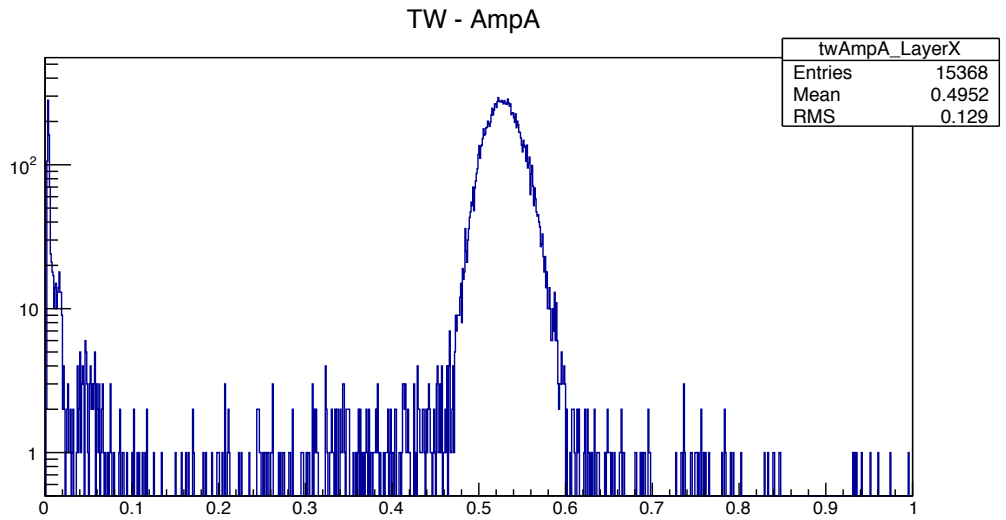
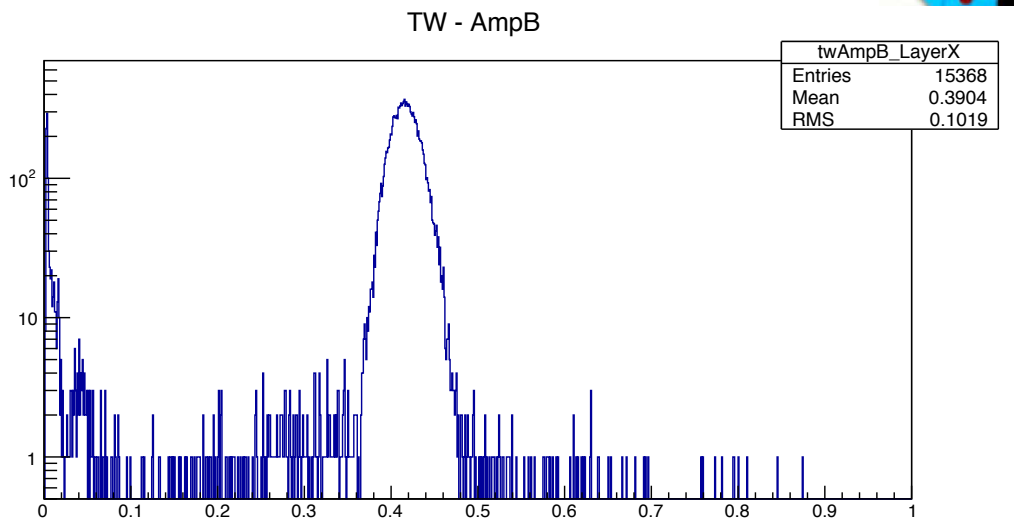
Trigger and some measurements for GSI data taking

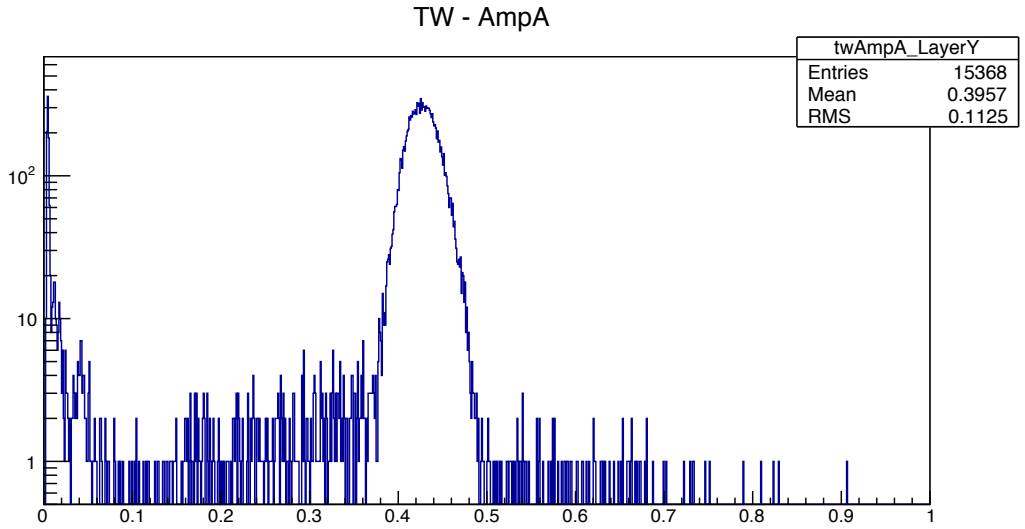
Angelica De Gregorio, Marco Toppi

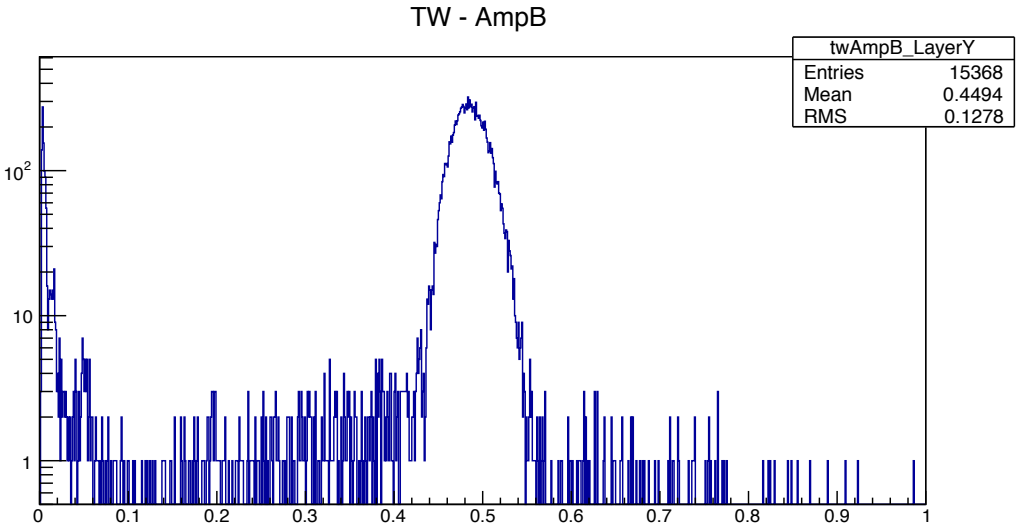
FOOT Physics Meeting – 09/06/2021

Amplitudes central TW bars at GSI2019

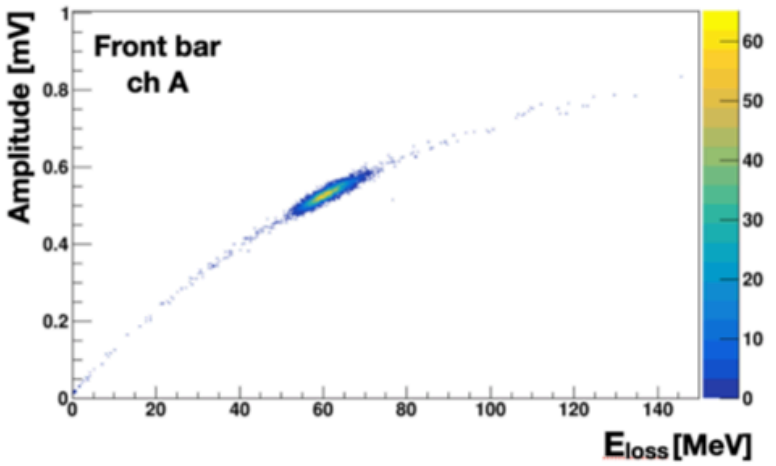


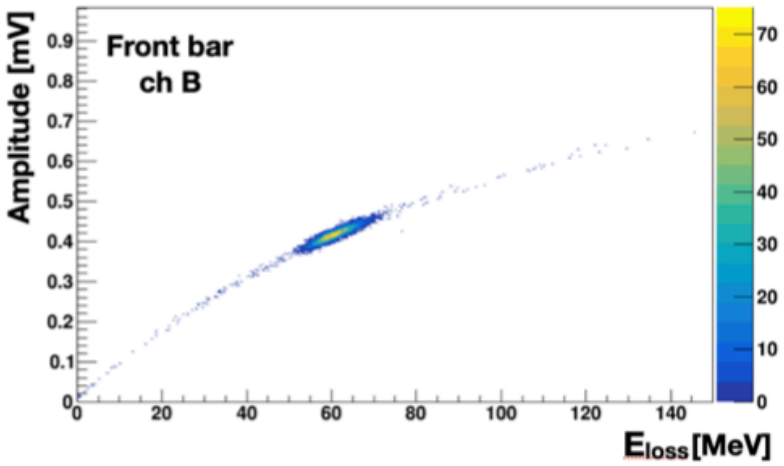


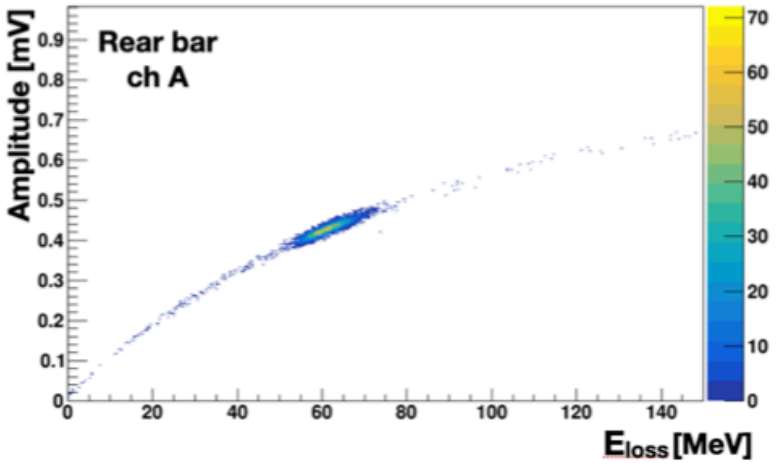


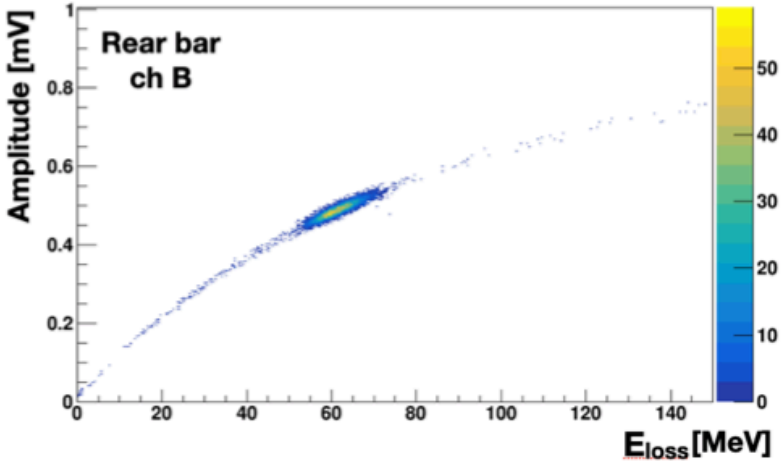


Amplitudes vs Eloss

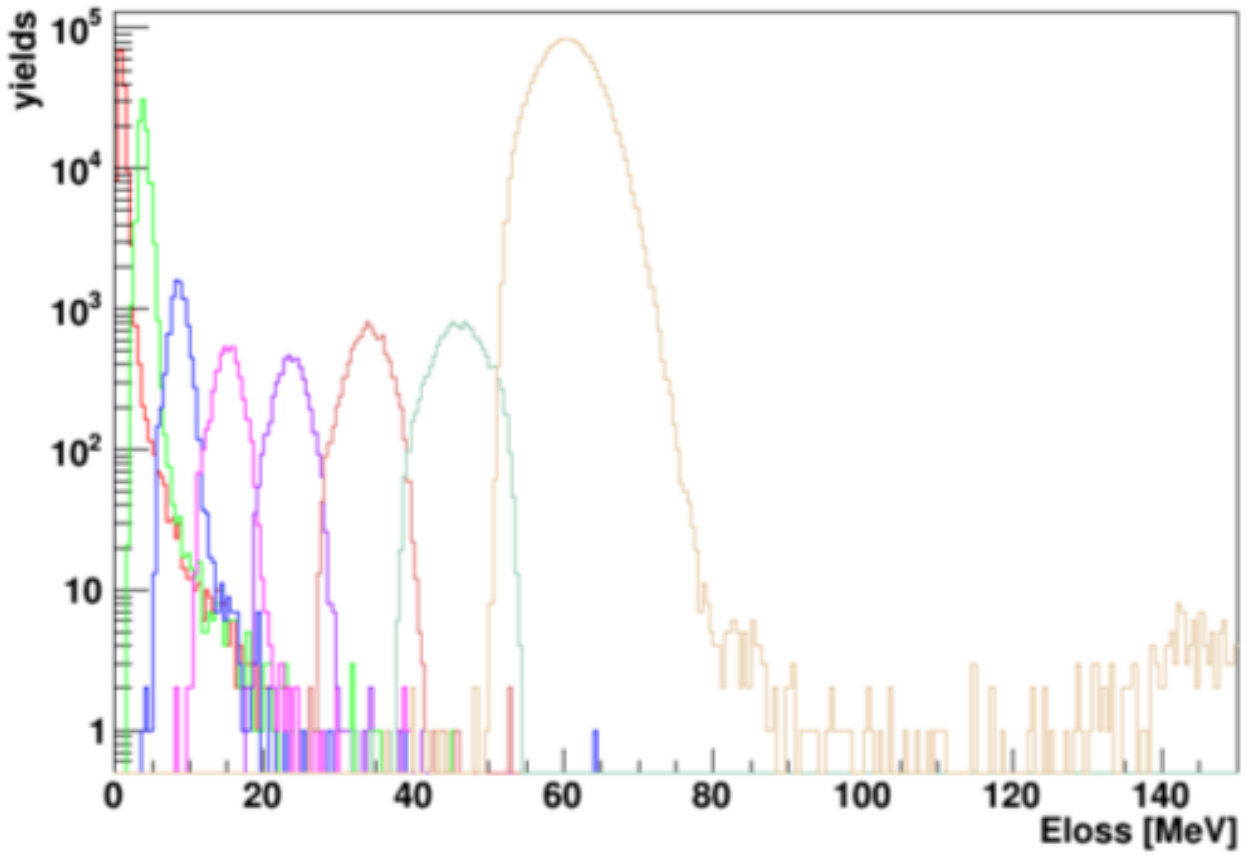








Eloss - MC

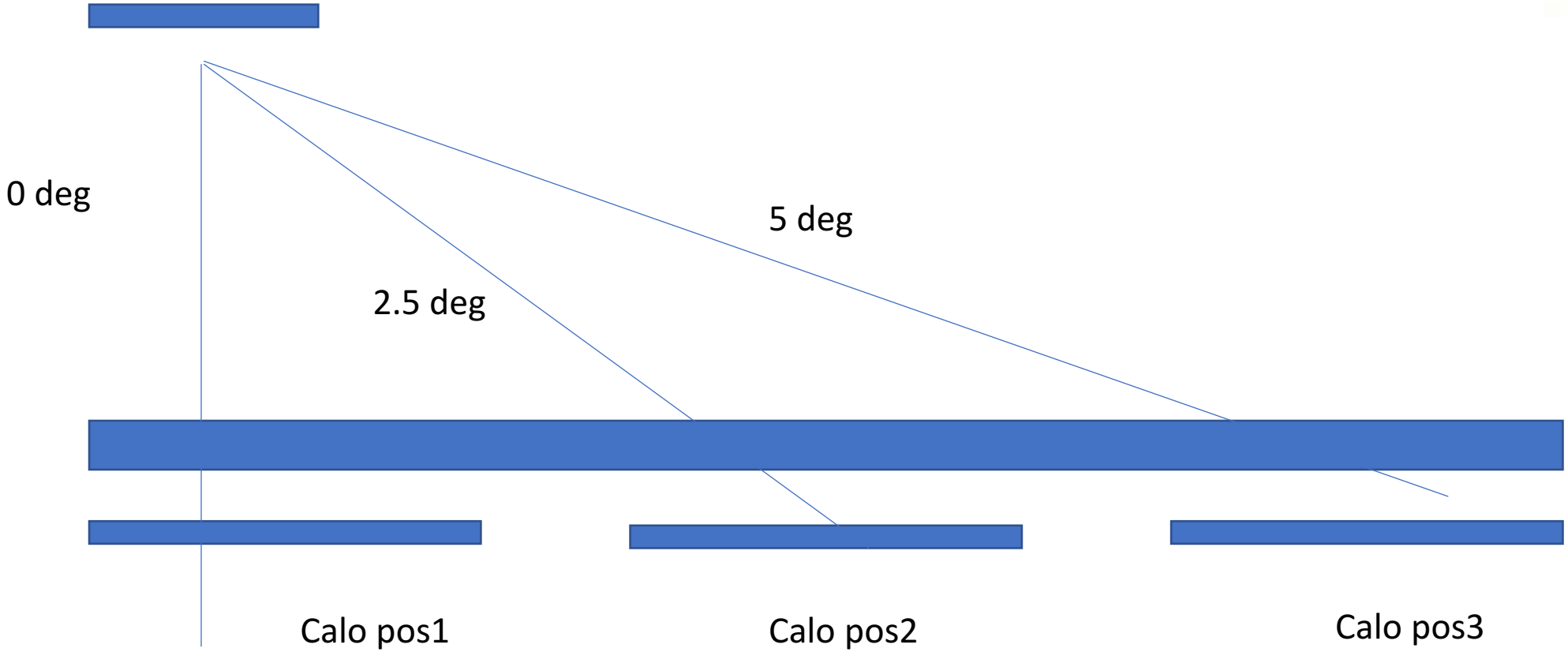


Thr 56 MeV→80% primaries rejection

0.3*10^6 triggers --> ~ 11 min at 900 Hz/2

900 Hz trigger and 100 Hz of MB ?

Total yields – full TW acceptance



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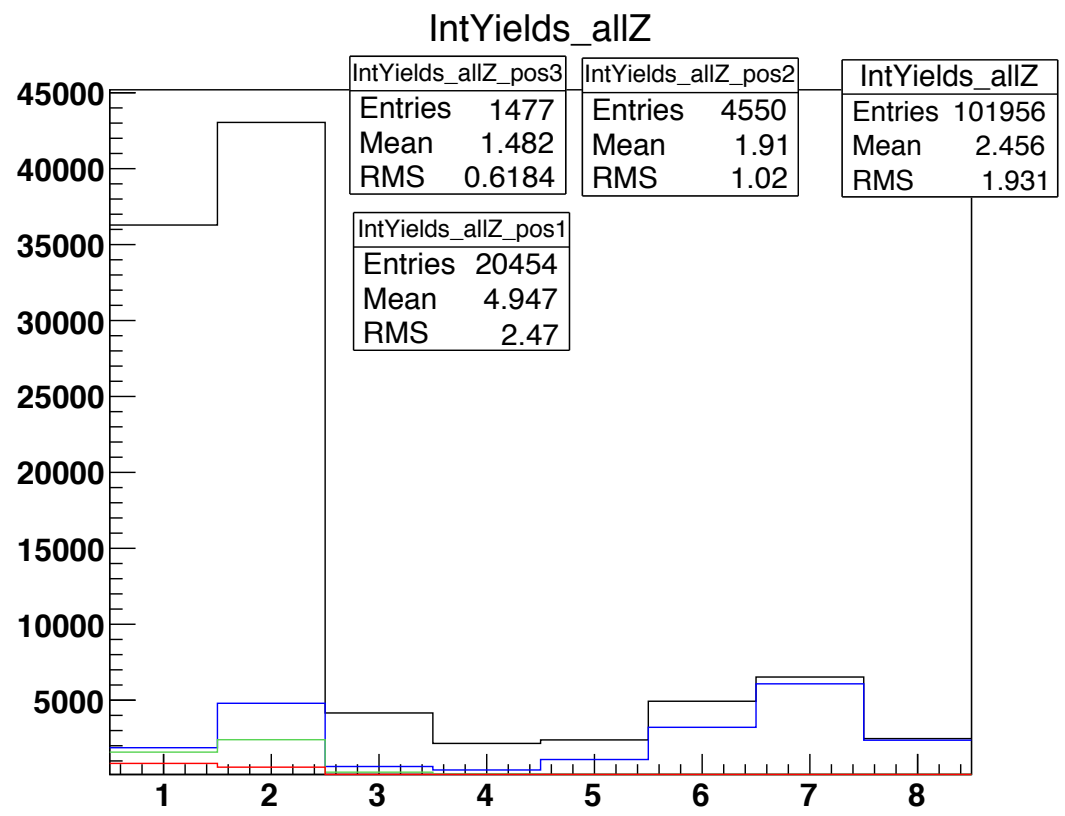
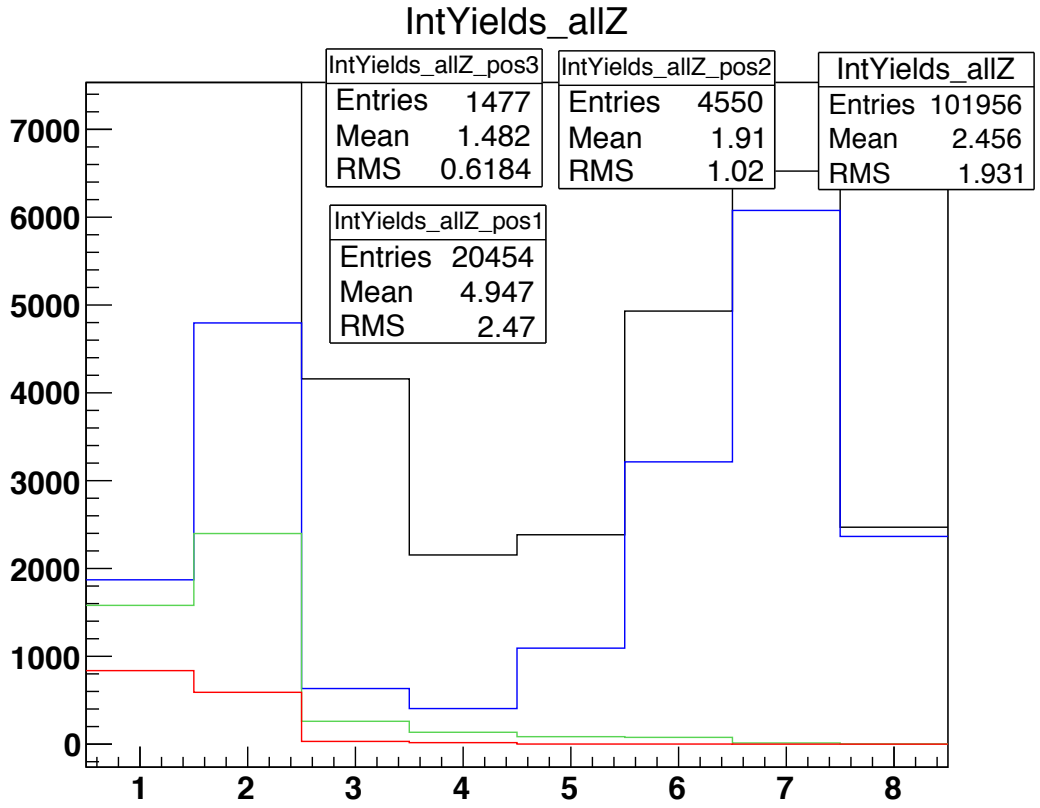
Total yields for Z (A integrated)



tot
0 deg
2.5 deg
5 deg



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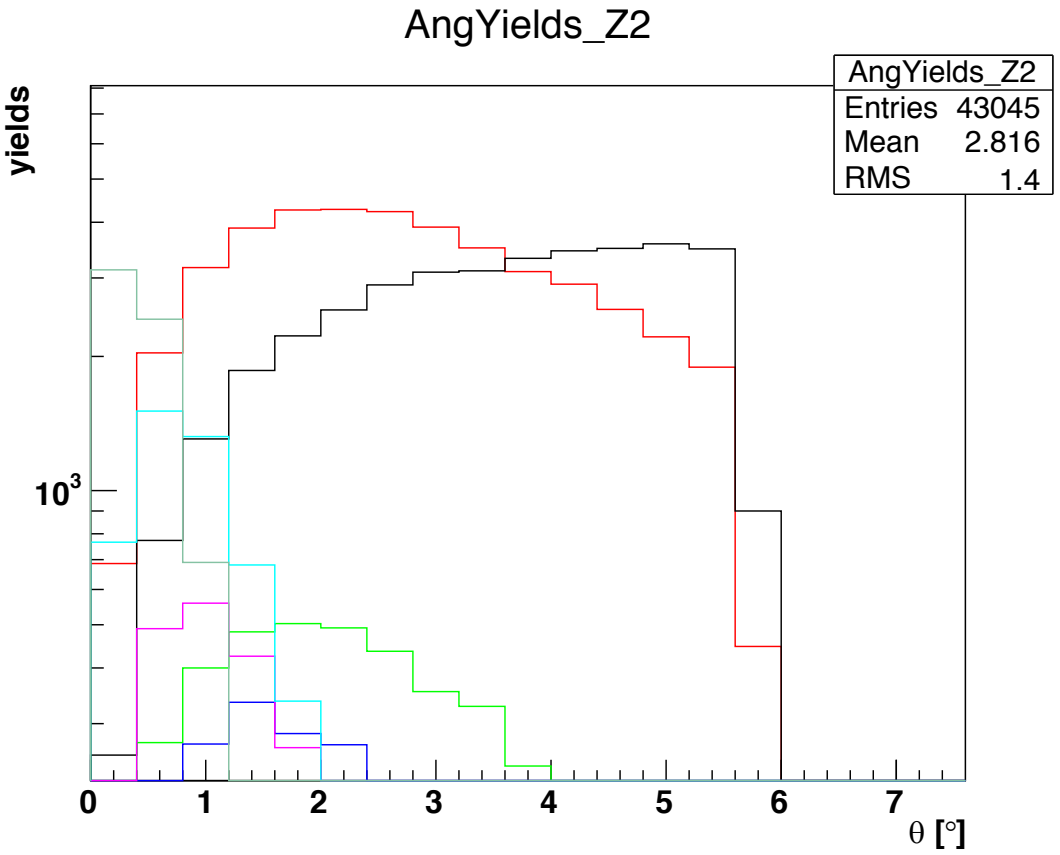
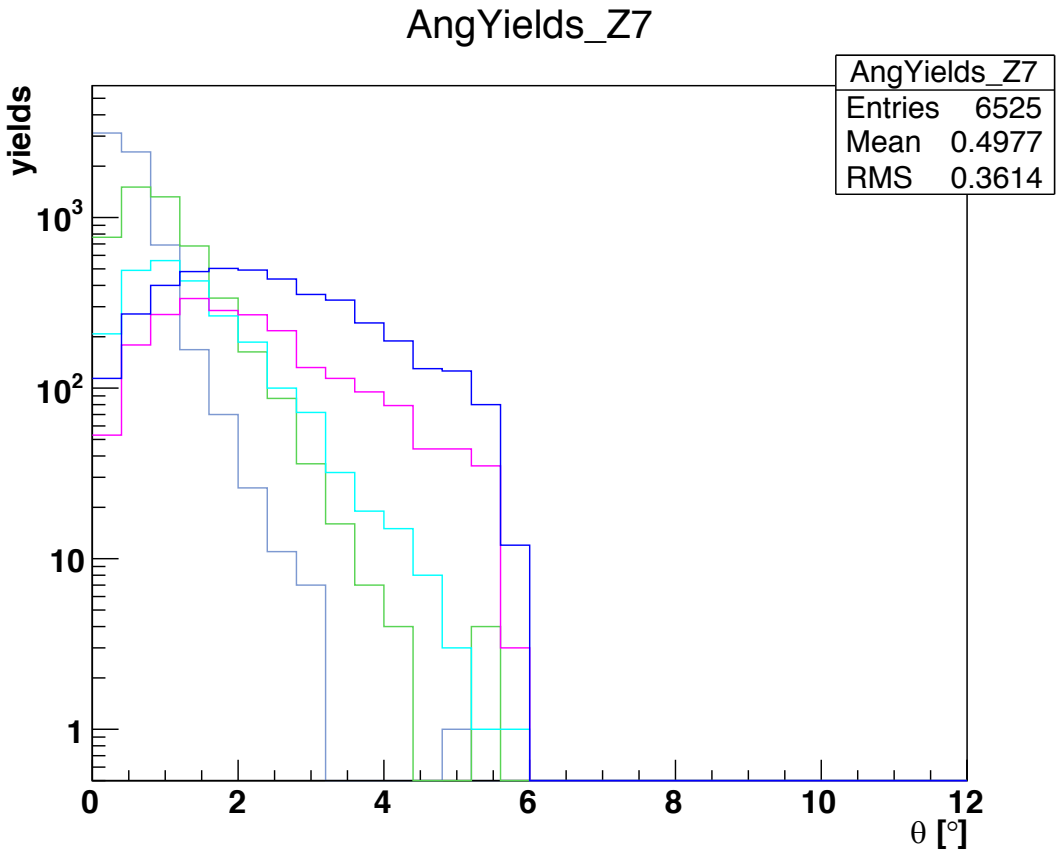
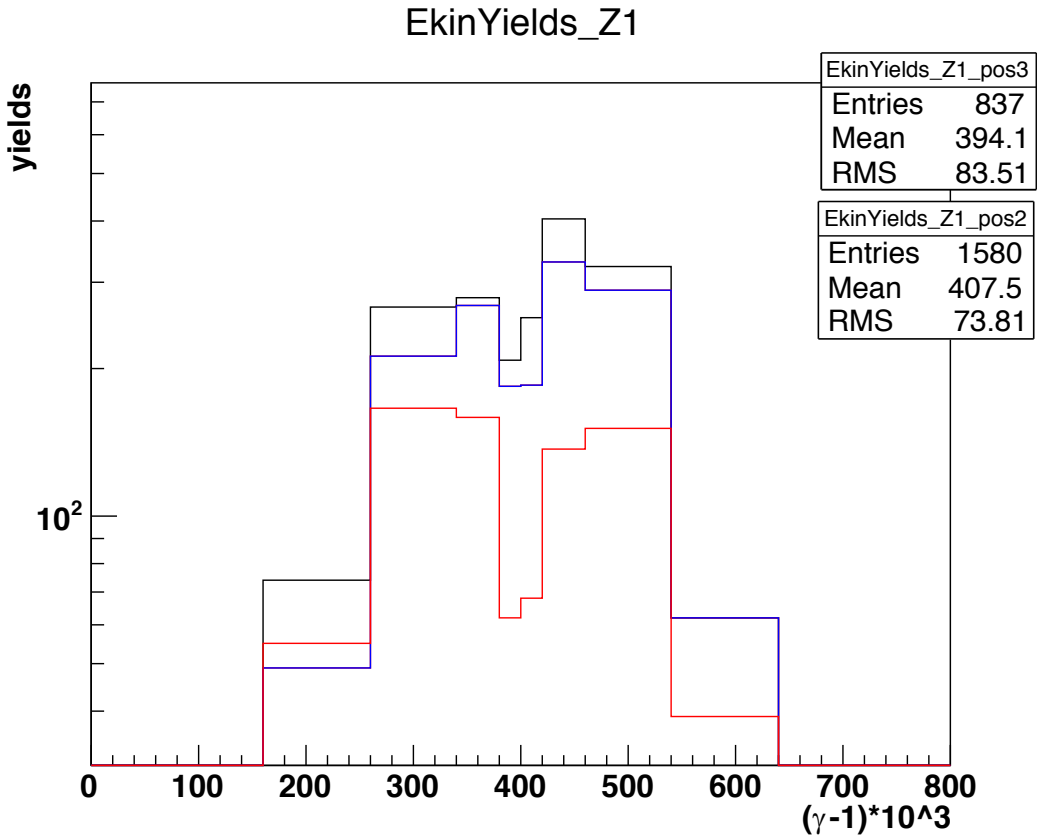
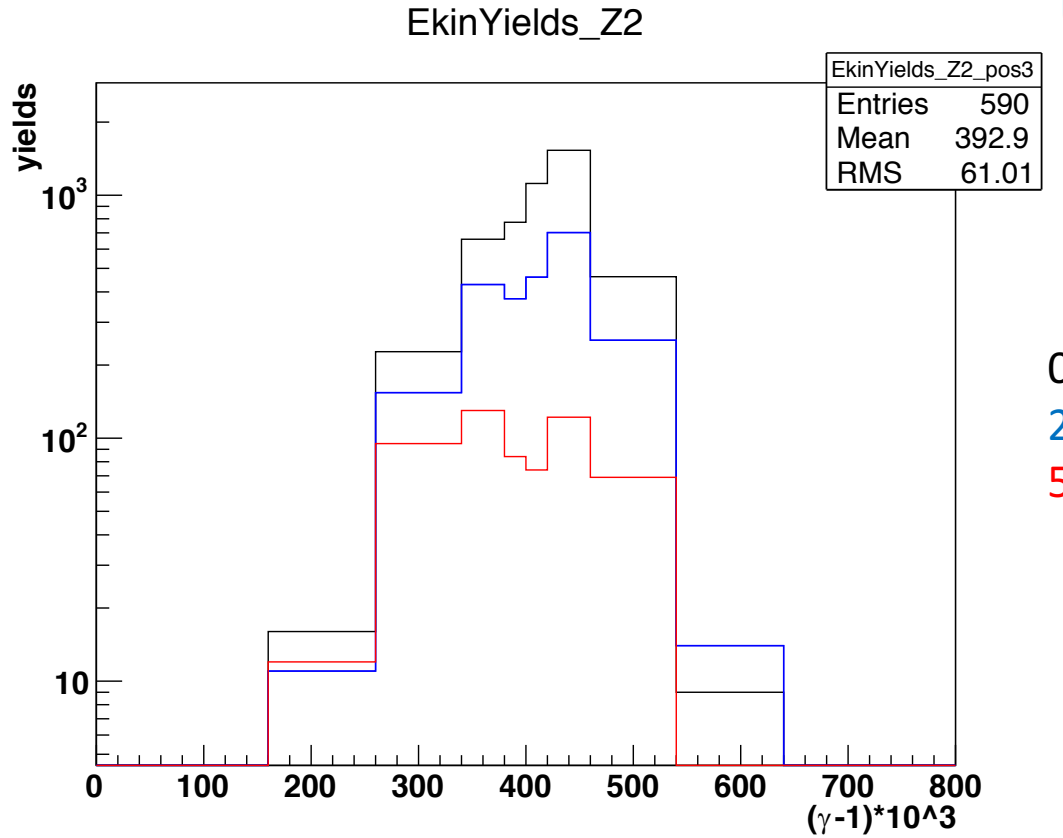
Angular distributions – full TW acceptance





Ekin distributions in calo acceptance





0 deg
2.5 deg
5 deg

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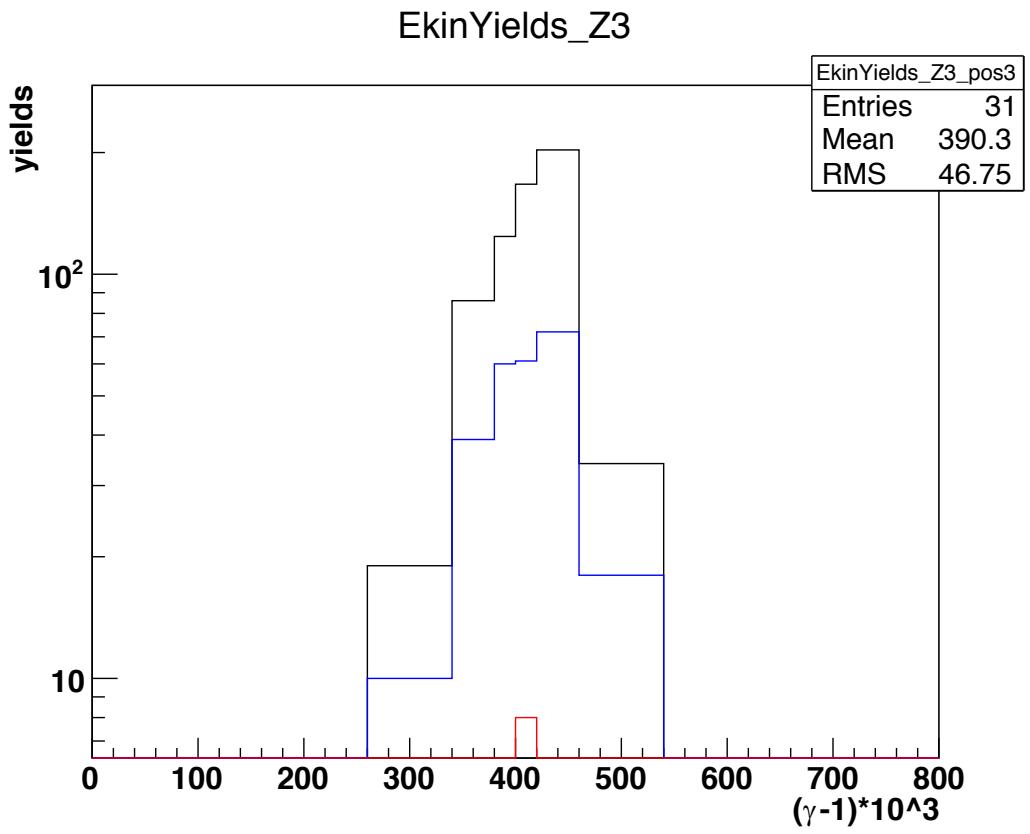
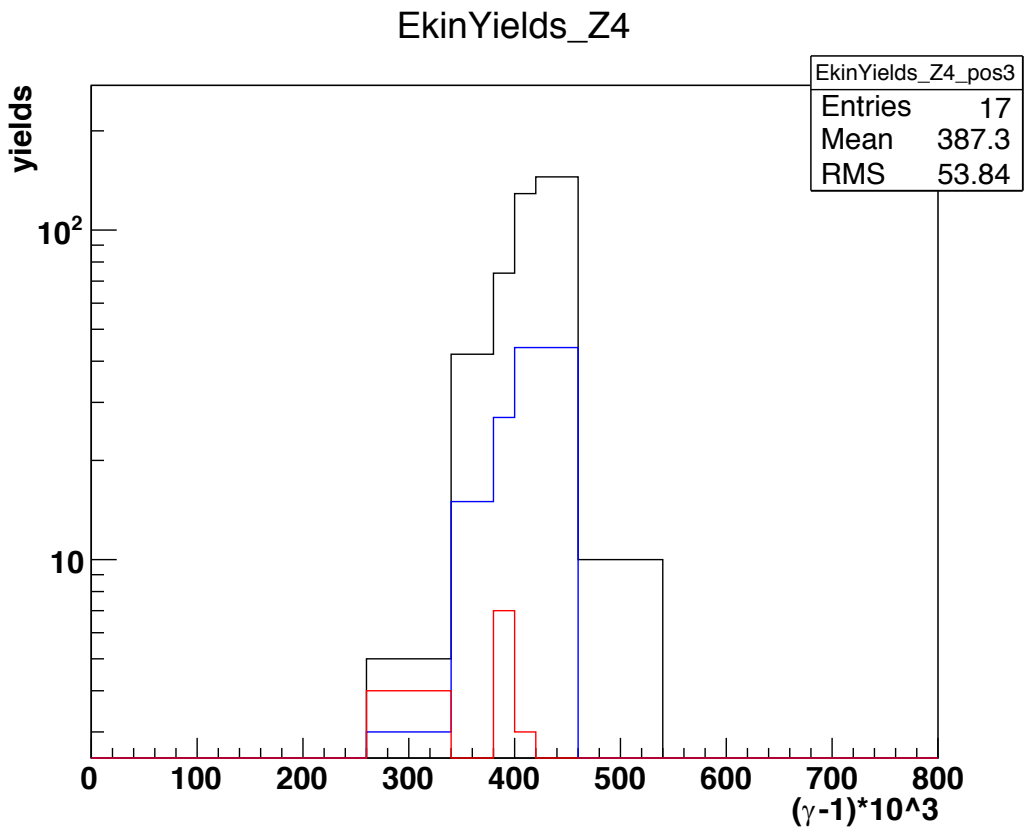
Double_t ebins[nEbins] = {0.,160.,260.,340.,380.,400.,420.,460.,540.,640.,800.};
```

Ekin distributions in calo acceptance





0 deg
2.5 deg
5 deg

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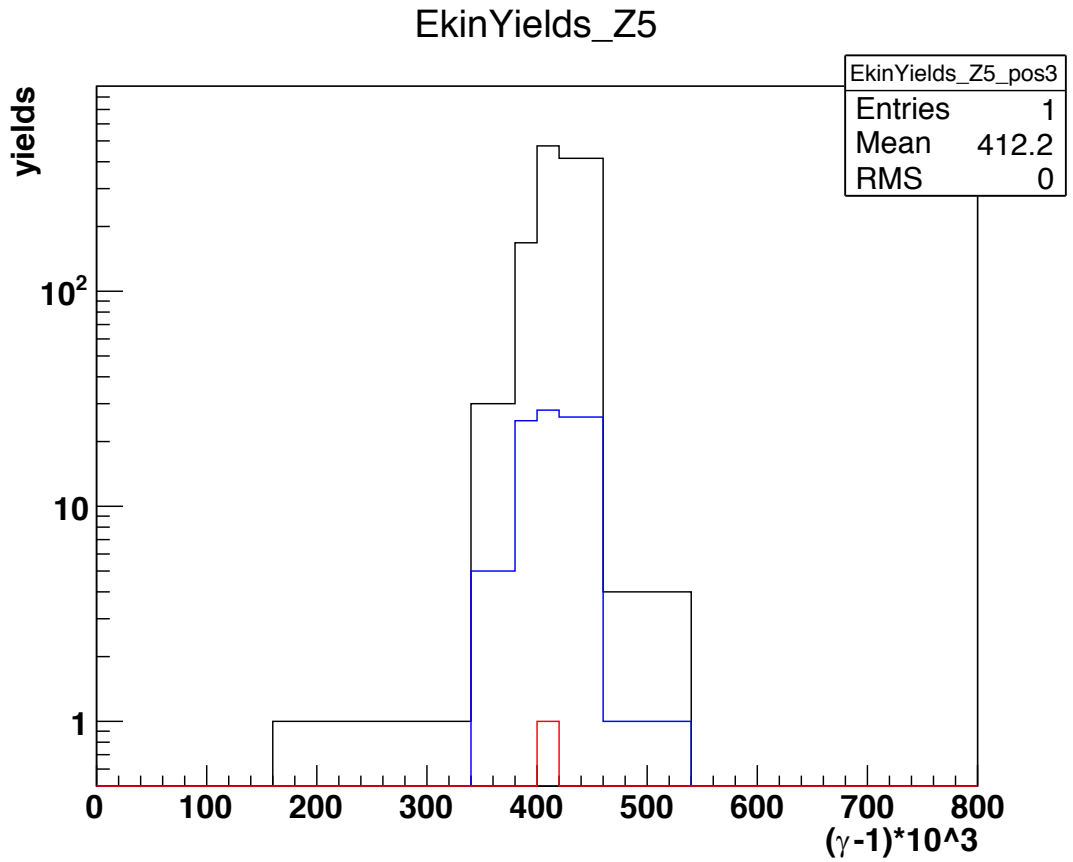

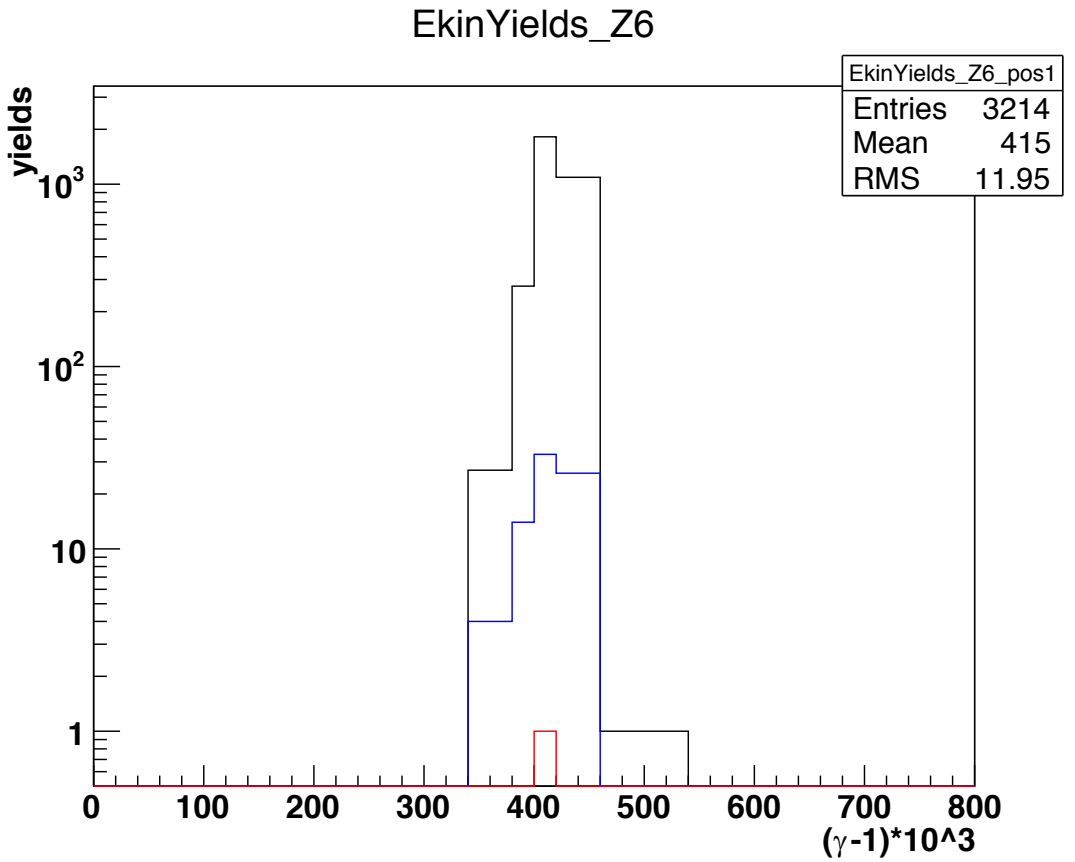

0 deg
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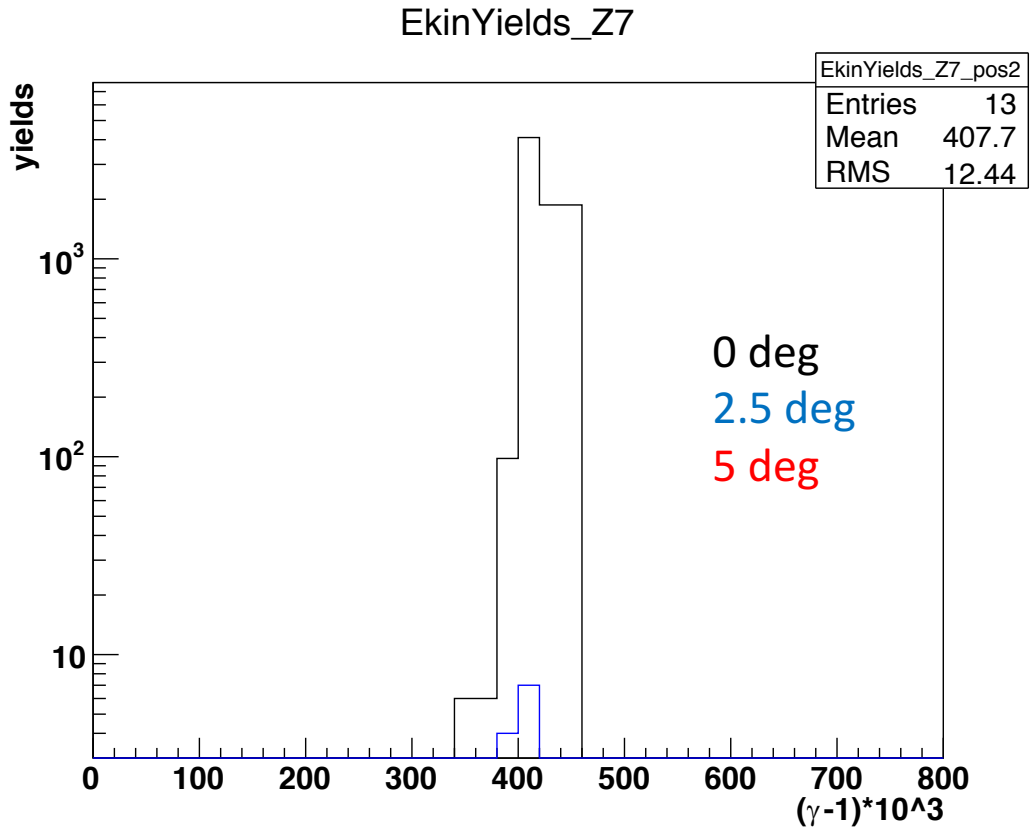

Available data @ GSI

- **^{16}O beam @ 400 MeV/nucleon on a 5 mm Carbon TG**
- Available detectors: SC + BM + (VTX) + TW

Run	Type	Target	Events
2210	calibration	no	20463
2211	calibration	no	62782
2212	calibration	no	116349
2242	calibration	no	202728
2239	physics	C	20821
2240	physics	C	20004
2241	physics	C	20041
2251	physics	C	6863

- **Very low statistics and no detectors for mass identification -> only the measurement of elemental (charge-changing) cross section integrated in angular and kinetic energy interval is feasible**

Spare slides

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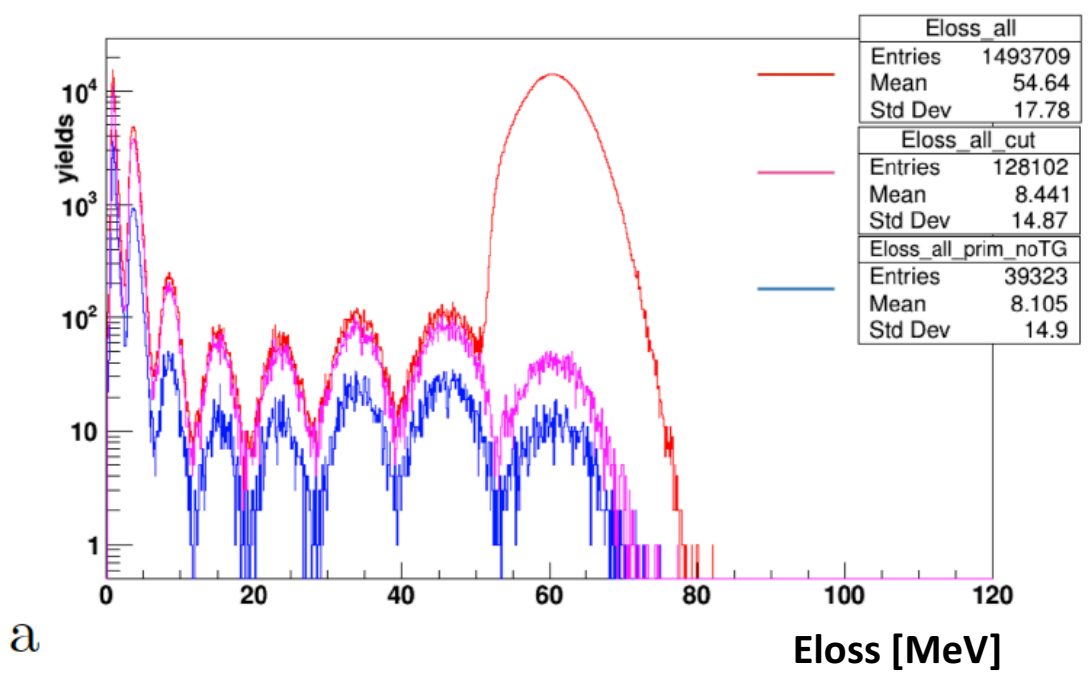
Background subtraction



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