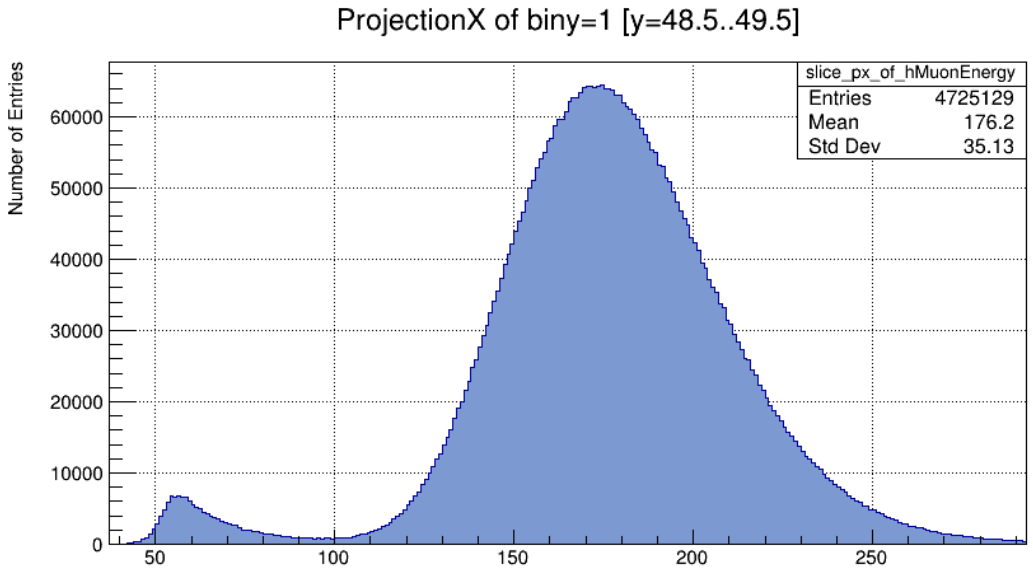
KU LEUVEN

Update muX meeting 26/01

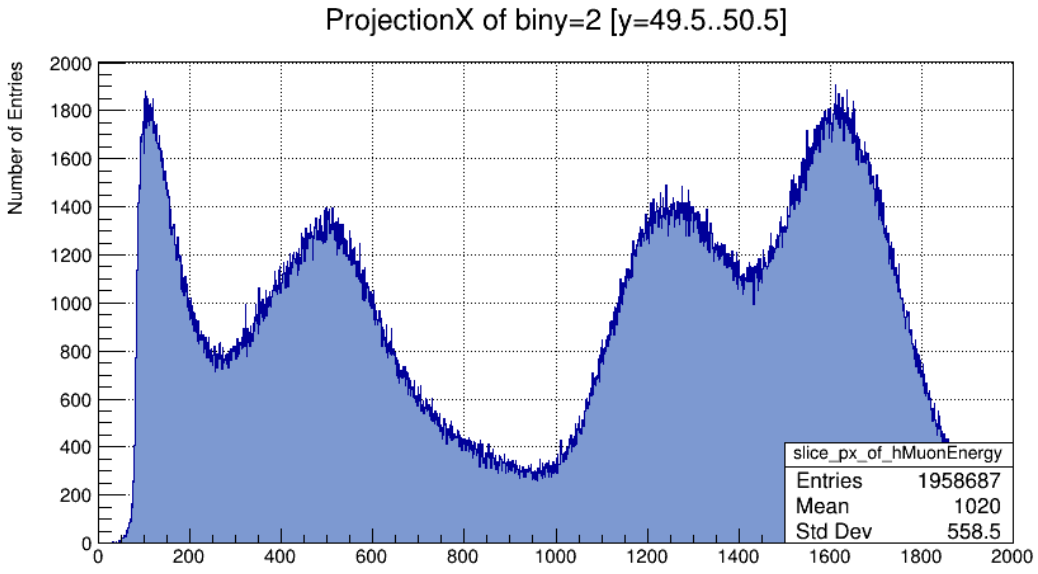
Michael Heines

Thresholds for scintillators

- Muon entrance: 110

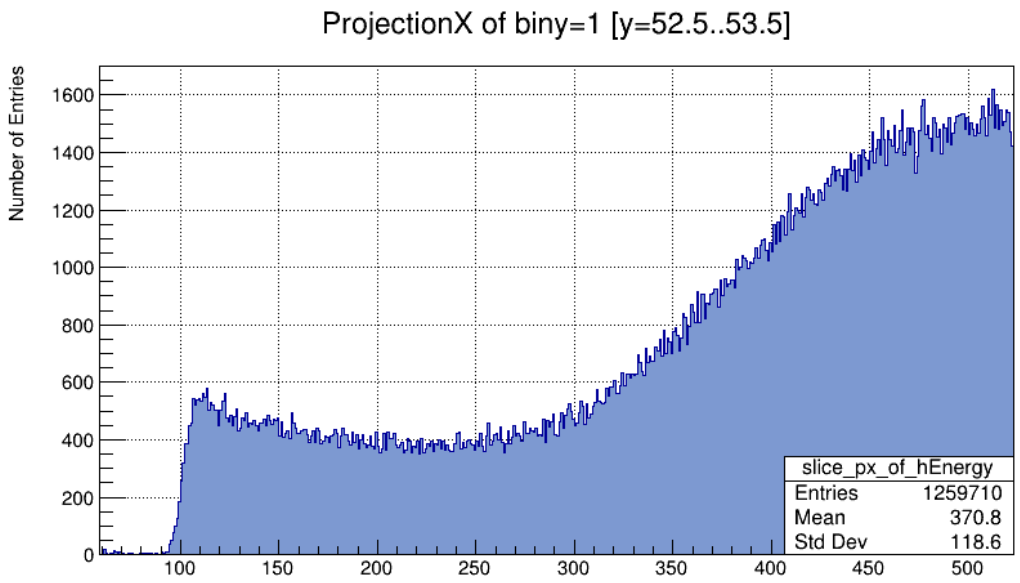


- Muon veto: ?

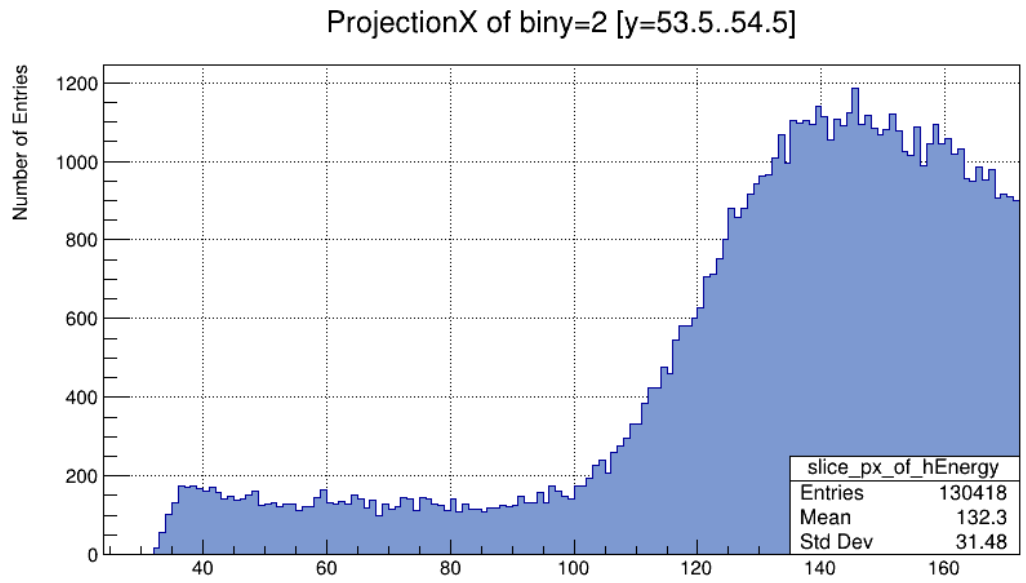


Thresholds for scintillators

- VetoBack: 320

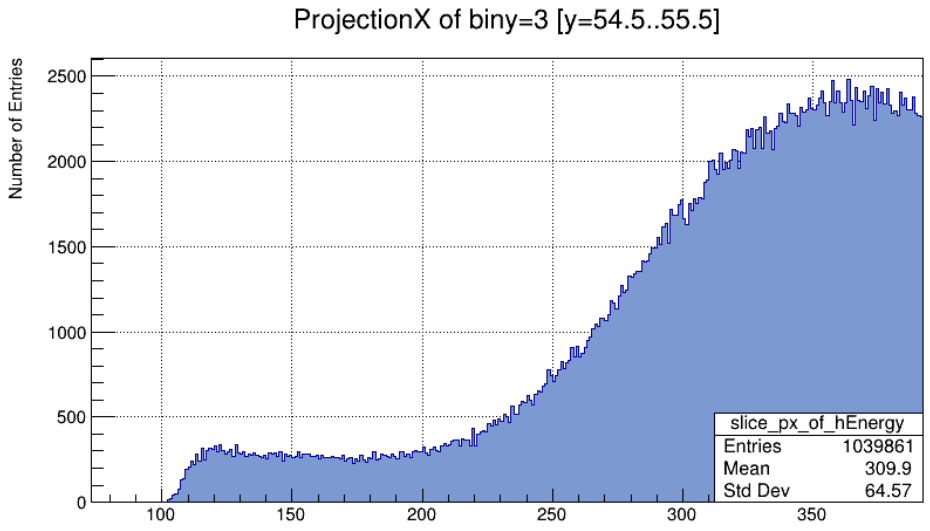


- VetoBottom: 110

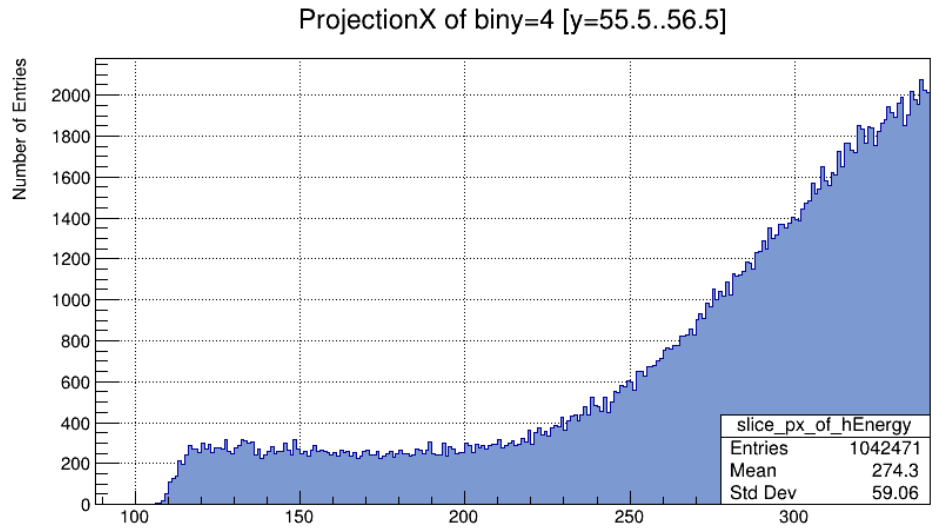


Thresholds for scintillators

- VetoLeft: 210

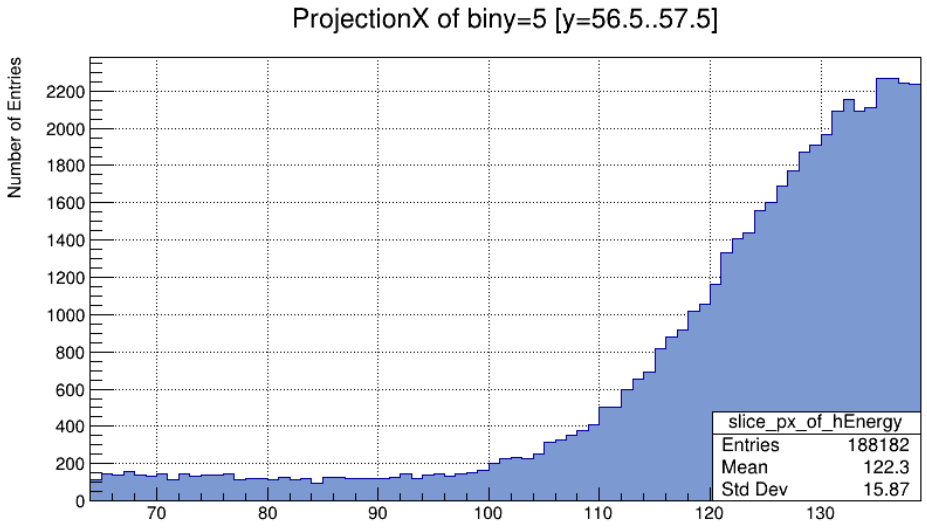


- VetoRight: 230



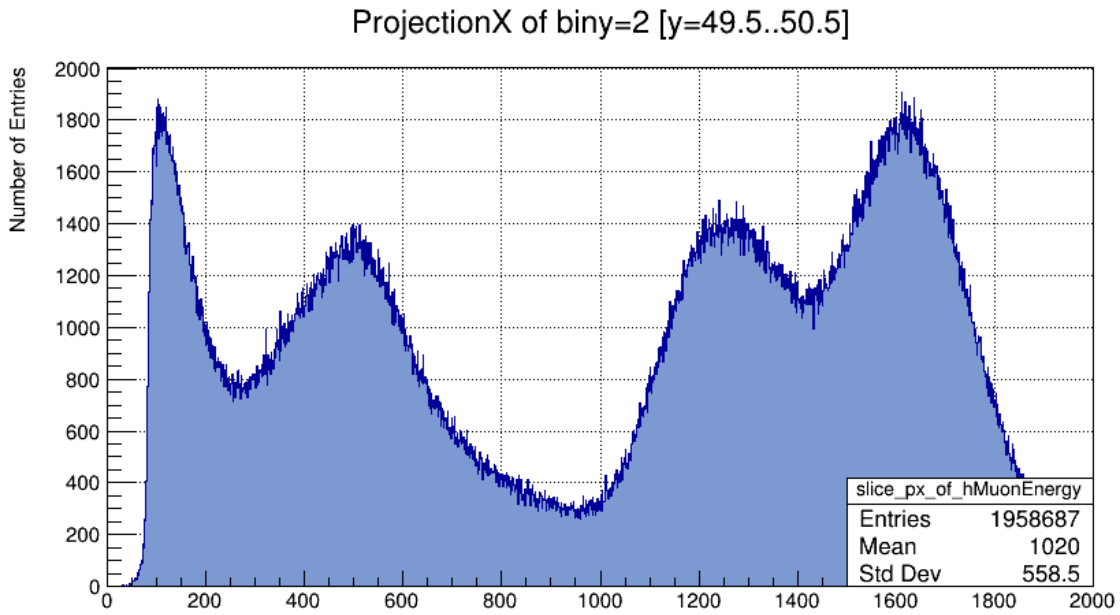
Thresholds for scintillators

- VetoTop: 100



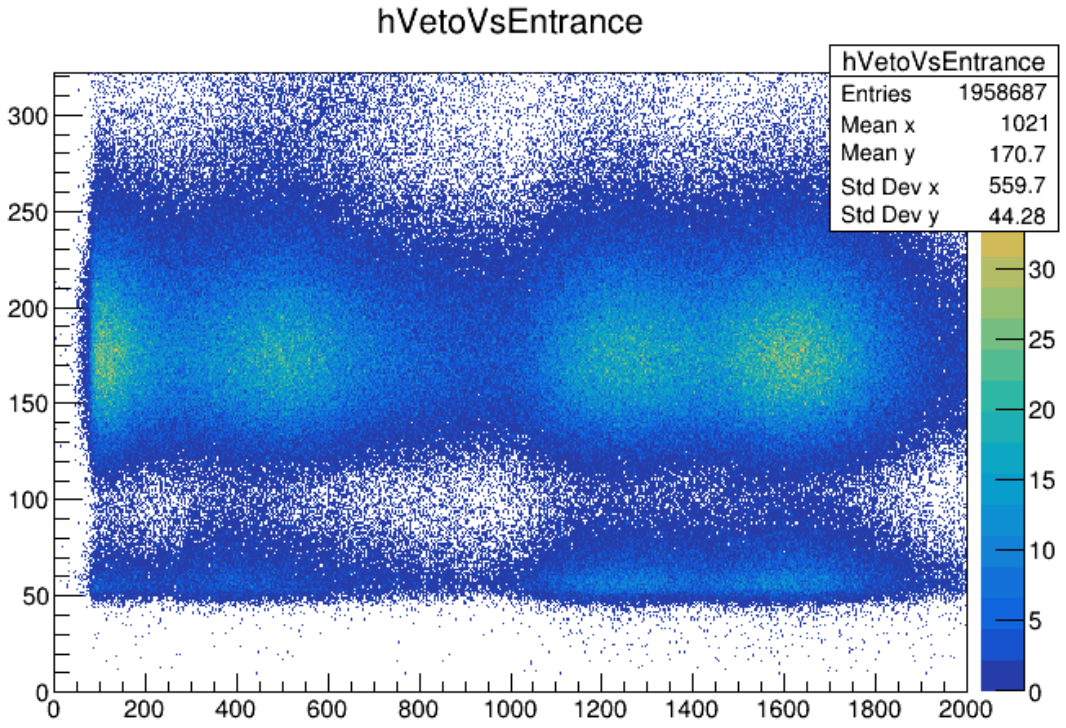
Understanding the muon veto

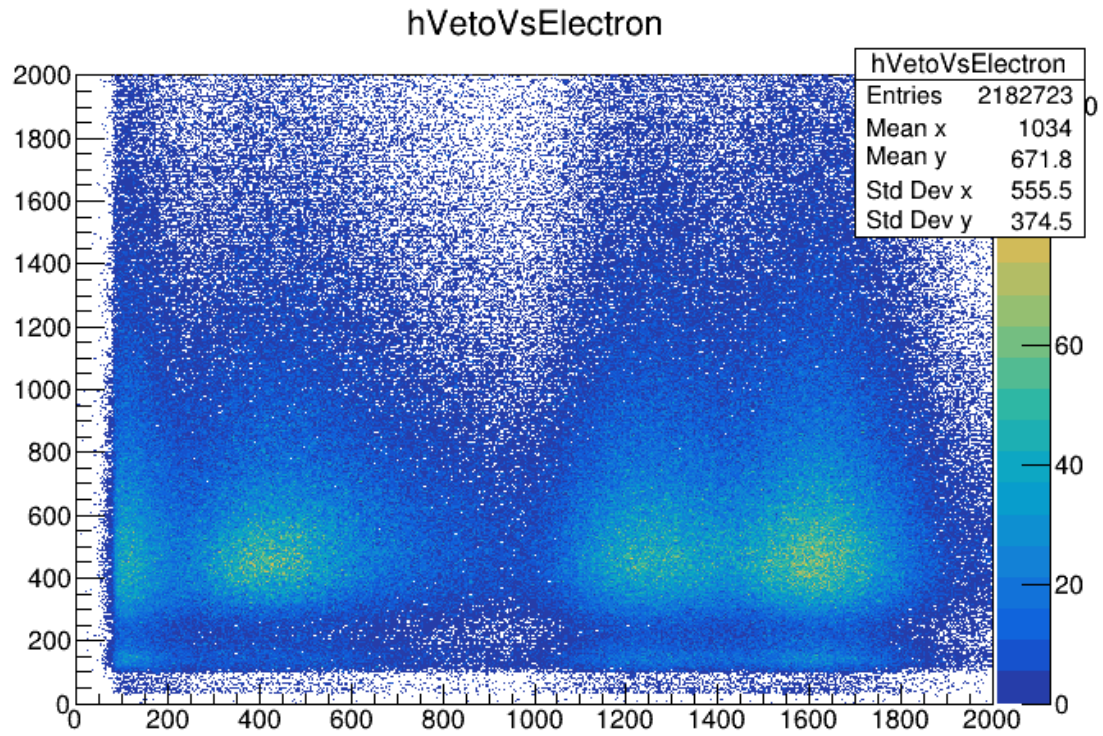
- Is the first peak noise?
- What contributions are in the spectrum?
- Correlation between muon veto and muon entrance/electron veto



Muon veto energy correlation

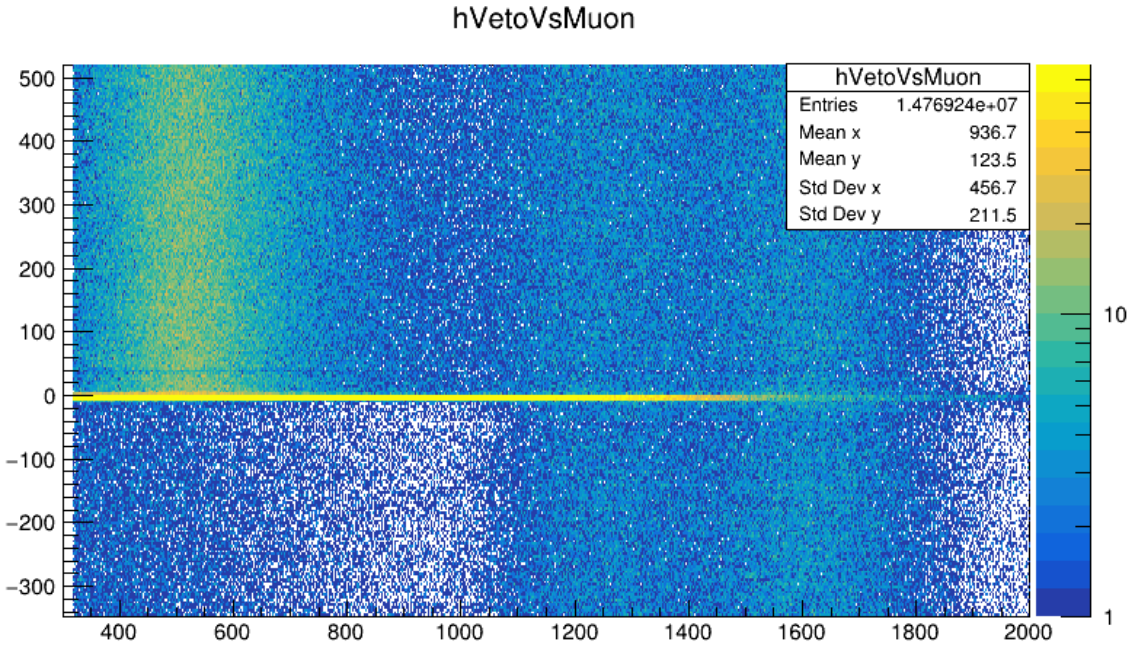
Same muon event → No clear correlation

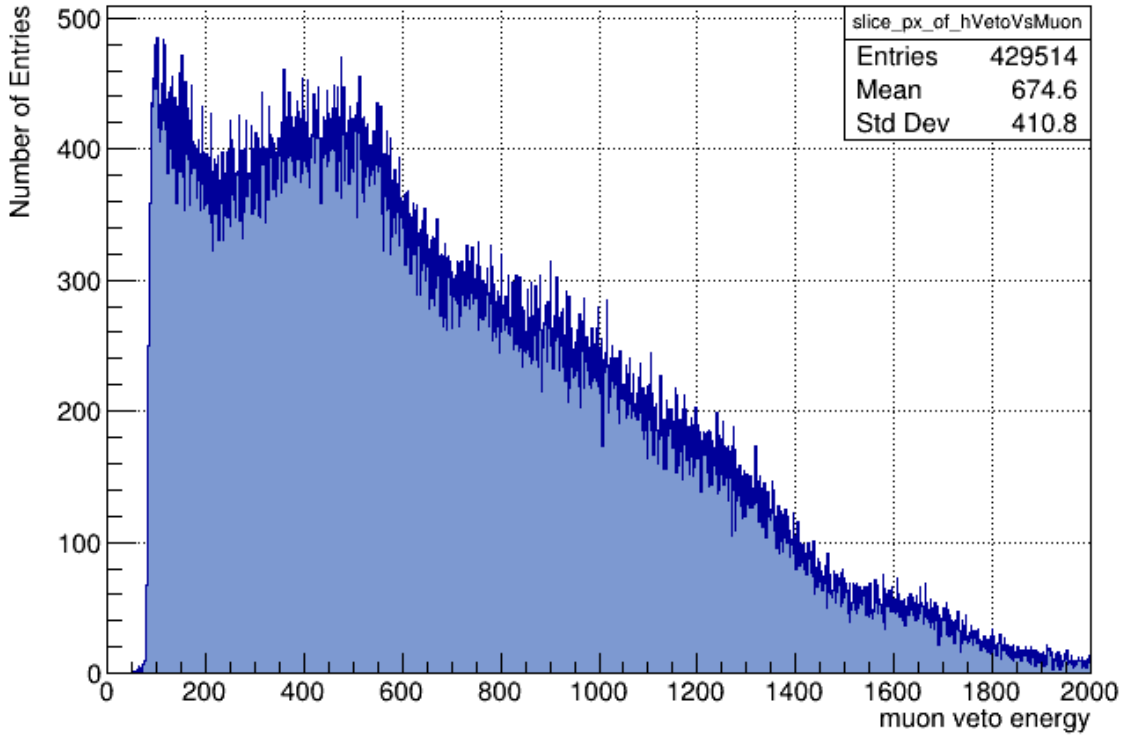




Muon veto time correlation – muon entrance

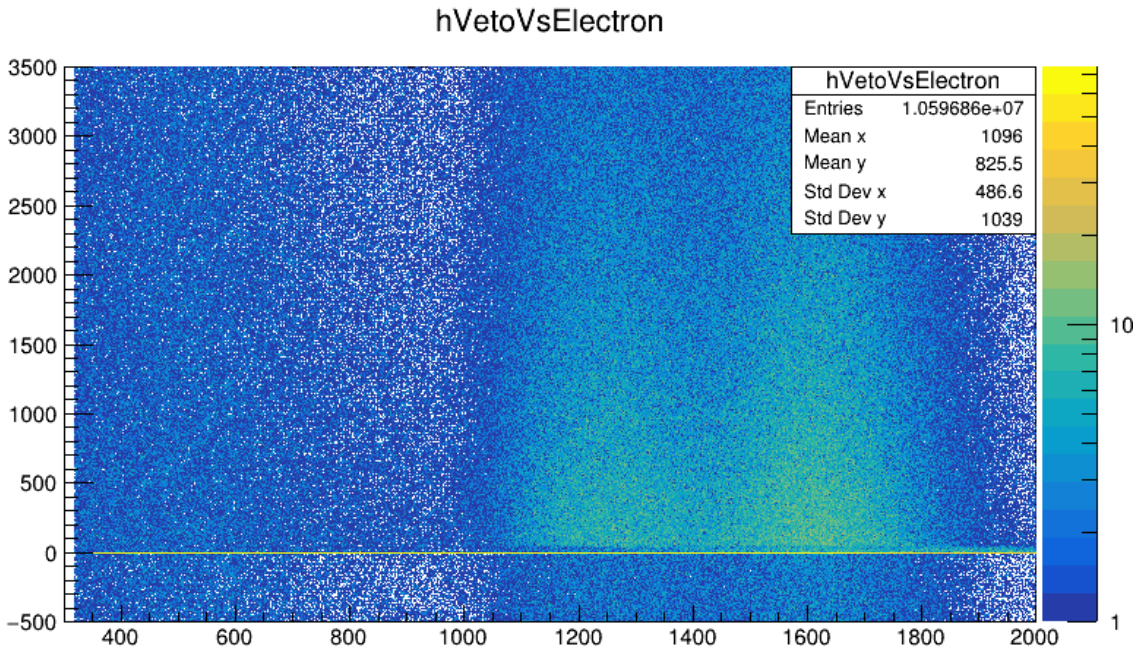
tVeto – tEntrance → Stuff in veto after entrance muon (Michel electrons?)

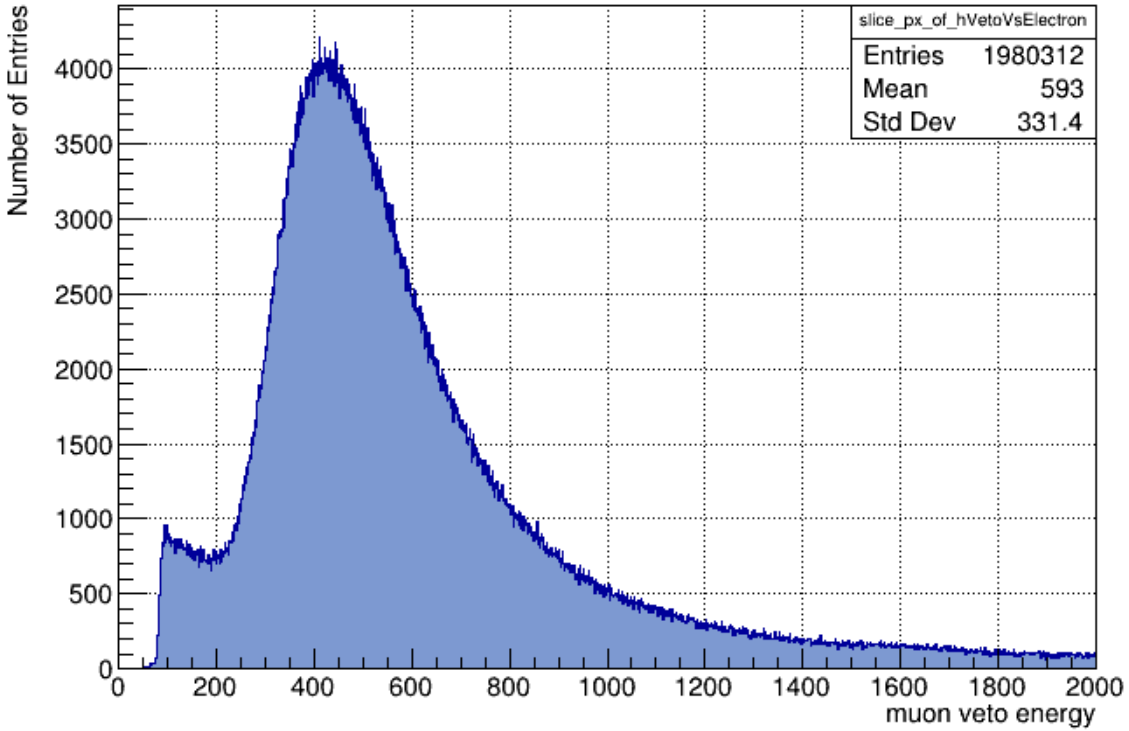




Muon veto time correlation – electron veto

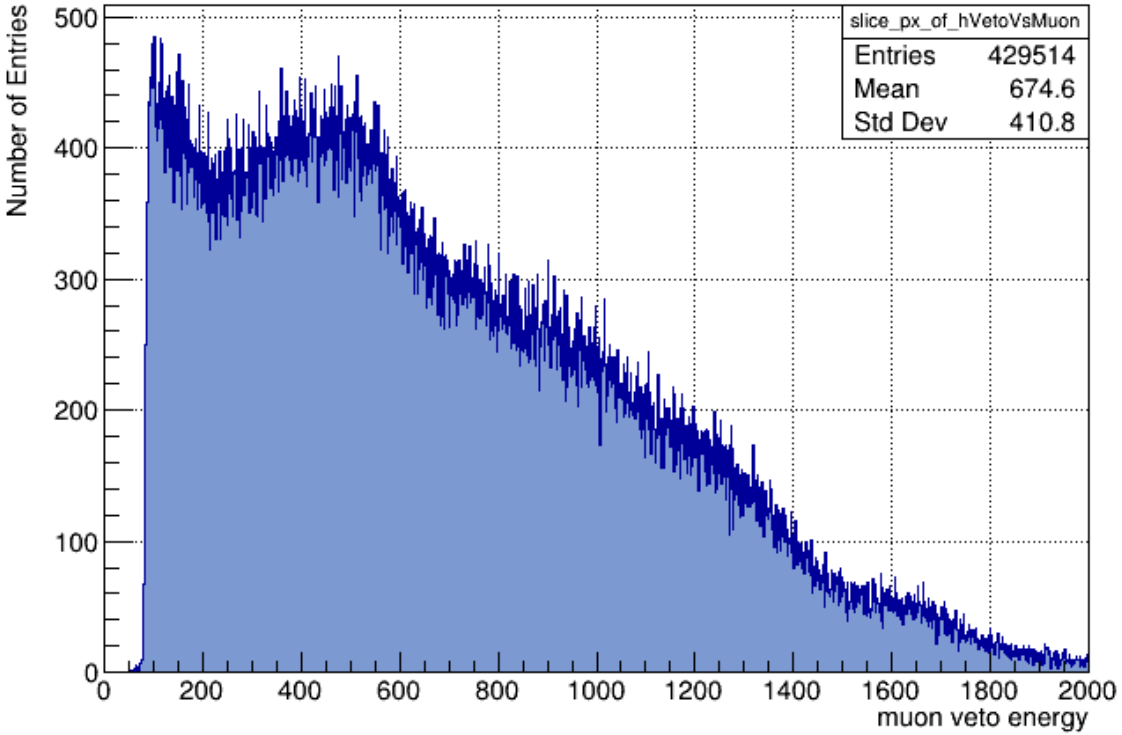
tElectron – tVeto → count in veto before electron veto (muons?)

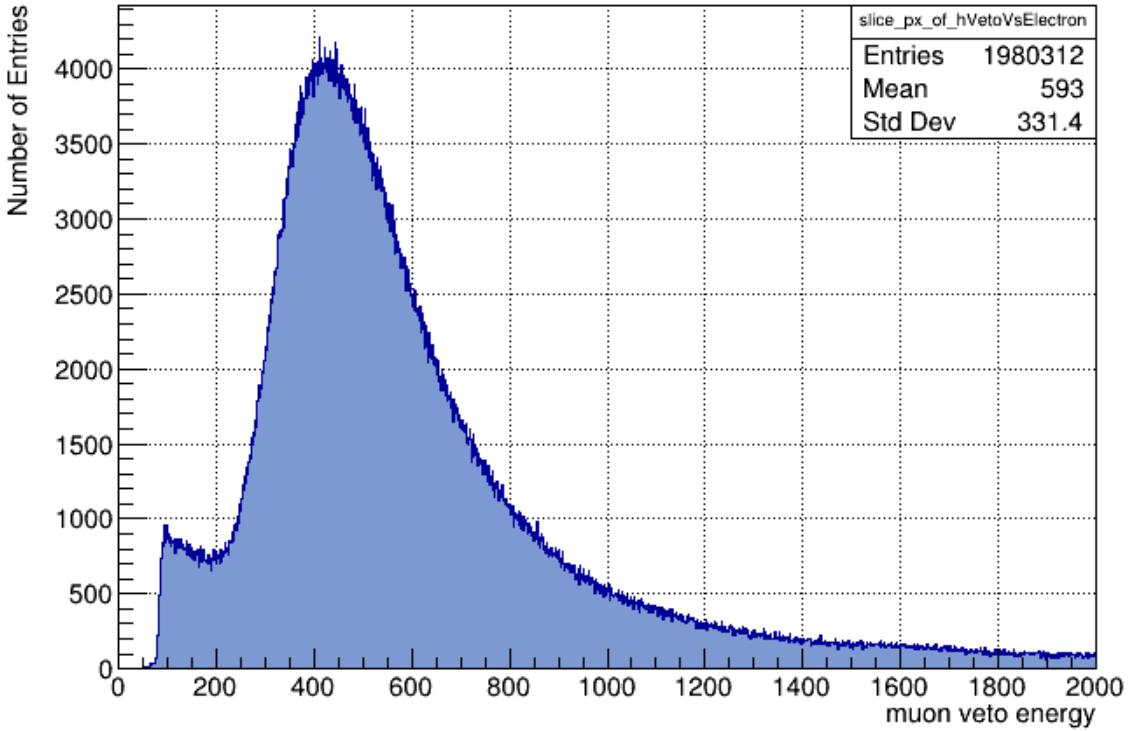




Threshold for muon veto?

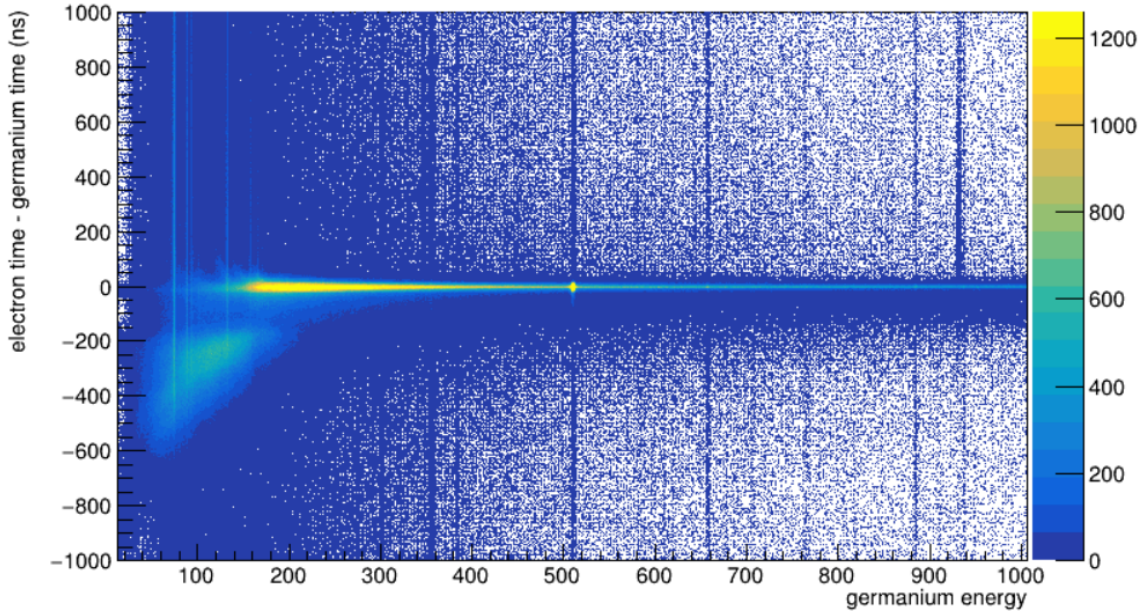
- 200?

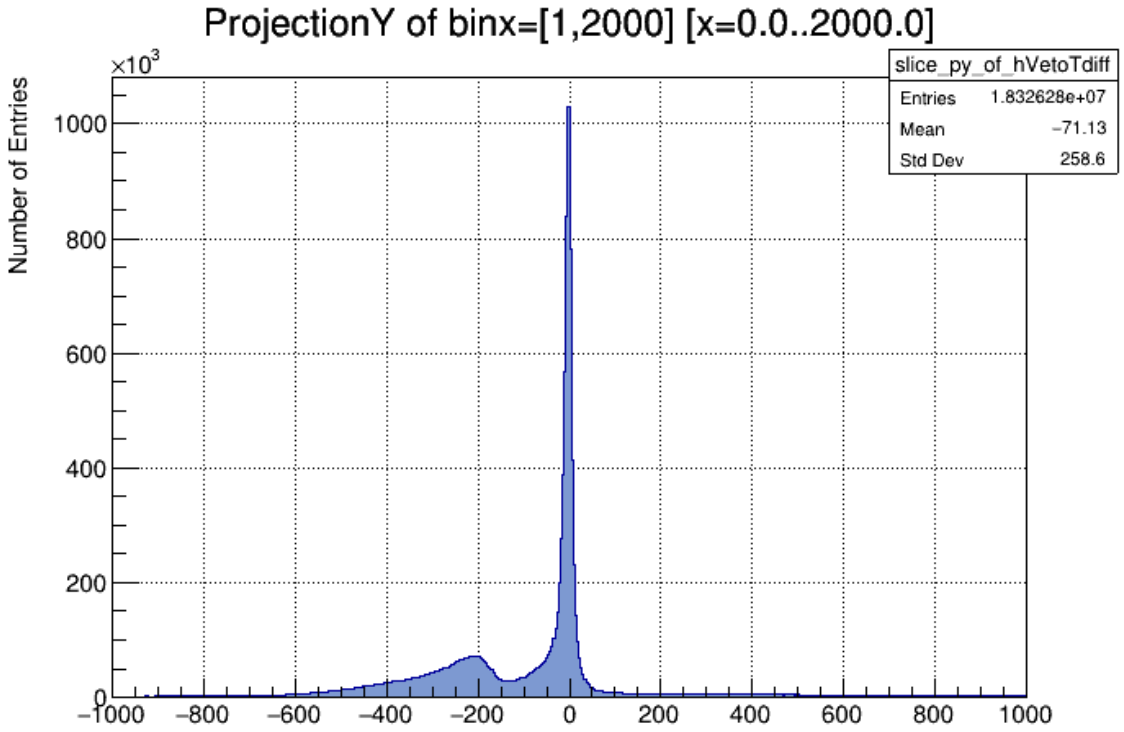




Electron veto timing

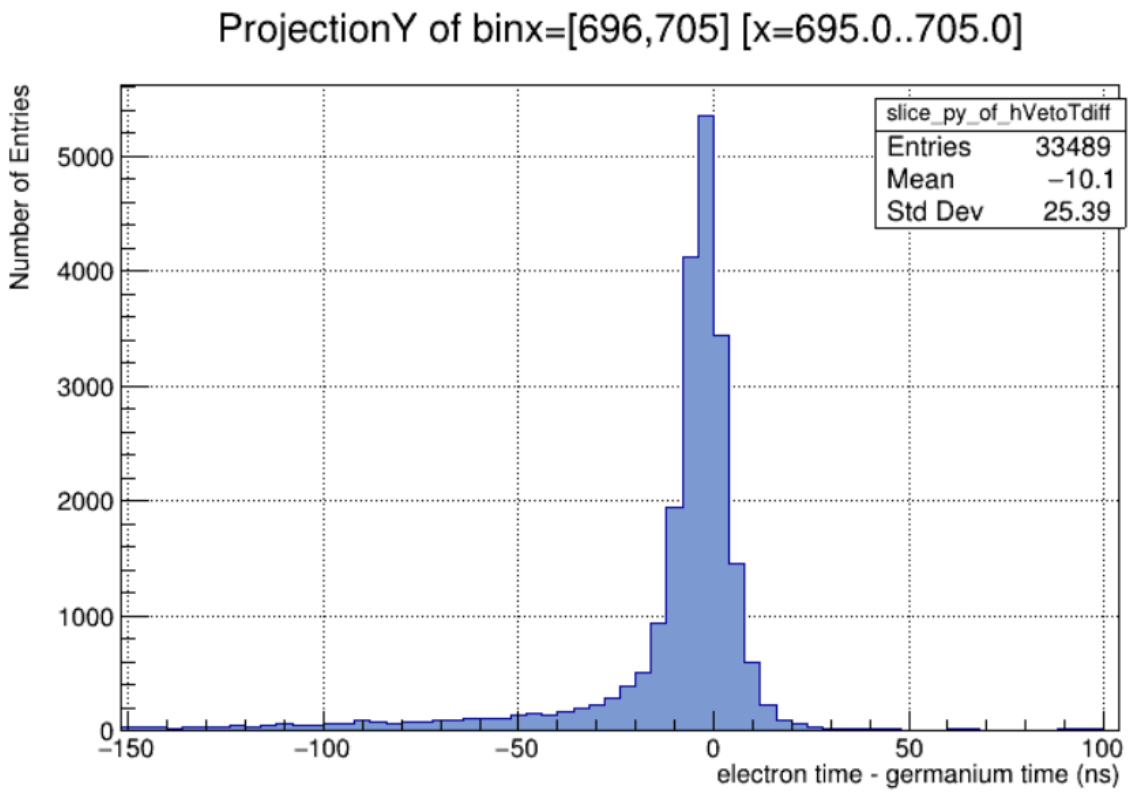
tVeto - tGermanium





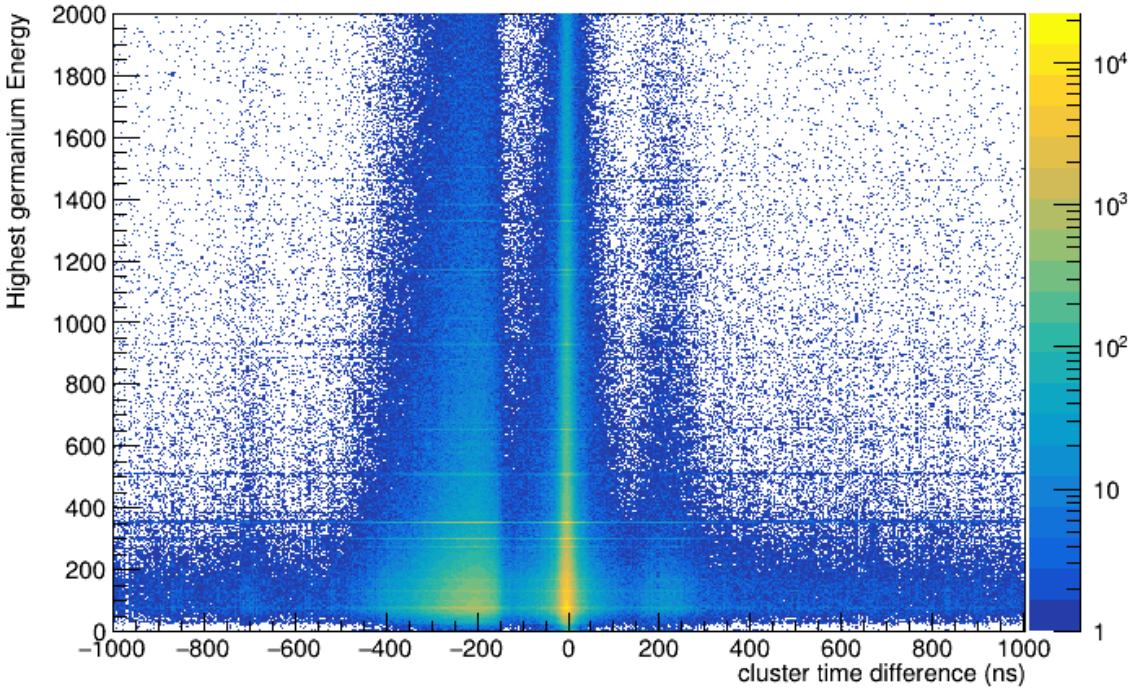
Electron veto timing

- Take cut around 700 keV (near potassium 2p-1s)
- Tail at negative time doesn't seem to come from germanium (not present at 511 keV)
- Window [-50 ns; +20 ns]?

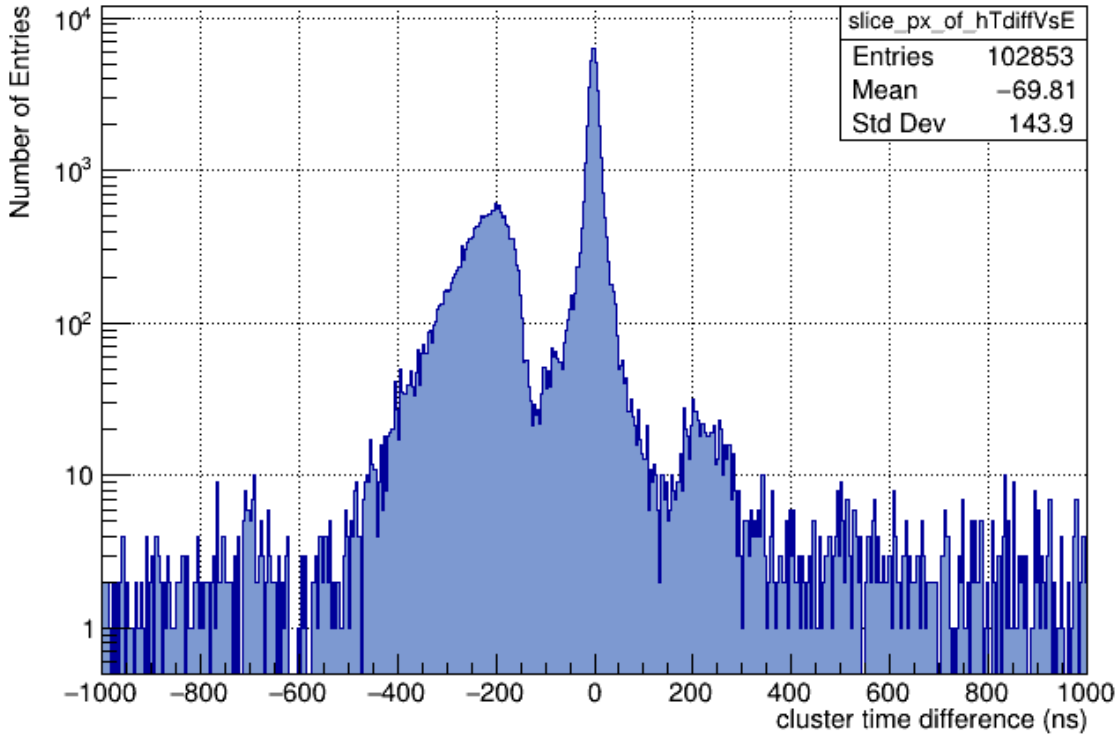


Compton suppression with cluster detectors

Ge06



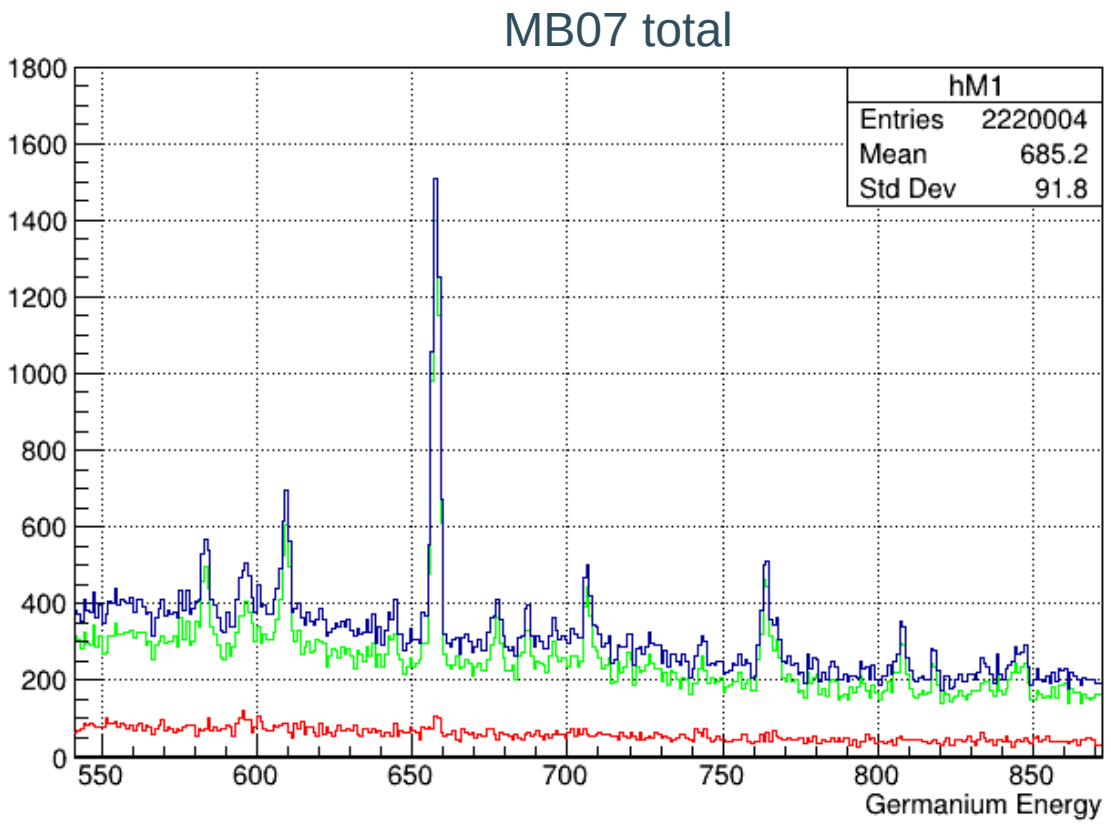
[-400 ns; 300 ns]?



Compton suppression with cluster detectors

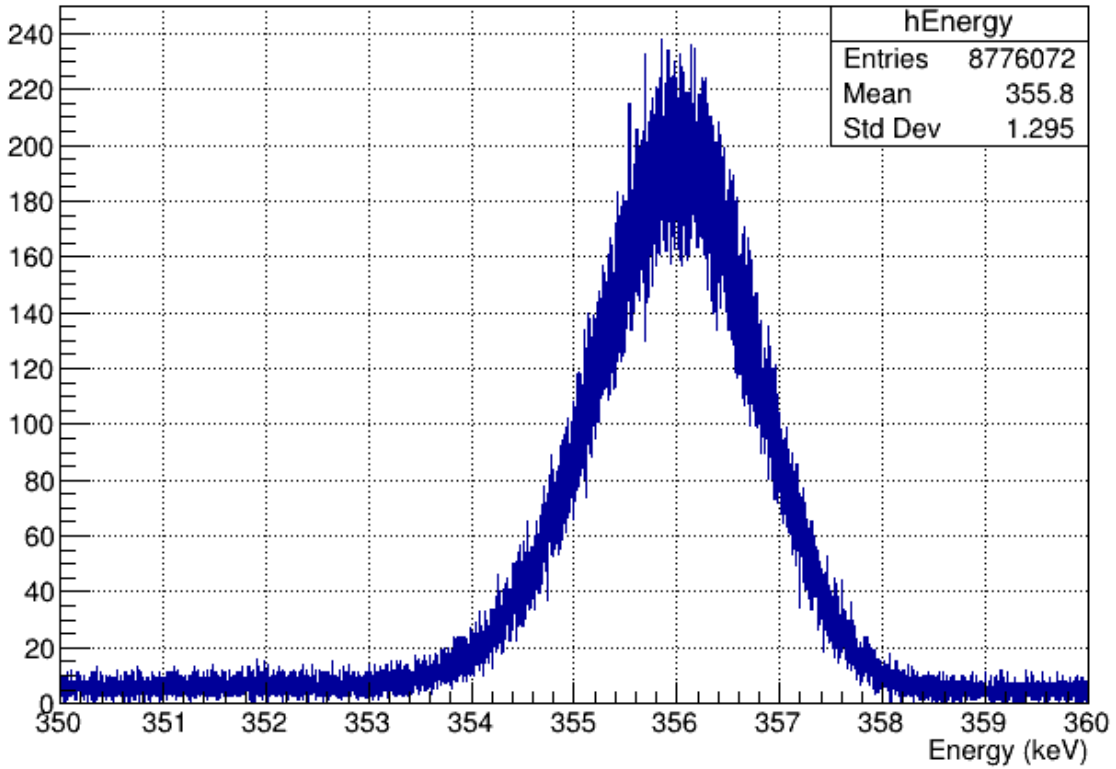
- Taking 300 ns window
  - Blue = singles
  - Red = multiplicity > 1
  - Green = multiplicity = 1

- Reduction of Compton at 700 keV:
  - Ge06 clover: 28%
  - MB07: 21%

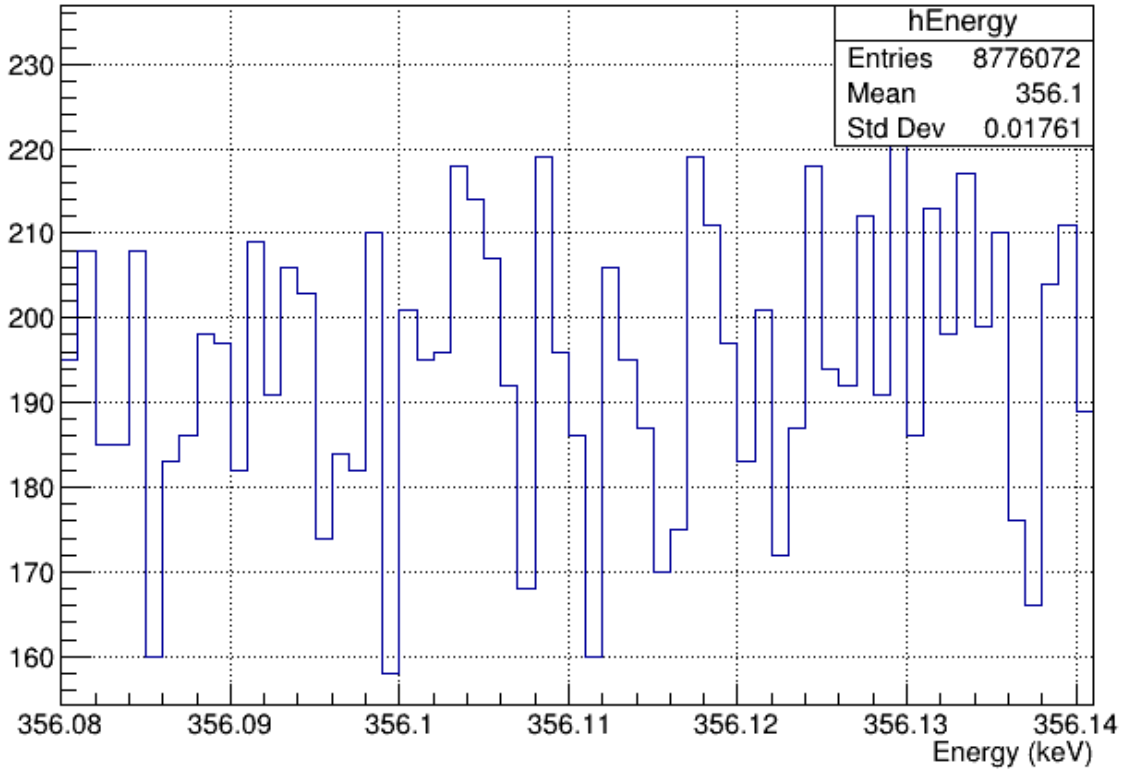


Pushing to finite binning limit – 1 bin per eV

Trapezoid filter is doing wonders

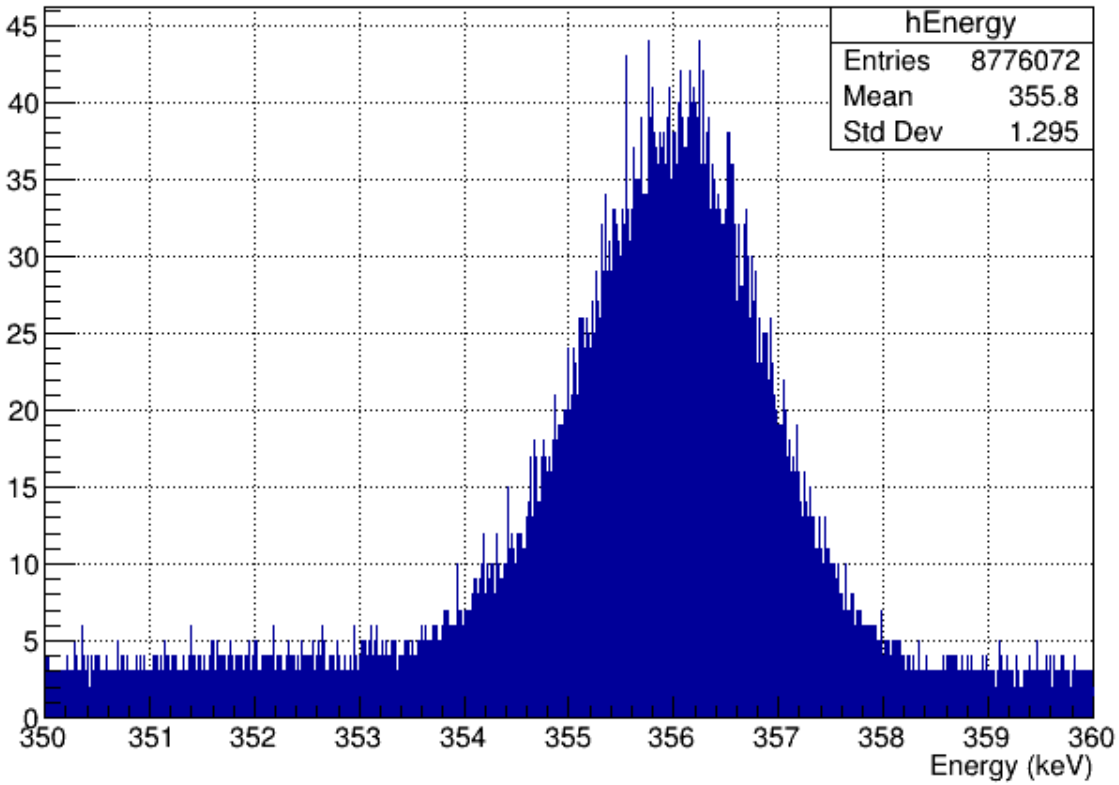


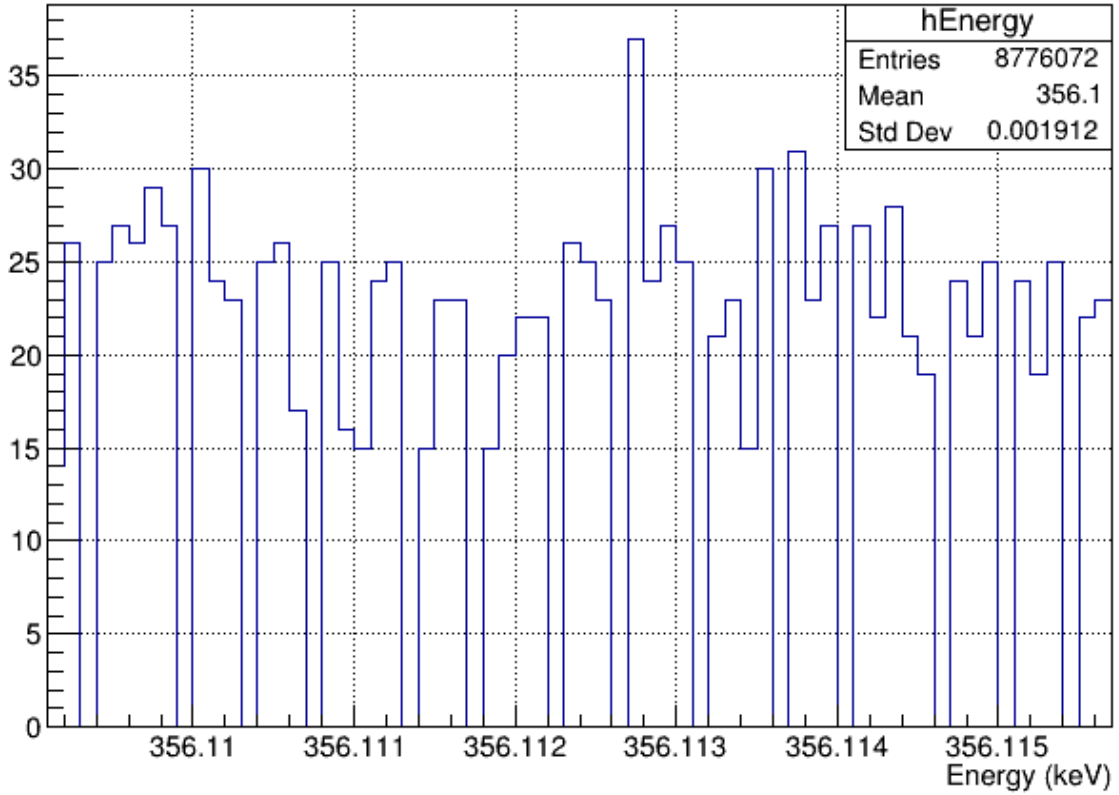
No finite binning effect



Pushing to finite binning limit – 1 bin per 0.1 eV

Clear finite binning effect





What’s next?

- Applying cuts to data:
  - Thresholds on scintillators ok?
  - Electron veto timing ok?
  - Compton suppression idea + time window ok?
- Everyone agrees on 100 bins per keV ok?
- Recalibrate using anticoincidence trees

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