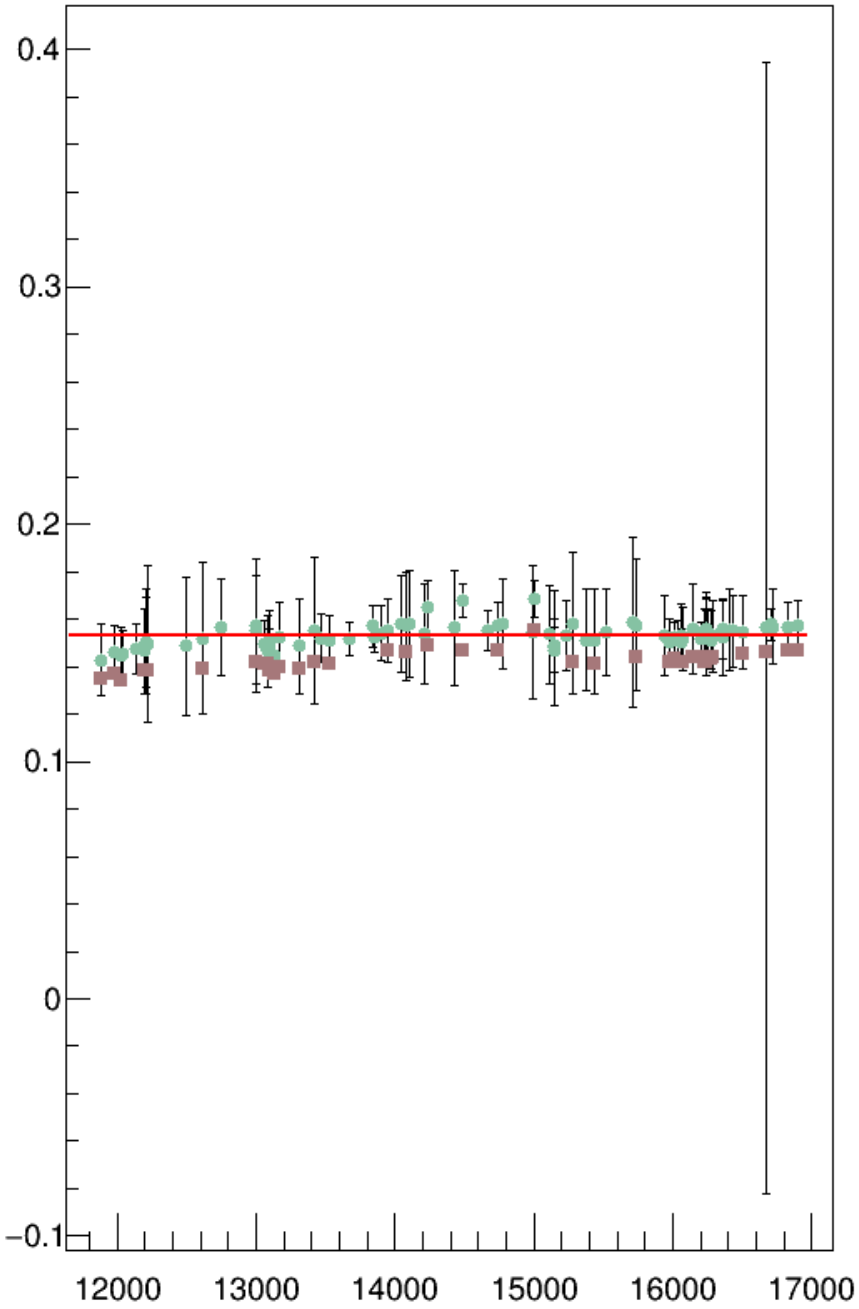
Aerogel Calibration 2023

- I found the difference between the old method and petr’s method.
- Petr’s fit is on the npe spectra, while the old method fits to the adcPulseAmplitude.
- This means that to get back the calibration parameter we must multiply by the current parameter value.
- I have done that with the following

PMT 1+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0.2
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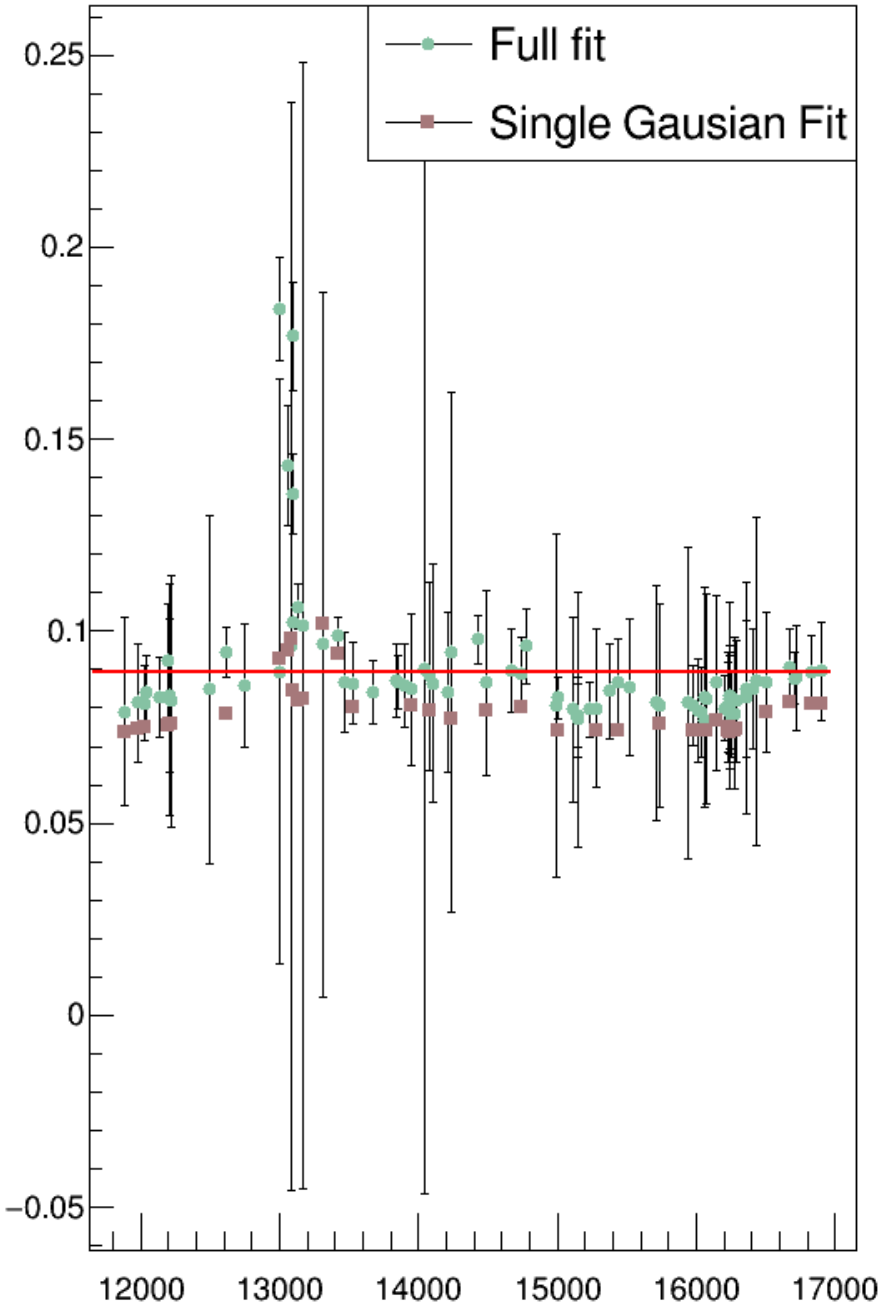
13000
14000
15000
16000
17000

PMT 1-


Full fit
Single Gausian Fit
0.25
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0.1
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12000
13000
14000
15000
16000
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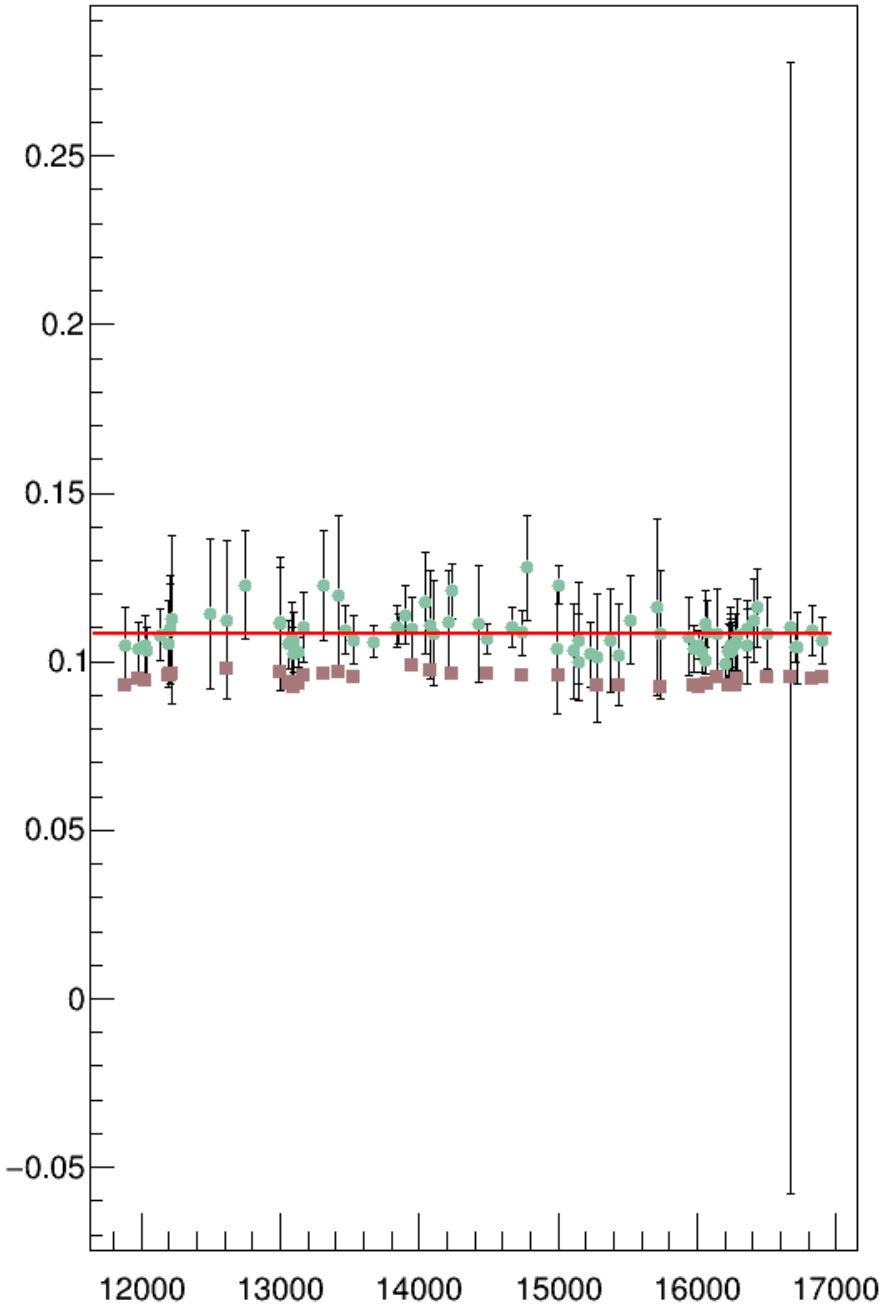
PMT 2+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0.1
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13000
14000
15000
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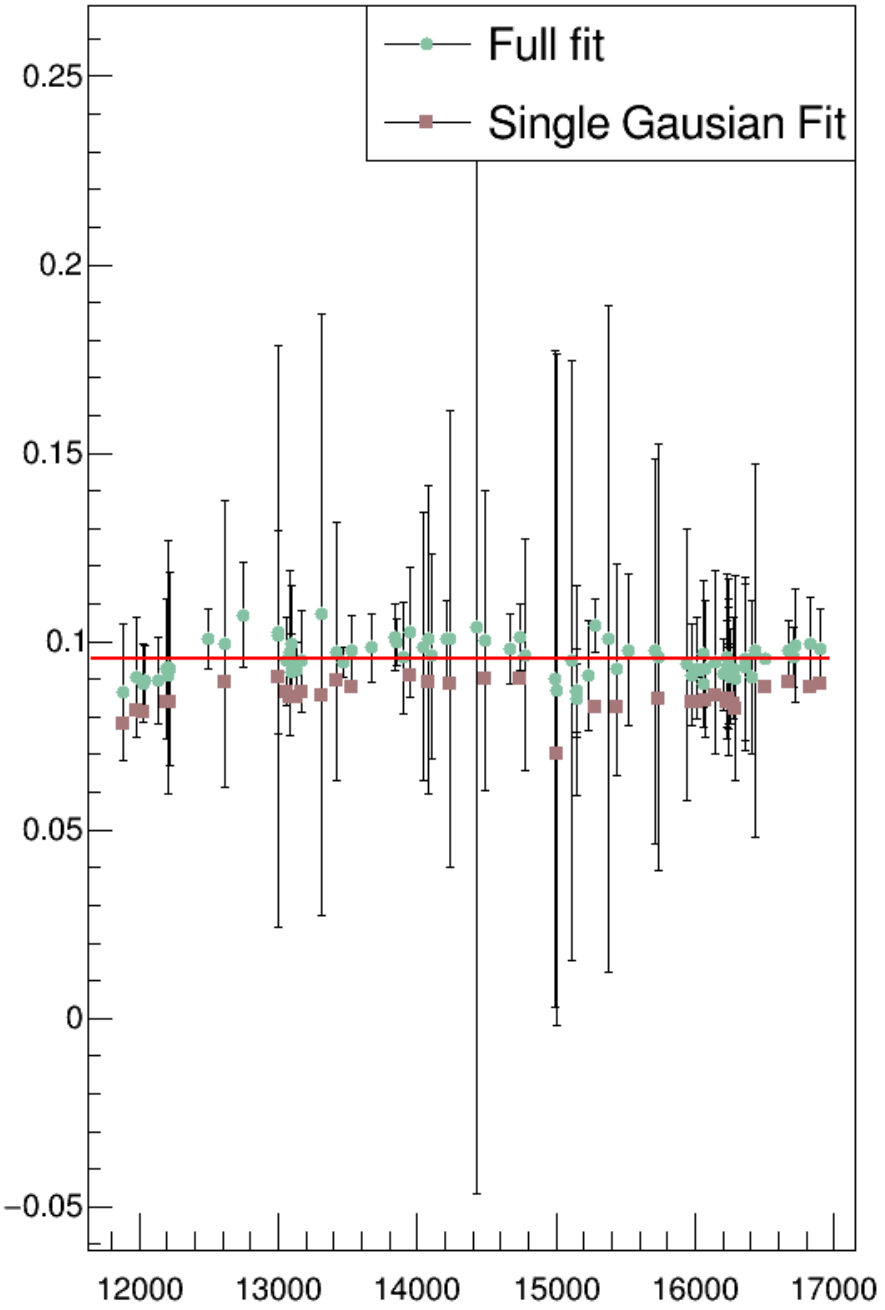
17000

PMT 2-


Full fit
Single Gausian Fit
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0.1
0.05
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15000
16000
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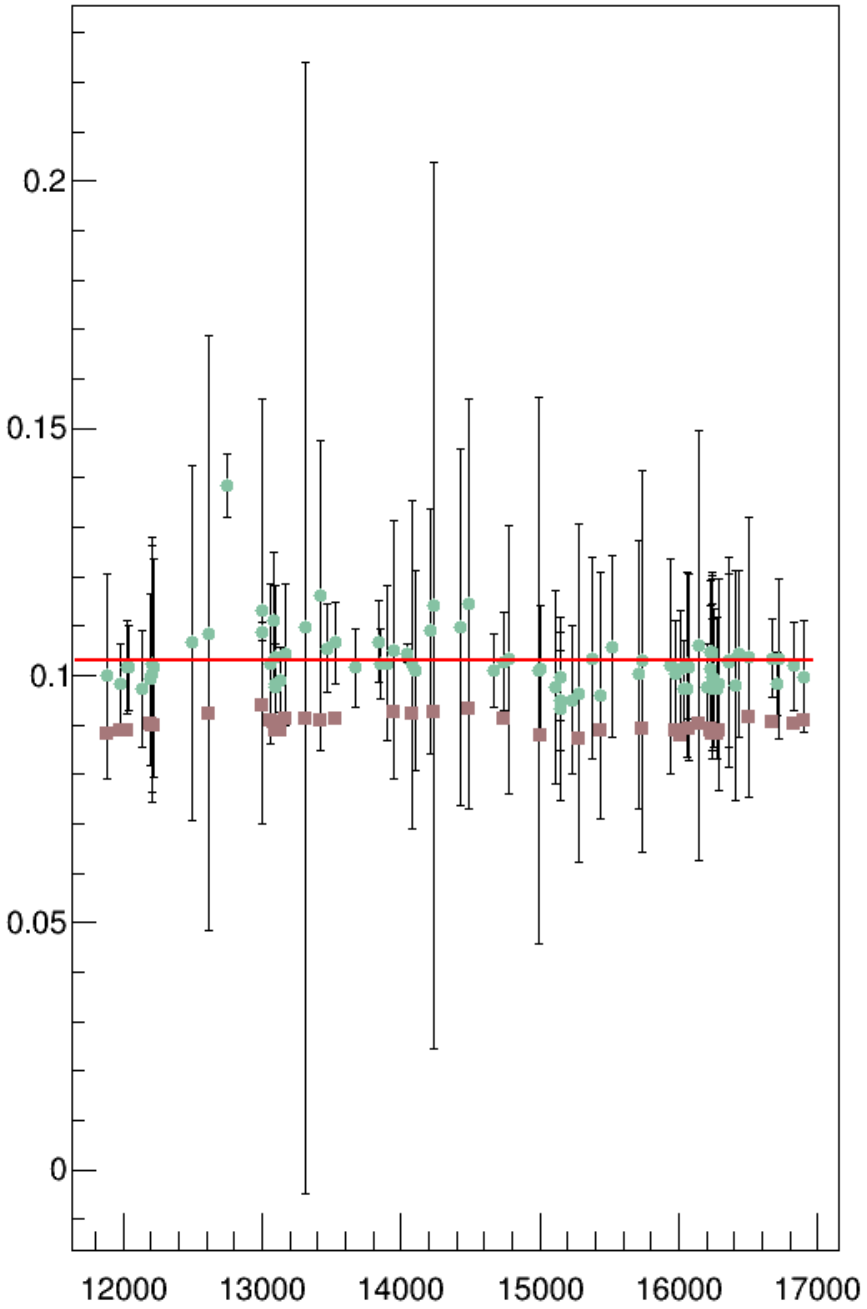
PMT 3+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0.05
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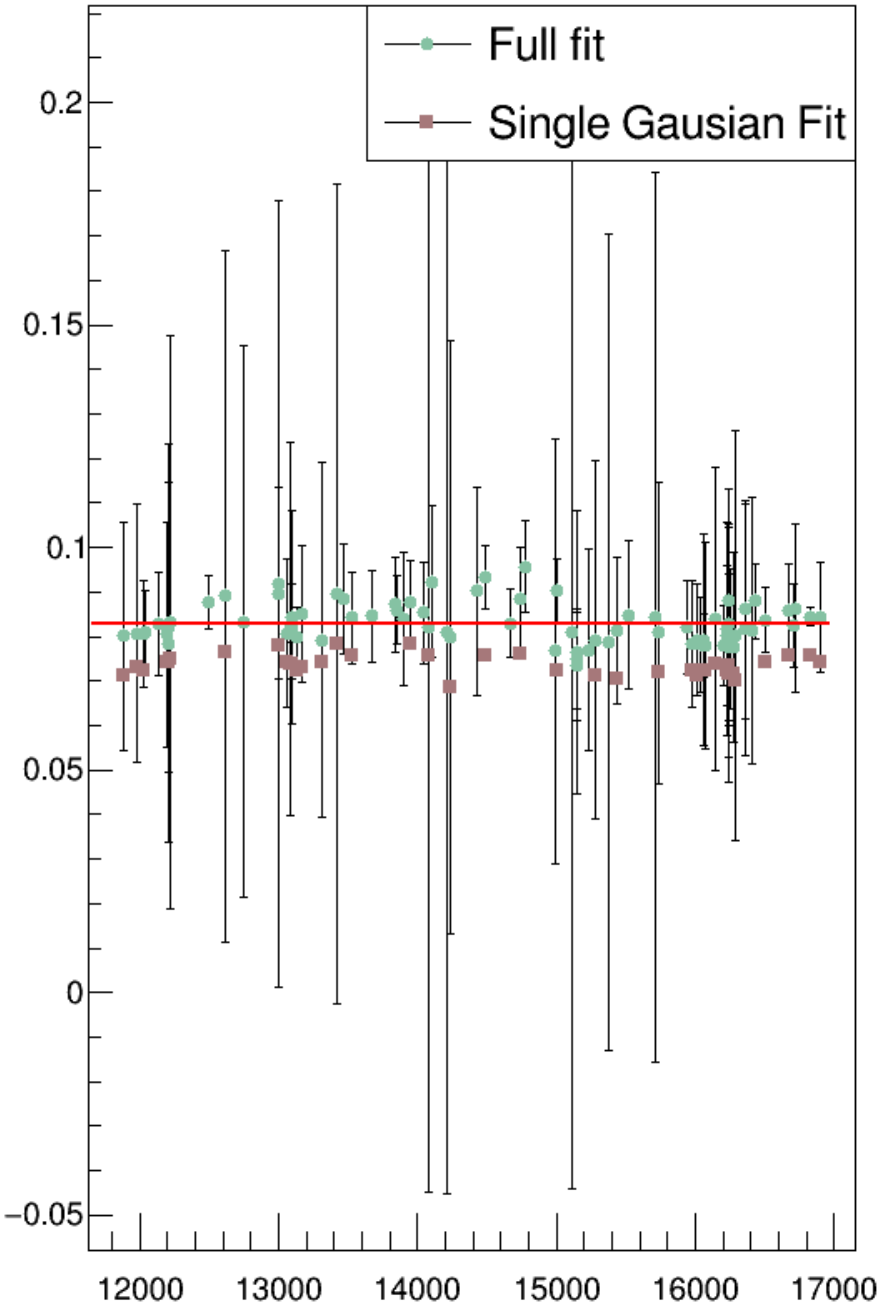
PMT 3-


Full fit
Single Gausian Fit
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0.1
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12000
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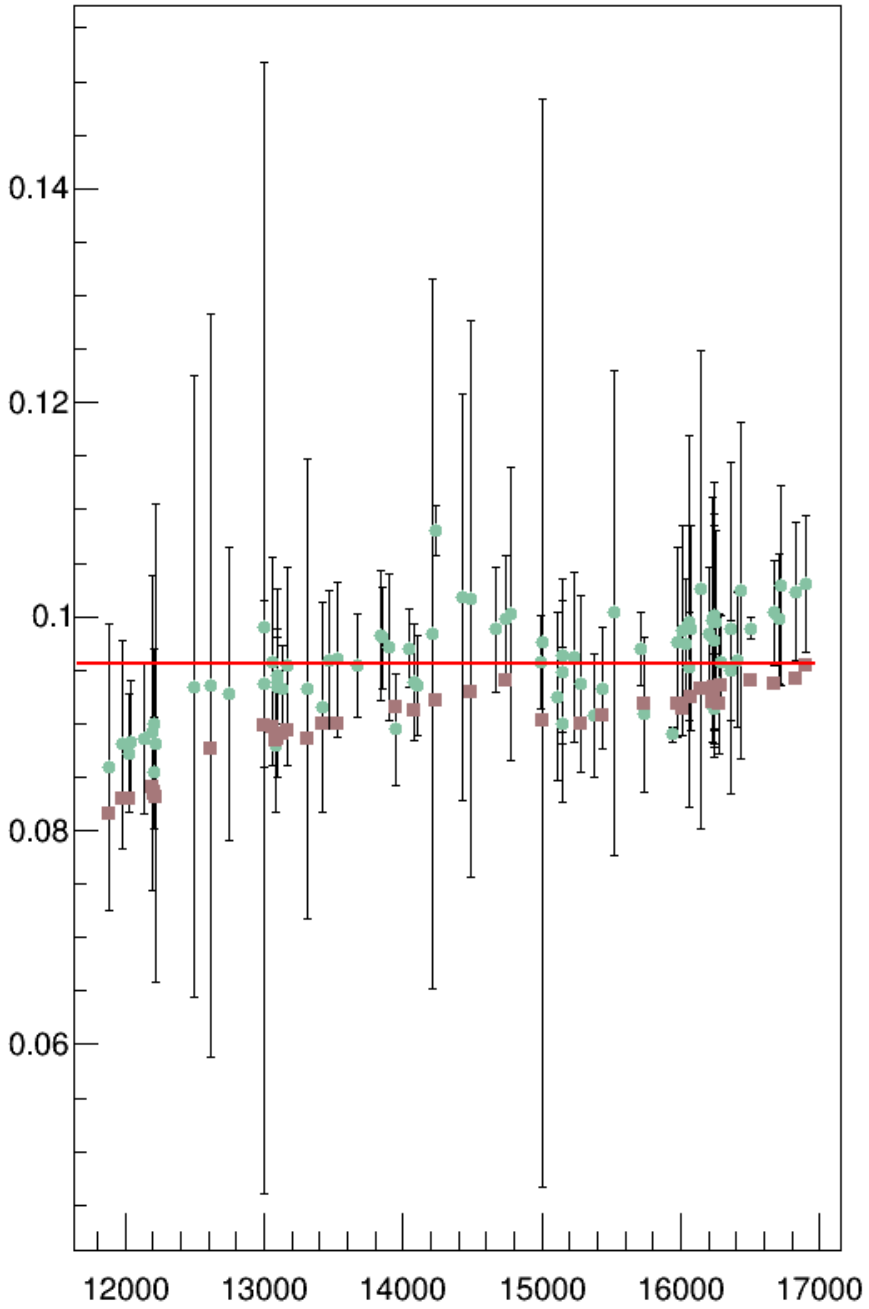
PMT 4+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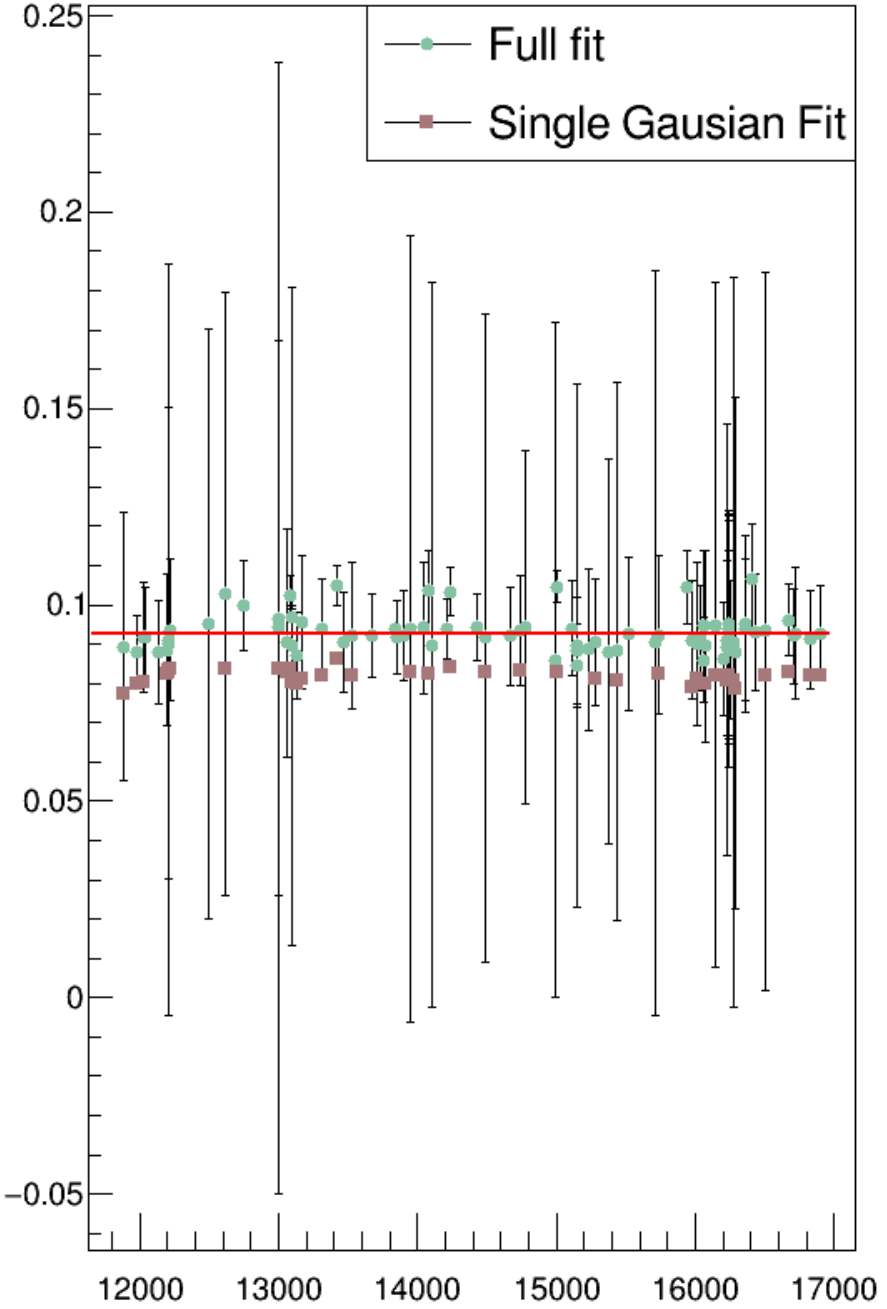
PMT 4-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Single Gausian Fit
0.25
0.2
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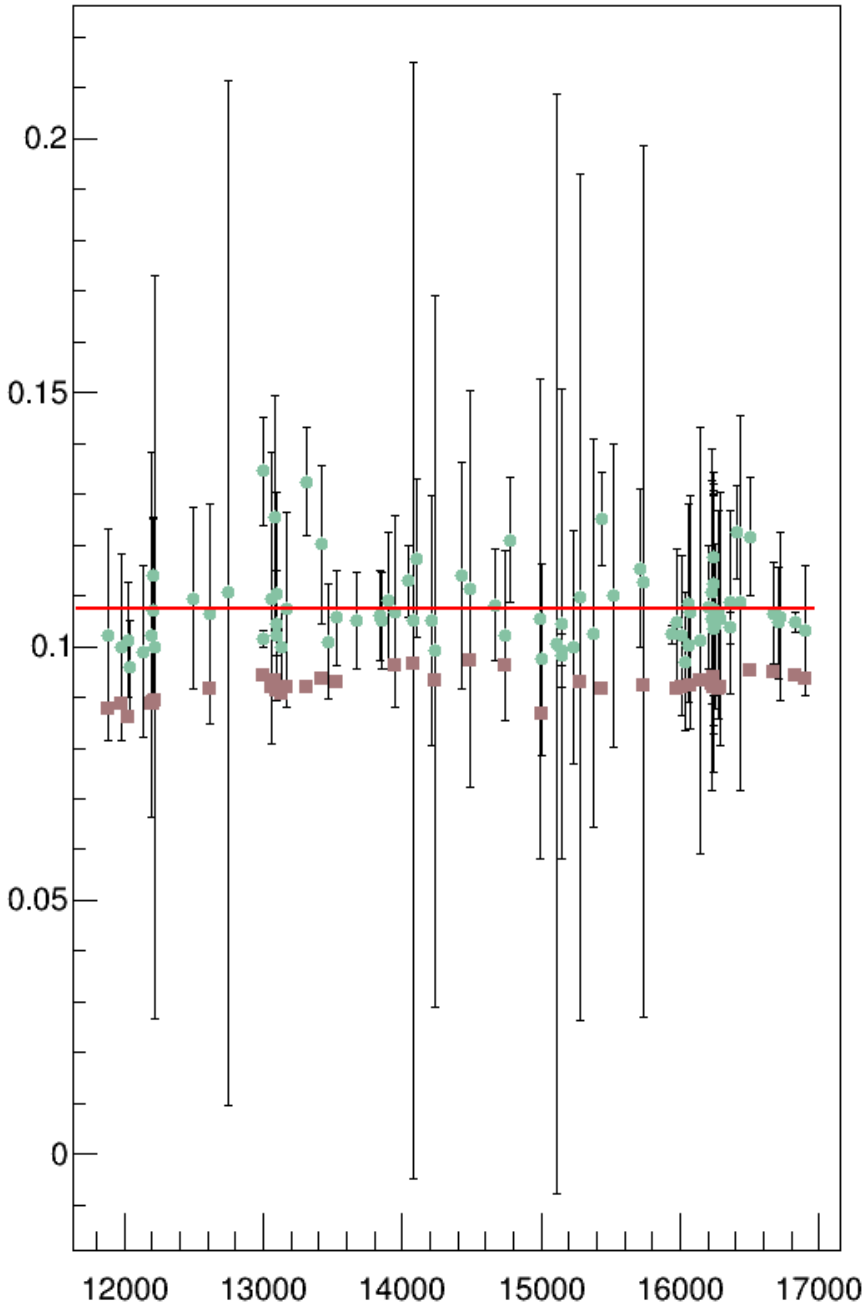
PMT 5+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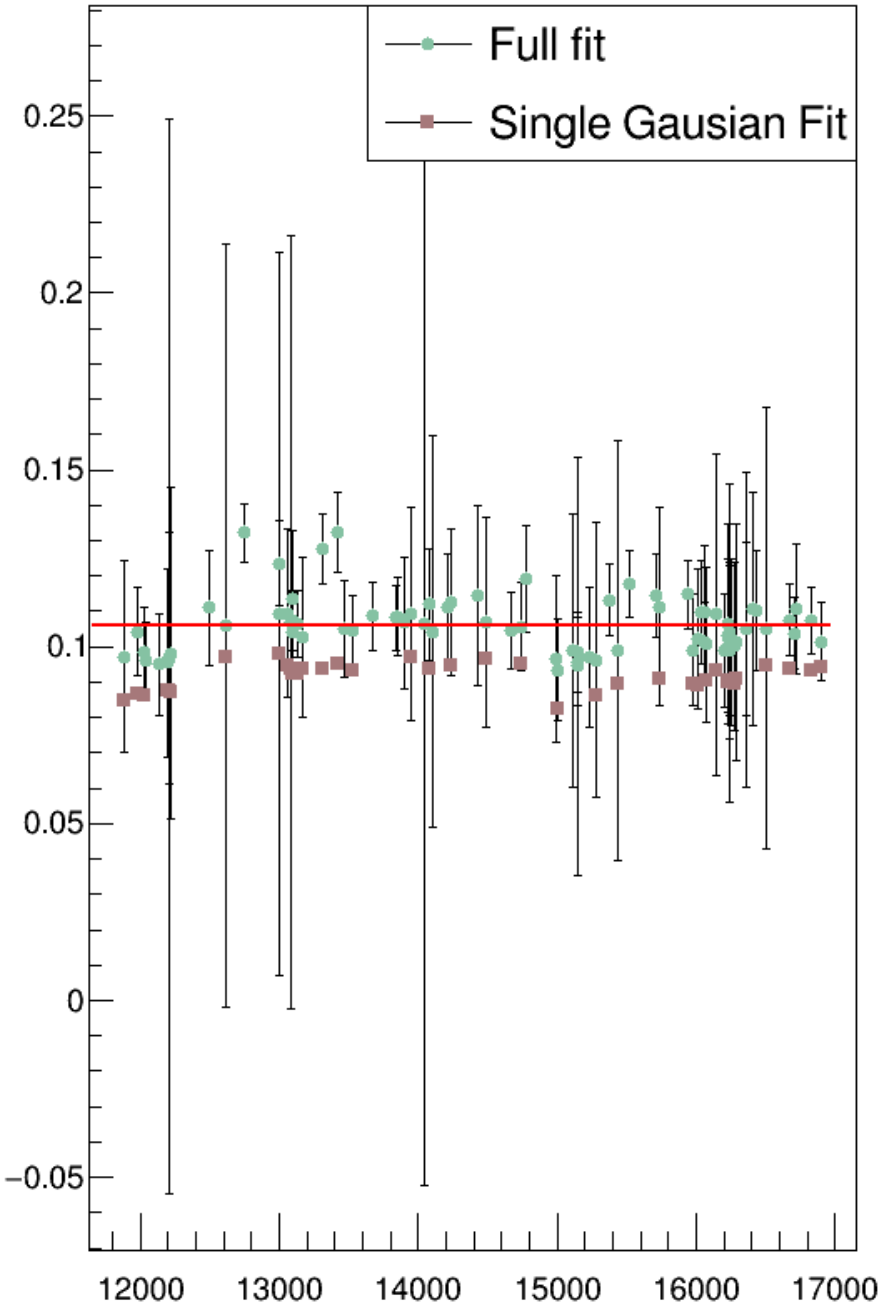
PMT 5-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Single Gausian Fit
0.25
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0.1
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13000
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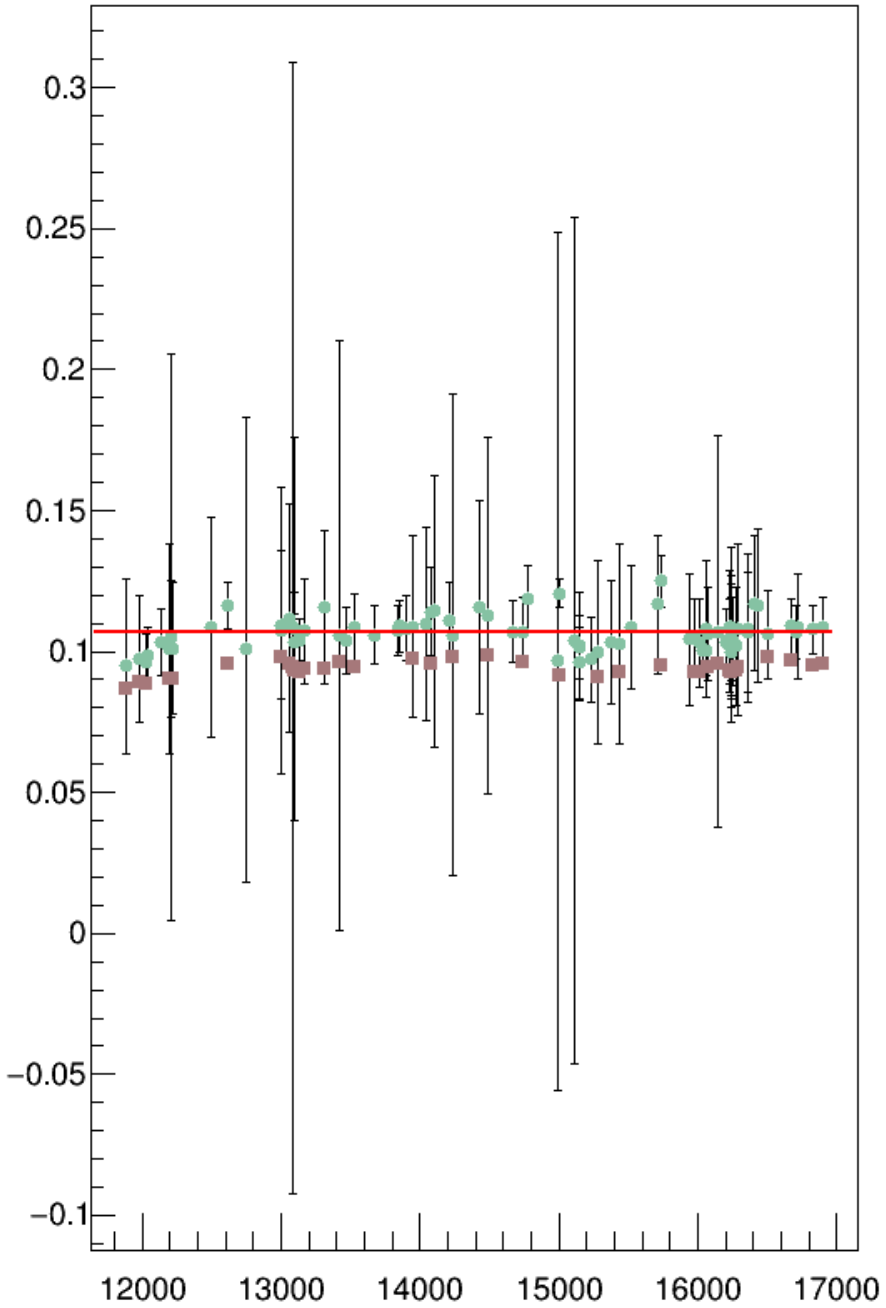
PMT 6+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0.2
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12000
13000
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16000
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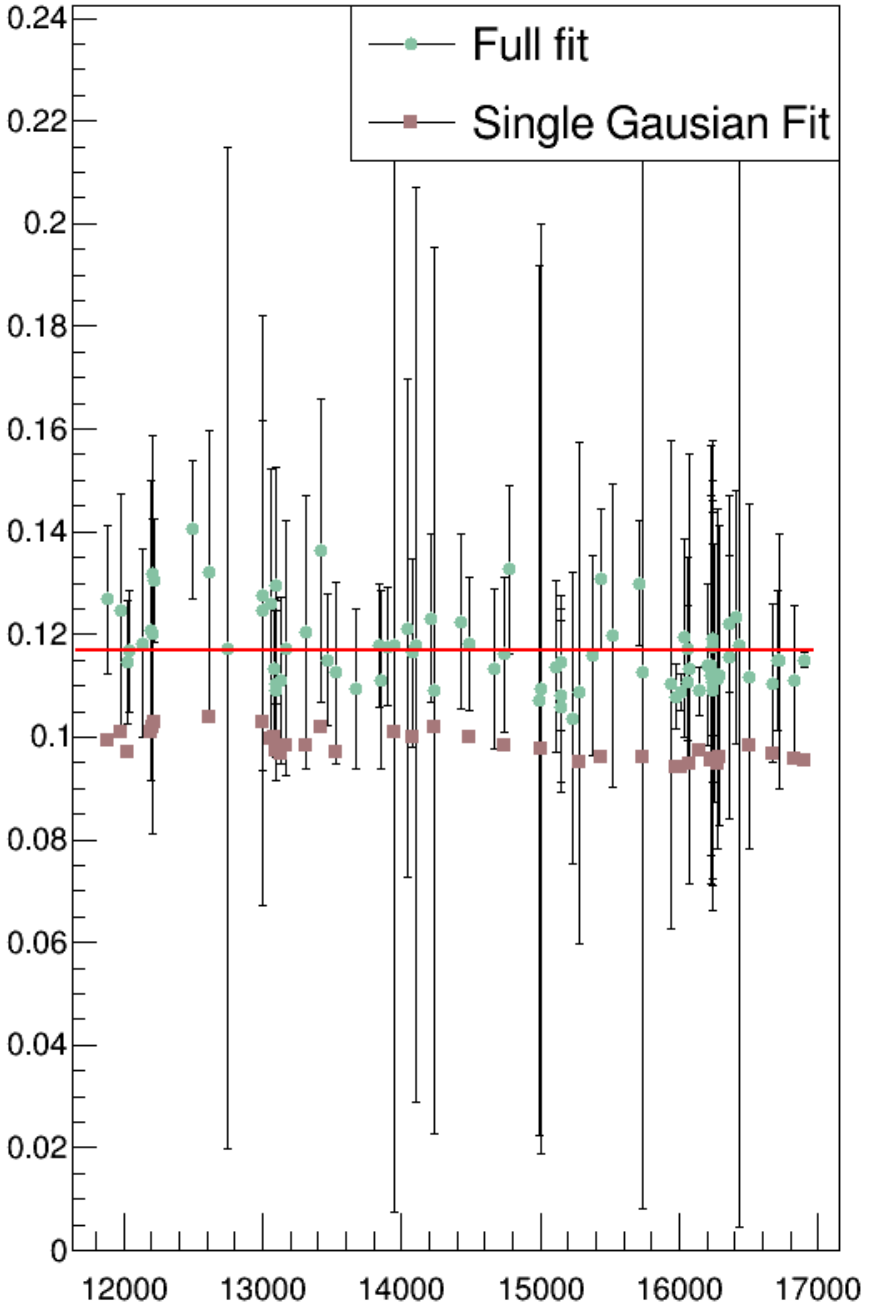
PMT 6-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Single Gausian Fit
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0.22
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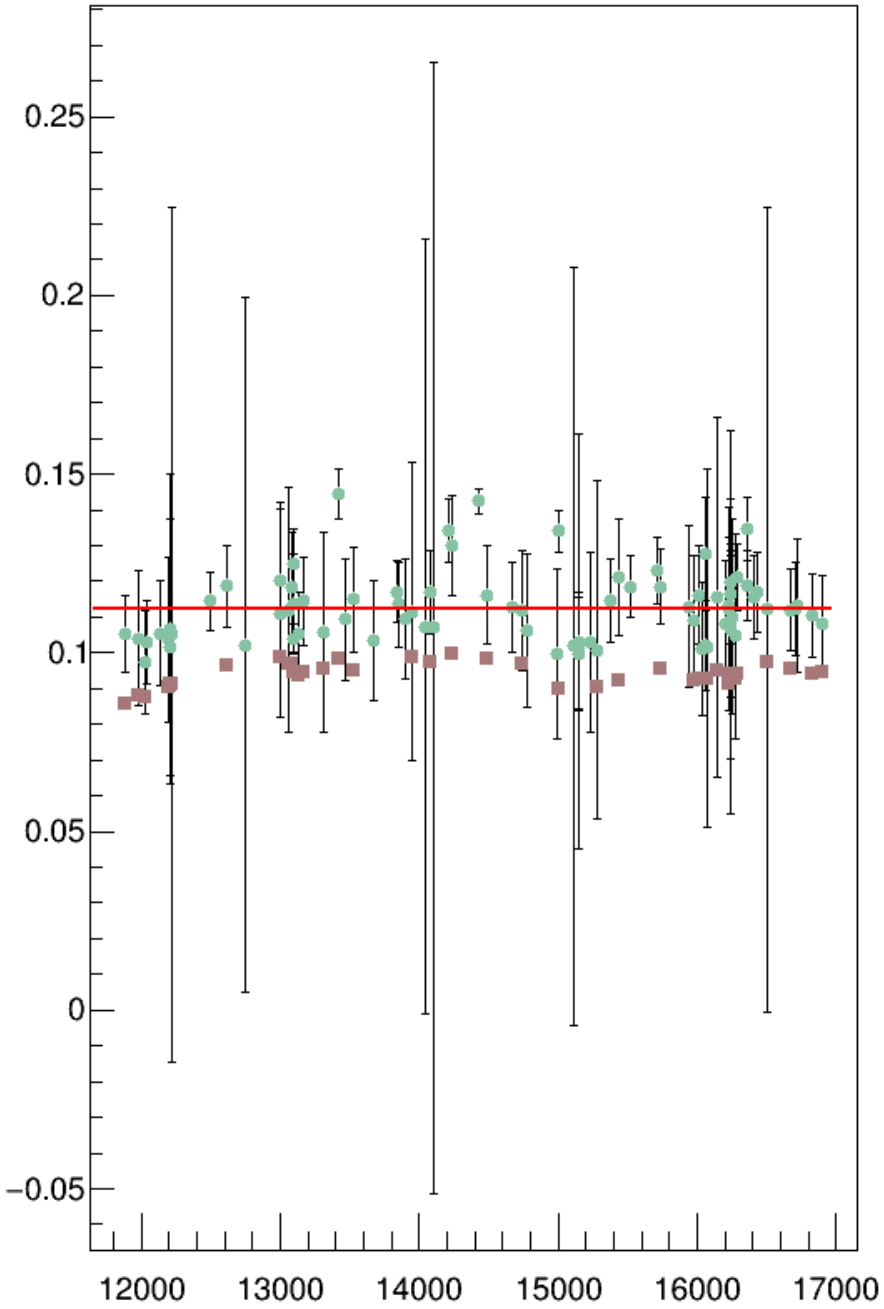
PMT 7+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0
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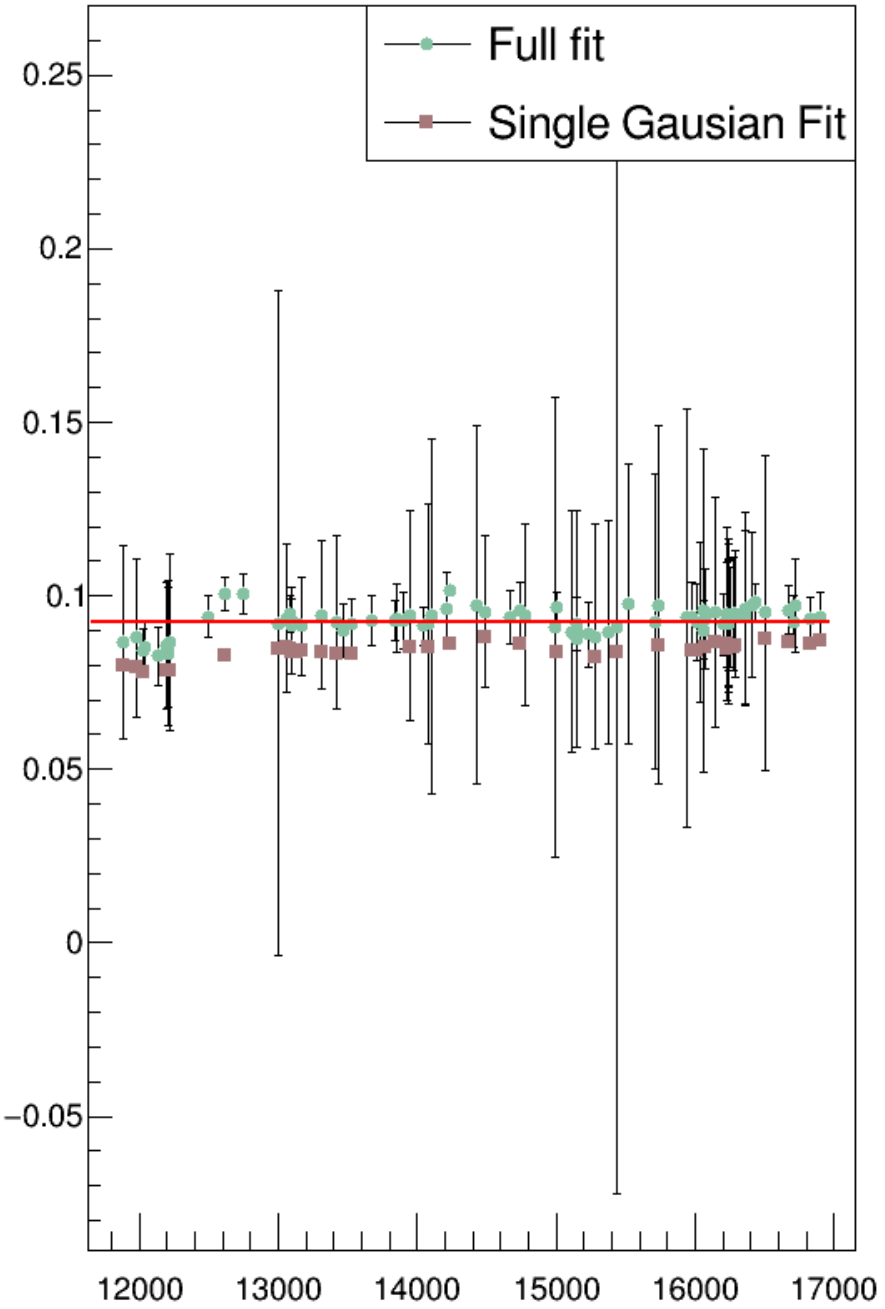
17000

PMT 7-


Full fit
Single Gausian Fit
0.25
0.2
0.15
0.1
0.05
0
−0.05
12000
13000
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15000
16000
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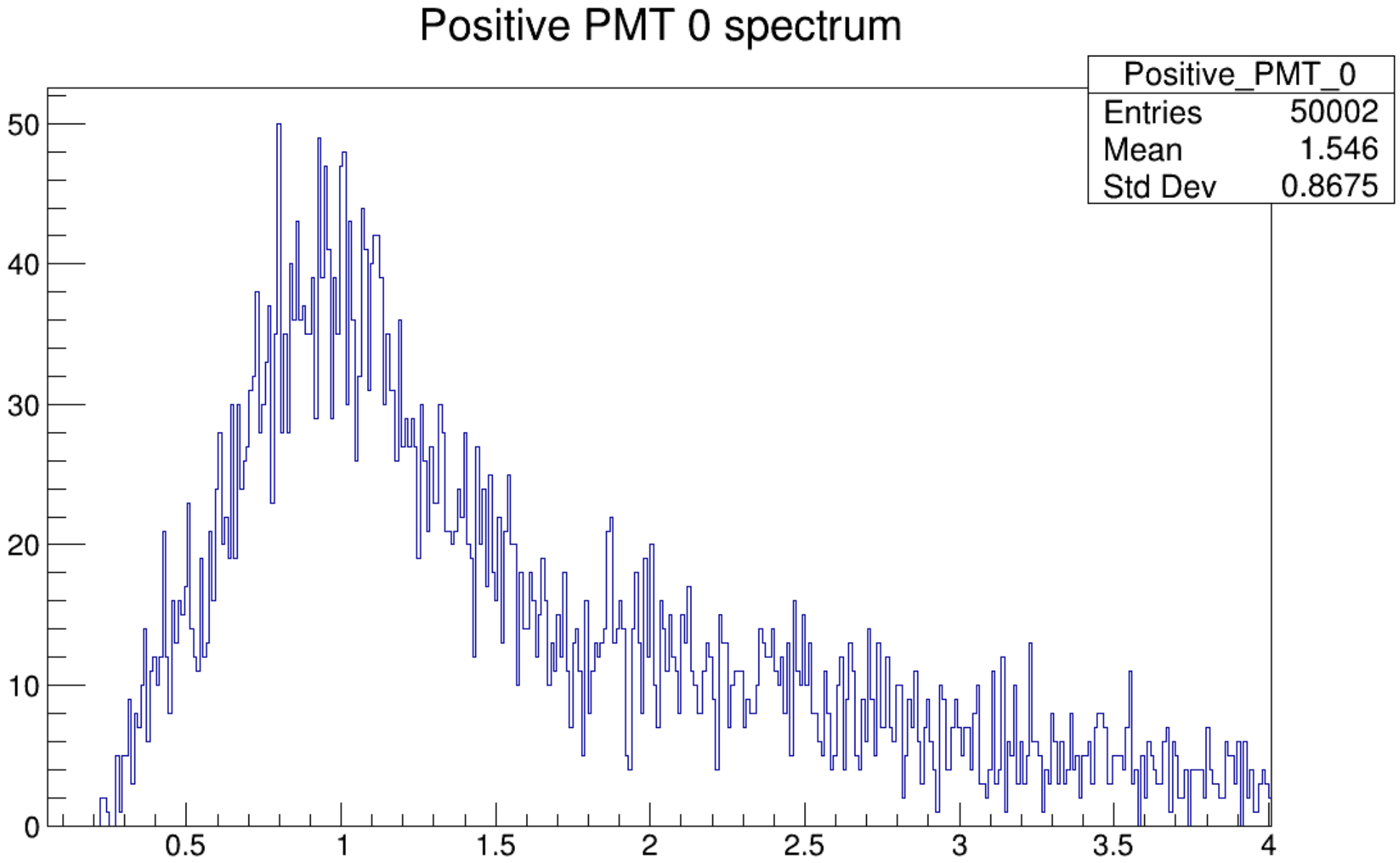
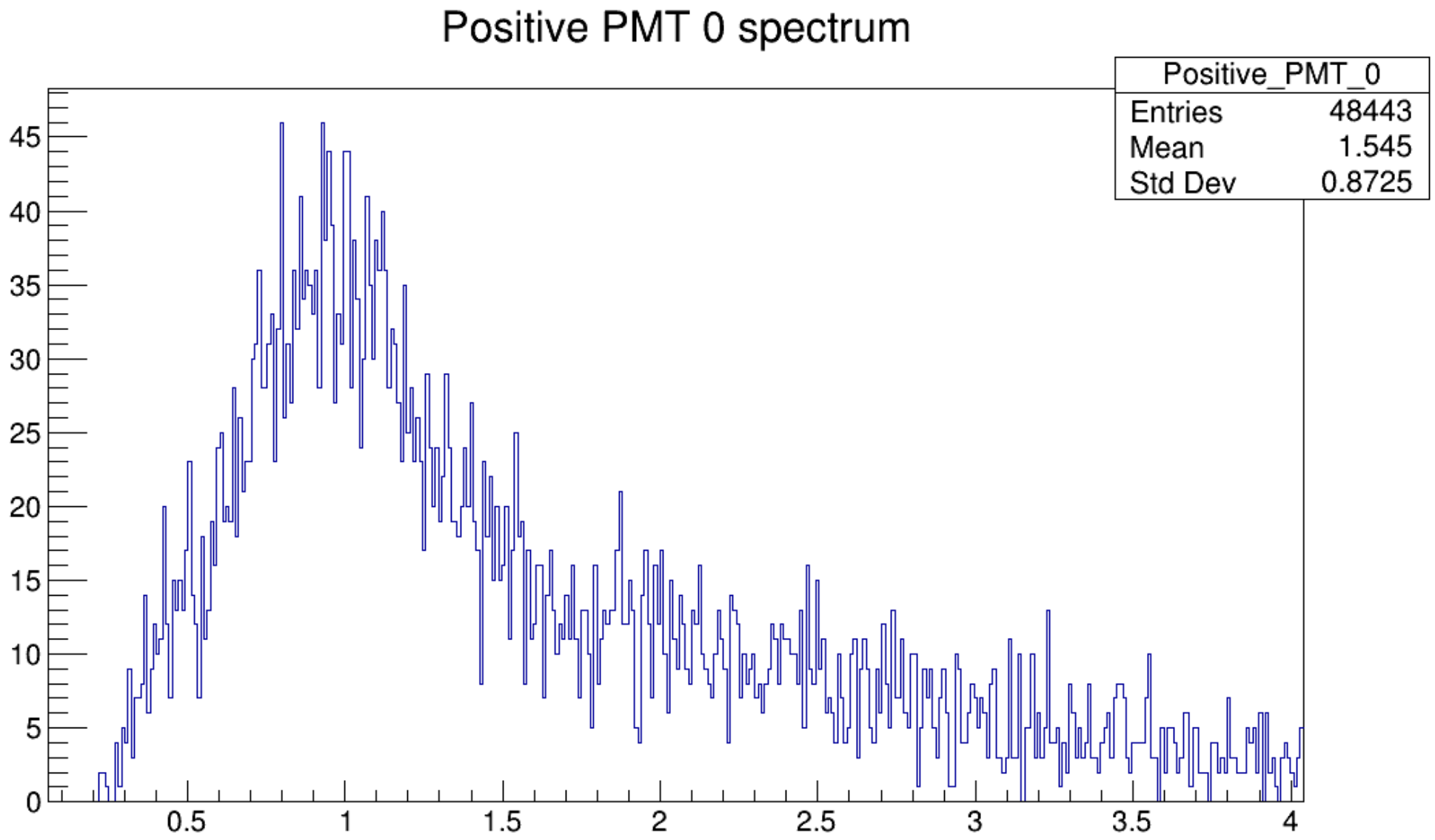
Cut Study

- Last week there was a question of whether on not placing cuts would help the fits.
- I have 2 sets of cuts:
  - -50 < xAtAero < 50 && -50 < yAtAero < 50
  - -50 < xAtAero < 50 && -50 < yAtAero < 50 && hgc.npeSum > 4
- I am showing run 13086 (n = 1.03)

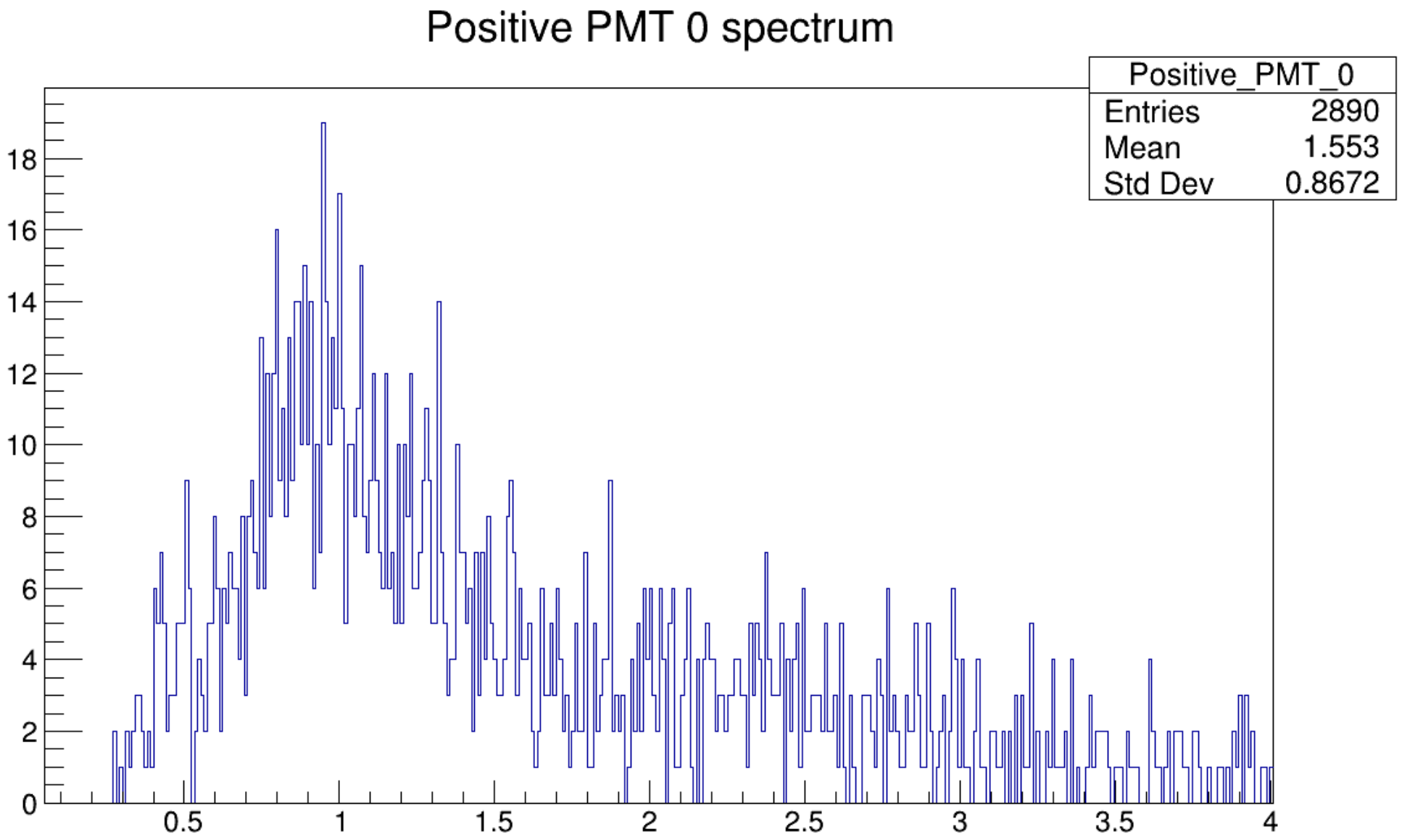
No Cuts


Positive PMT 0 spectrum
Positive_PMT_0
Entries 50002
Mean 1.546
Std Dev 0.8675
50
40
30
20
10
0
0.5
1
1.5
2
2.5
3
3.5
4

With Tray cuts



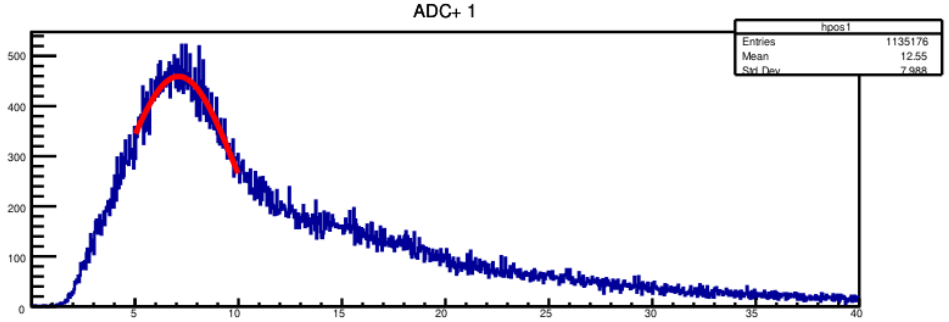
With Tray and HGC Cut



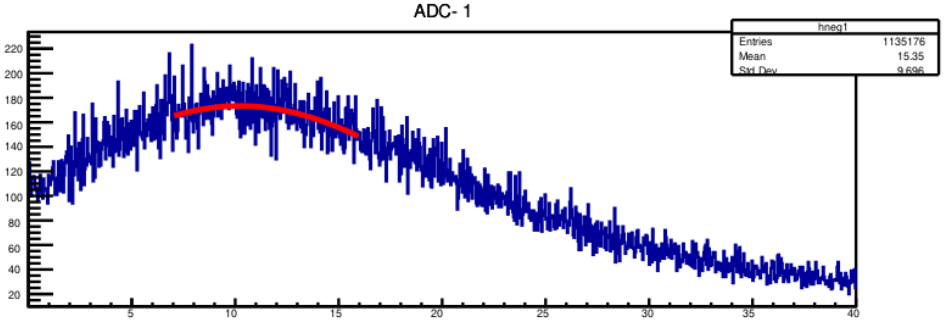
Conclusion

- Cuts seem to make little difference to the distribution
- I think I can conclude that this study and use the value from the red lines on the above plots.
- I have also included some example fits for context

ADC+ 1



ADC- 1



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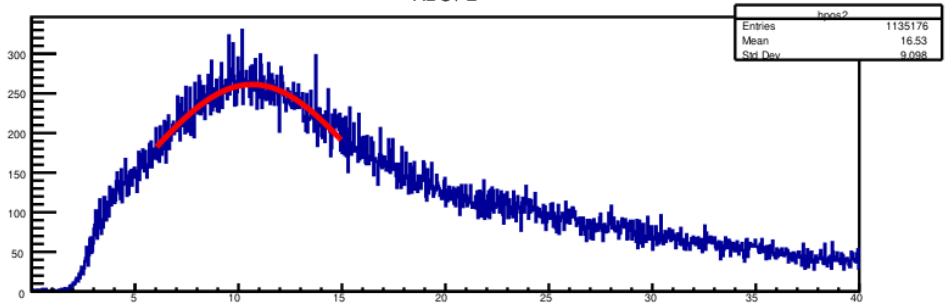
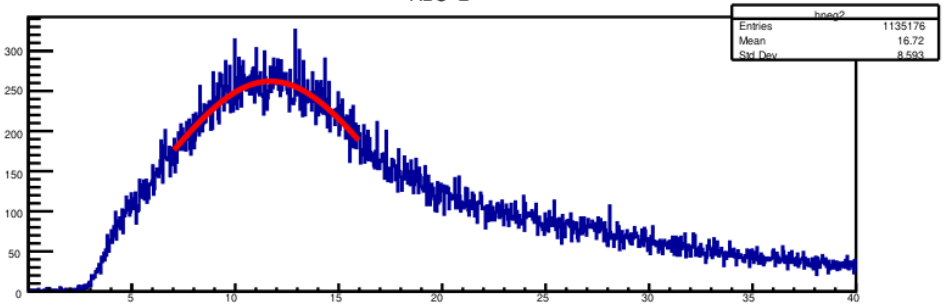


ADC- 2



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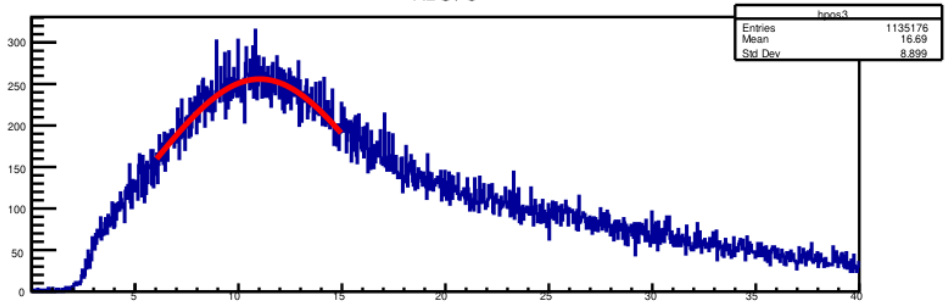
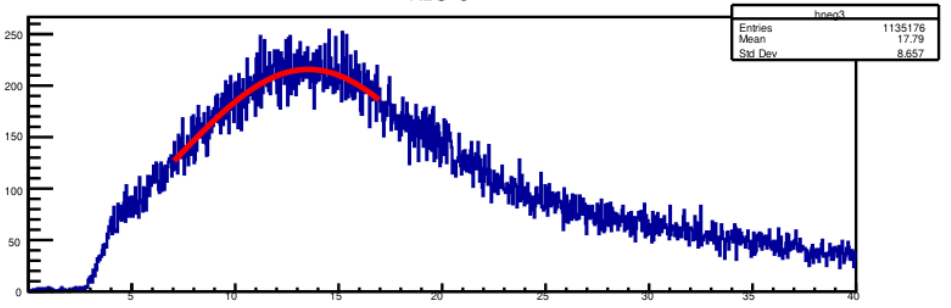


ADC- 3



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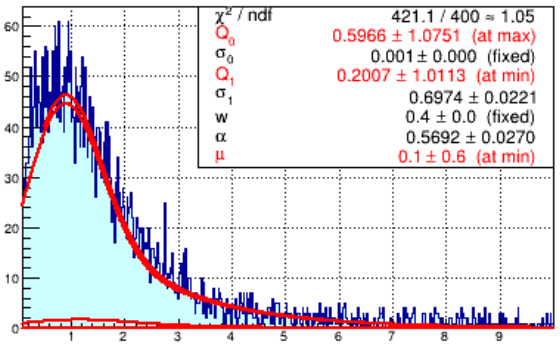
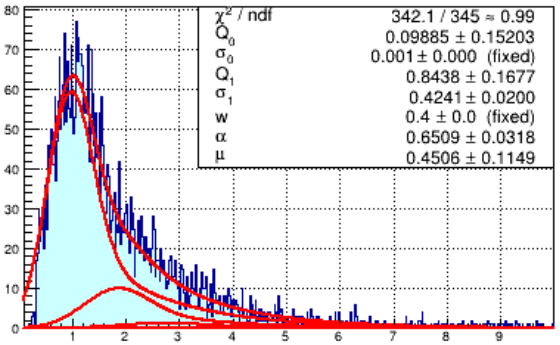


Negative_PMT_1-trimmed



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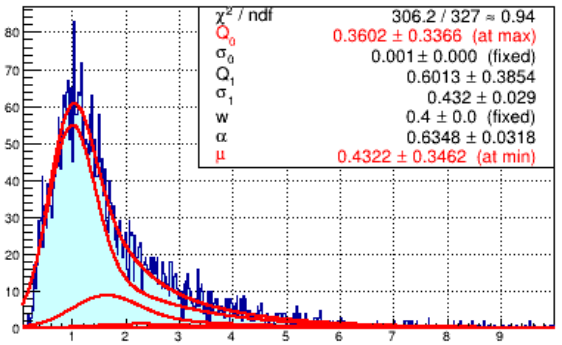

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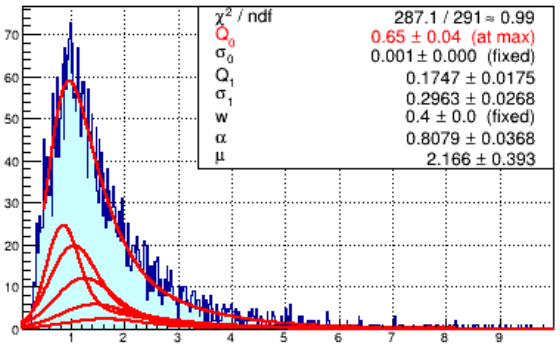

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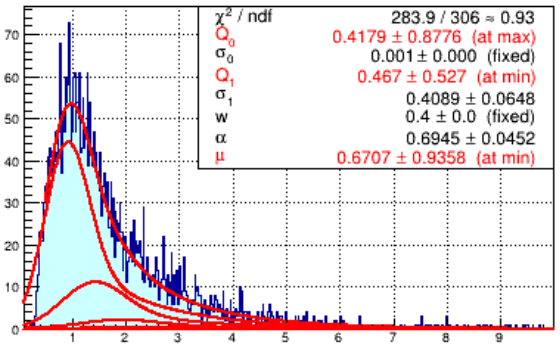

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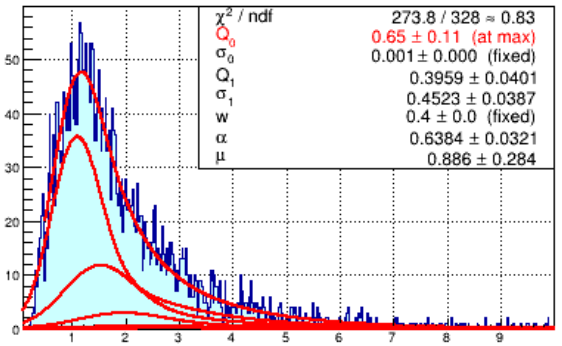

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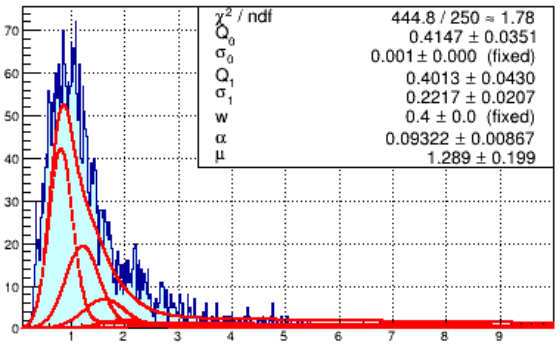

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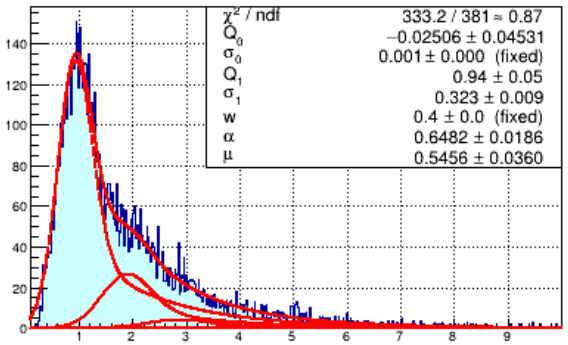

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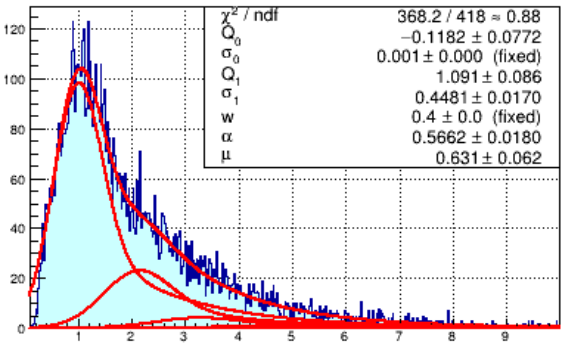

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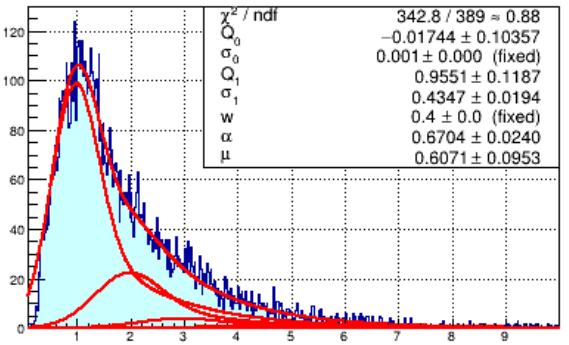

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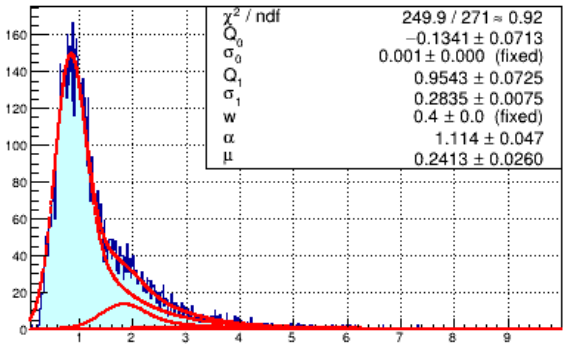

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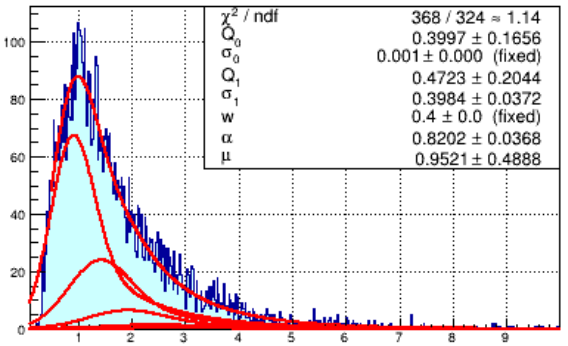

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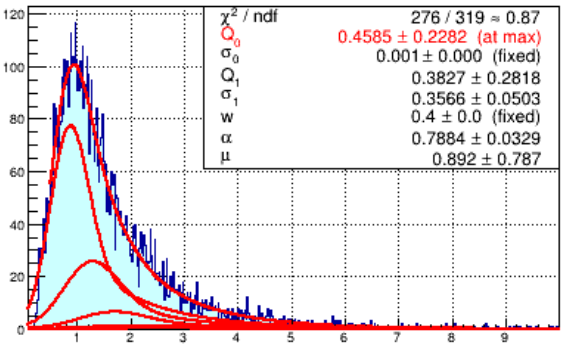
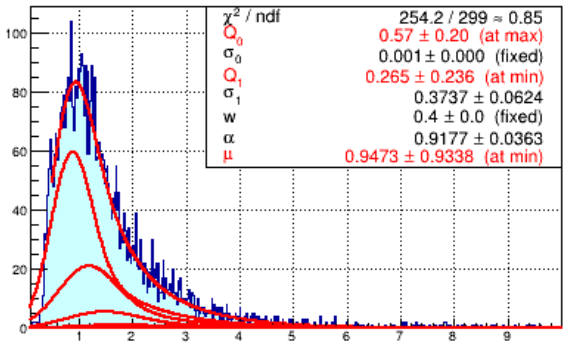
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