Some studies using the Gammas from Etas file 2 with preshower (923 events)

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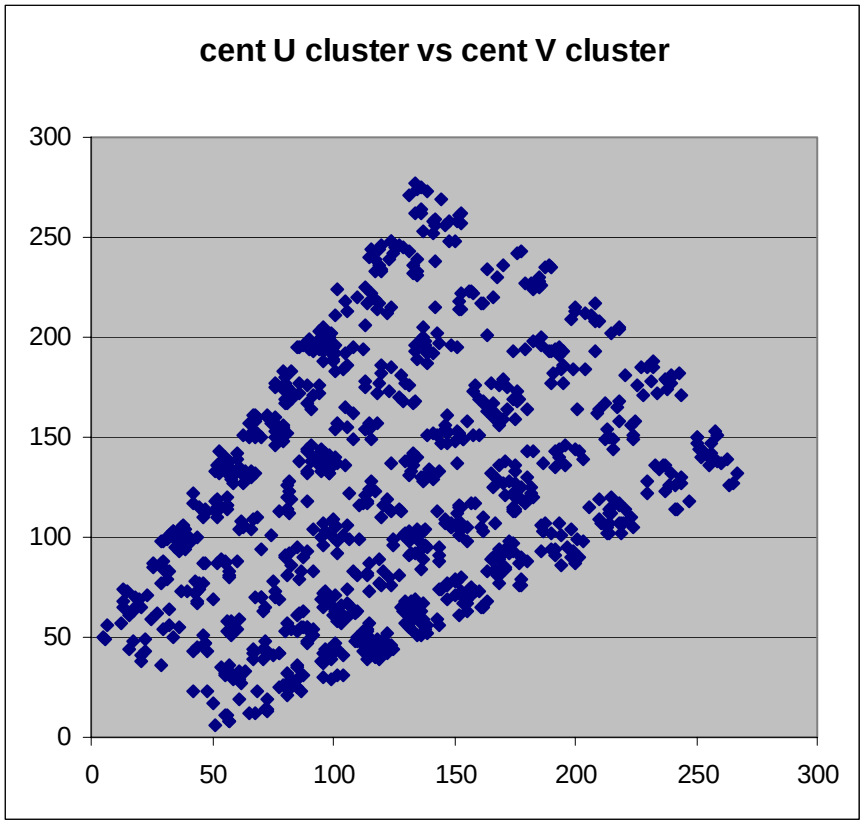
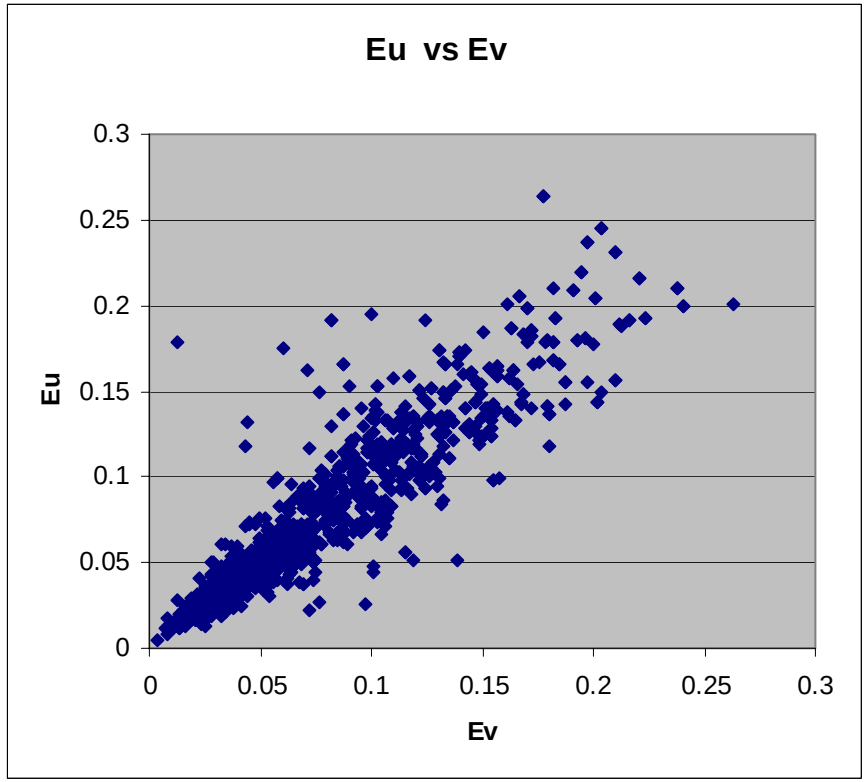
Characteristics of events:

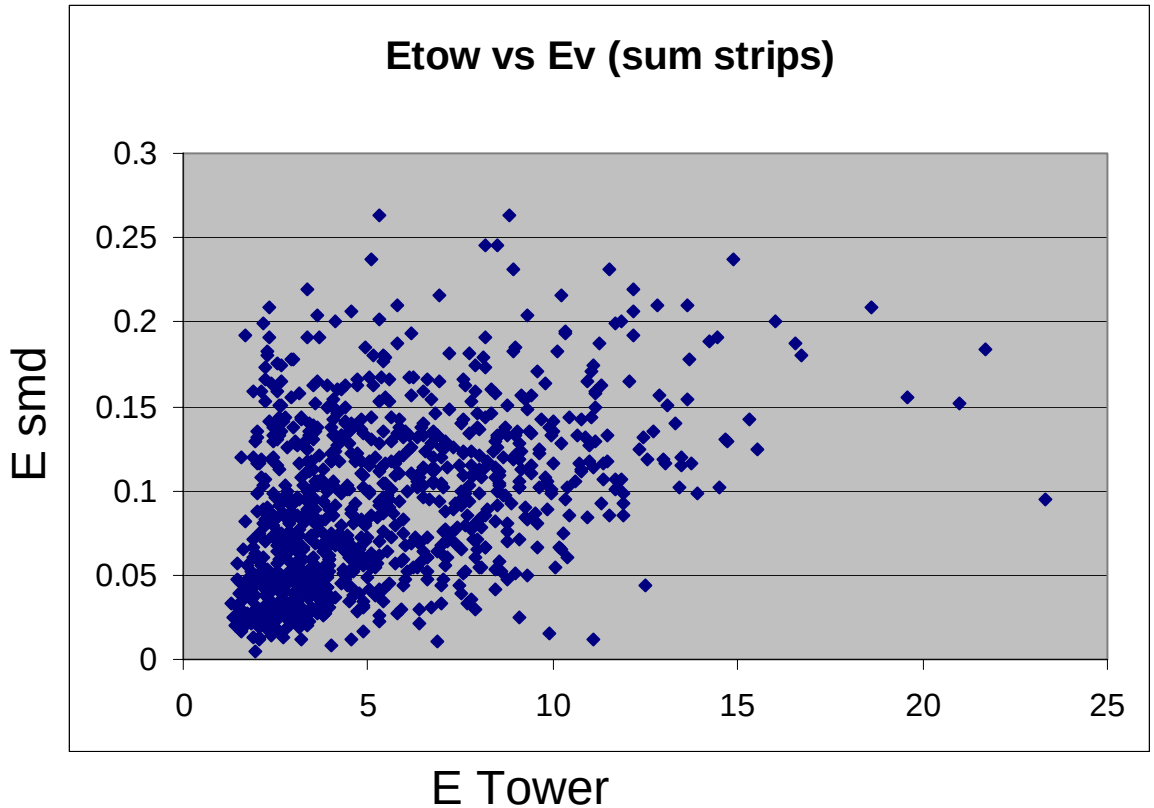
- 923 gammas from etas, only 1 gamma in each event (text file)
- Gamma energies from 4 to 25 GeV
- All in centers of towers, none on tower boundaries (by event selection)
- only 50 events in SMD sector 1, 108 in sector 4
- Width dependence:
- width in 3rd SMD layer is 15 to 20 % wider than in first layer
- center layer has intermediate width.
- no Eta dependence of width
- very small E tower dependence -
- see 3% when using SMD energy instead of tower energy
- (Eu-Ev)/(Eu+Ev) is very small independent of cuts
- Overall, not much rms dependence .on anything, until we look at preshower

Look at U vs V of SMD - position and energy

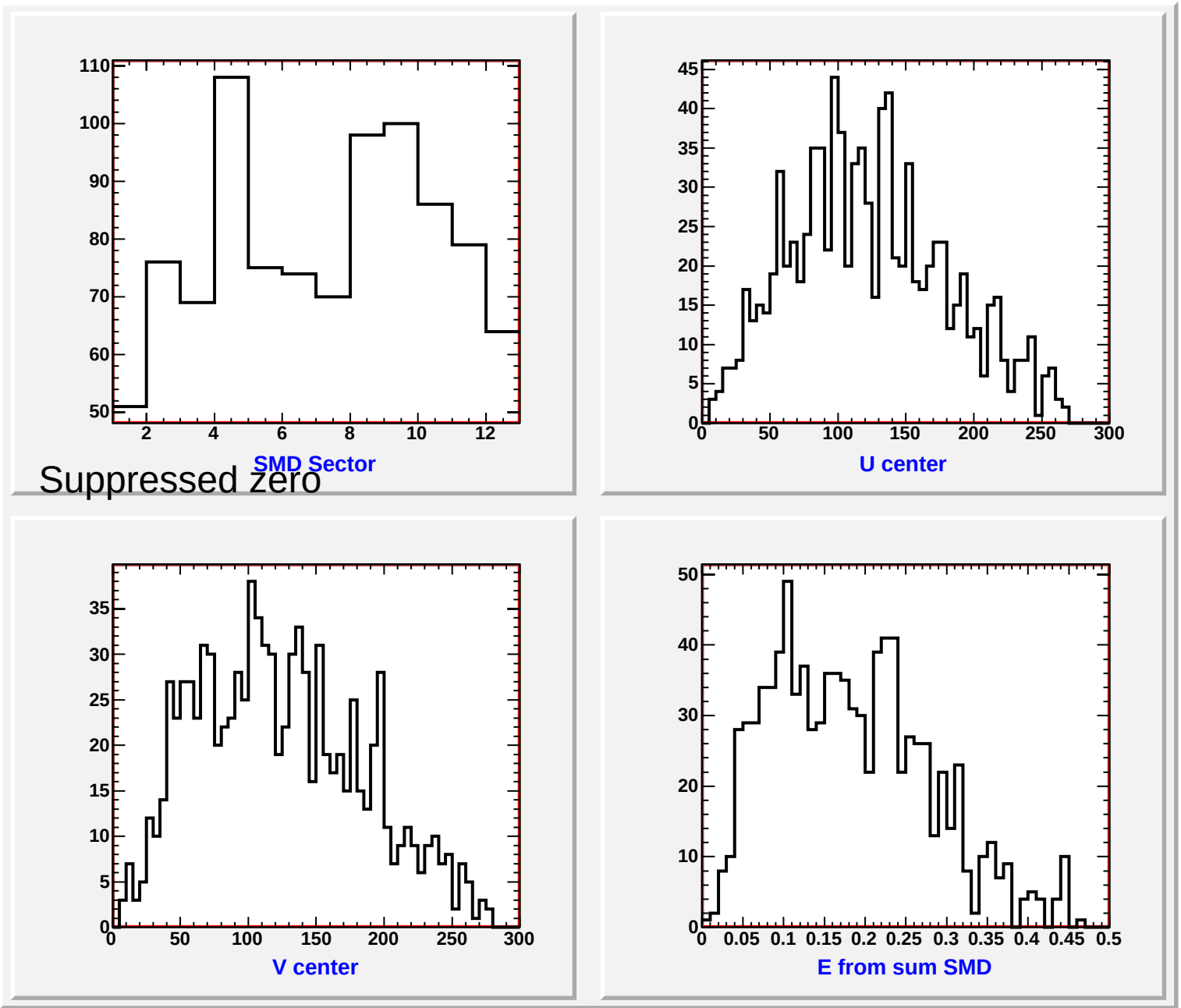




E tower does not correlate well with E from SMD strips

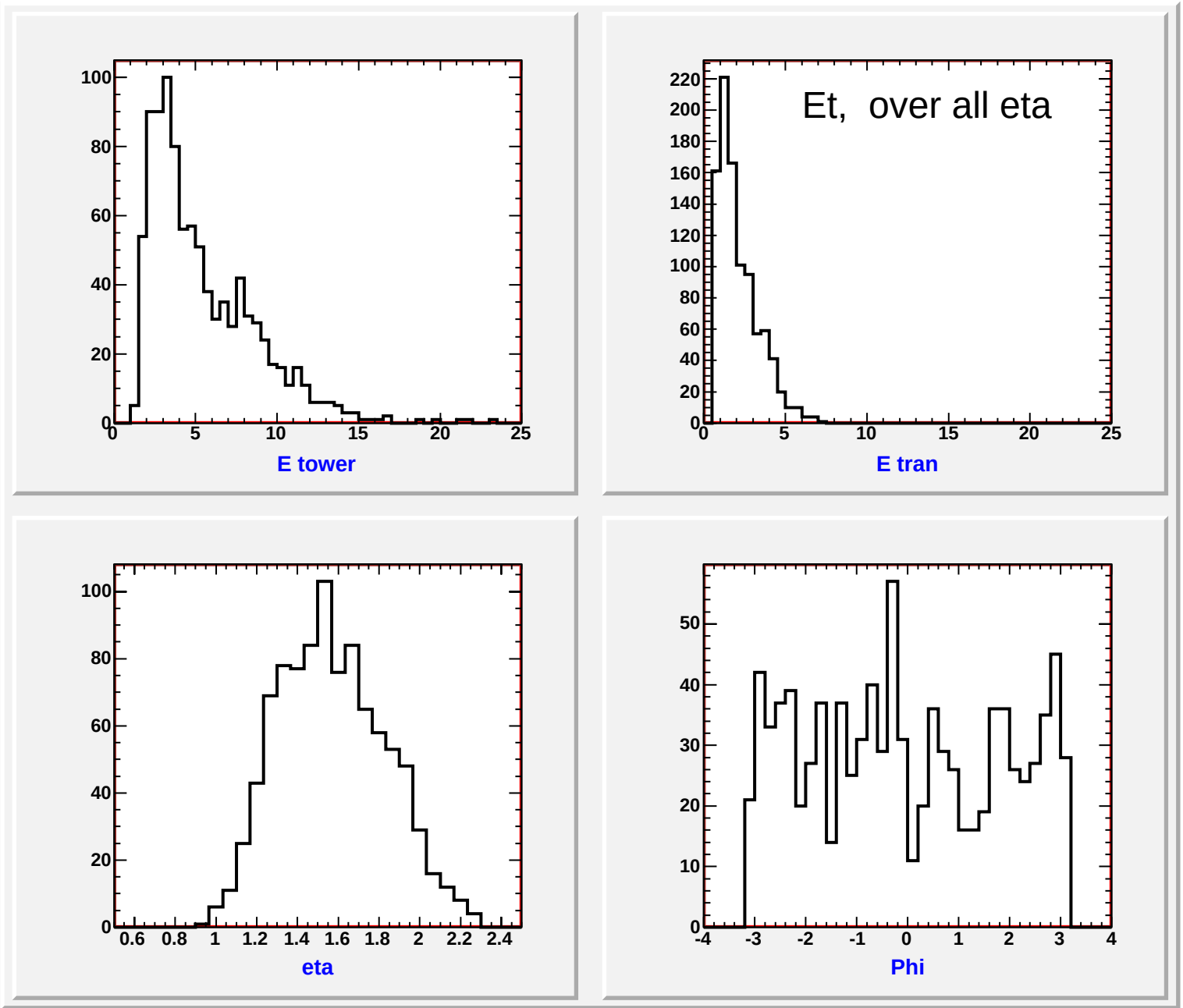


Characterize event sample

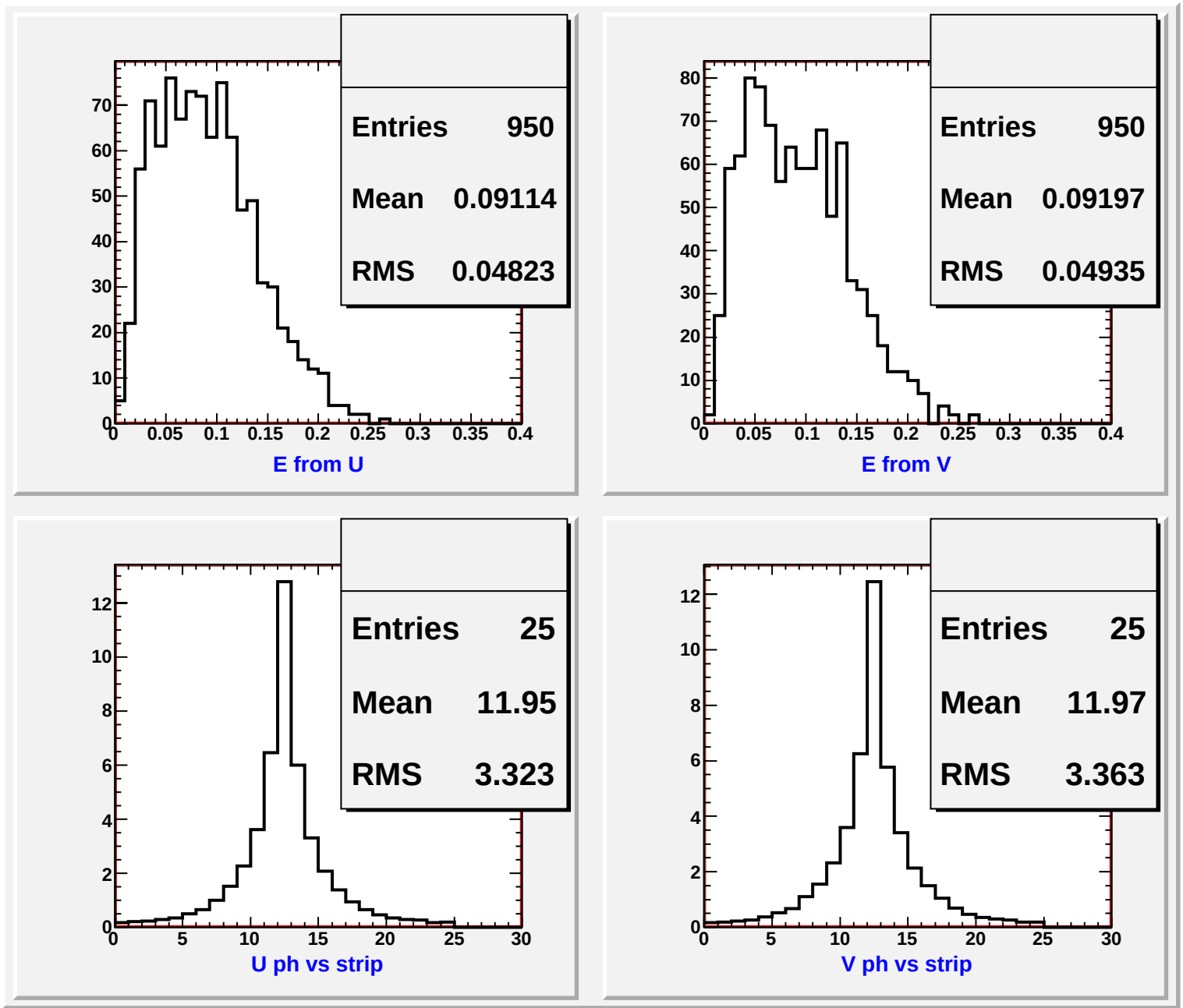


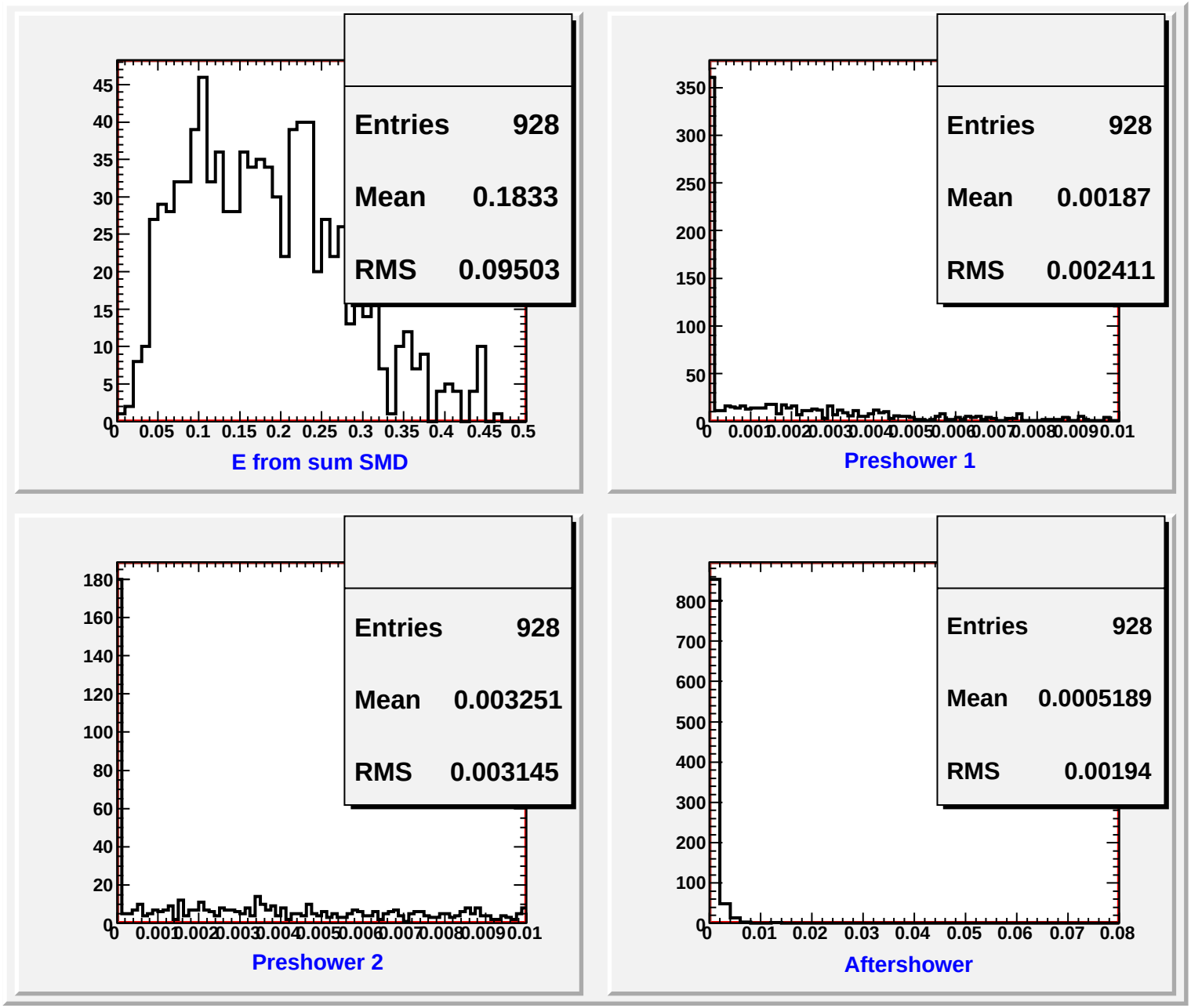
Suppressed zero

Characterize event sample (Almost nothing over Et = 5)



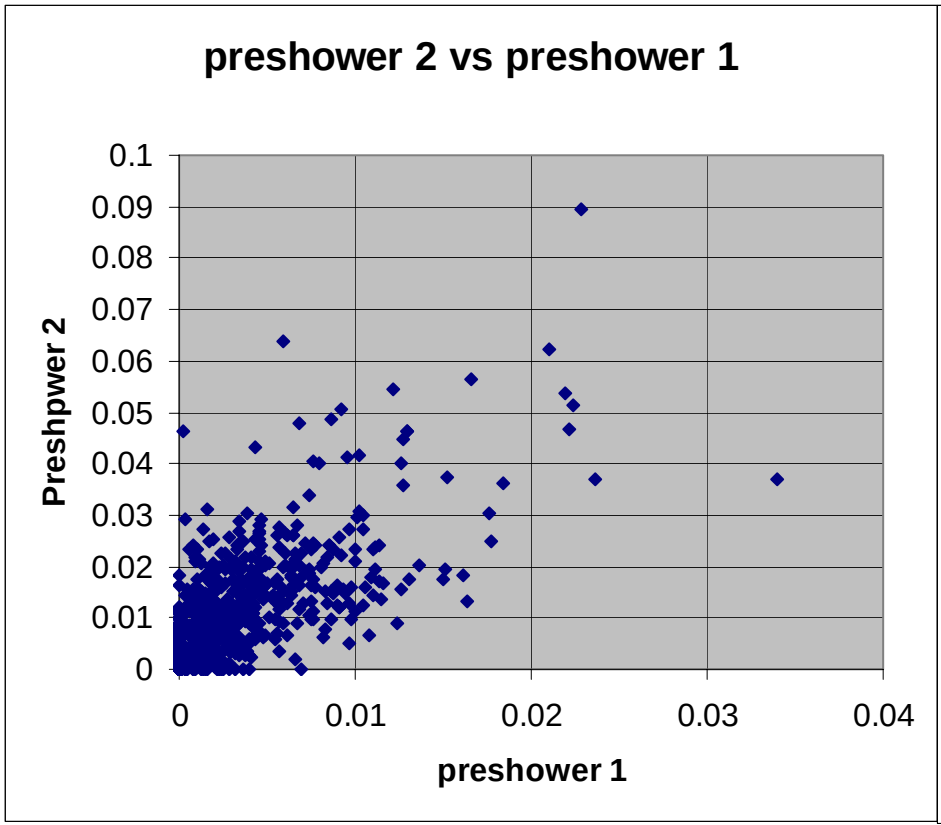
Characterize event sample Typical Shower widths in SMD

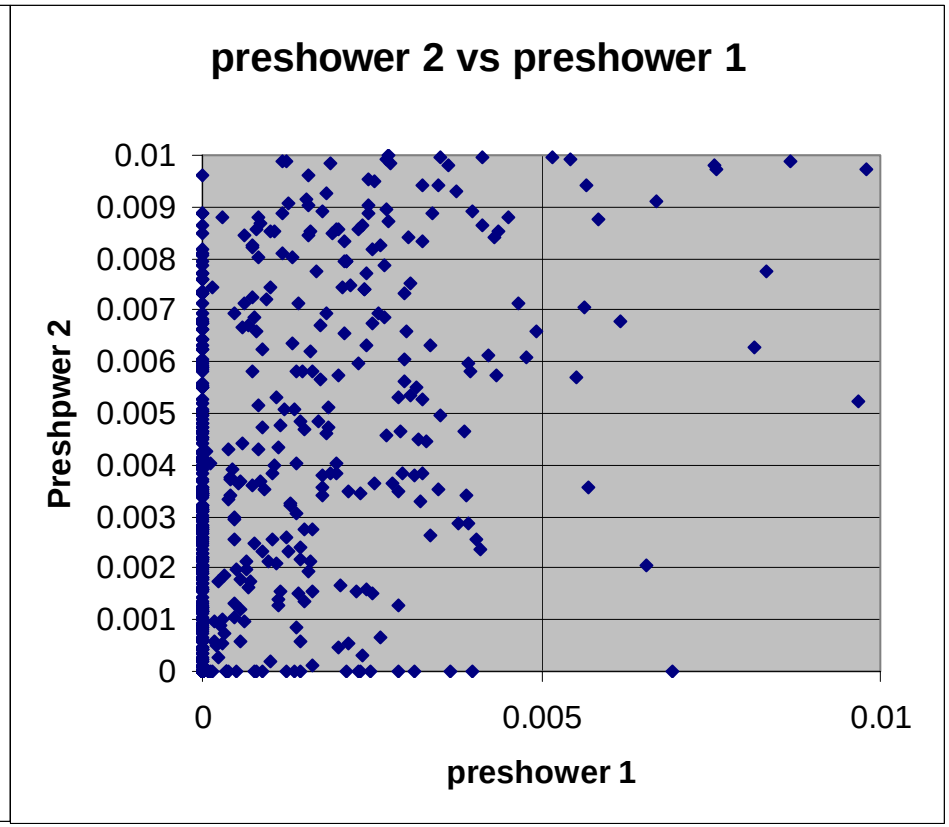



Entries 928
Mean 0.1833
RMS 0.09503
E from sum SMD
Entries 928
Mean 0.00187
RMS 0.002411
Preshower 1
Entries 928
Mean 0.003251
RMS 0.003145
Preshower 2
Entries 928
Mean 0.0005189
RMS 0.00194
Aftershower

Preshower 2 vs Preshower 1

-- only 357 evts have Preshower 1 =0 (out of 923)





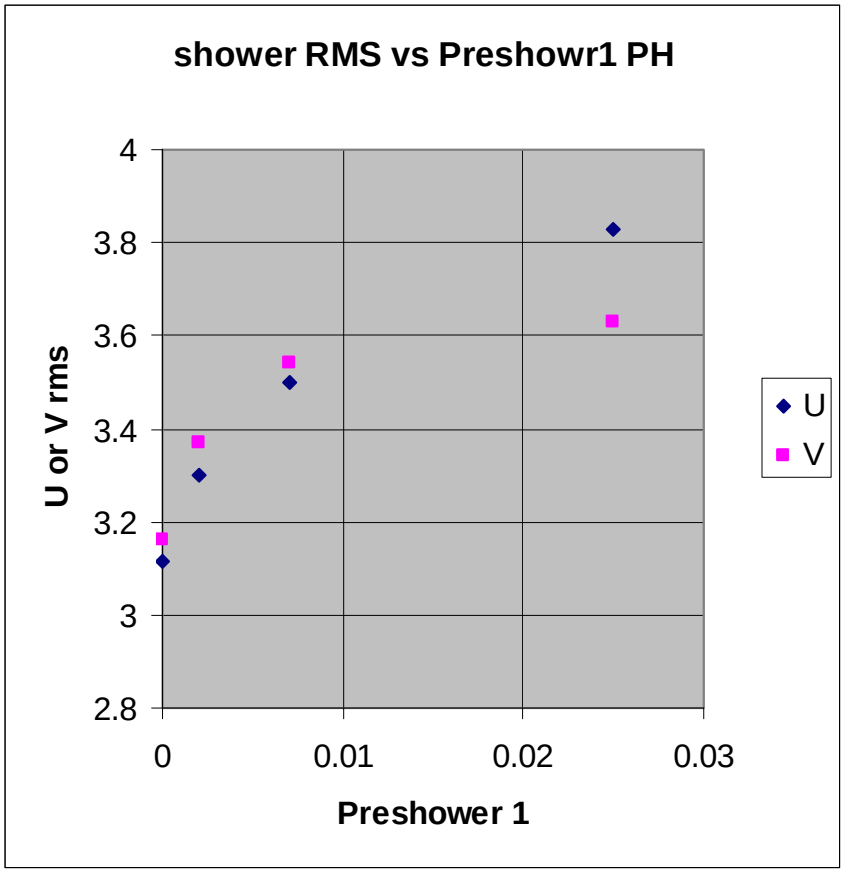
***Width in SMD vs Preshower 1 pulse ht**

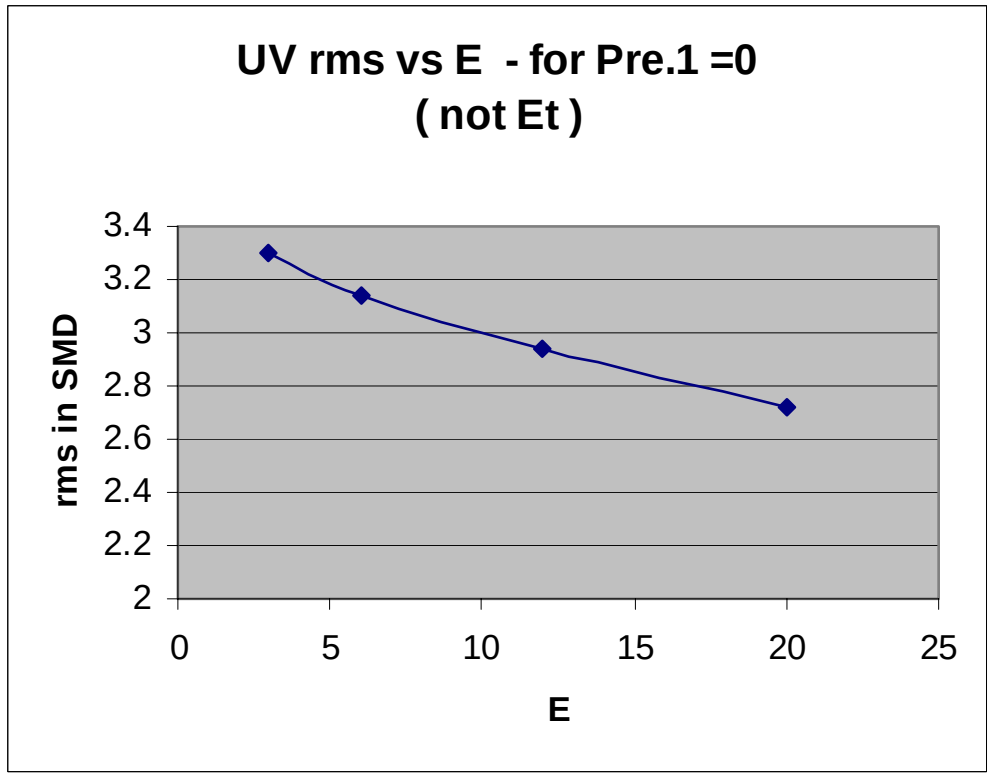
Width min. with no ps1, and bigger when conversions before Endcap

width 3.15 up to 3.81

Energy Dep of Width when PS1=0 (no interaction before EndCap) 3.3 to 2.75

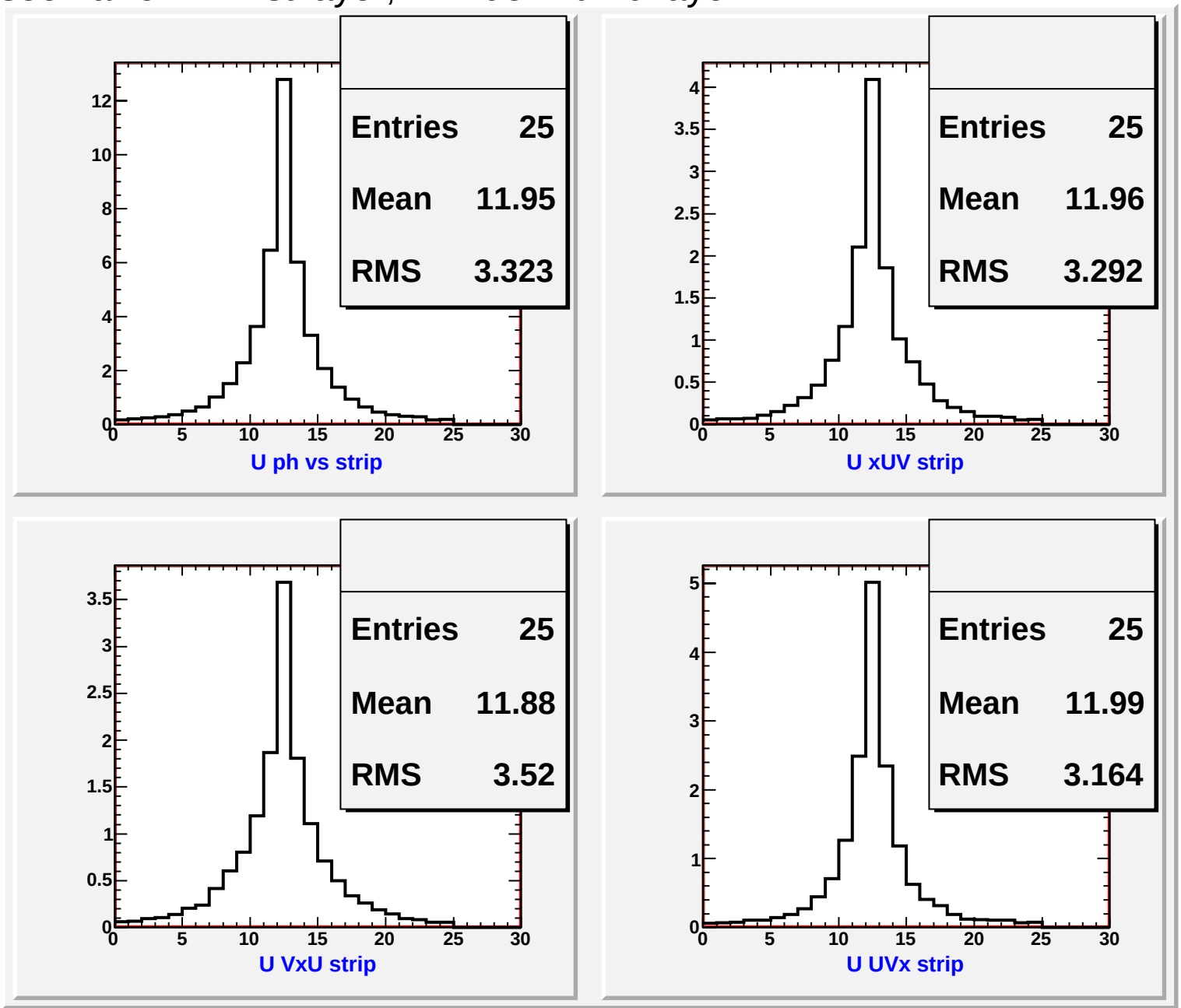
These Energies are rather low, and Et is about a factor of 3 lower





There are 3 possible layer orderings: dead,U,V – V,dead,U – U,V,dead

see narrow in first layer, wide in third layer



There are 3 possible layer orderings: dead,U,V – V,dead,U – U,V,dead

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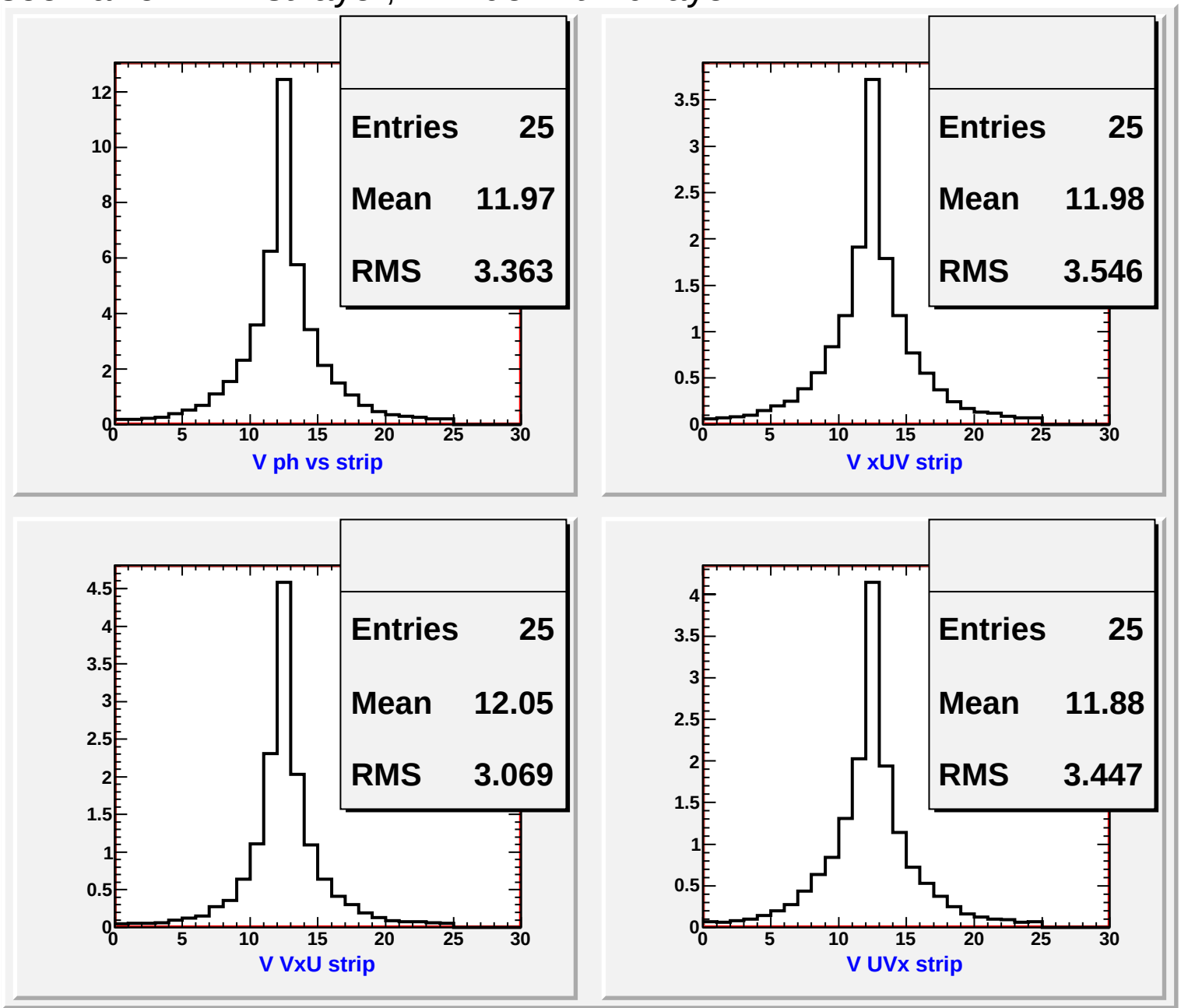
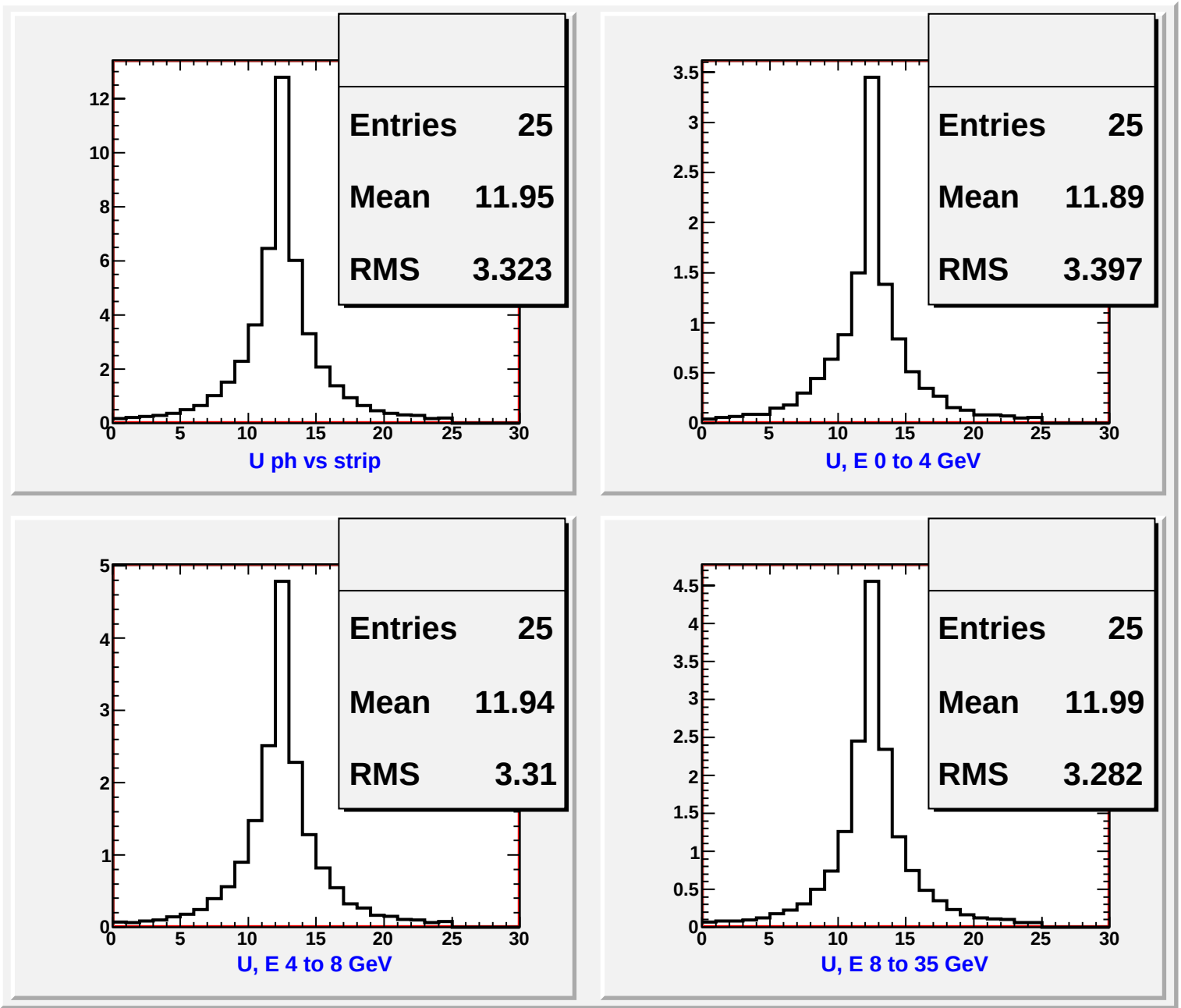
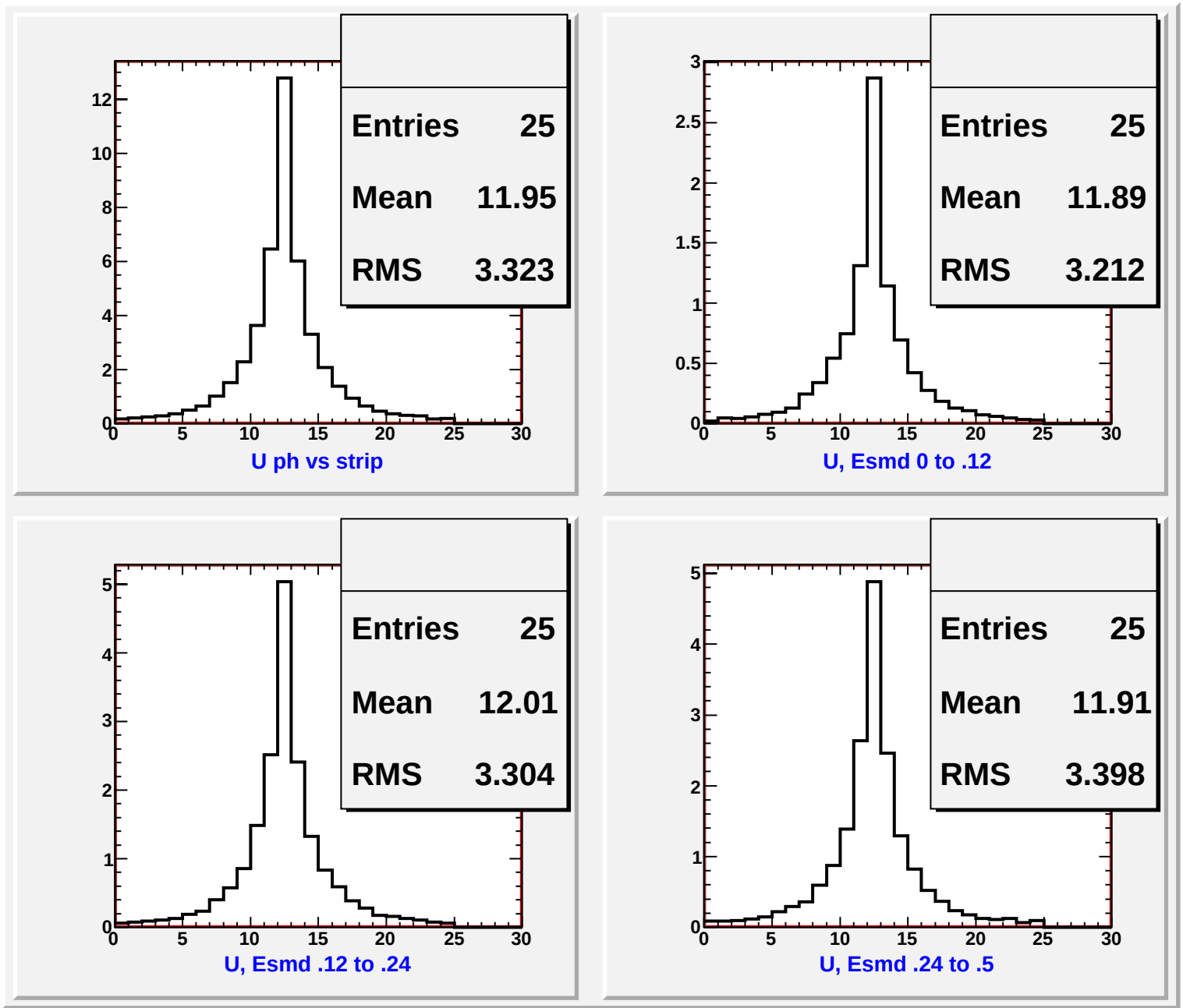


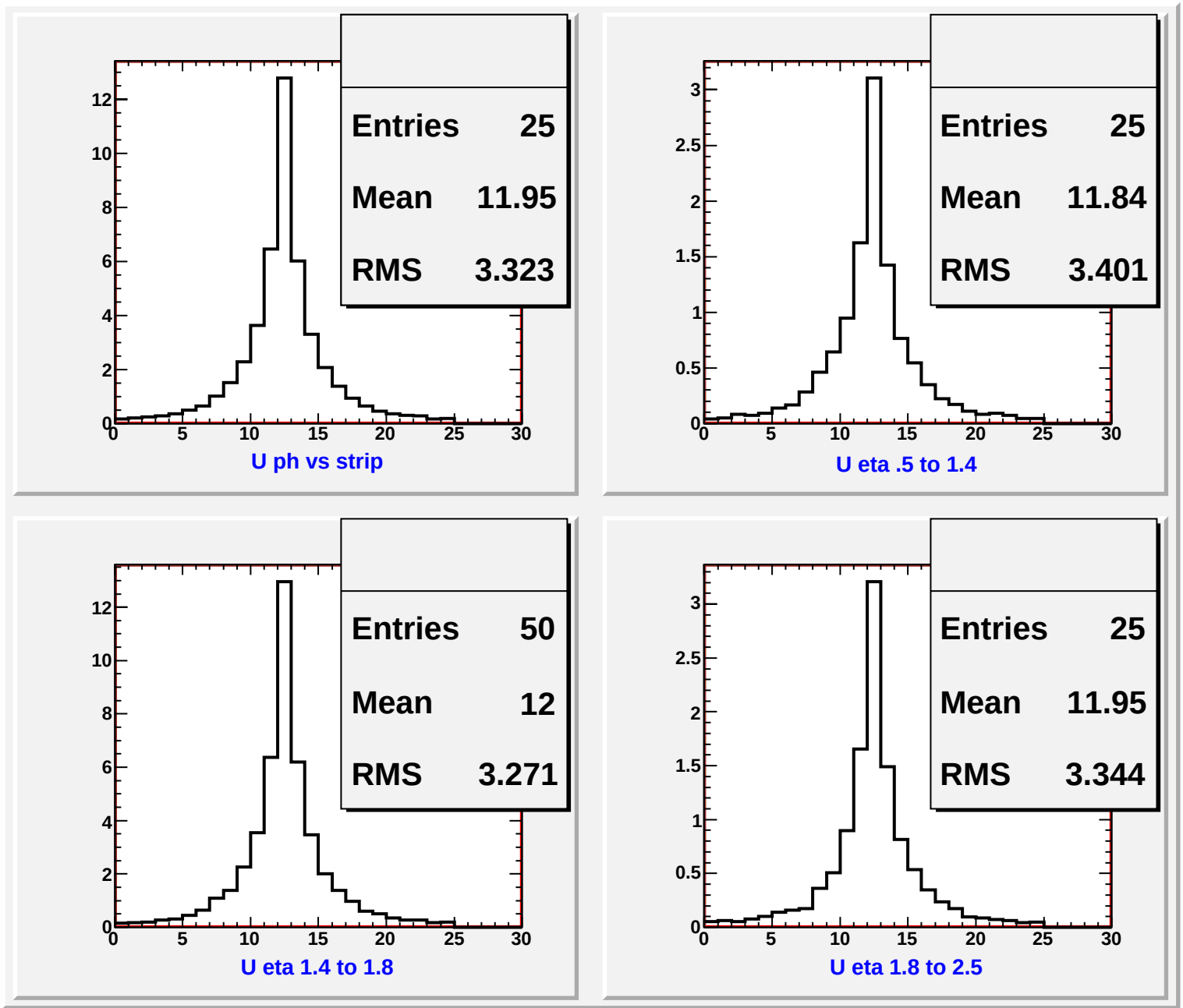
No Energy dep. of smd shower width, 2 to 20 GeV

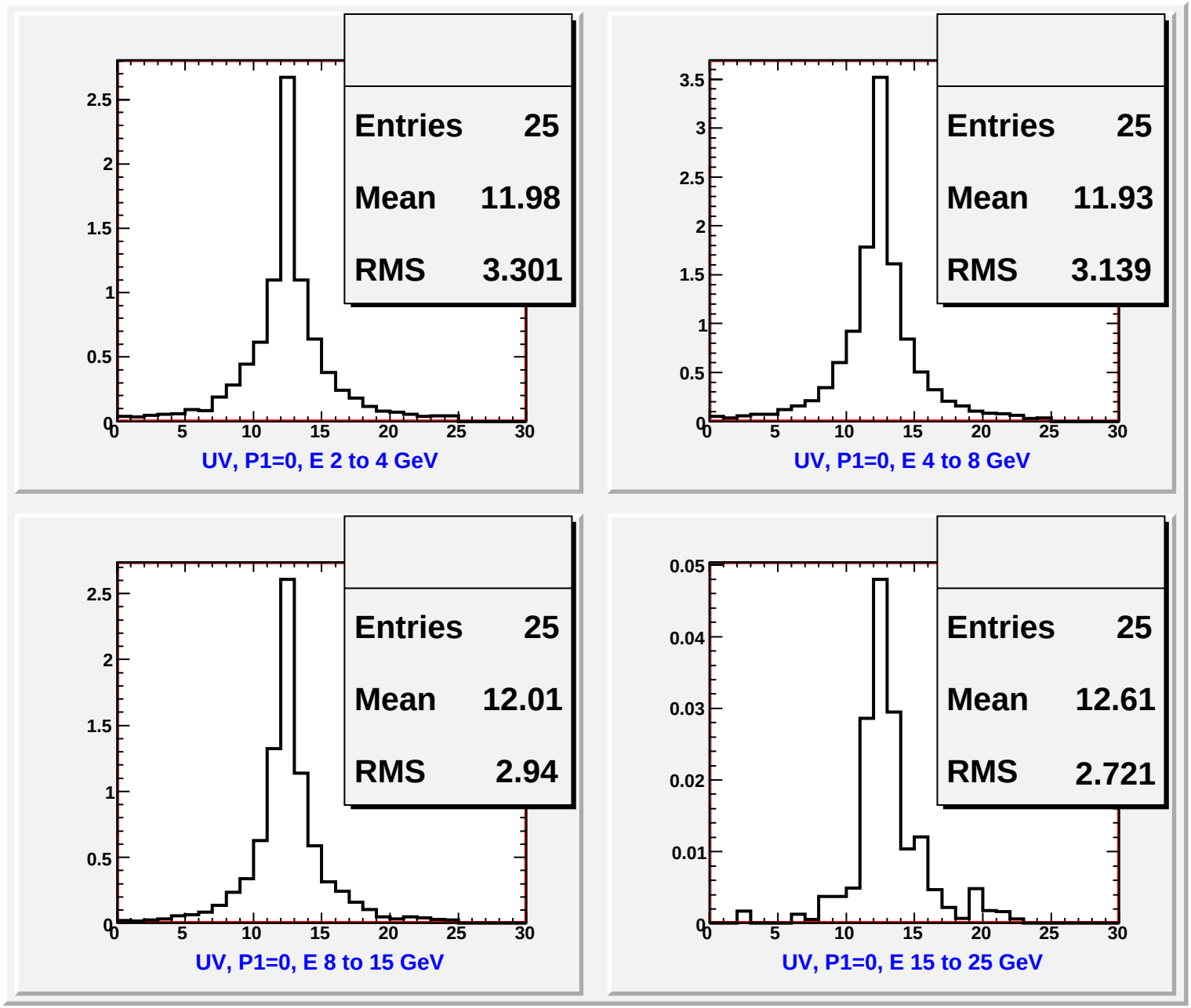


Look at width vs Esmd instead of E tow - only 3 % effect

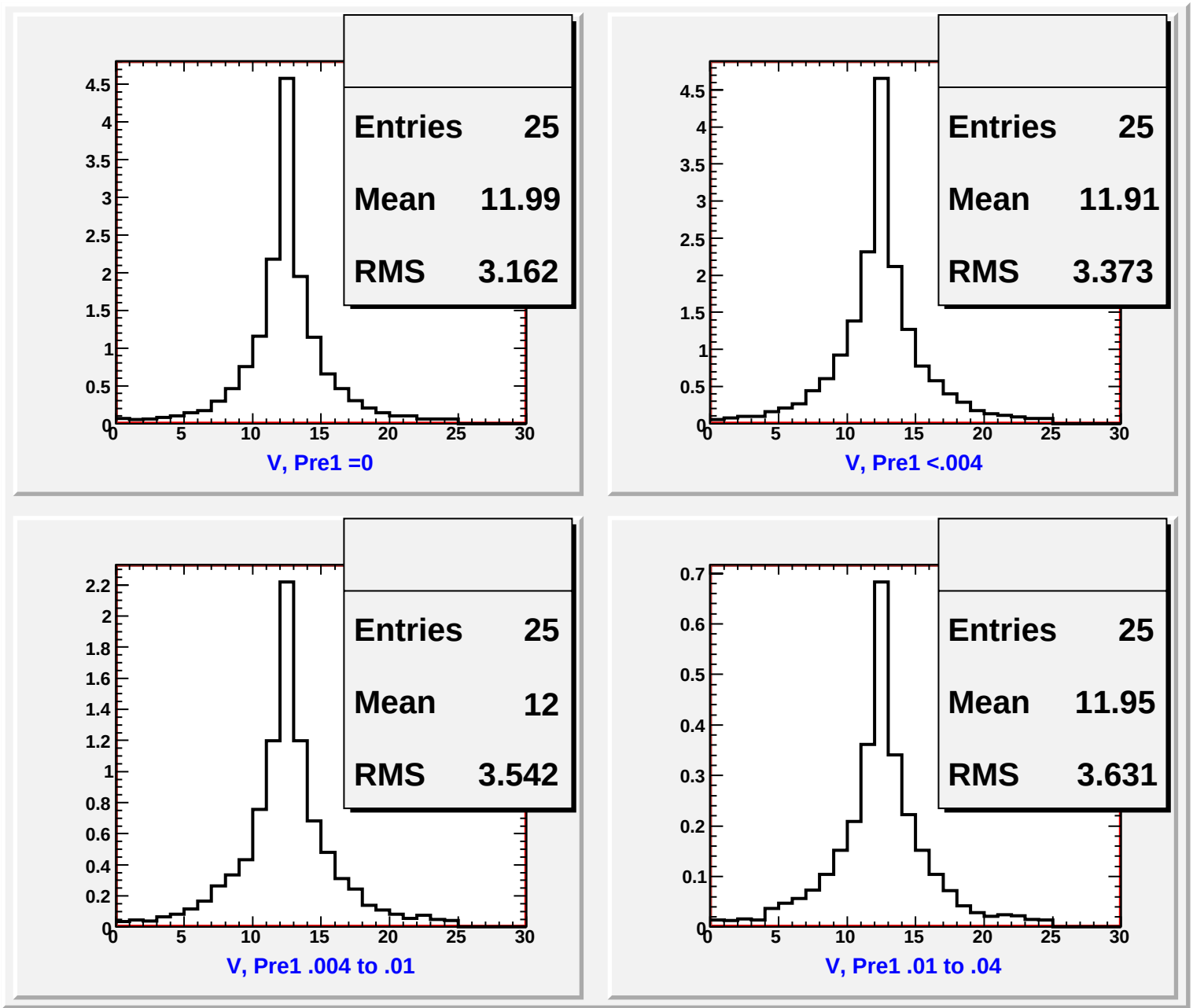


No eta dep. Of width

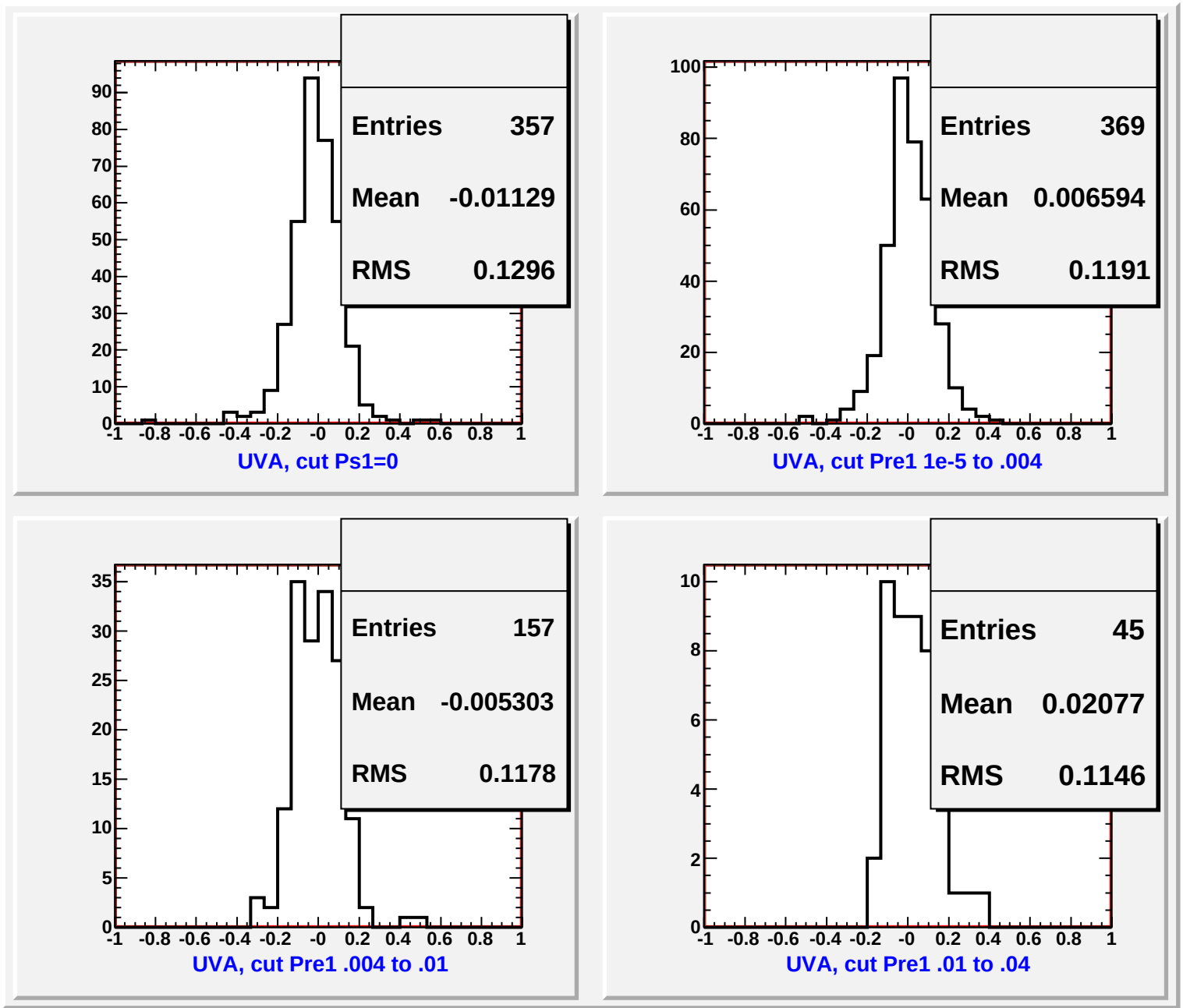
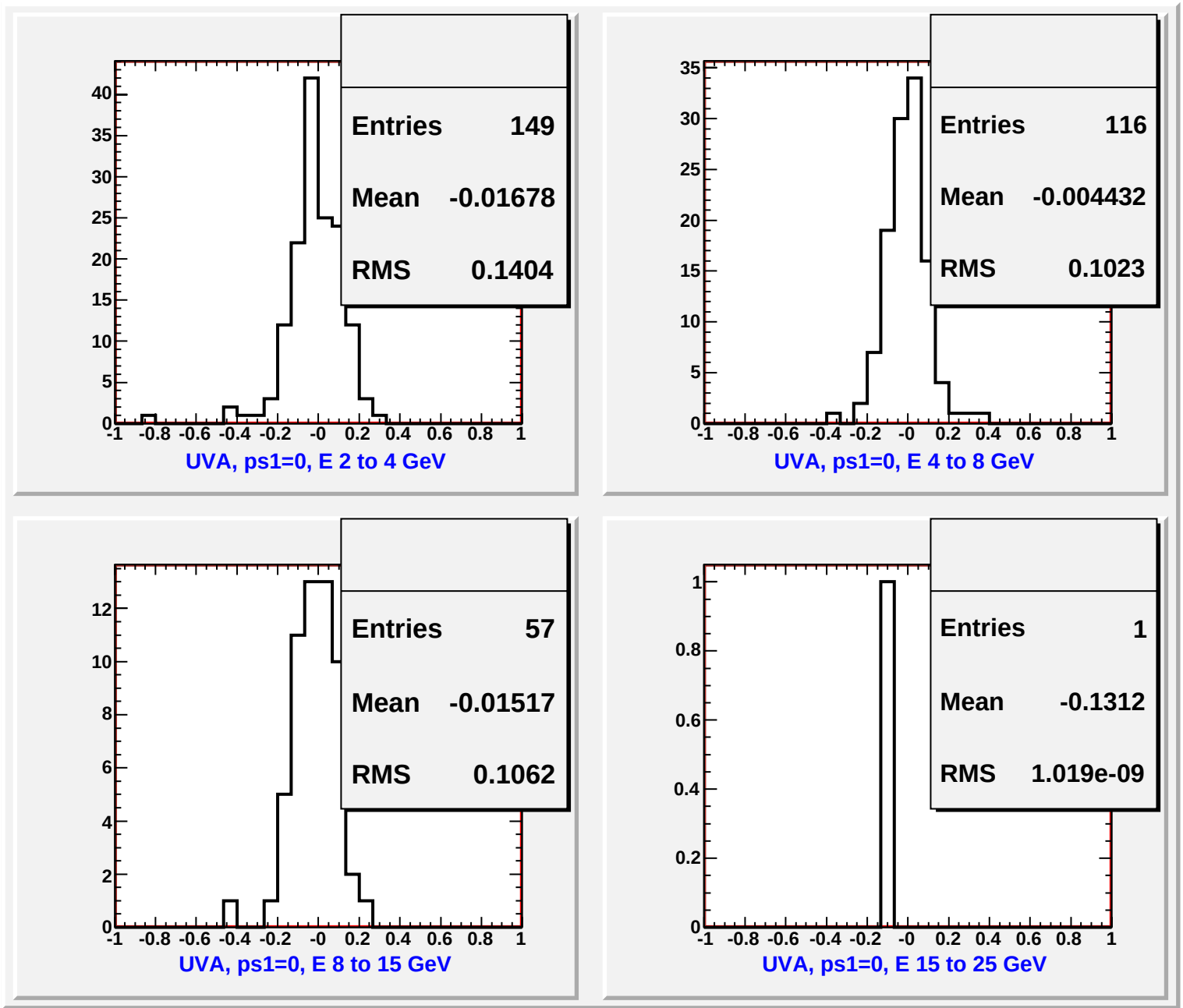



Entries 25
Mean 11.98
RMS 3.301
UV, P1=0, E 2 to 4 GeV
Entries 25
Mean 11.93
RMS 3.139
UV, P1=0, E 4 to 8 GeV
Entries 25
Mean 12.01
RMS 2.94
UV, P1=0, E 8 to 15 GeV
Entries 25
Mean 12.61
RMS 2.721
UV, P1=0, E 15 to 25 GeV

SMD V Width vs Pre 1 ph (Narrow if Ps1 =0)



Eu Ev asy (Eu-Ev)/(Eu+Ev) vs pre sh 1 ph



Eu Ev asymmetry (Eu-Ev)/(Eu+Ev) with pre1=0, cut on E tow