Beam Test PSD Tiles Bari at SPS

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26/11/2021

Overview of tests at SPS

Beam ⊗	C		B		A	
	3x3	1x1	3x3	1x1	3x3	1x1
4	C4 404 ch31 ch30 asic 1		B4 408 ch19 ch18 asic 1		A4 404 ch9 ch8 asic 1	
3	C3 404 ch27 ch26 asic 1		B3 408 ch17 ch16 asic 1		A3 404 ch7 ch6 asic 1	
2	C2 404 ch25 ch24 asic 1		B2 408 ch15 ch14 asic 1		A2 404 ch5 ch4 asic 1	
1	C1 404 ch23 ch22 asic 1		B1 408 ch13 ch12 asic 1		A1 404 ch3 ch2 asic 1	
0	C0 408 ch21 ch20 asic 1		B0 408 ch11 ch10 asic 1		A0 408 ch1 ch0 asic 1	

- Muon, proton, electron beams

- Green: 558 - BC404
- Blue: 266 – BC408

- 3x3 on left side
- 1x1 on right side

- Tiles C2 and B2 tested

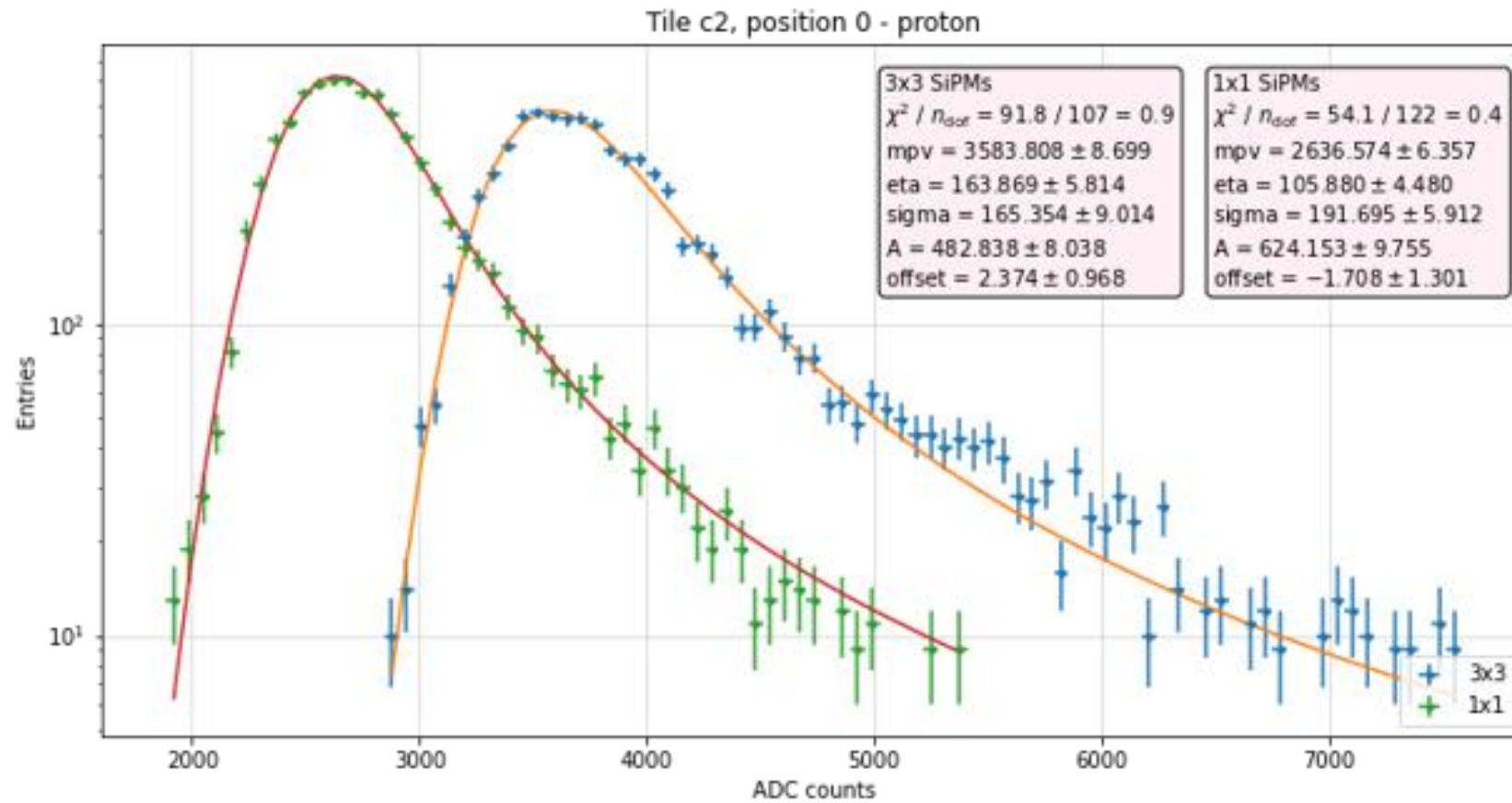-> different boards due to connector breaking issue

Charge distributions fit

- Distributions of tiles with signal is best fitted with a landau convolved with a gaussian (langaus) with pylandau
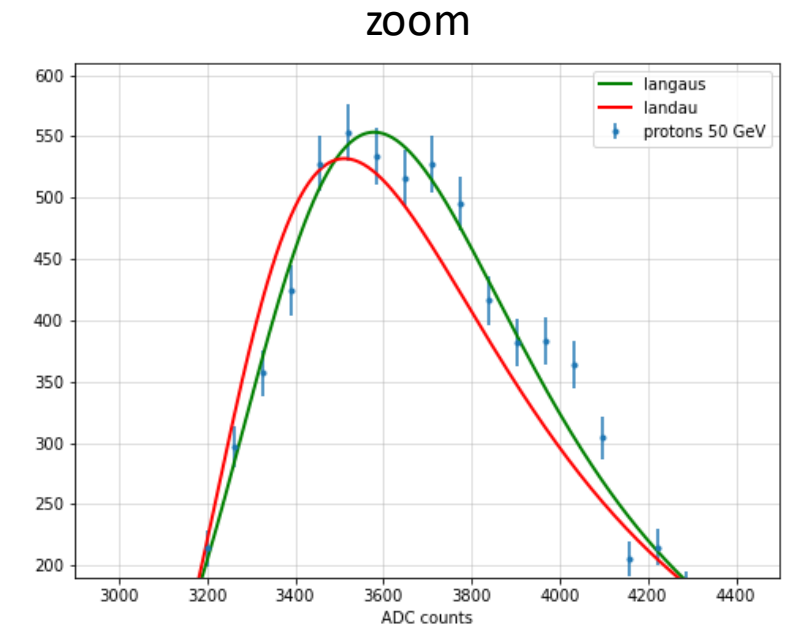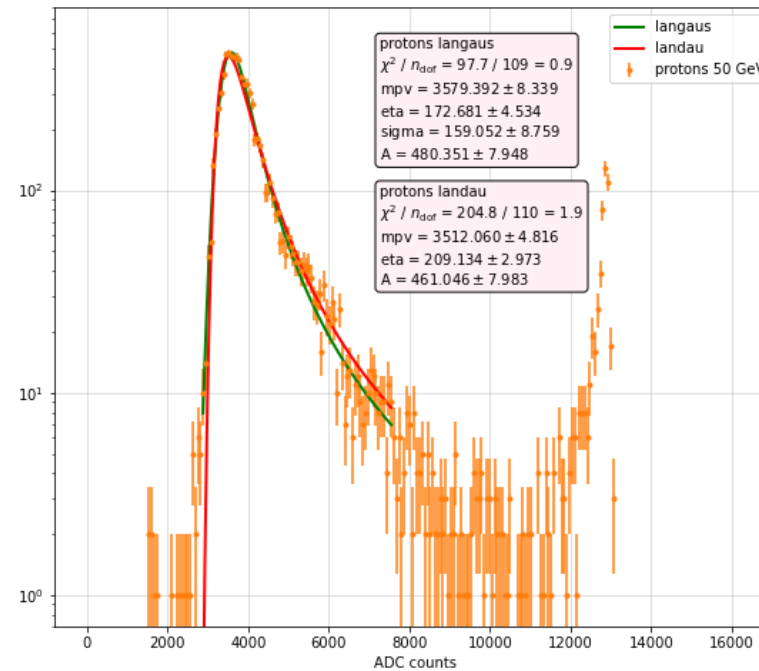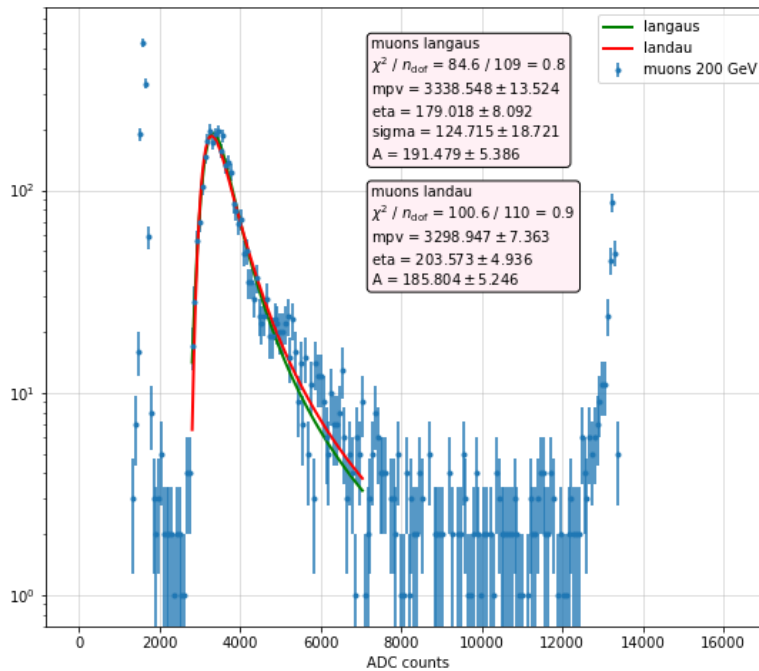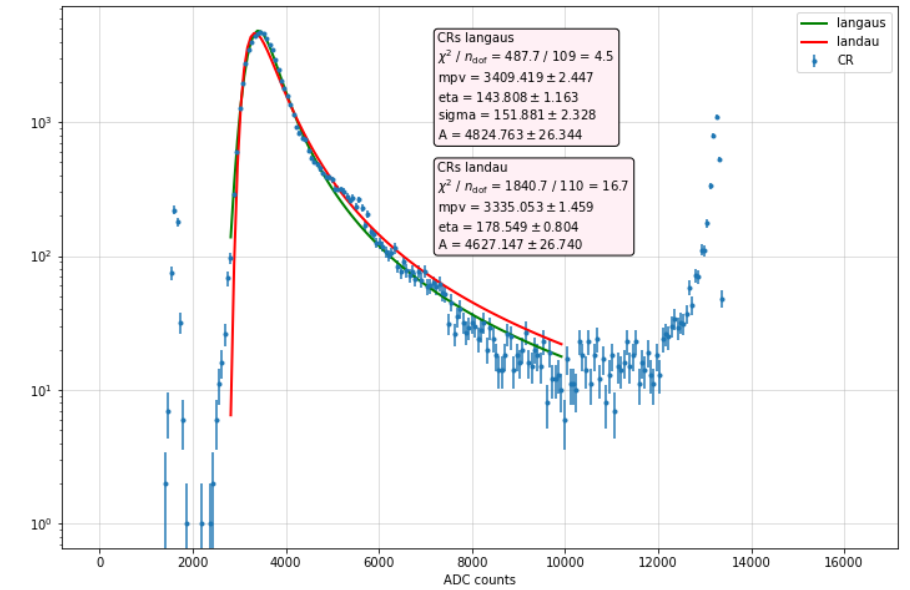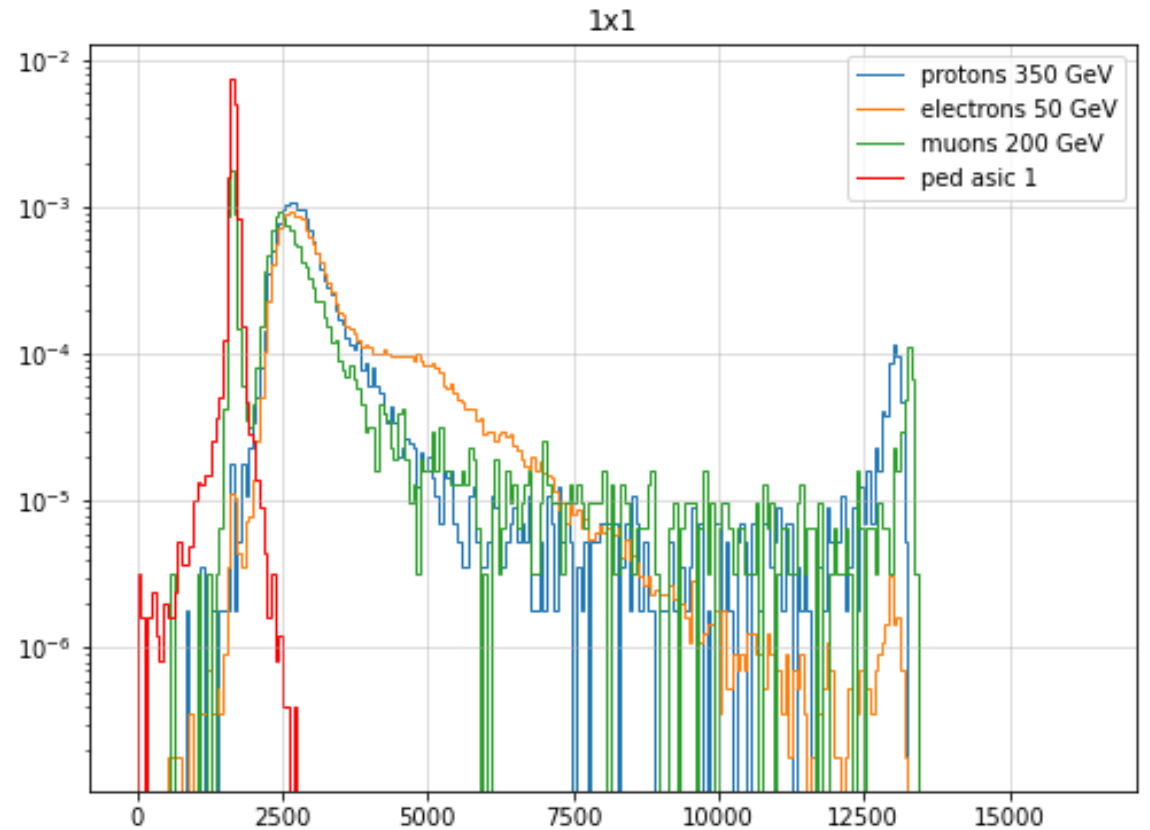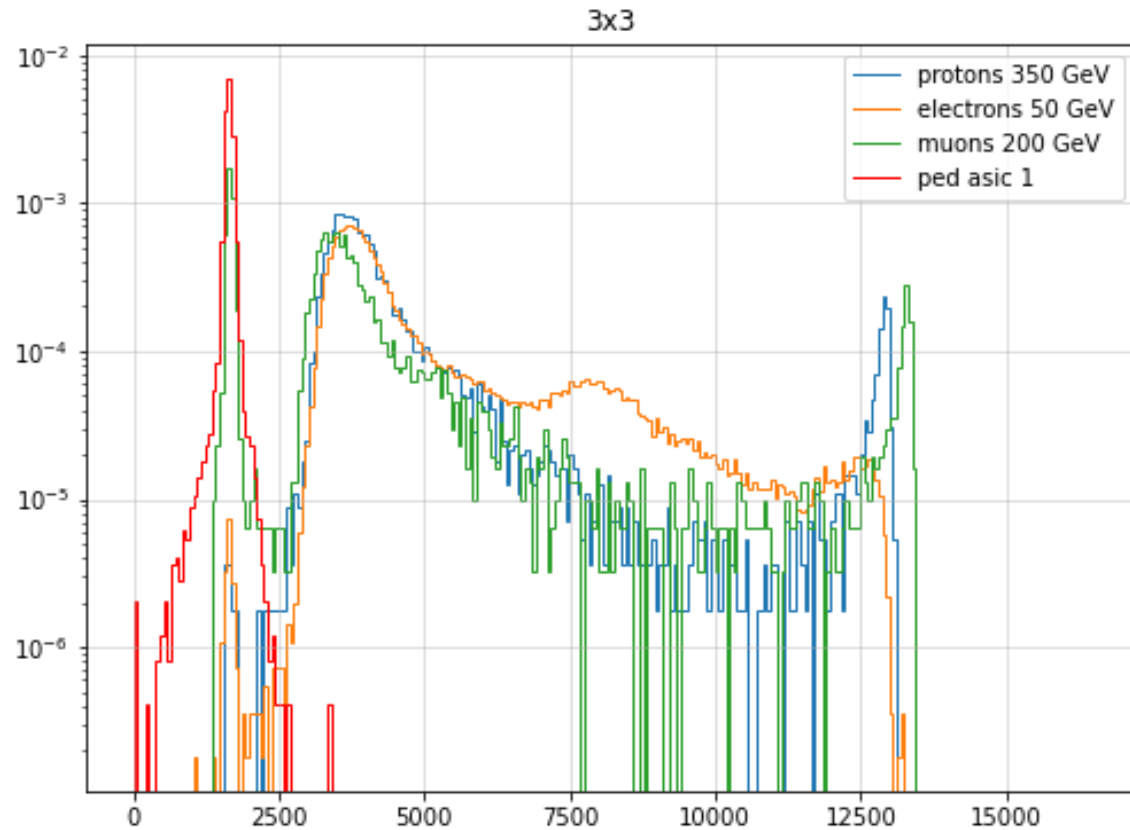
Langaus fit of ADC charge distributions

Particle comparison: protons – electrons – muons

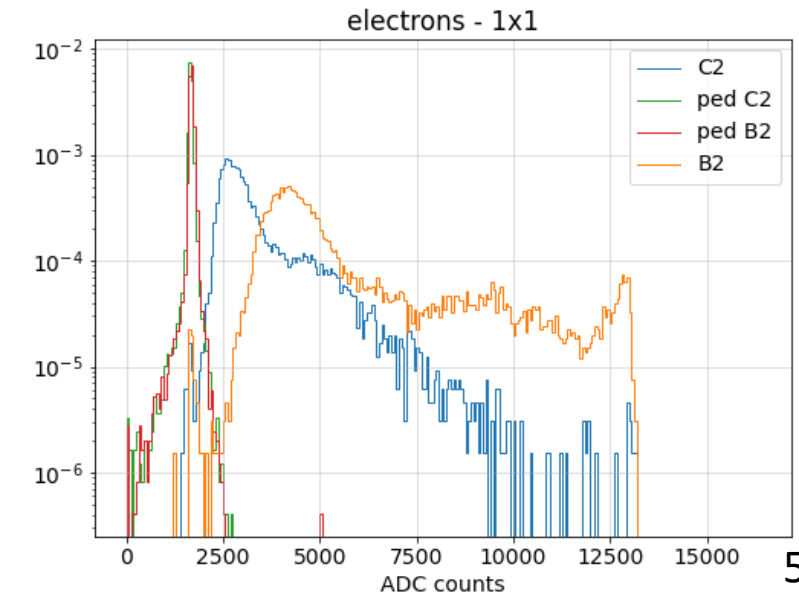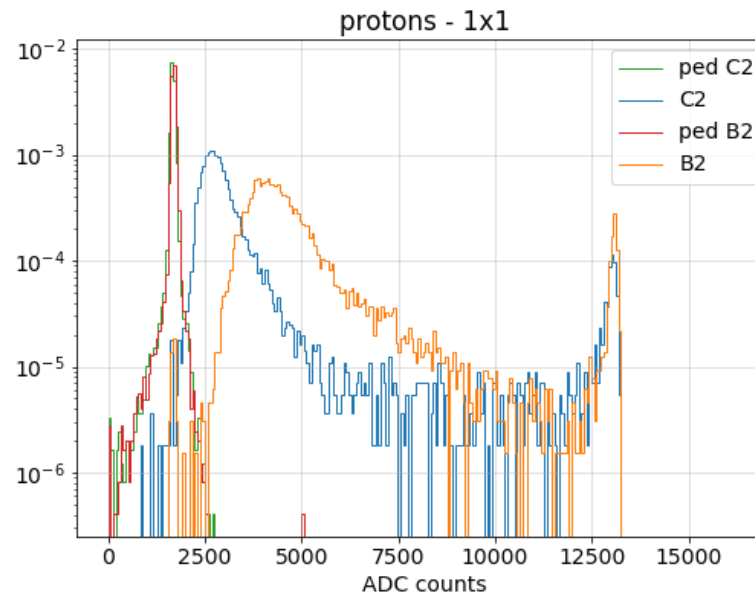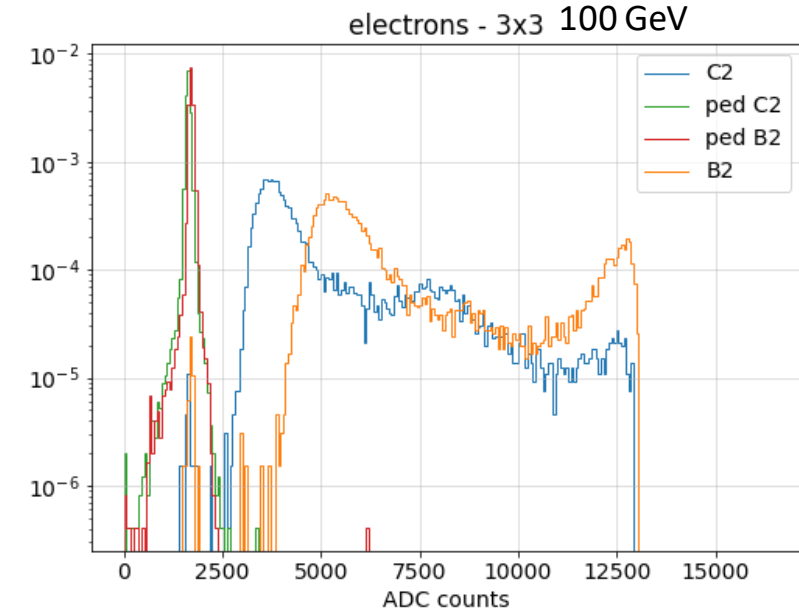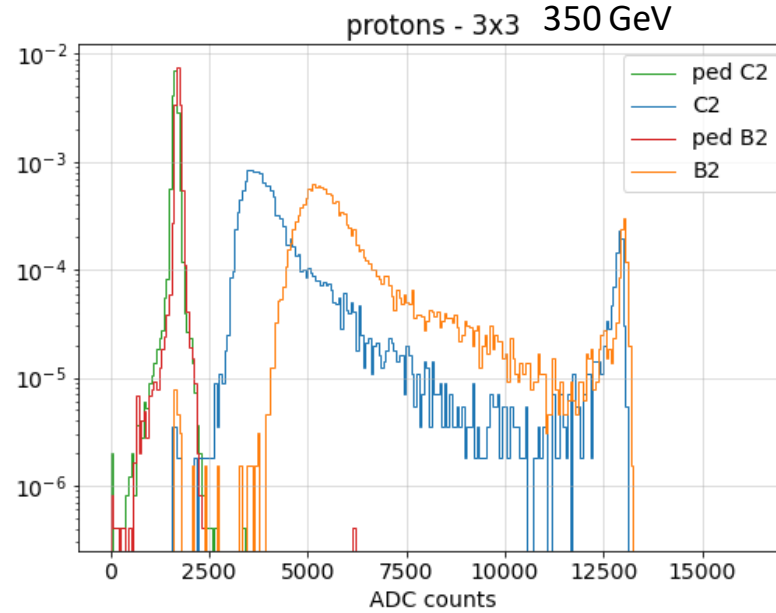- Muons have different board wrt protons and electrons, due to broken connector issue

preliminary

Different scintillator material

- 558 - BC404
- 266 - BC408

➢ 3x3 on left side
➢ 1x1 on right side

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- C2 <=> beam on C2
- B2 <=> beam on B2

preliminary

protons - 3x3 350 GeV

electrons - 3x3 100 GeV

protons - 1x1

electrons - 1x1

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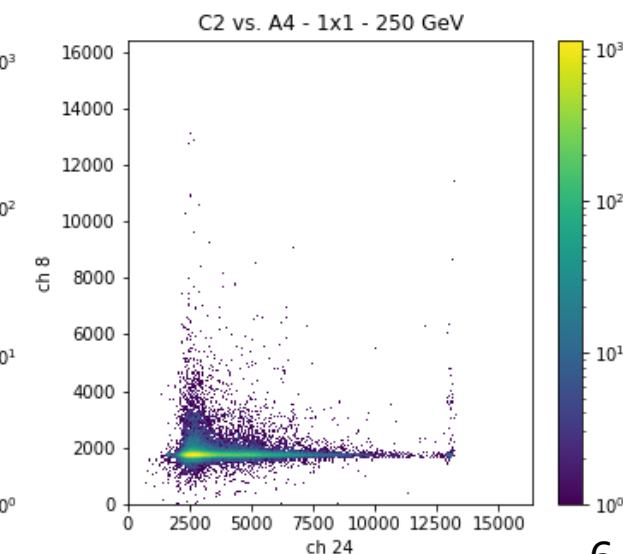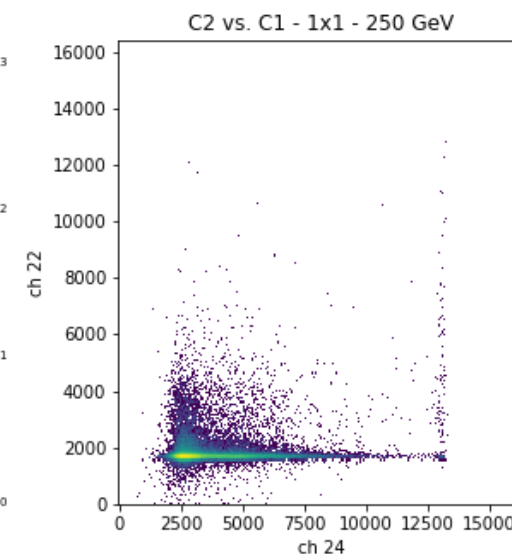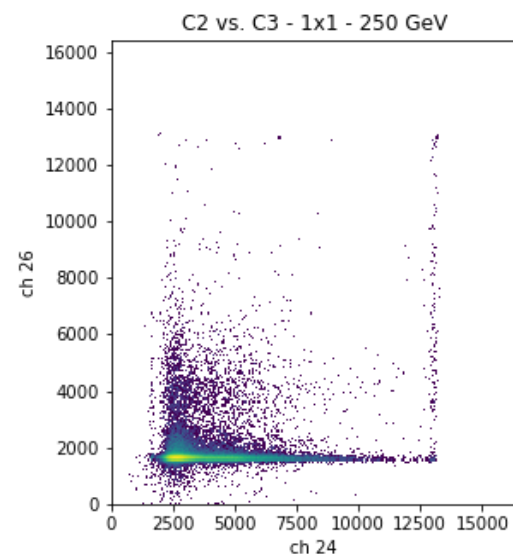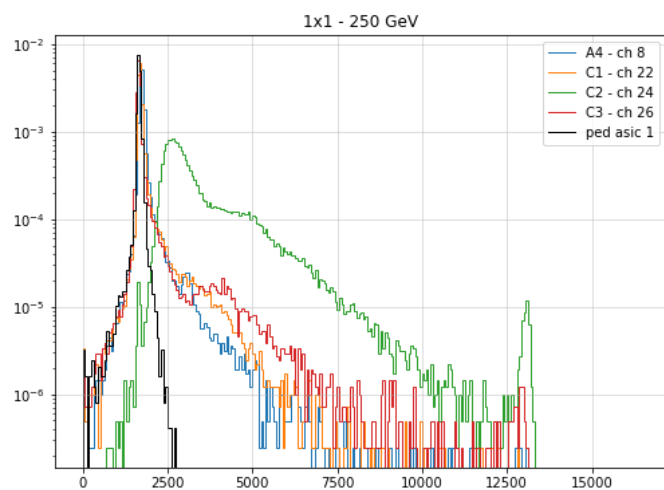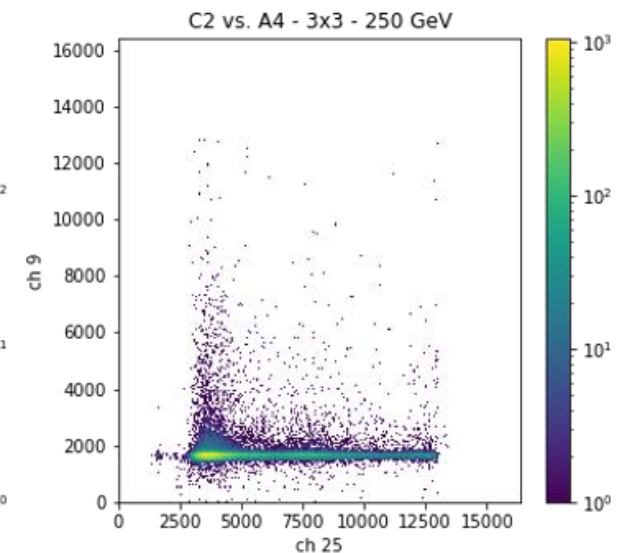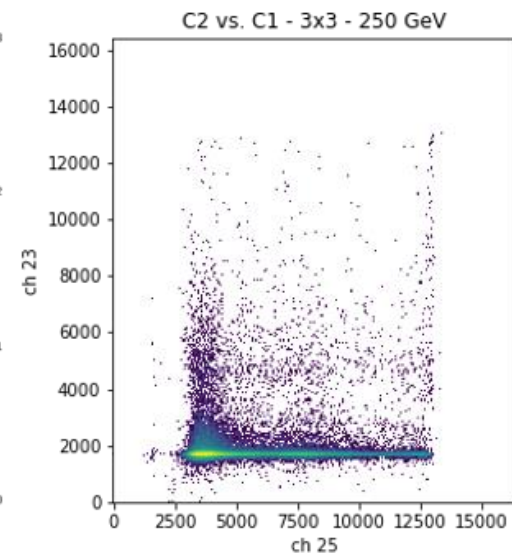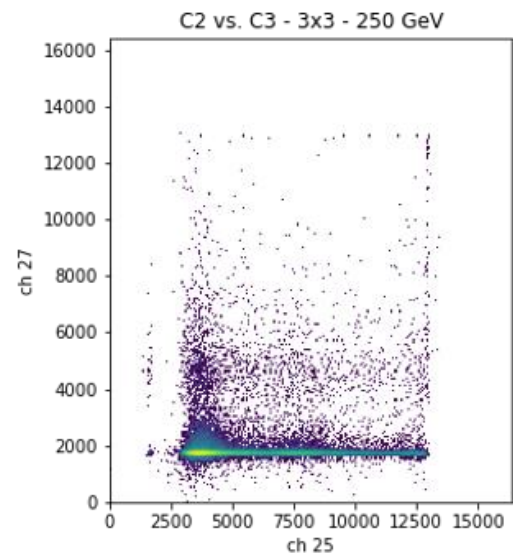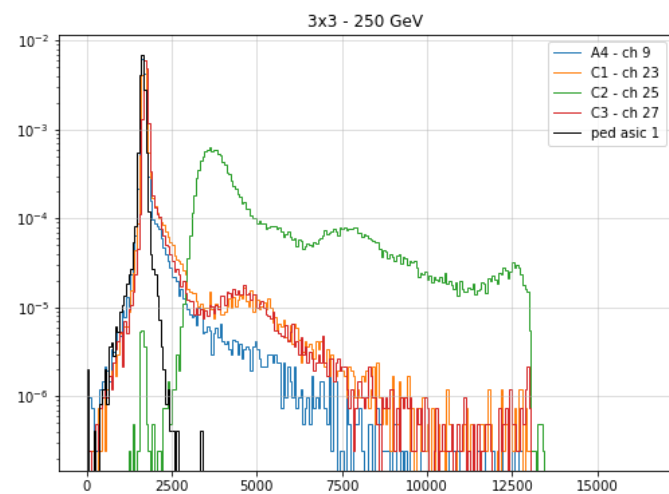
Backsplash

preliminary

Backsplash (?)

Tile C2

MPV = 3623.41 +/- 10.18
bump mean = 7637.56 +/- 57.66
pedestal = 1593.27 +/- 0.30
bump is 2.98 MIP

Beam on C2

Tile B2

MPV = 5243.76 +/- 16.19
bump mean = 8493.64 +/- 214.58
pedestal = 1665.32 +/- 0.28
bump is 1.91 MIP

Beam on B2
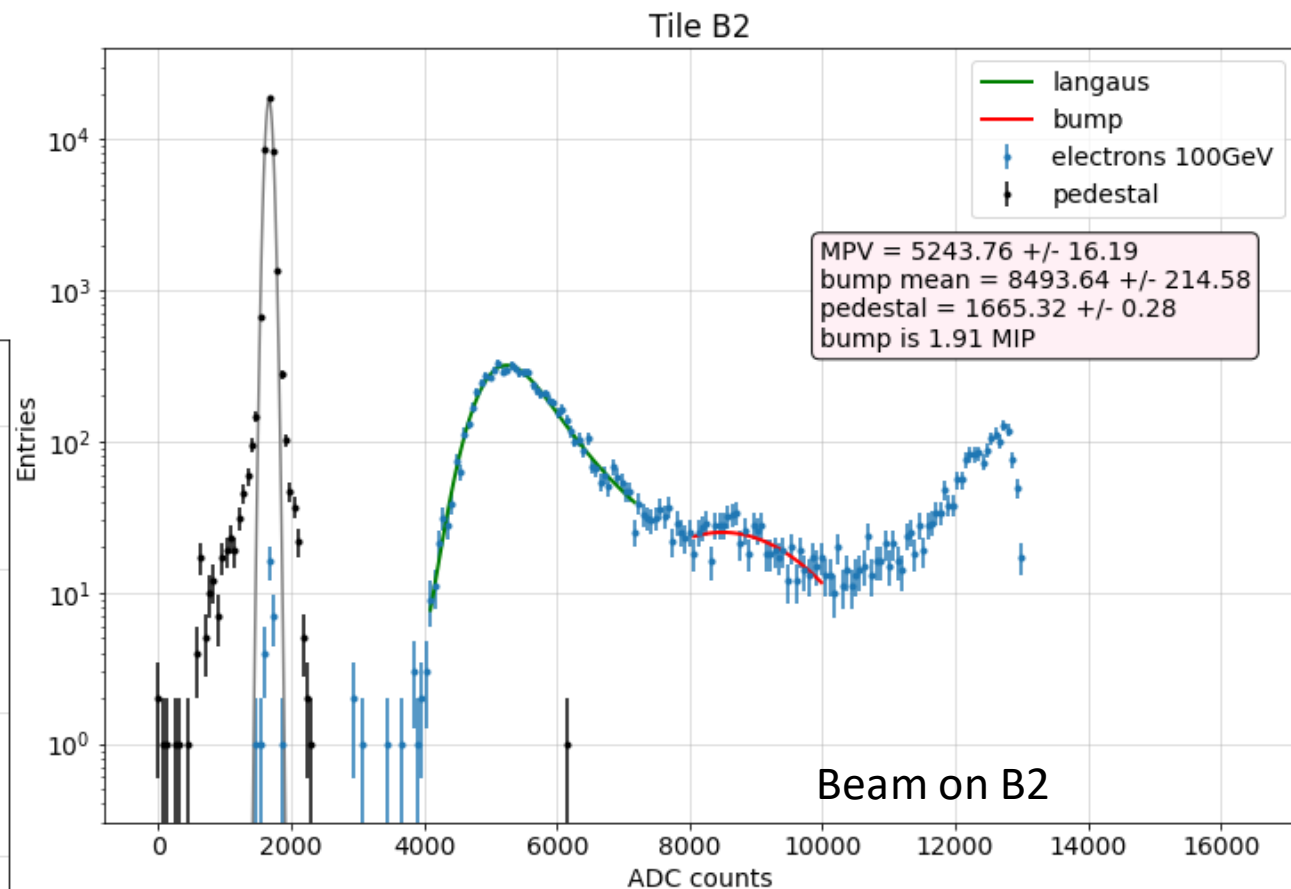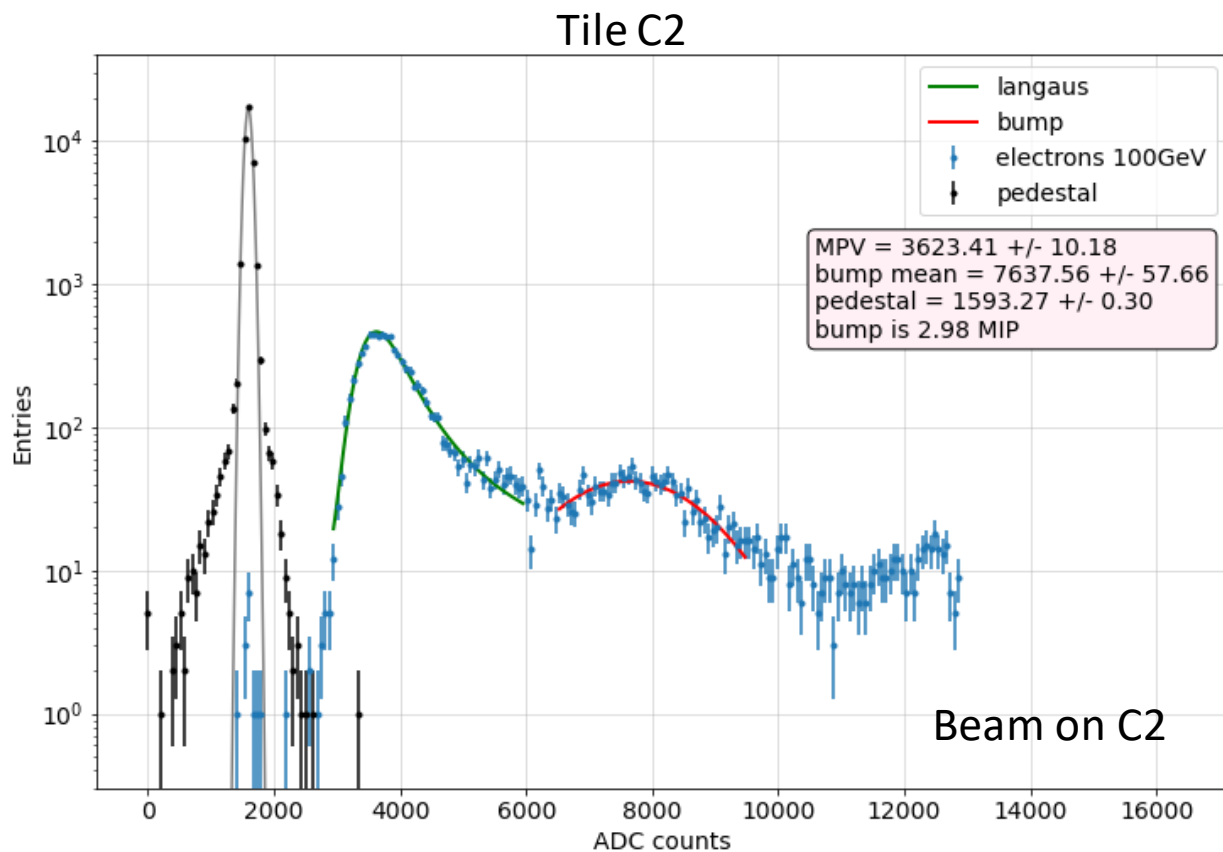
Still under investigation