
Pion pedestal (one channel)



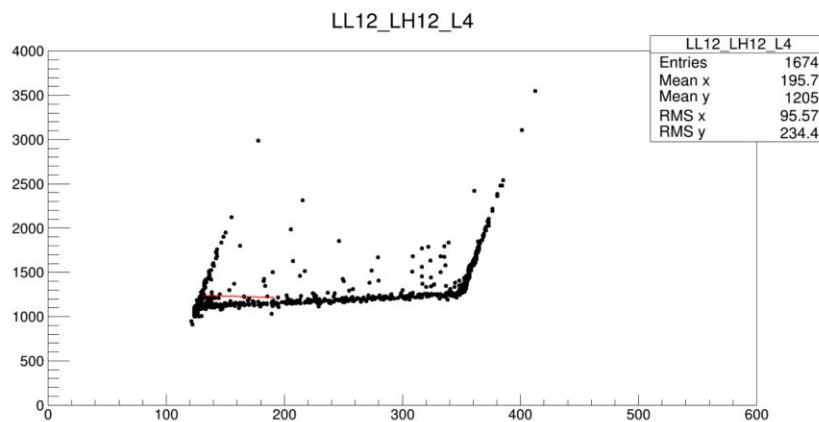
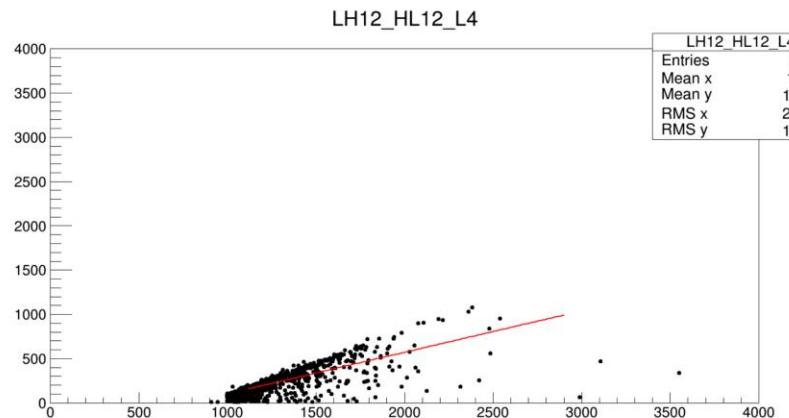
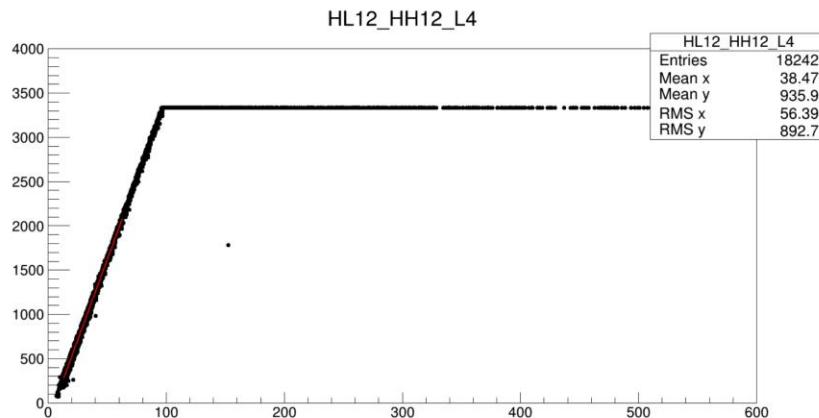
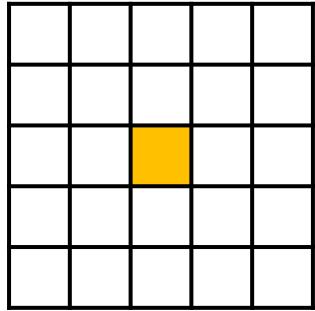
Pion pedestal (HH channels)



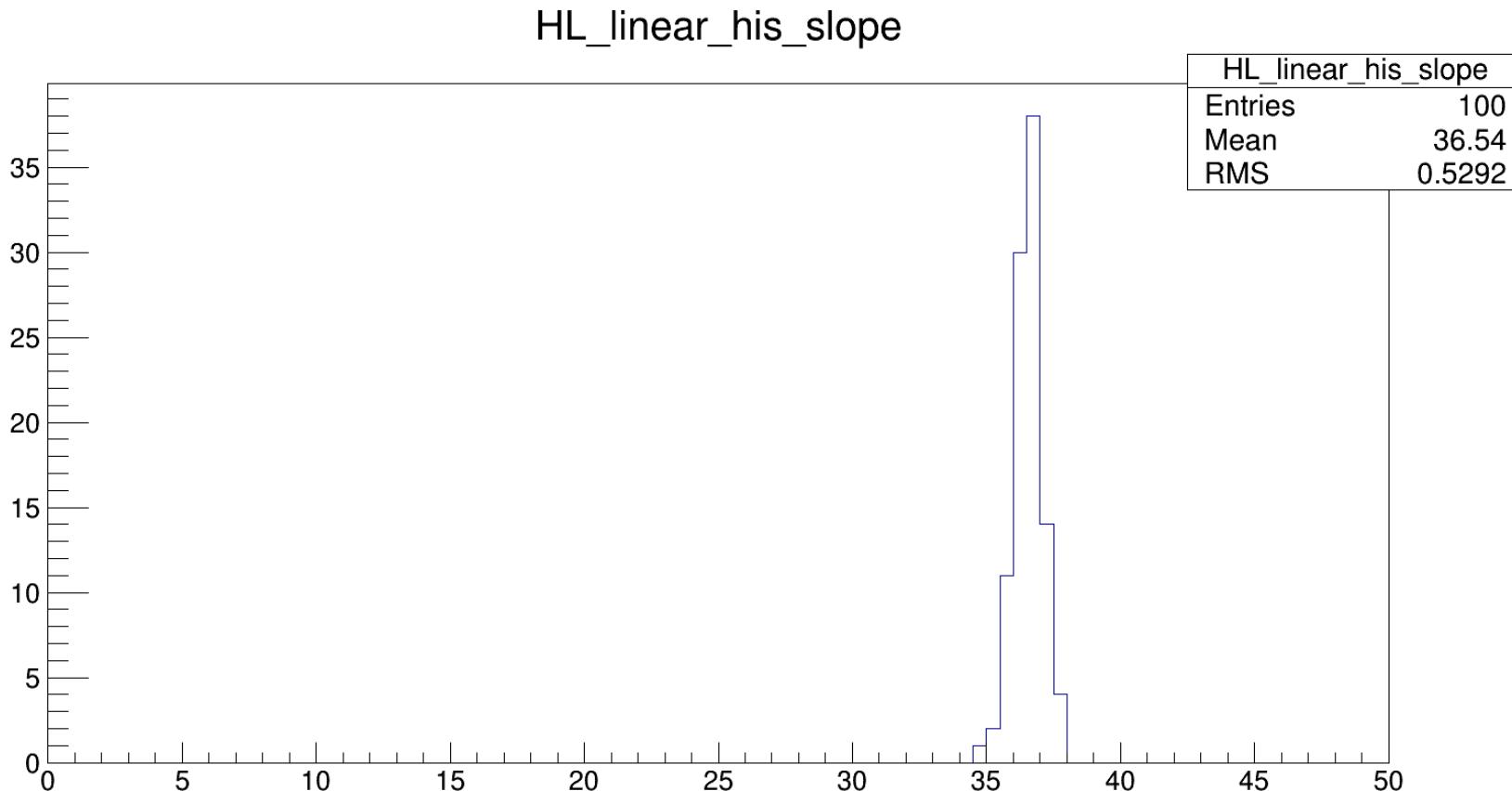
Pion channels' linearity



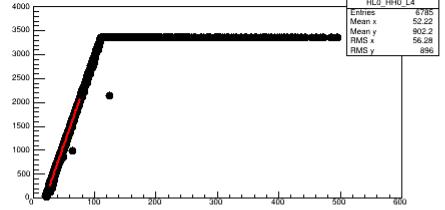
Pion channels' linearity



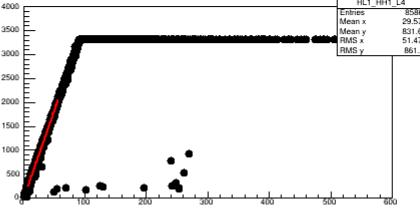
Pion channels' linearity



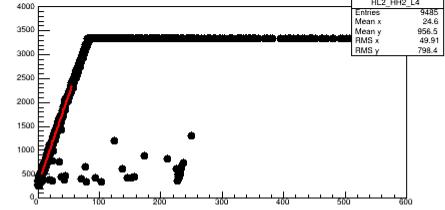
HL0_HH0_L4



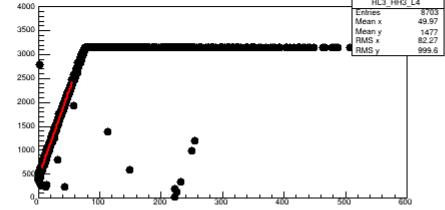
HL1_HH1_L4



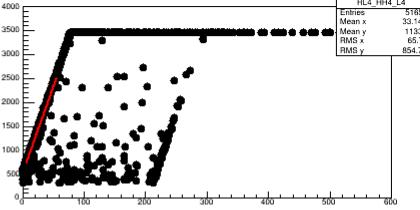
HL2_HH2_L4



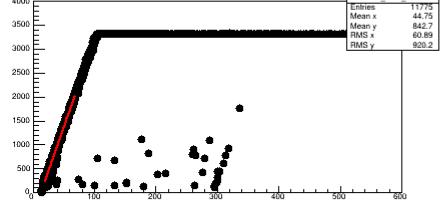
HL3_HH3_L4



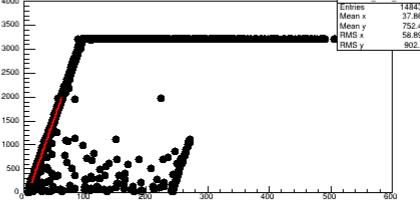
HL4_HH4_L4



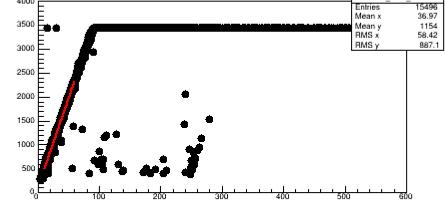
HL5_HH5_L4



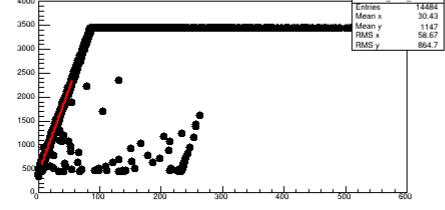
HL6_HH6_L4



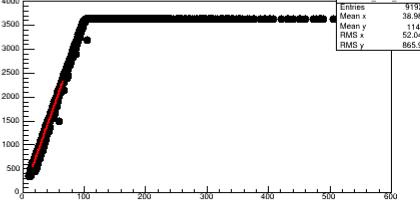
HL7_HH7_L4



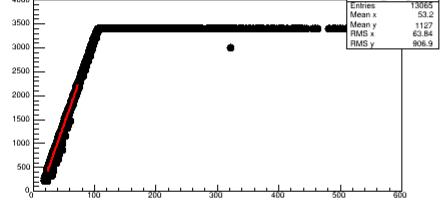
HL8_HH8_L4



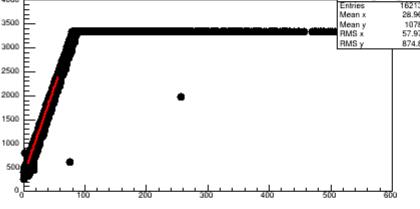
HL9_HH9_L4



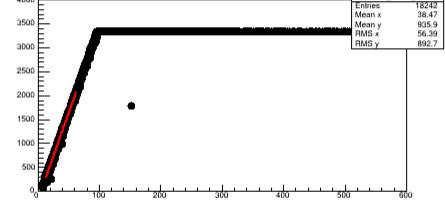
HL10_HH10_L4



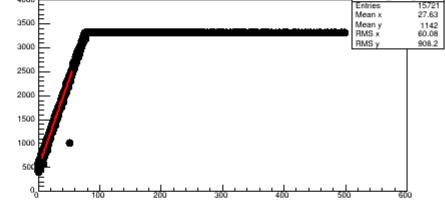
HL11_HH11_L4



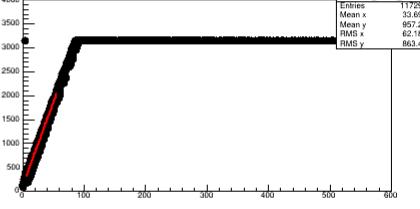
HL12_HH12_L4



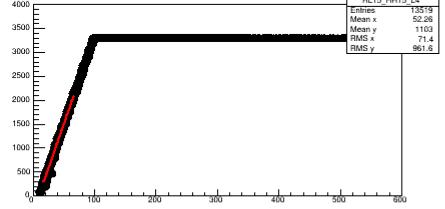
HL13_HH13_L4



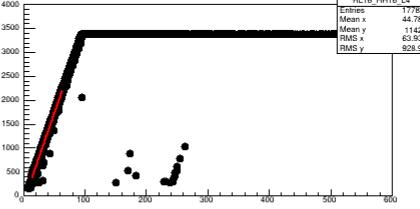
HL14_HH14_L4



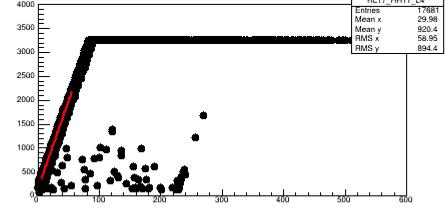
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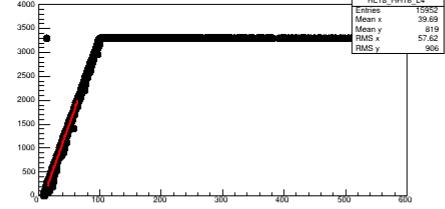
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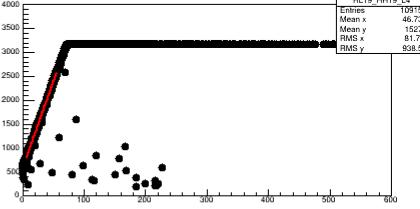
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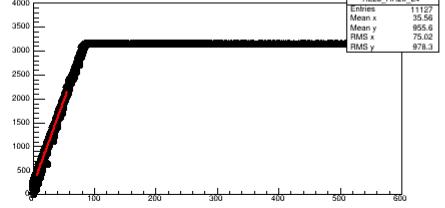
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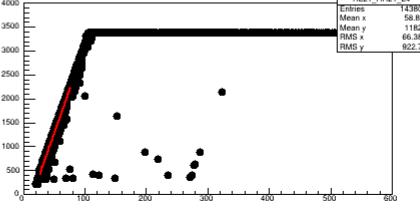
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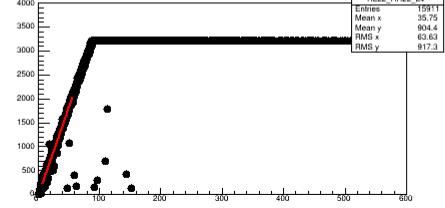
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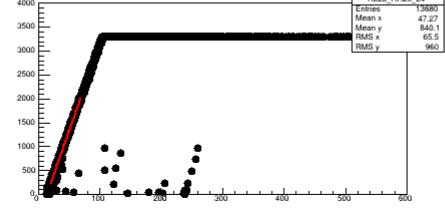
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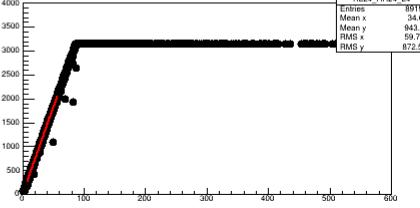
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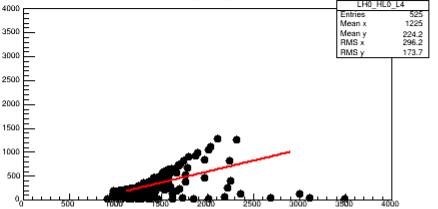
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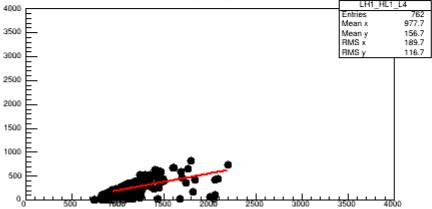
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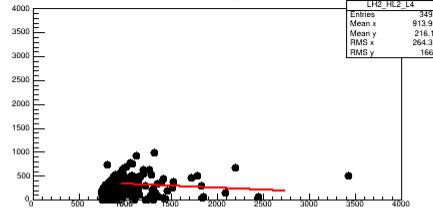
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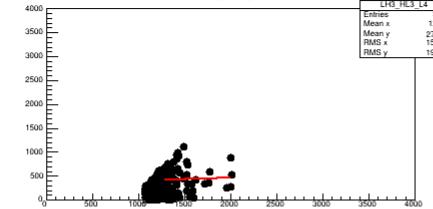
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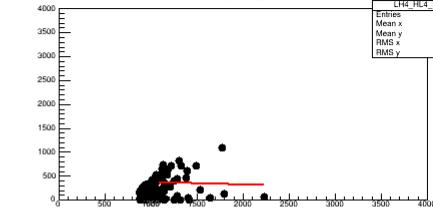
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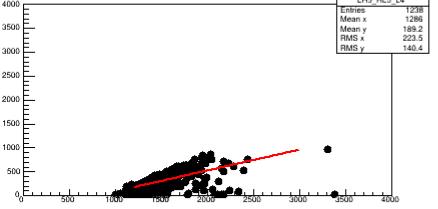
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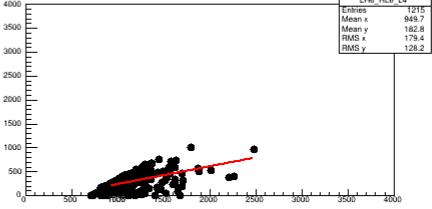
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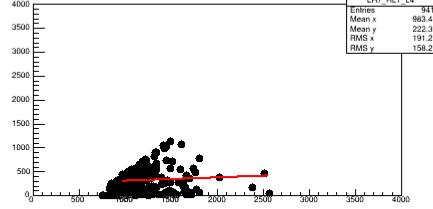
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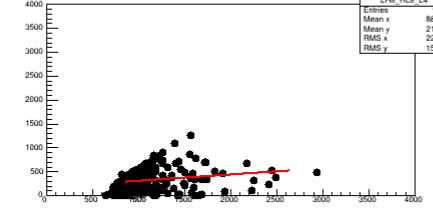
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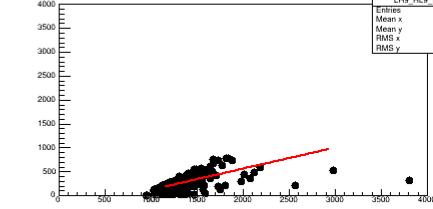
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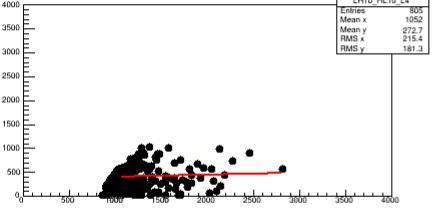
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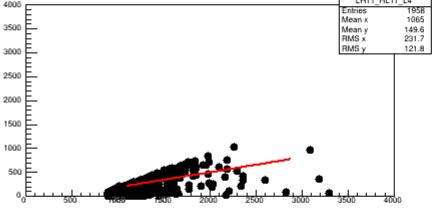
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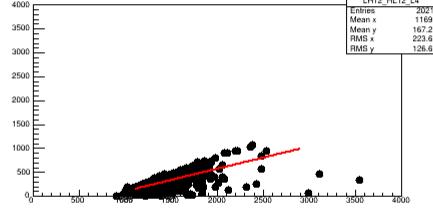
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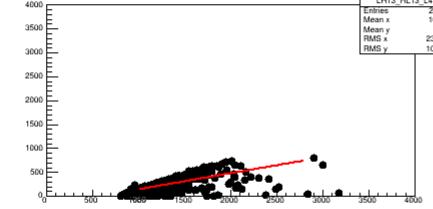
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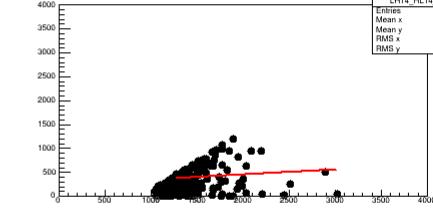
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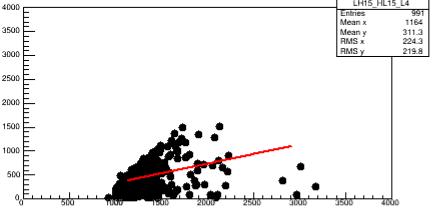
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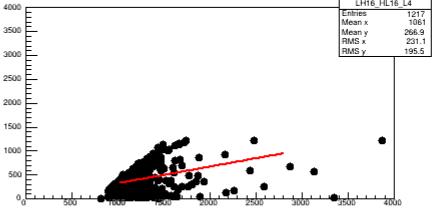
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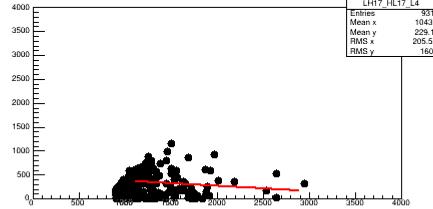
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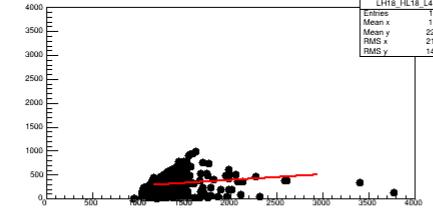
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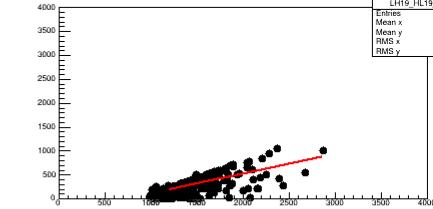
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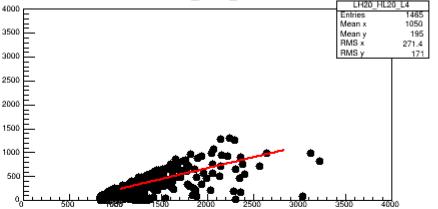
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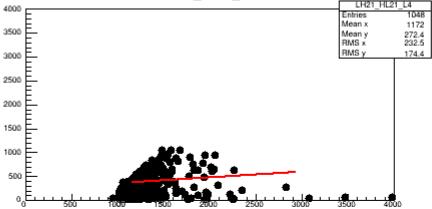
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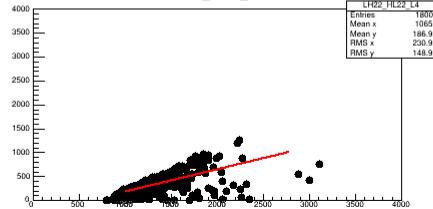
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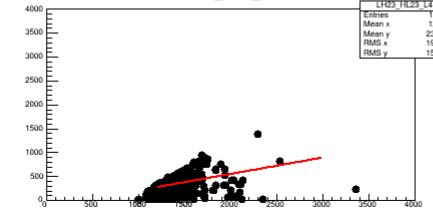
LH21_HL21_L4



LH22_HL22_L4



LH23_HL23_L4



LH24_HL24_L4

