sPHENIX EMCAL Meeting

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May 24, 2016

Topics: 5by5 energy distributions and energy resolution plots with event selection with cuts on Chrenkov, hodoscopes, Veto, and Tower 21 selection

Event Selection

Energy cluster: E 5by5 (each energy cluster is centered on the maximum energy of th event)

Cuts Applied:

* cutlevel 0: no cuts
* cutlevel 1: Tower 21
* cutlevel 2: cherenkov
* cutlevel 3: cherenkov + veto cuts
* cutlevel 4: cherenkov + veto + hodoscope+Tower21

Cut Details:

* cutlevel 1: Tower 21: row==2, column==2
* cutlevel 2: cherenkov: C1>15, C2inner<0
* cutlevel 3: cherenkov + veto: Veto1<22, Veto2<115<, Veto3<22, Veto4<150
* cutlevel 4: cherenkov + veto + hodoscope : abs(Hodo energy)>30 in vertical and horizontal+Tower 21

https://wiki.bnl.gov/sPHENIX/index.php/T-1044/EMCal_good_run_note#Energy_Scan_.28UIUC_centered.2C_Tower_21.2C_350k_Events.29

Channel map

column 0 → 7

row 7 ↑ 0

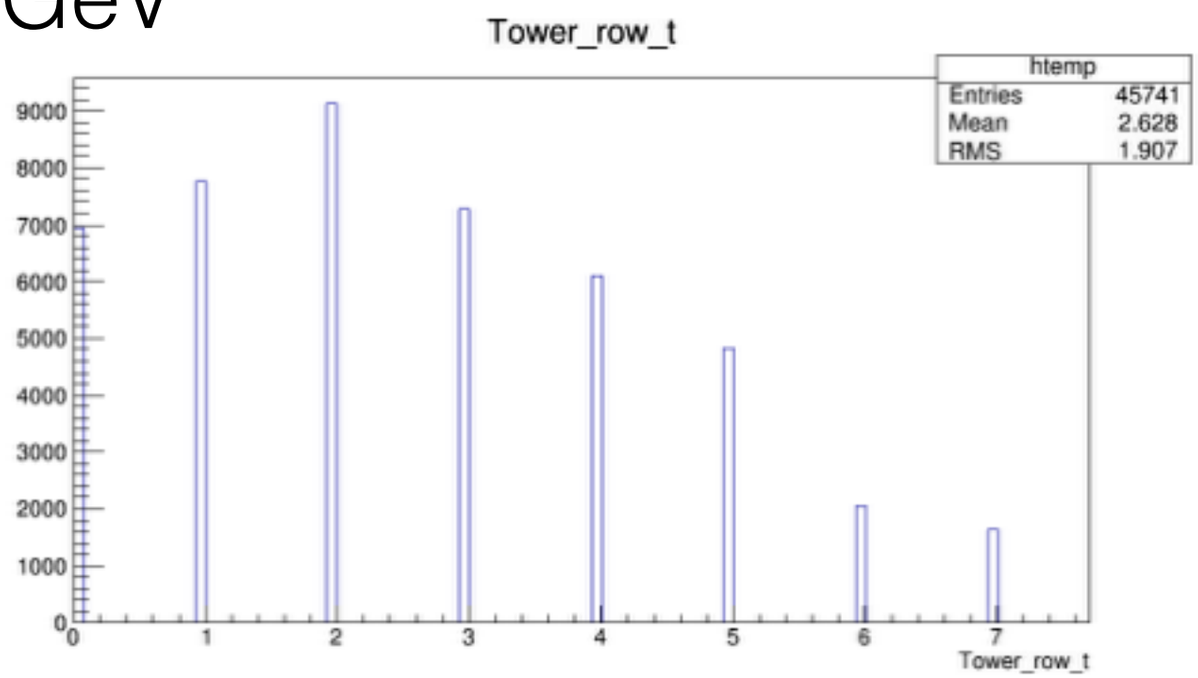
Channel map							
63	62	61	60	59	58	57	56
55	54	53	52	51	50	49	48
47	46	45	44	43	42	41	40
39	38	37	36	35	34	33	32
31	30	29	28	27	26	25	24
23	22	21	20	19	18	17	16
15	14	13	12	11	10	9	8
7	6	5	4	3	2	1	0

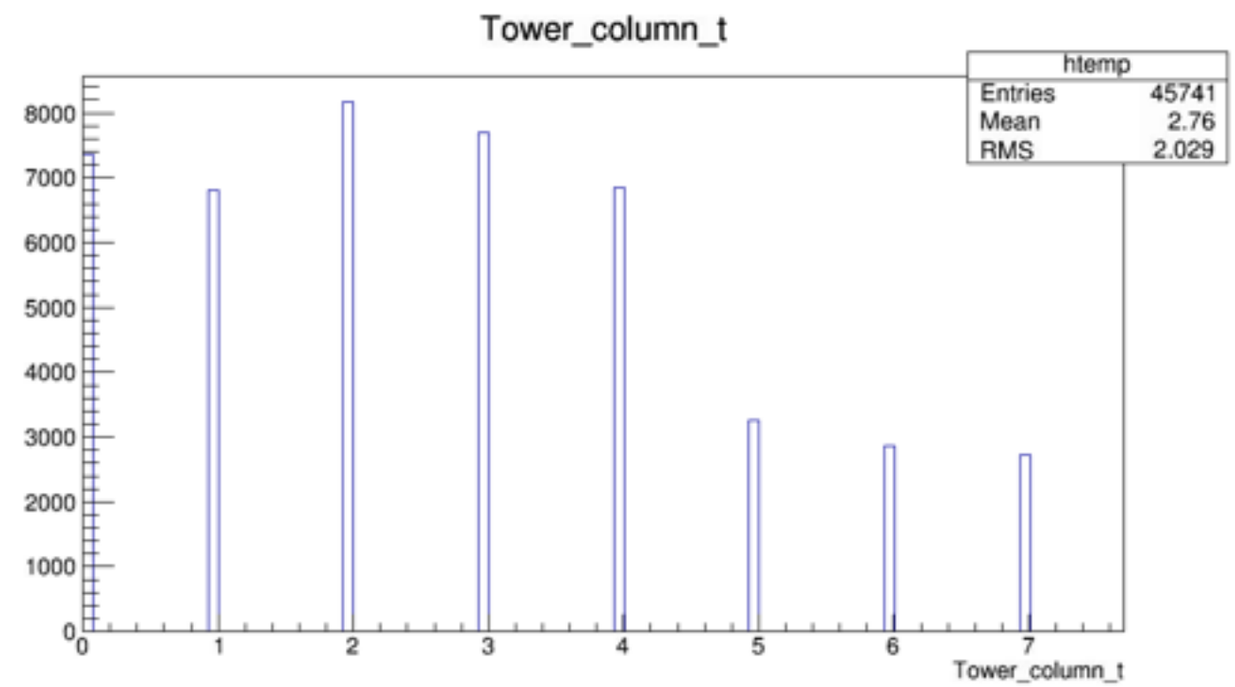
Tower 21 cut: row==2 & column ==2

Row distribution

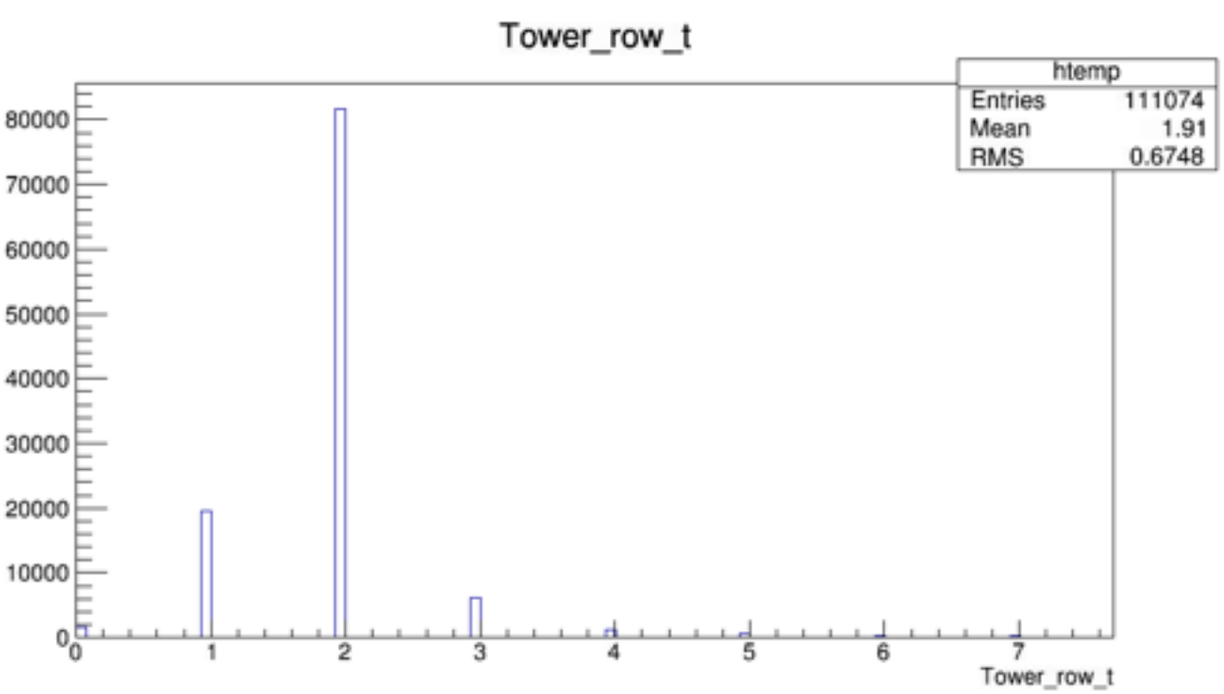
Column distribution

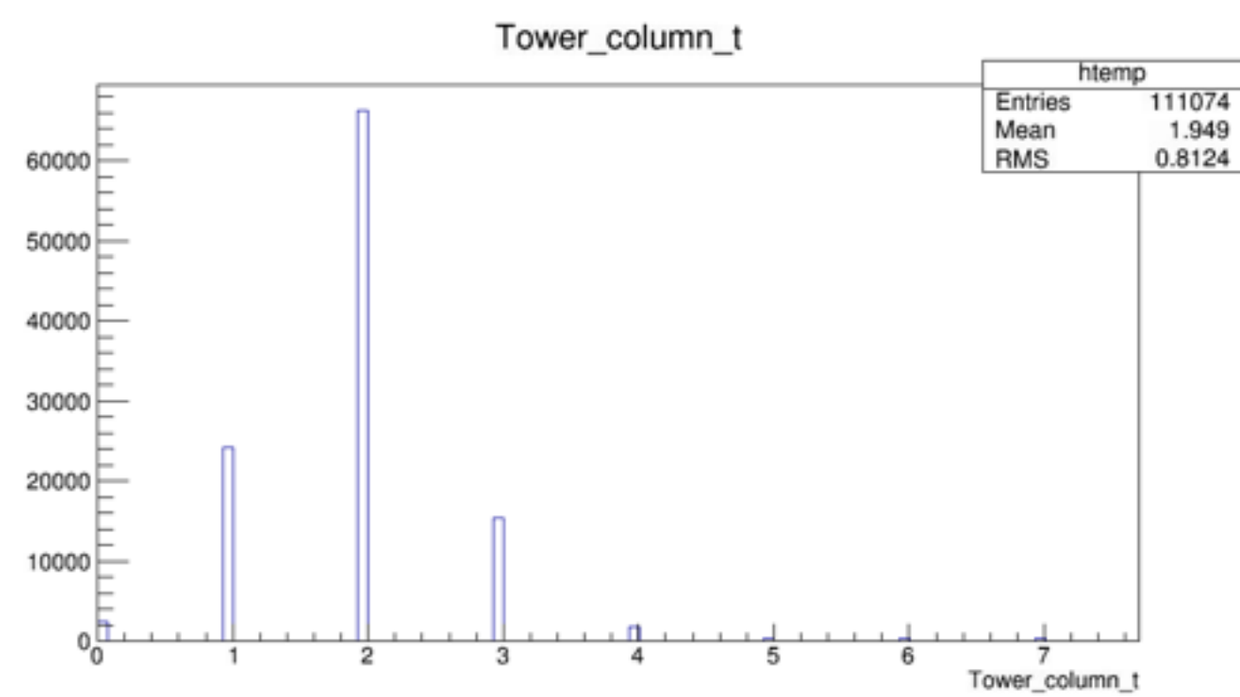
1GeV





16GeV

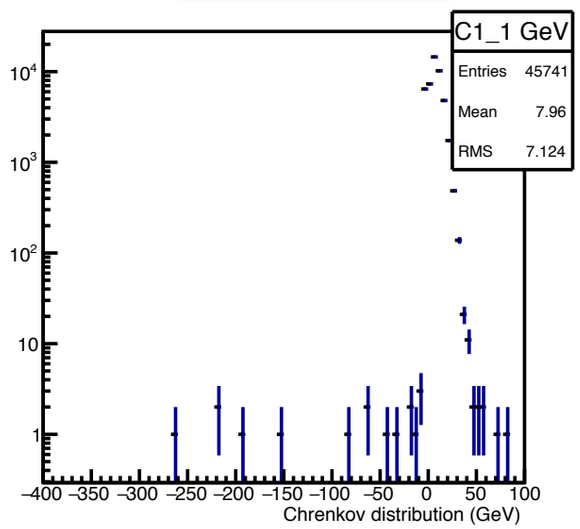




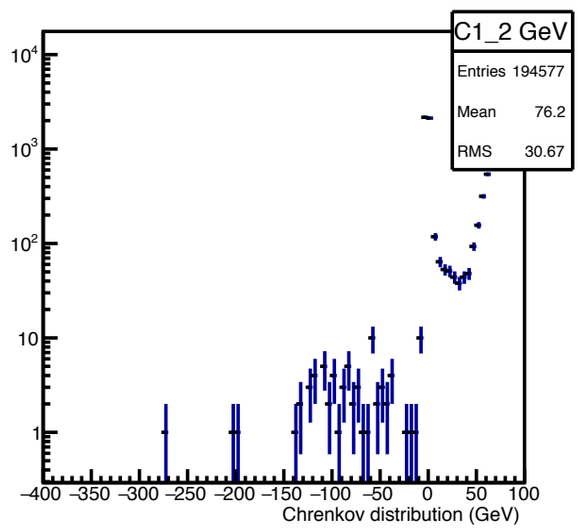
Chrenkov Distributions

C1

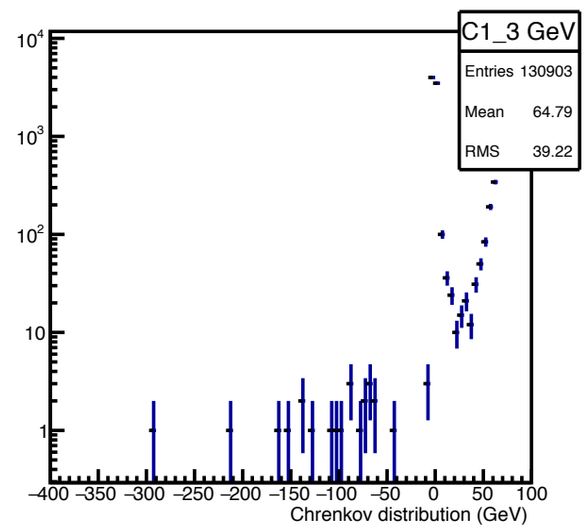
C1_1GeV



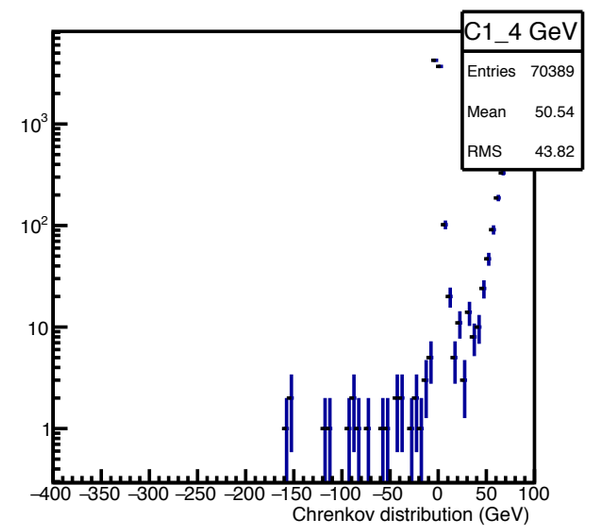
C1_2GeV

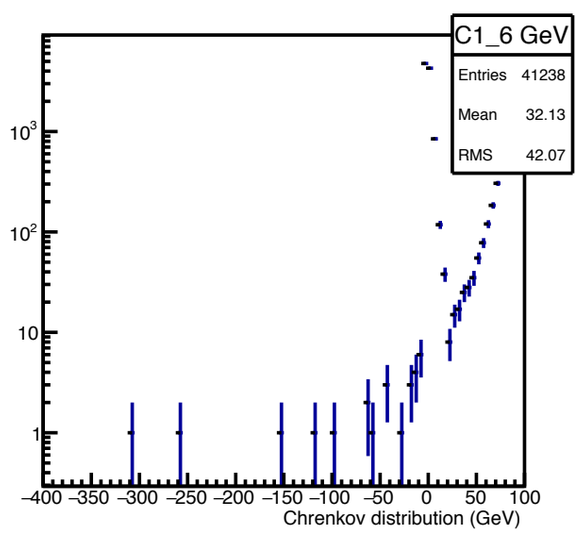


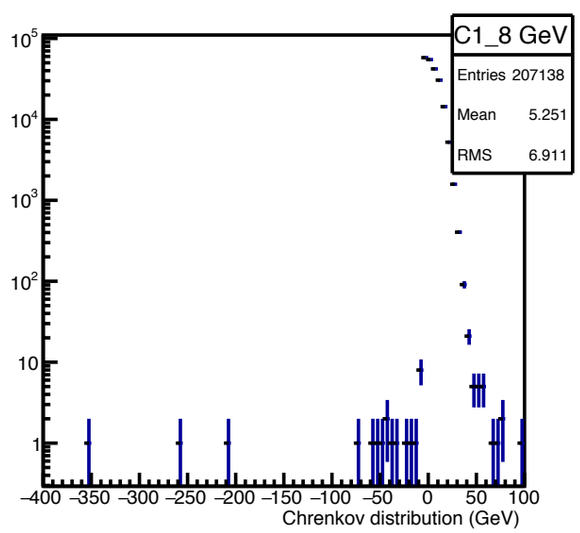
C1_3GeV

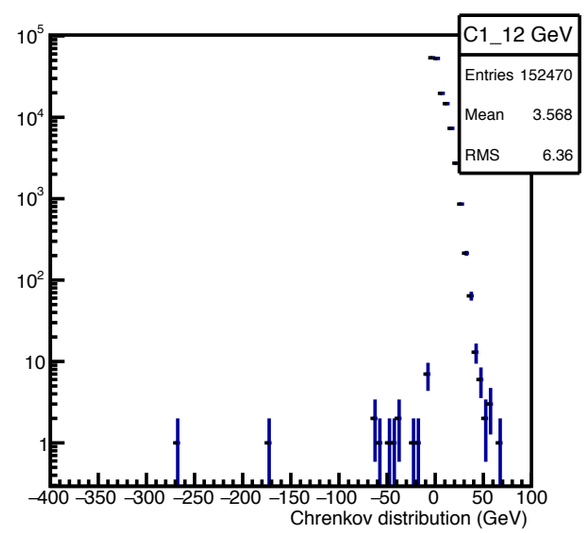


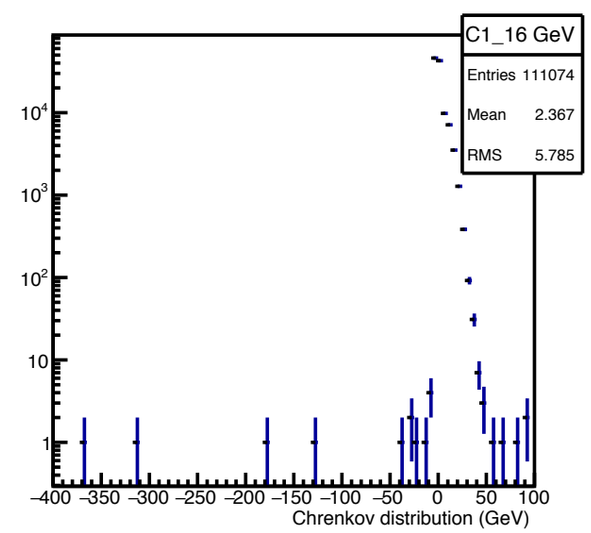
C1_4GeV











C1_6GeV

C1_8GeV

C1_12GeV

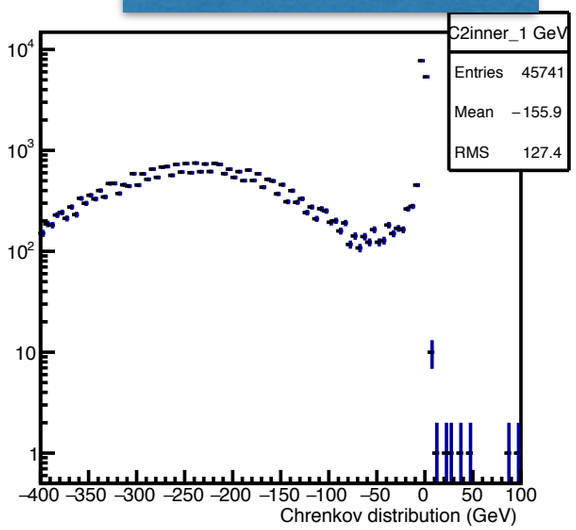
C1_16GeV

C1 cut: C1>15

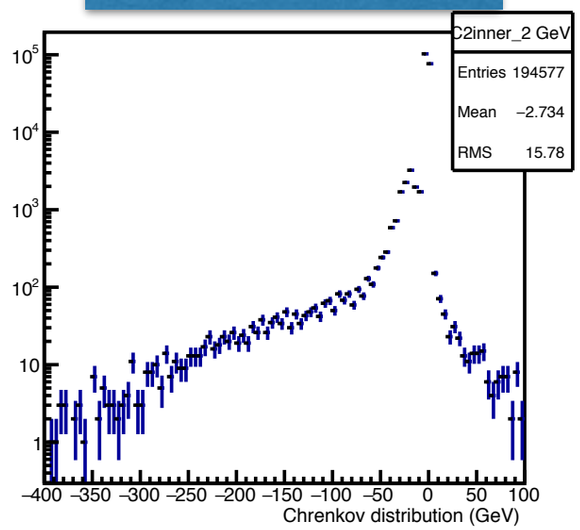
Chrenkov Distributions

C2 inner

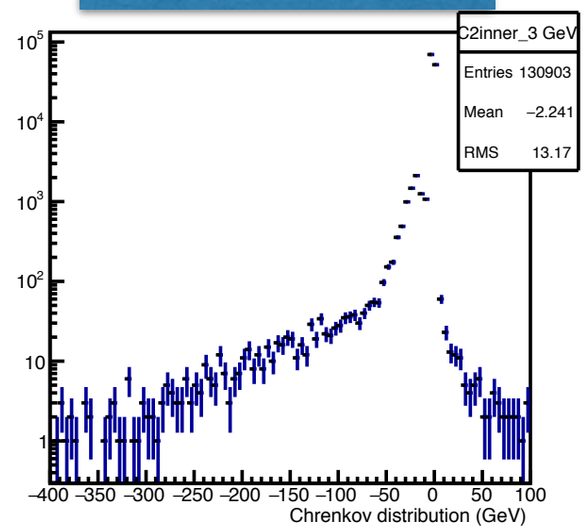
C2inner_1GeV



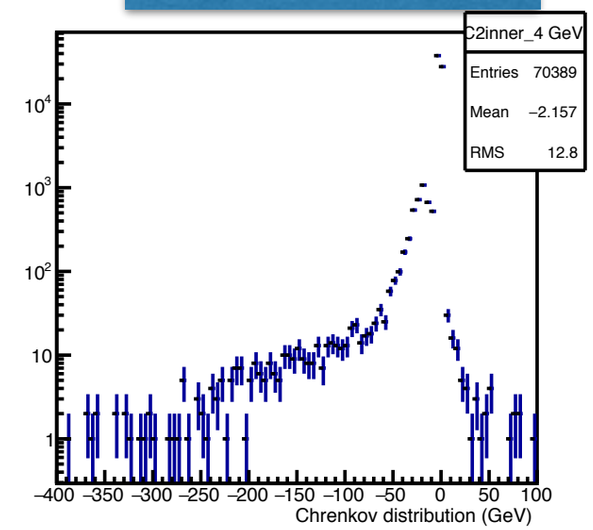
C2inner_2GeV

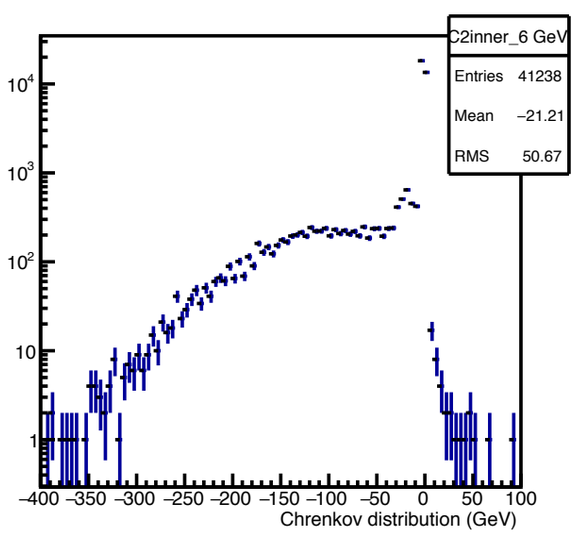


C2inner_3GeV

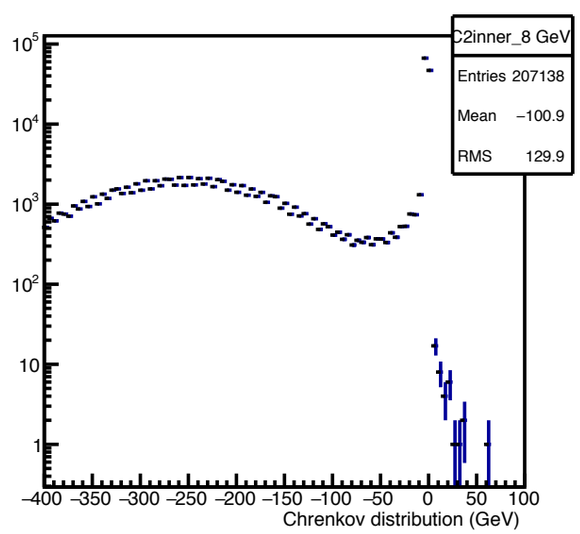


C2inner_4GeV

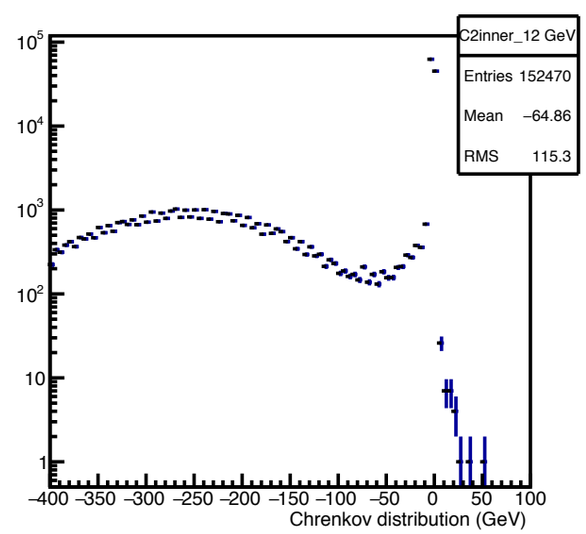




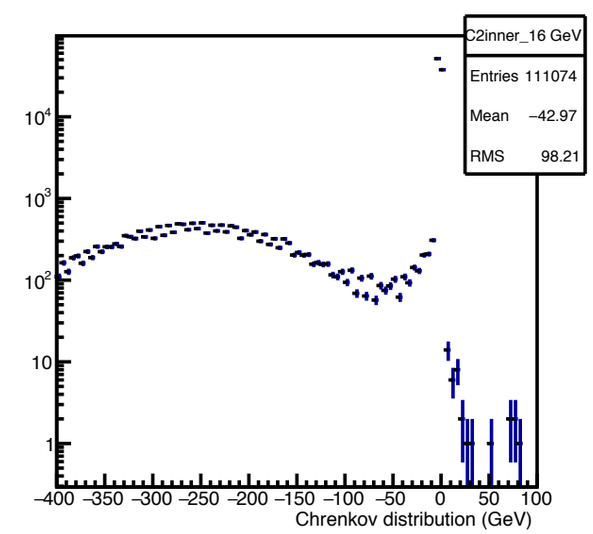
C2inner_6GeV



C2inner_8GeV



C2inner_12GeV



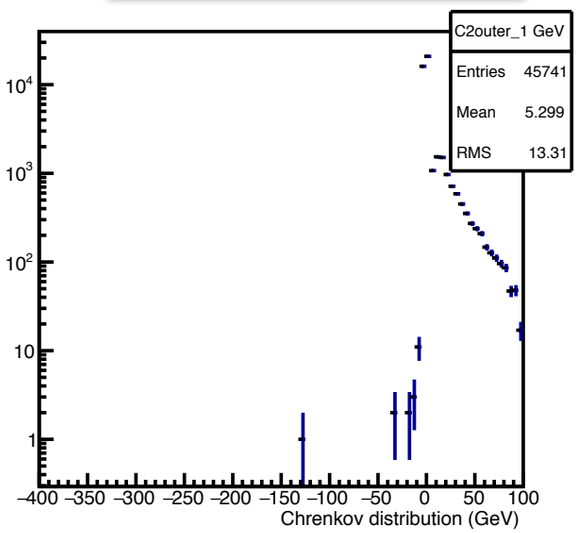
C2inner_16GeV

C2 inner cut: C2inner>0

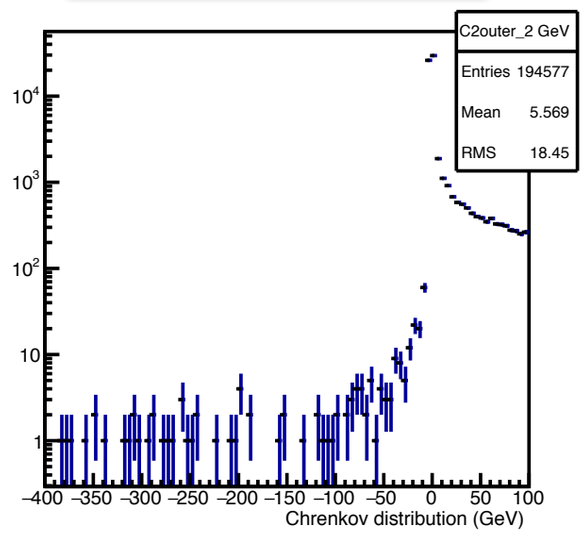
Chrenkov Distributions

C2 outer

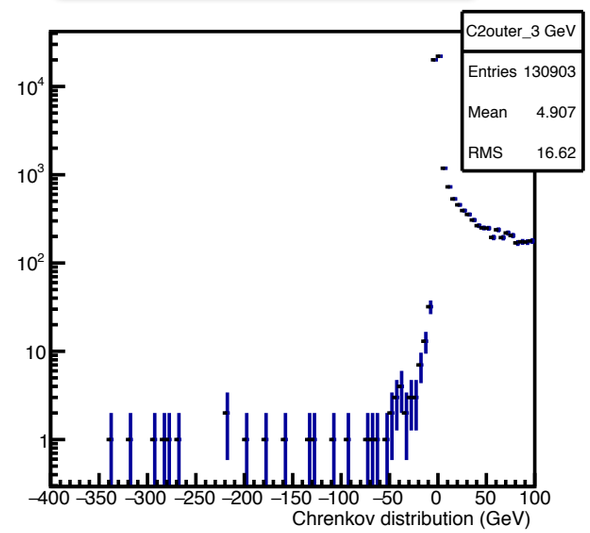
C2outer_1GeV



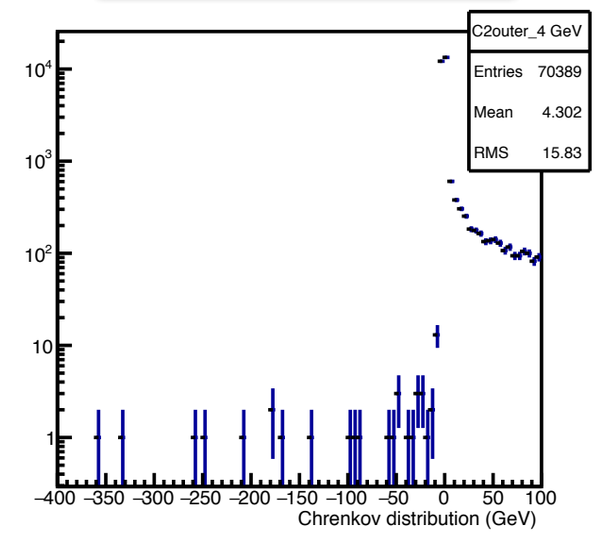
C2outer_2GeV

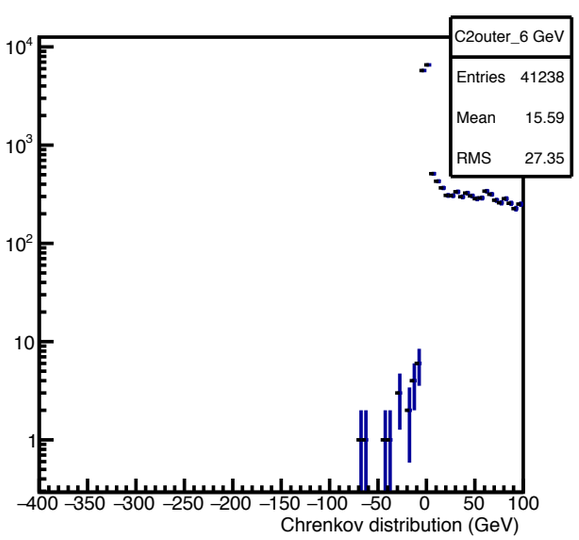


C2outer_3GeV

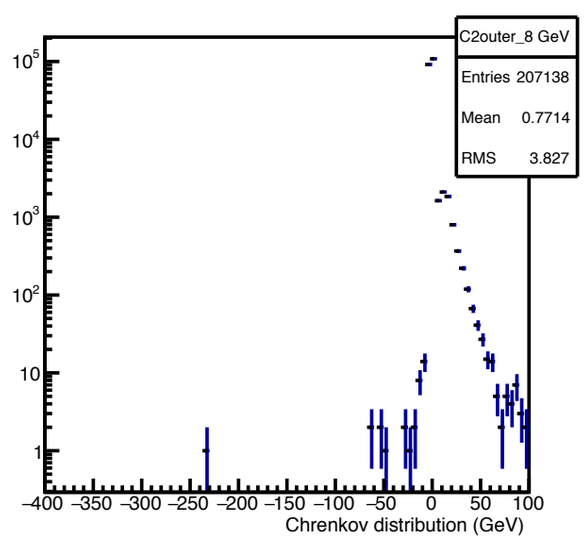


C2outer_4GeV

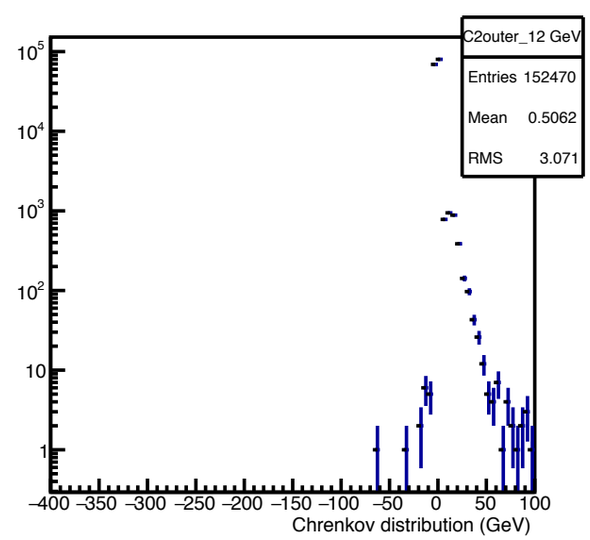




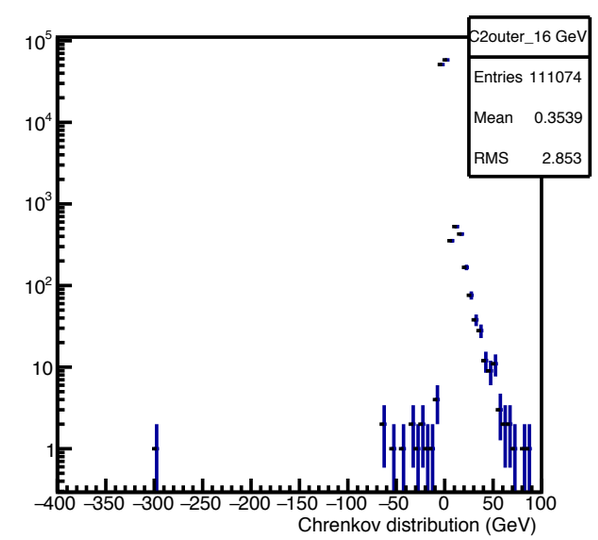
C2outer_6GeV



C2outer_8GeV

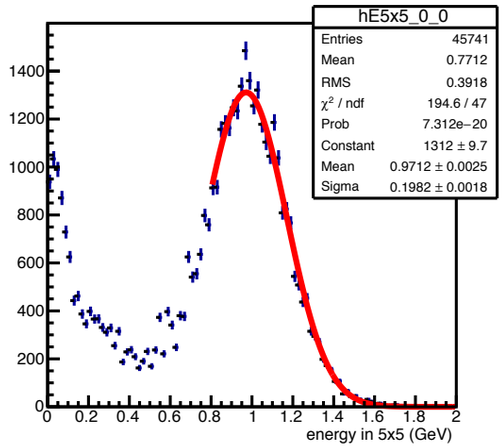


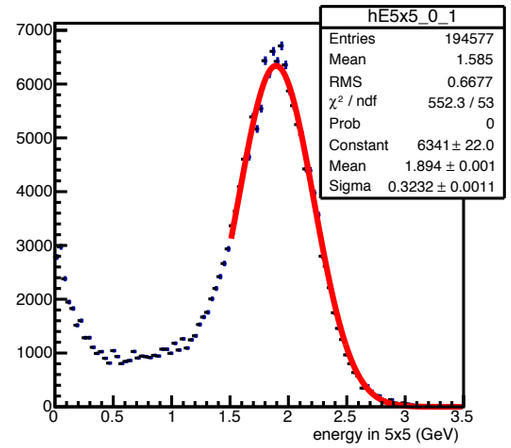
C2outer_12GeV

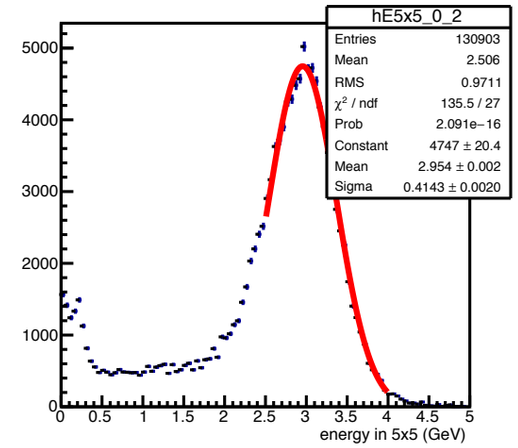


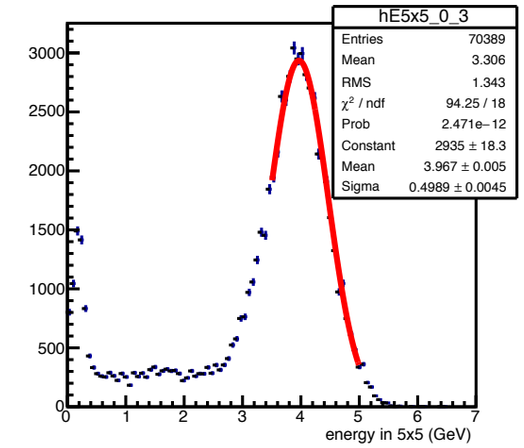
C2outer_16GeV

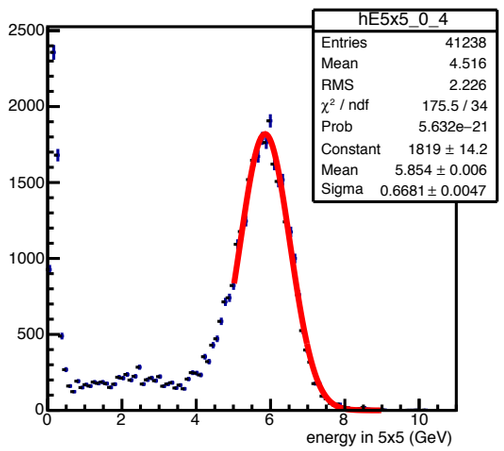
no C2 outer cut

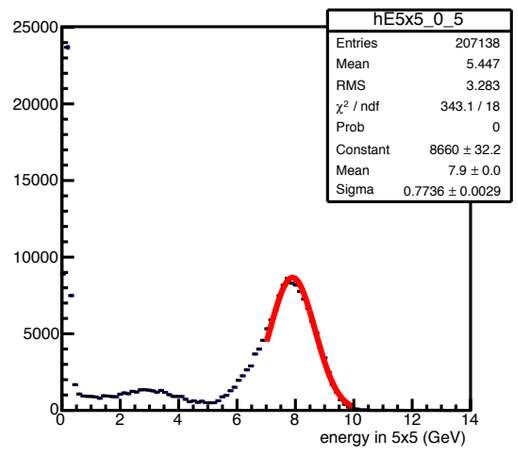


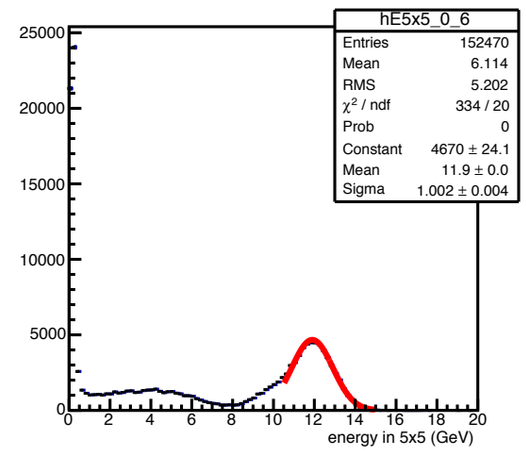


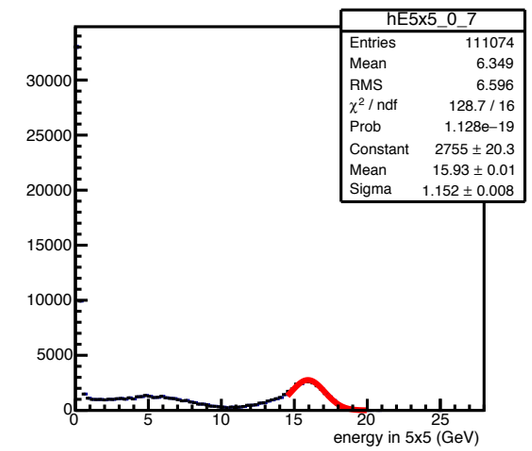




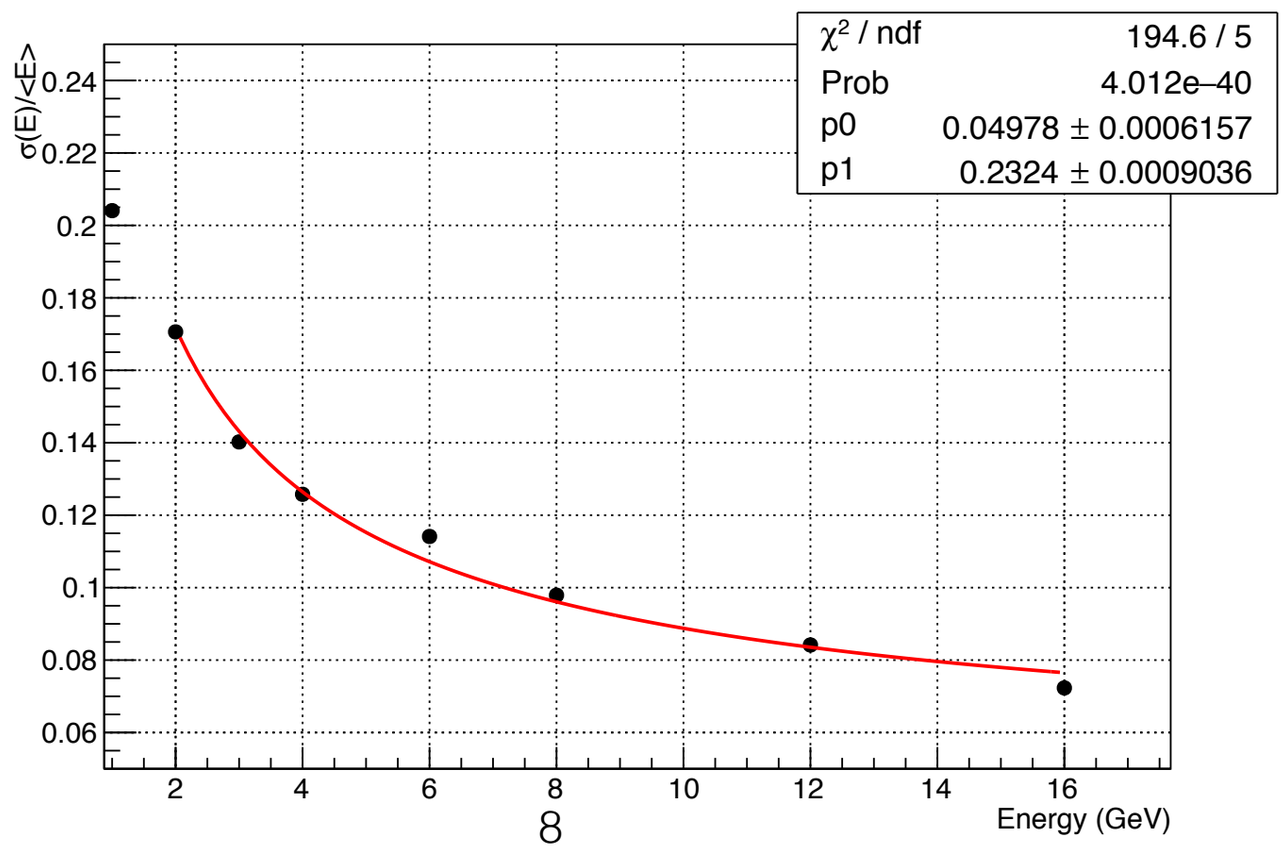


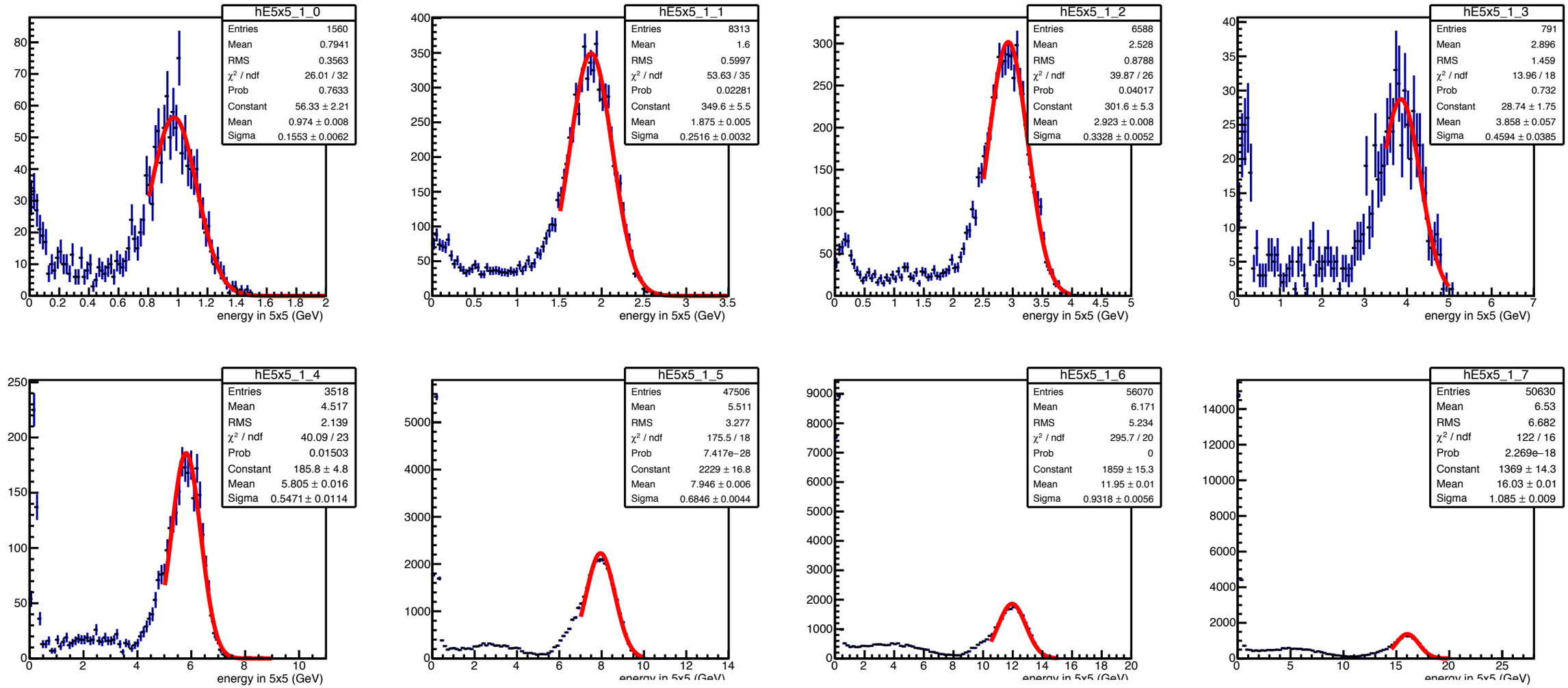






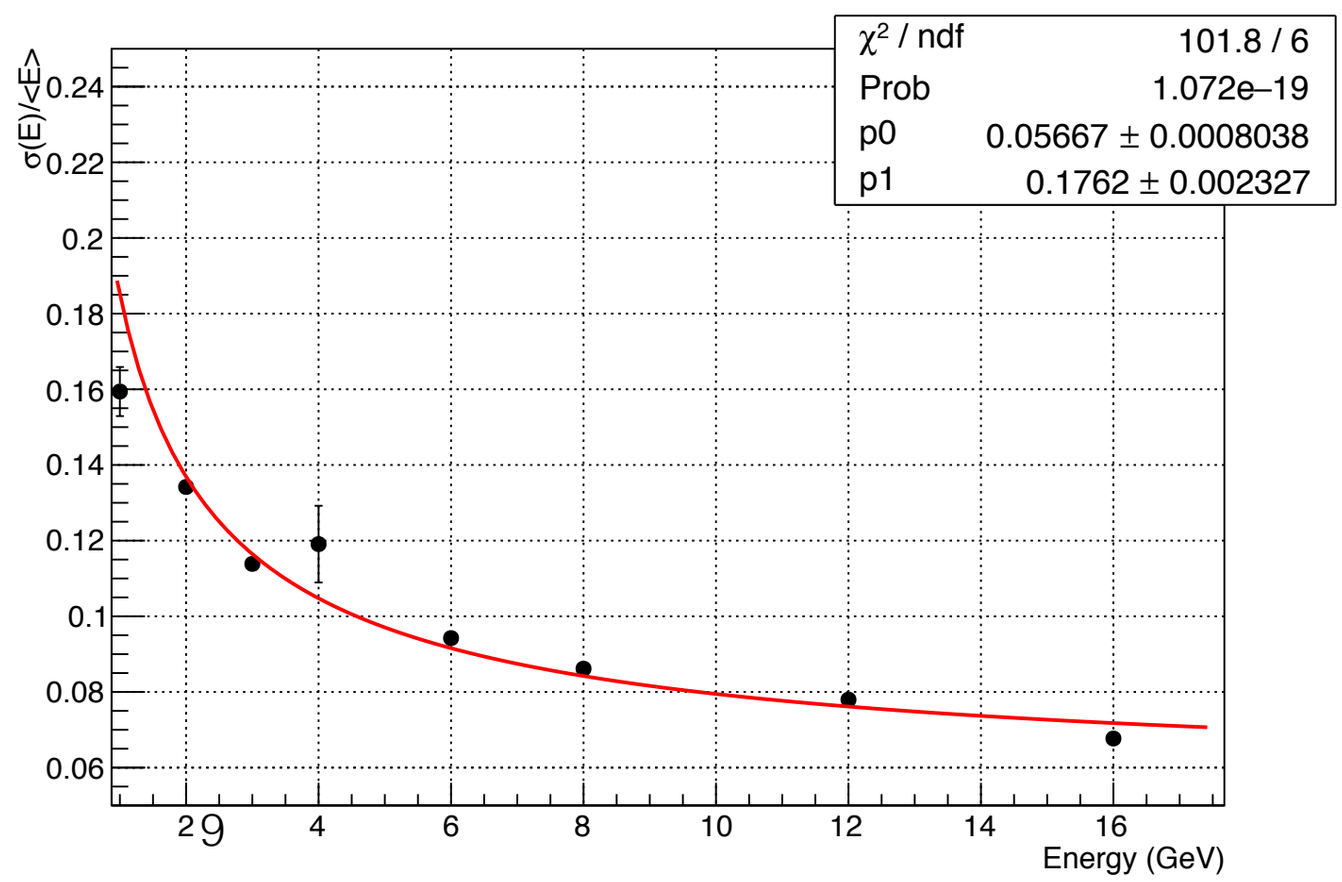
no cuts applied

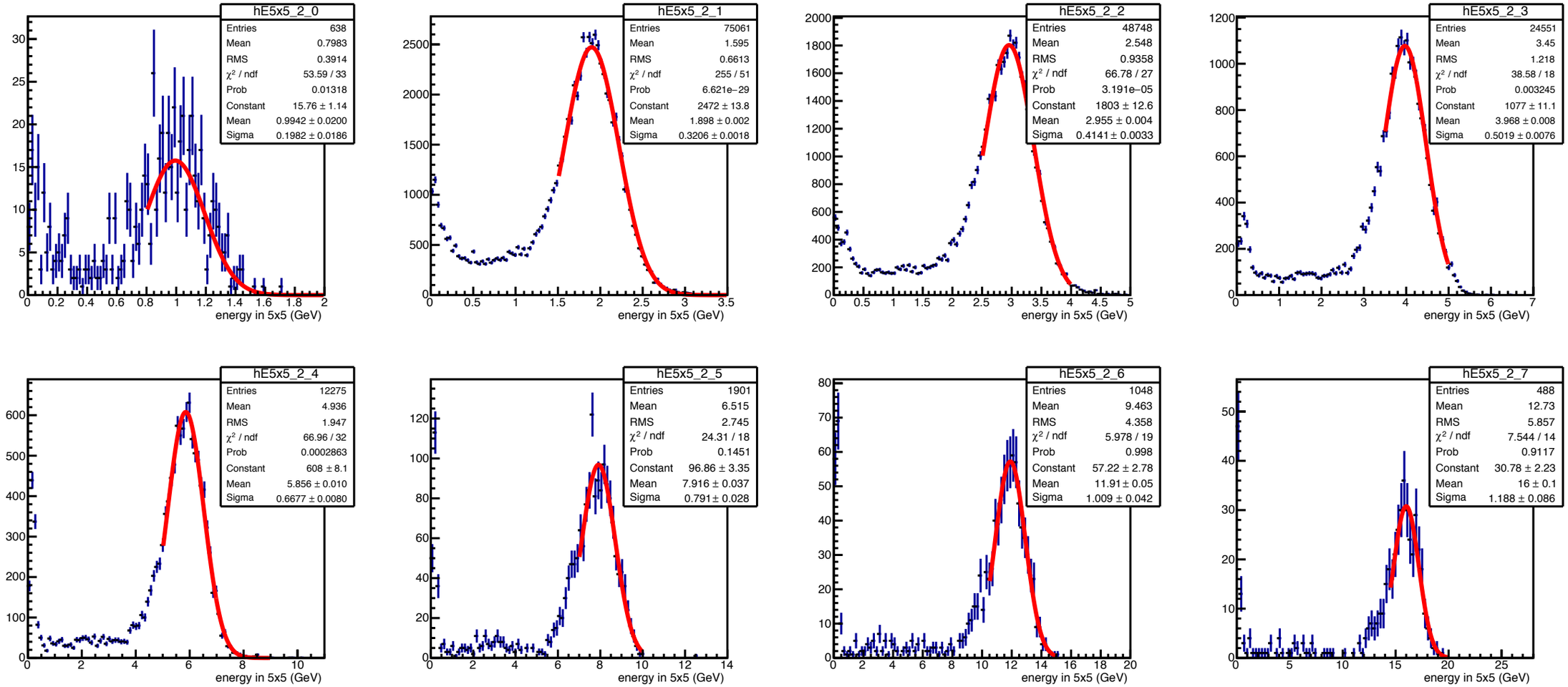




Tower 21 only

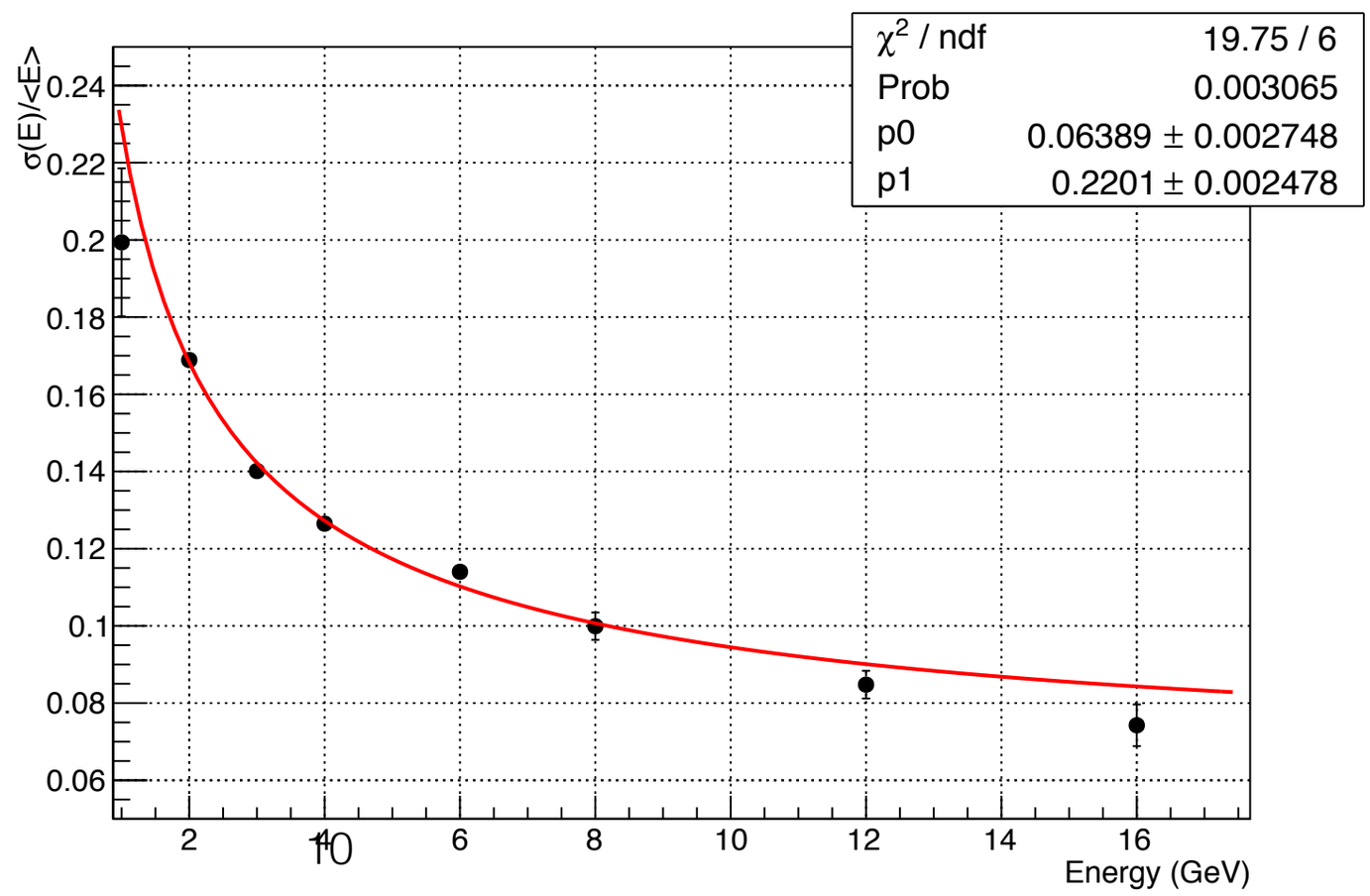
cutlevel 1: Tower 21: row==2, column==2

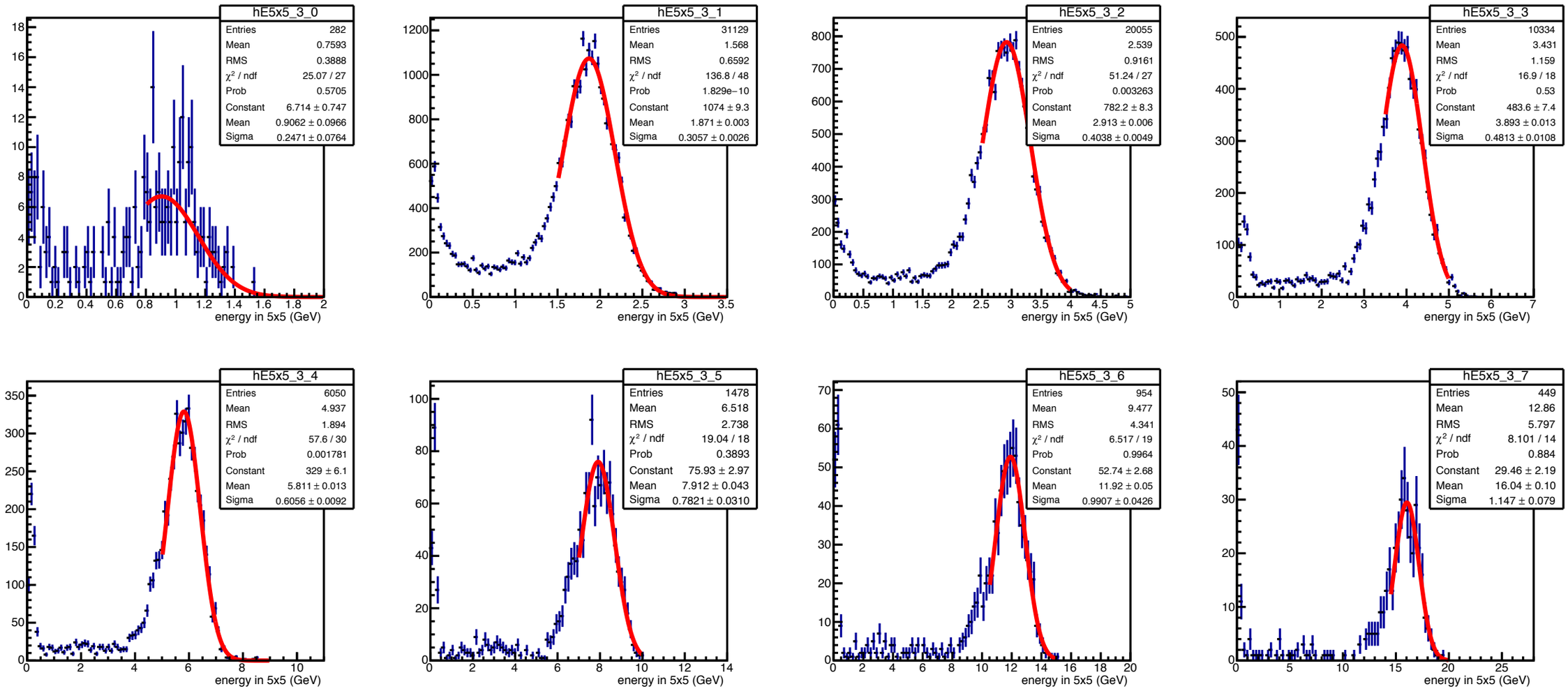




Chrenkov cut

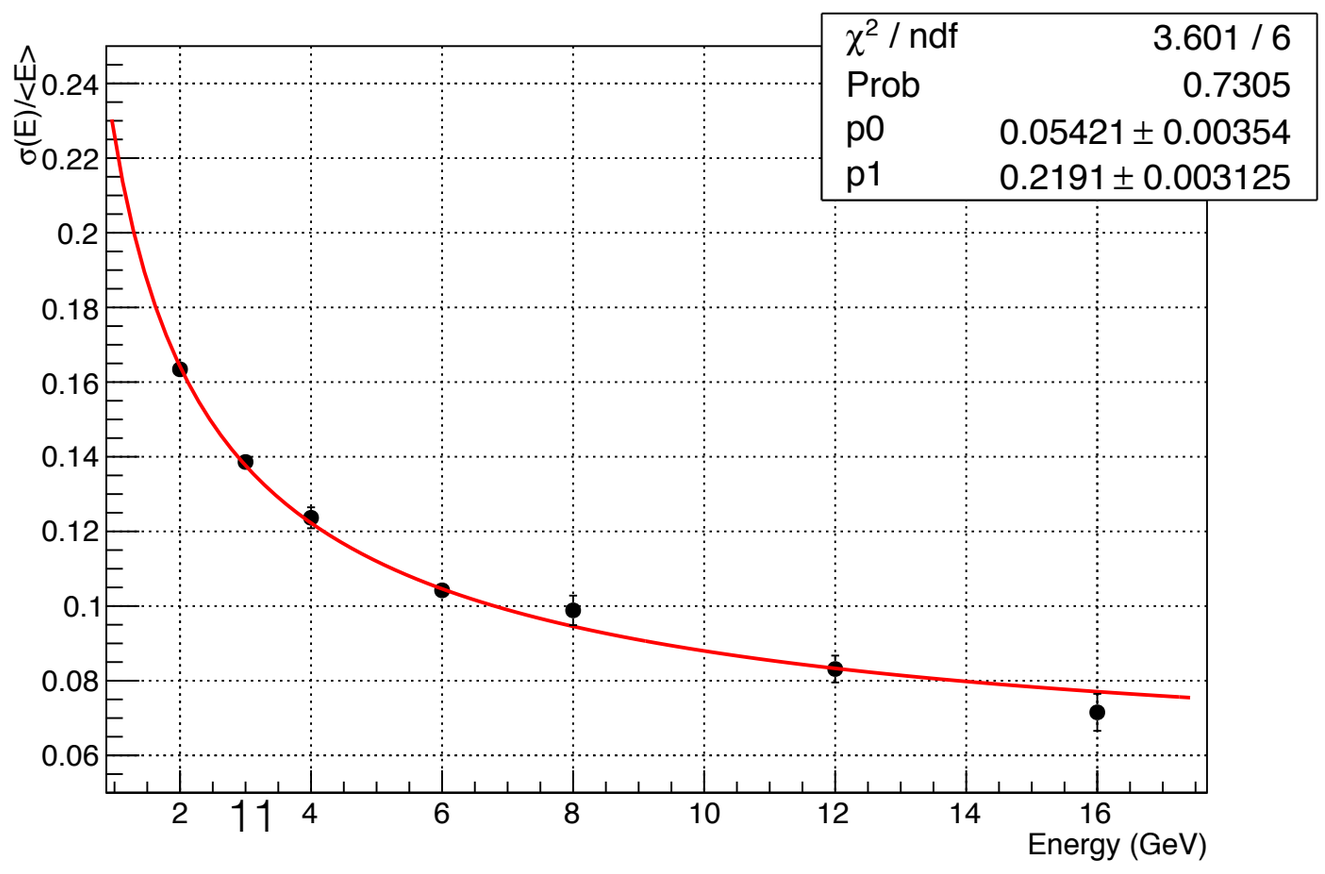
cutlevel 2: cherenkov:
C1>15, C2inner<0

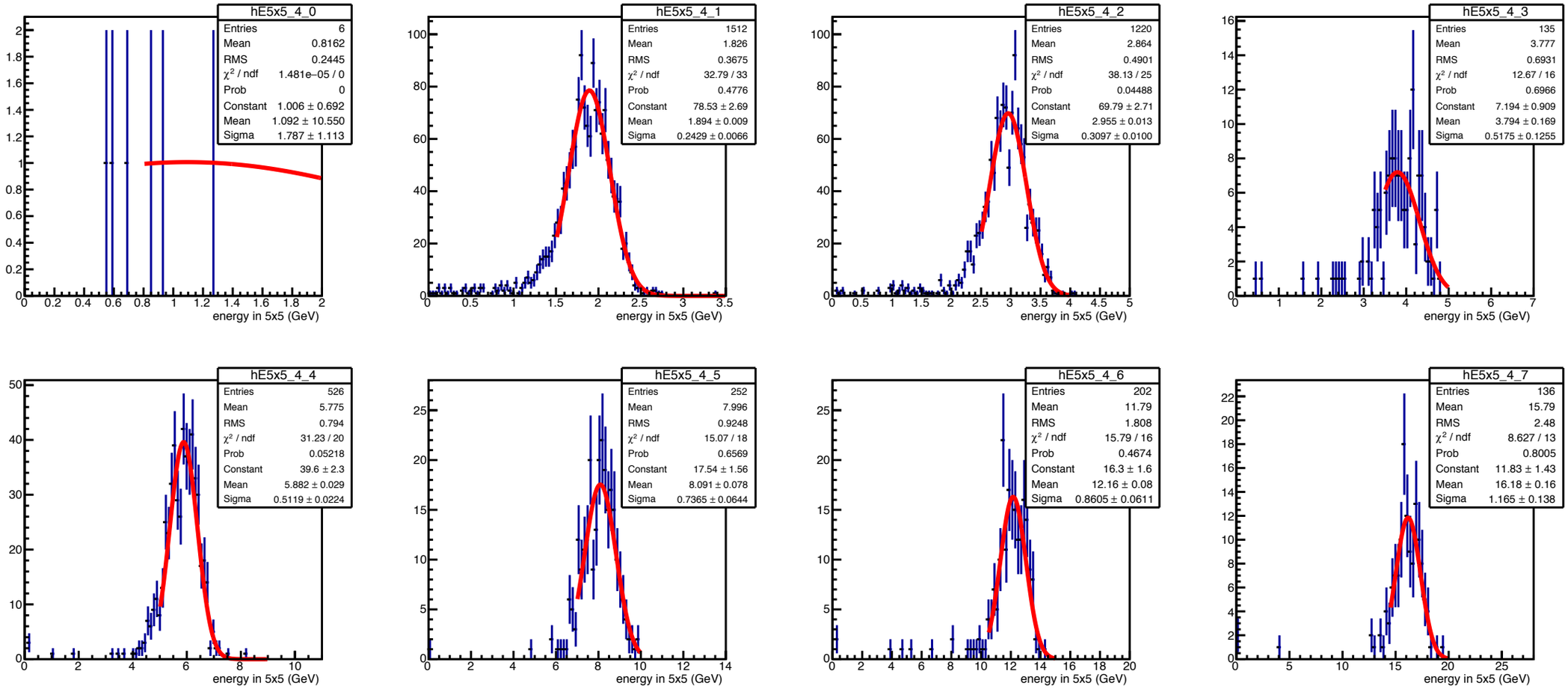




Chrenkov + veto cut

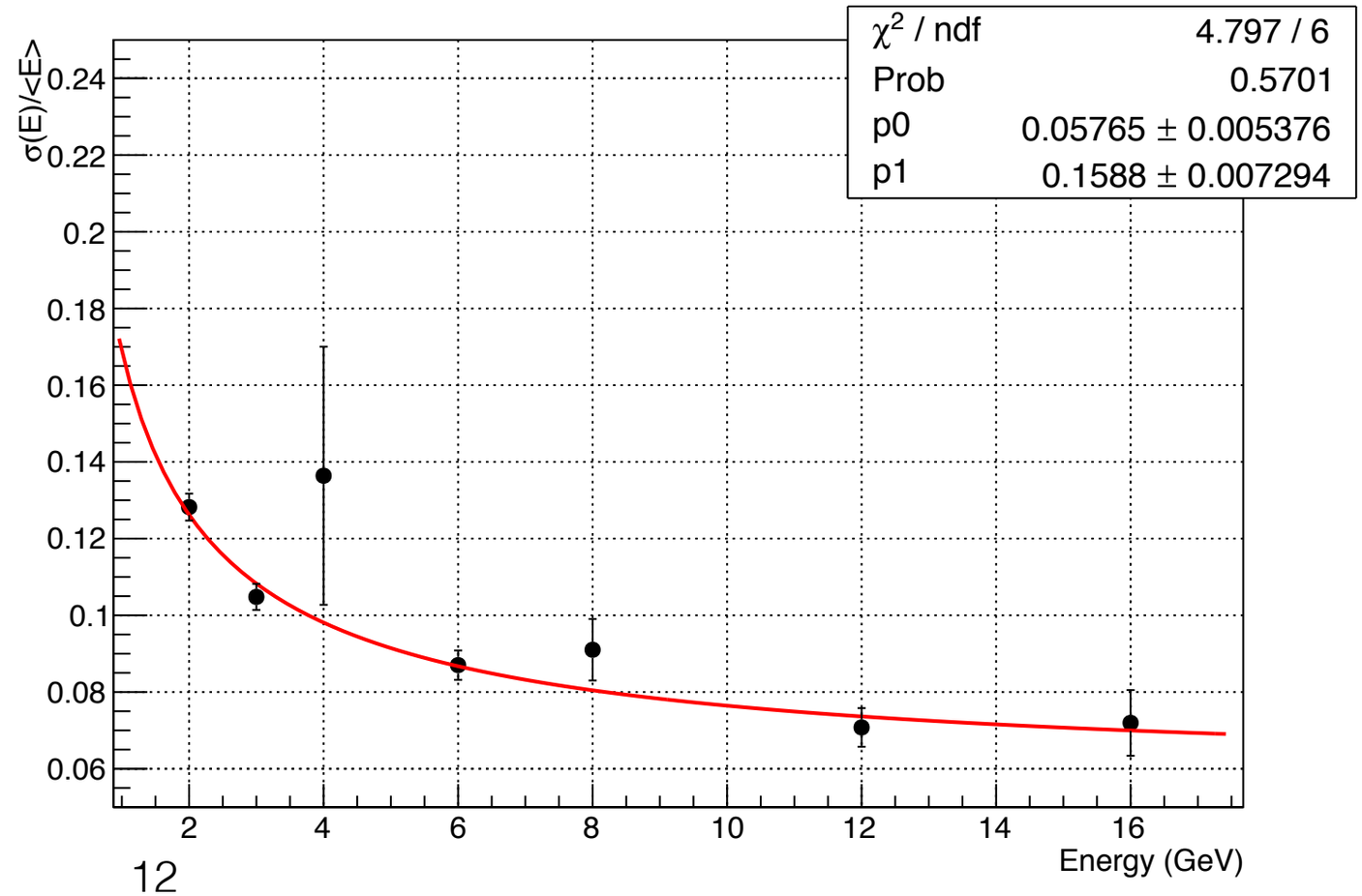
cutlevel 3: cherenkov + veto: Veto1<22, Veto2<115<, Veto3<22, Veto4<150





Chrenkov + veto +Tower 21 +hodoscope cut

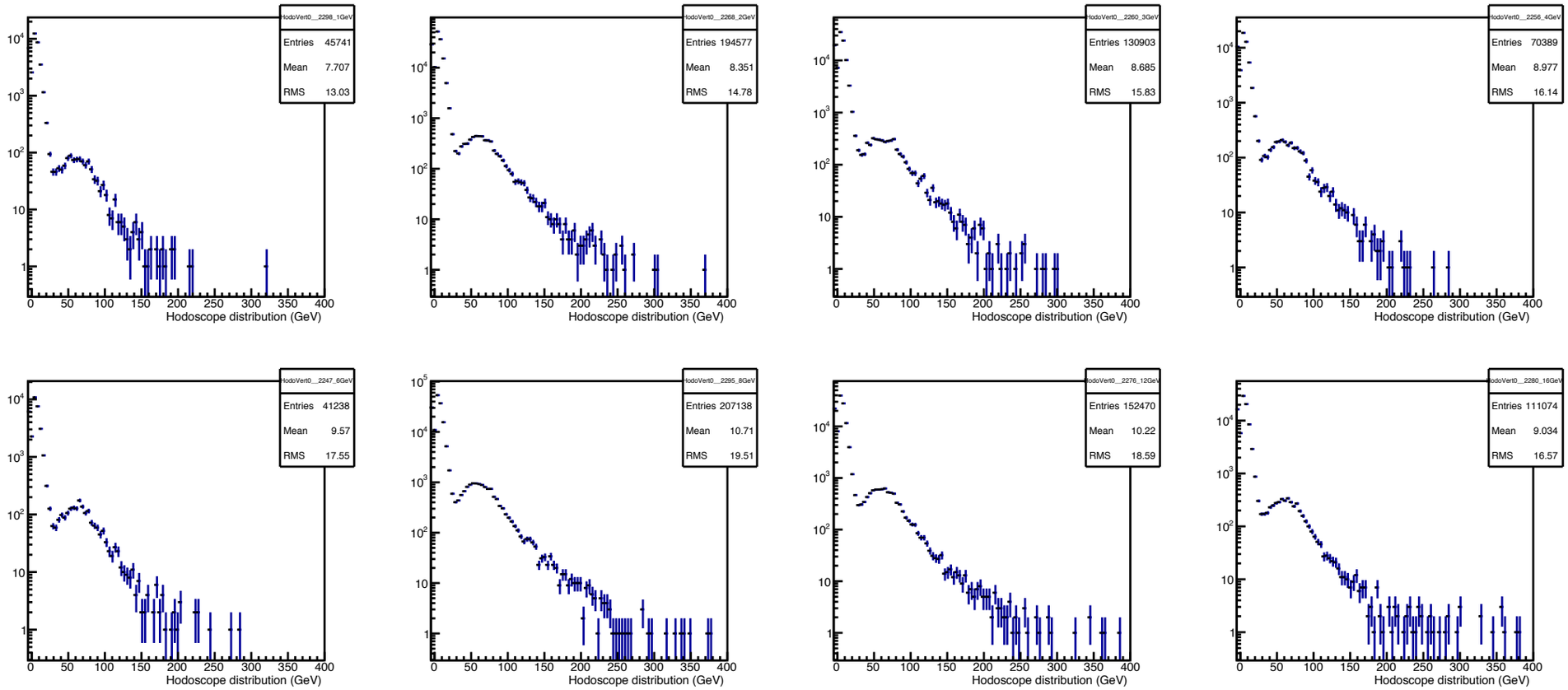
cutlevel 4: cherenkov + veto + hodoscope : abs(Hodo energy)>30 in vertical and horizontal +Tower 21



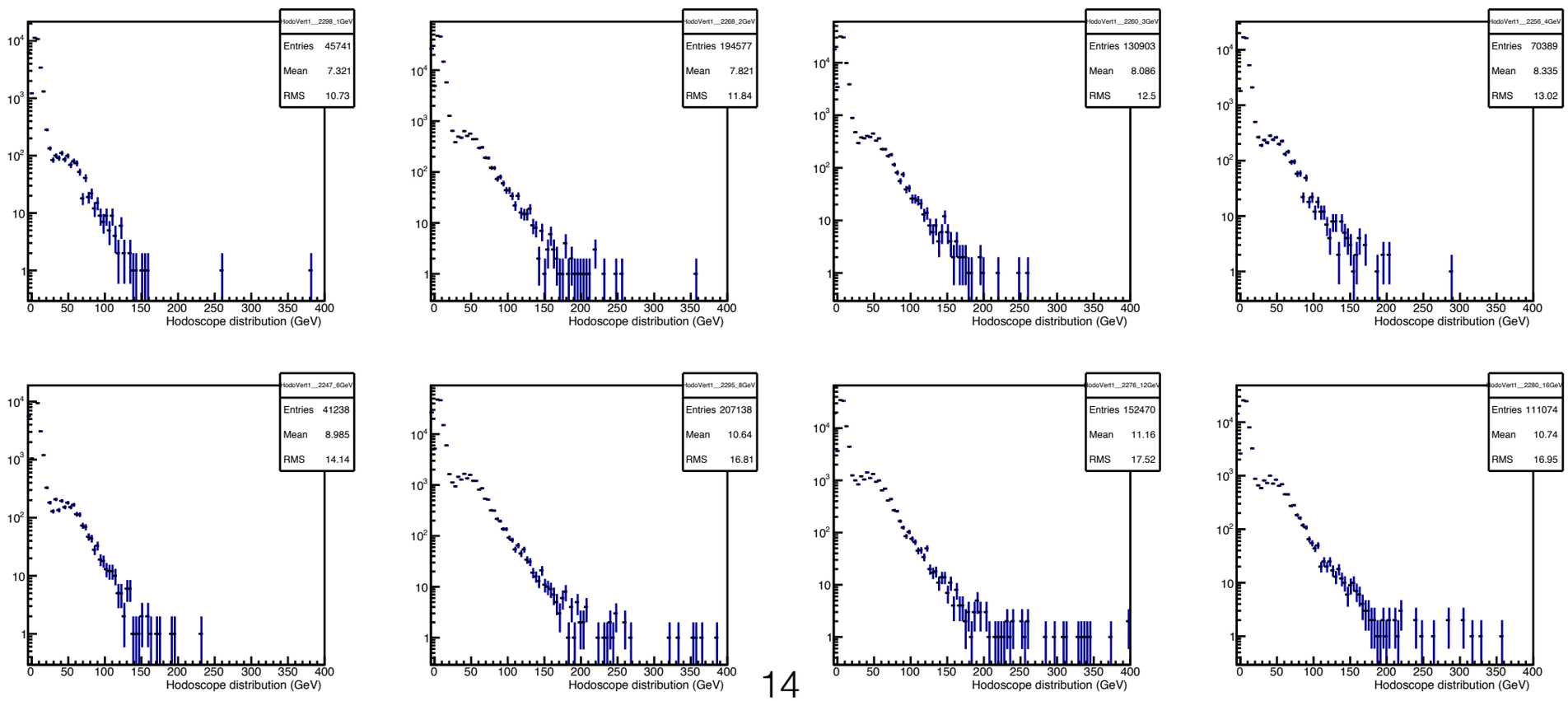
Backup Slides

Hodoscope Distributions:Vertical

V0

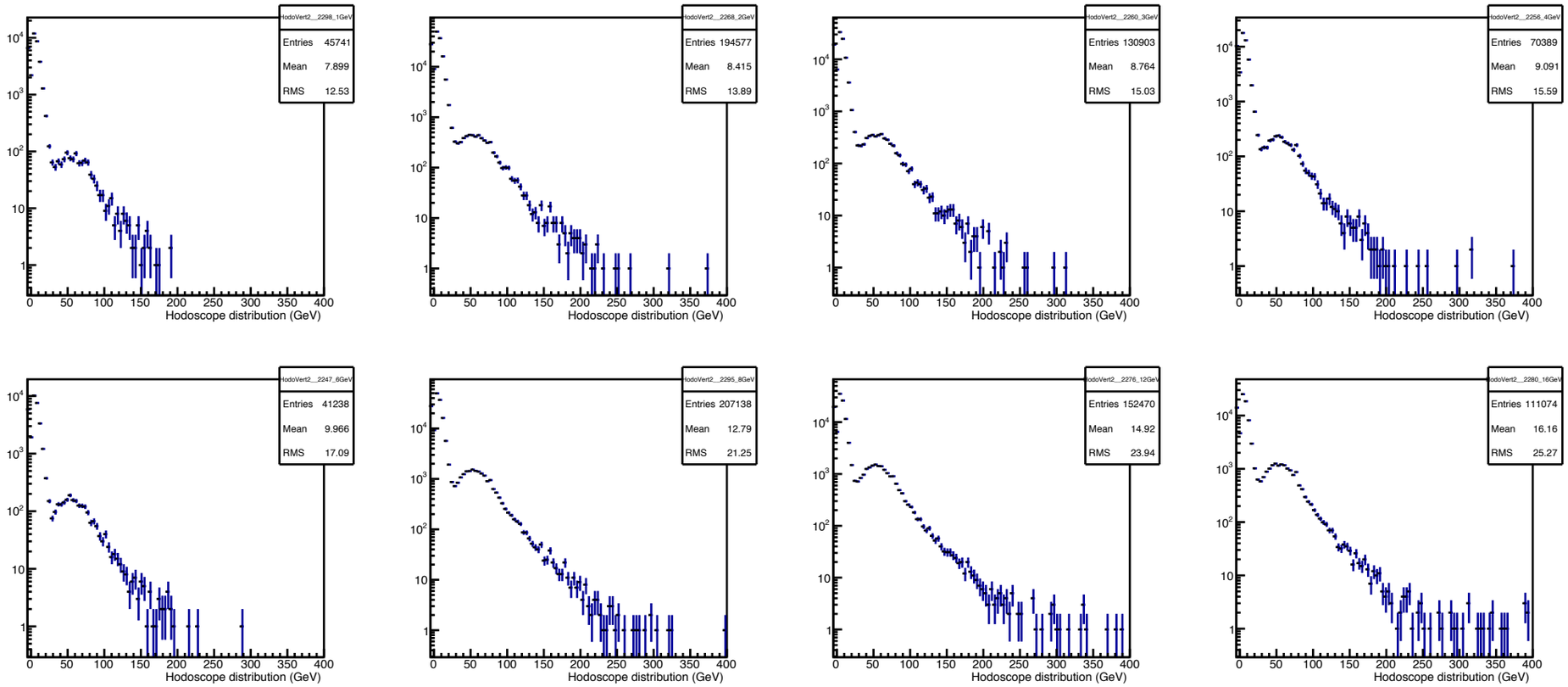


V1

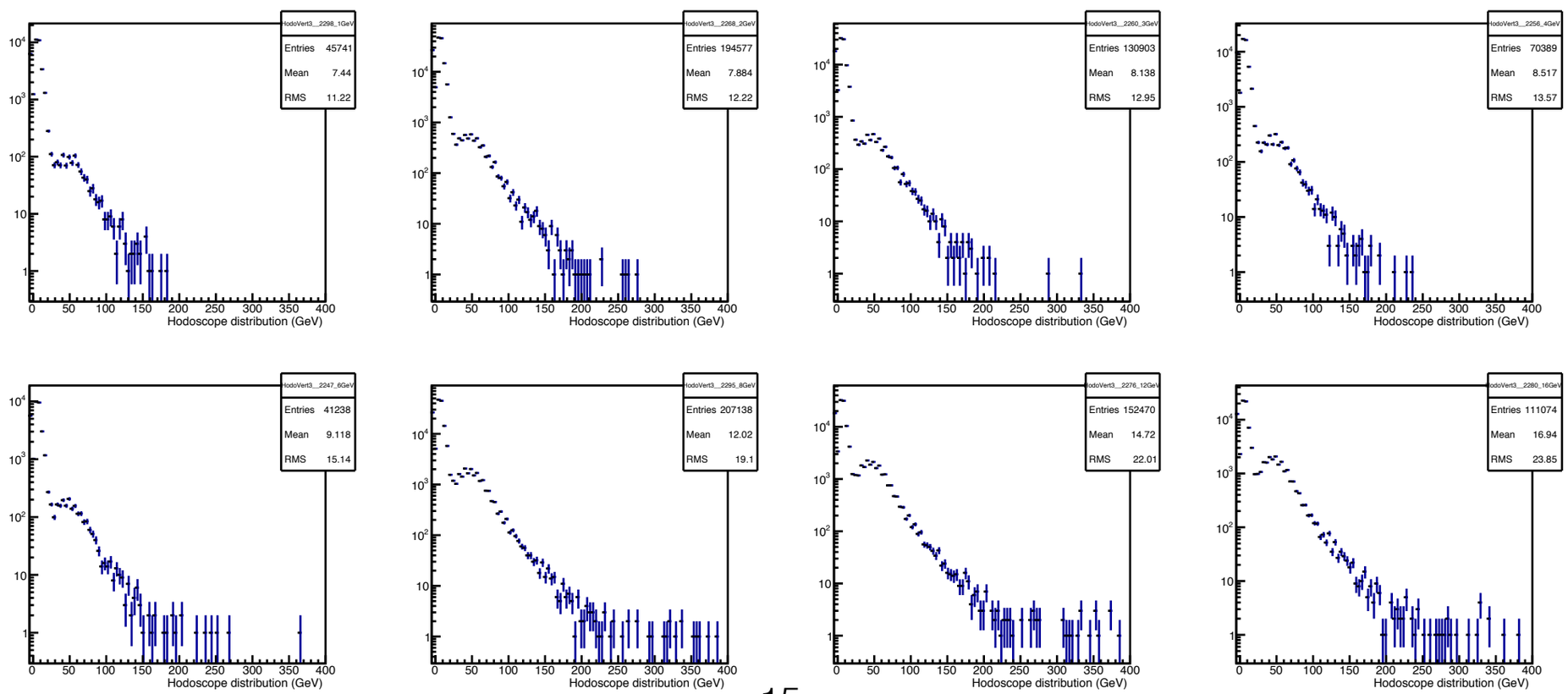


Hodoscope Distributions:Vertical

V2

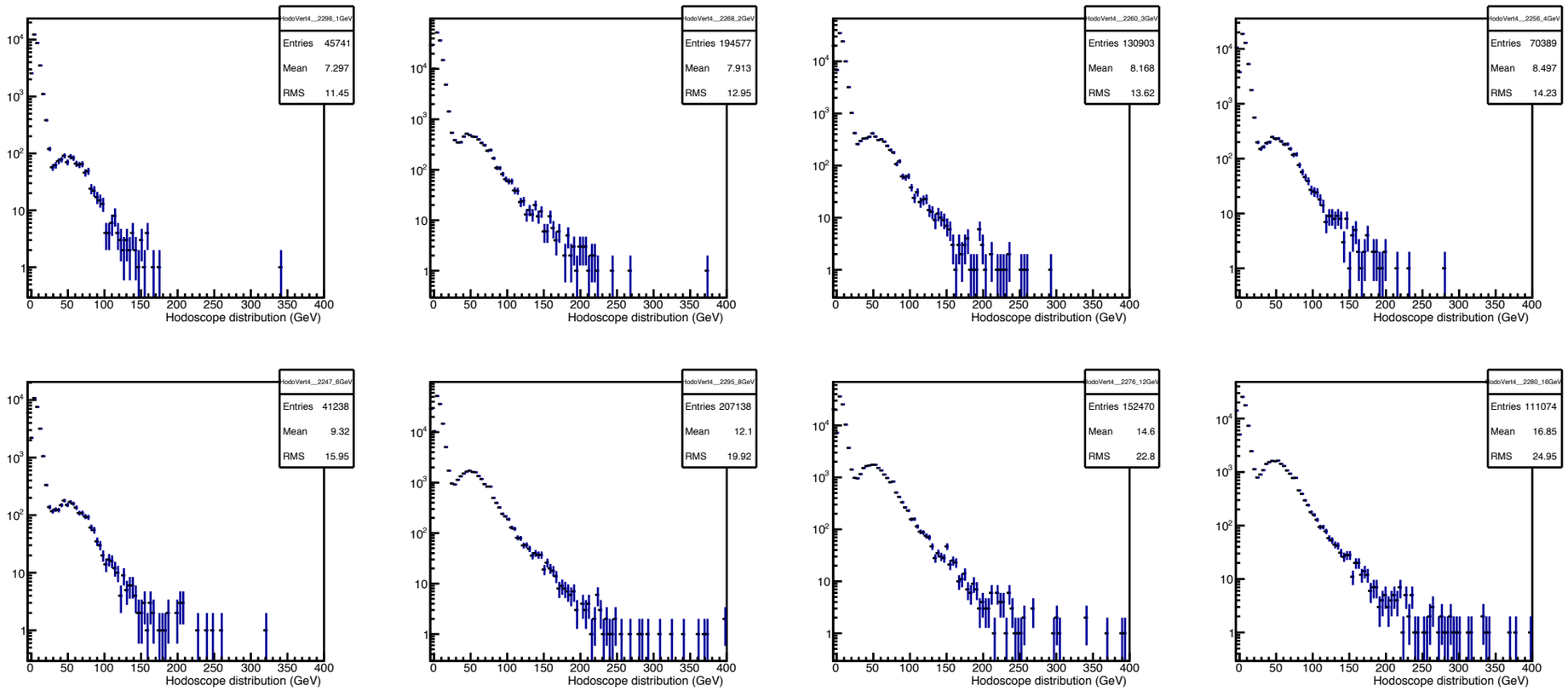


V3

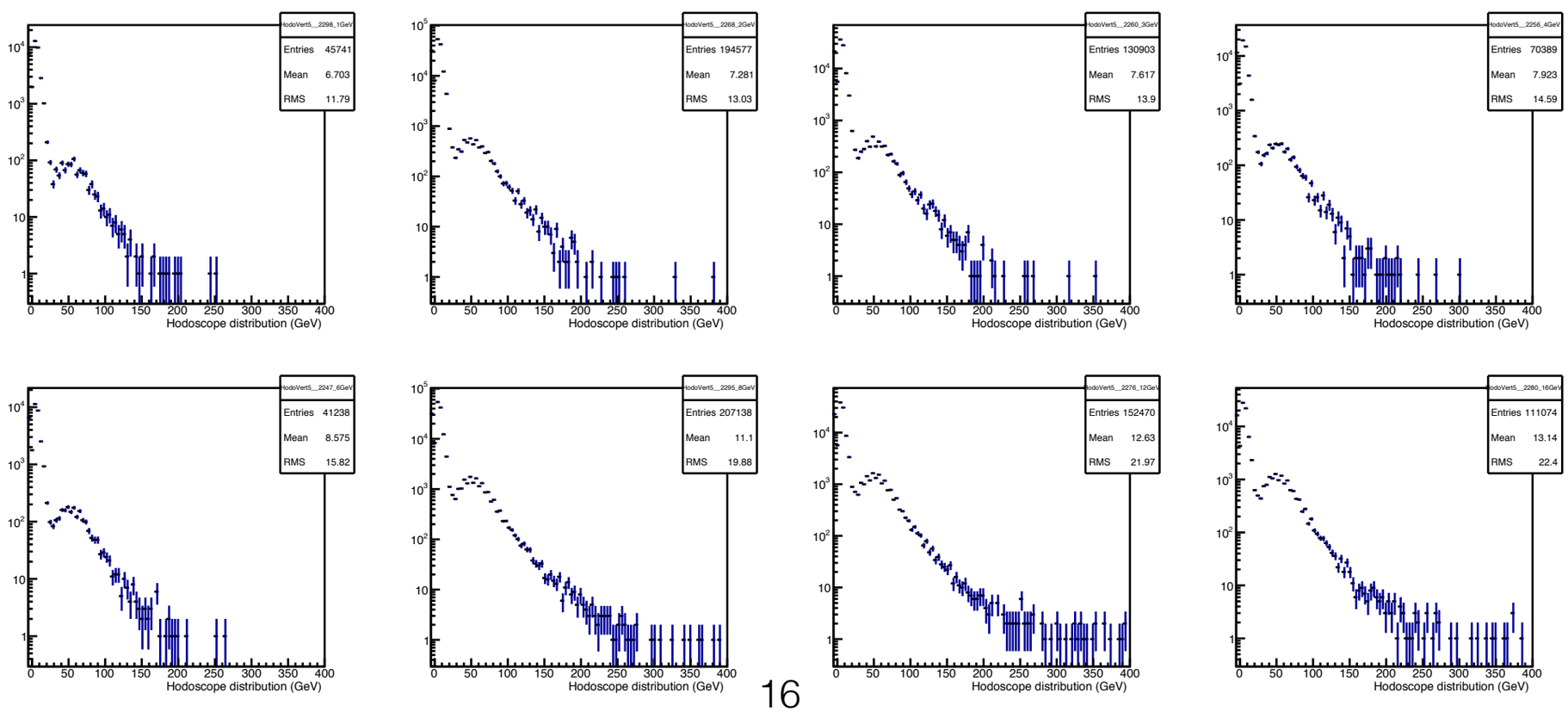


Hodoscope Distributions:Vertical

V4

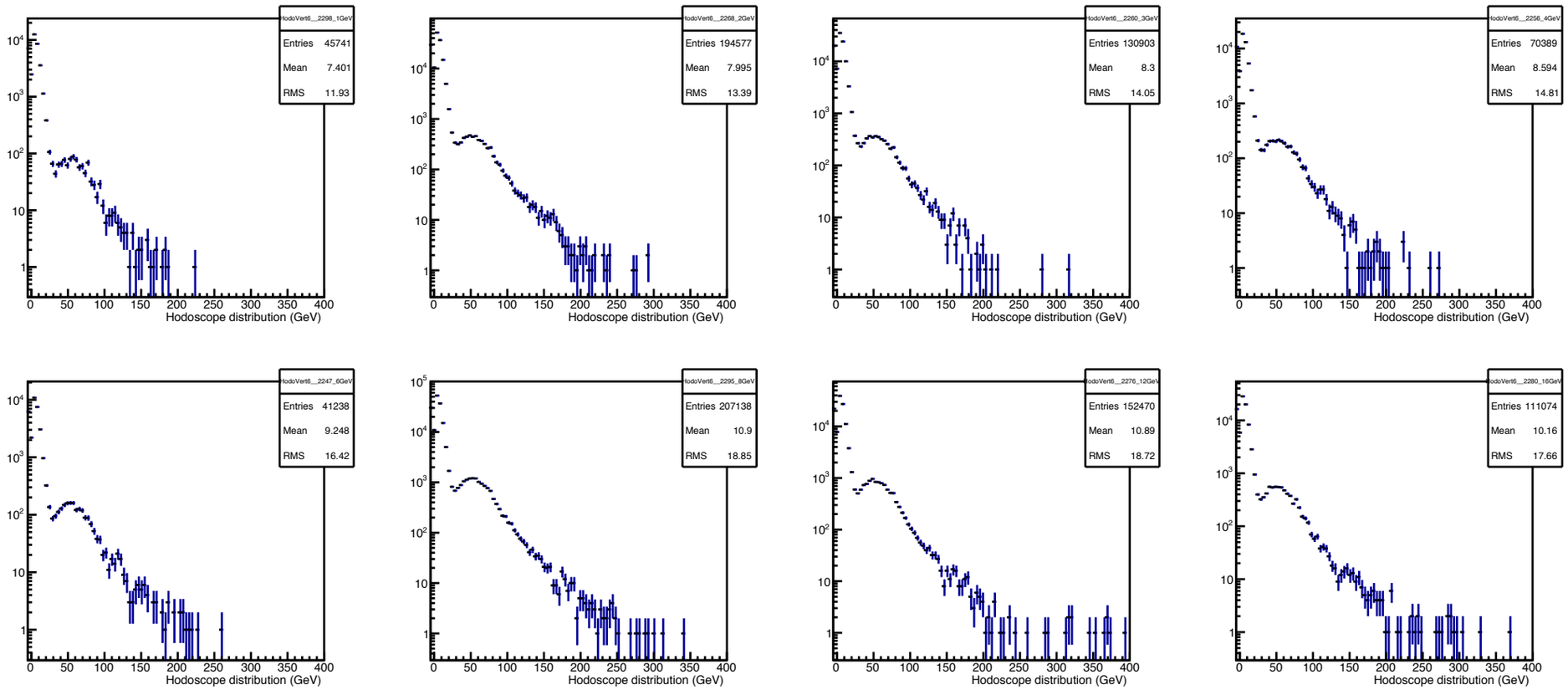


V5

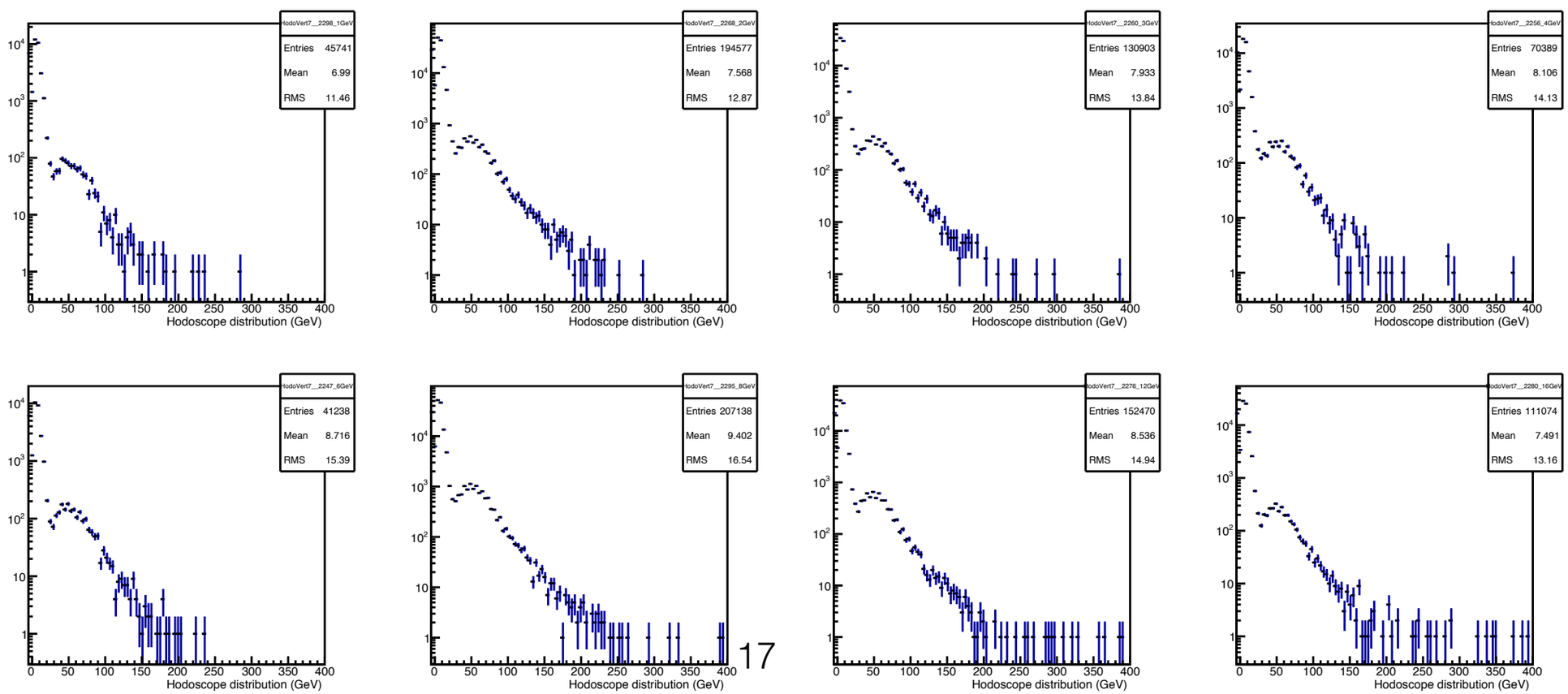


Hodoscope Distributions:Vertical

V6

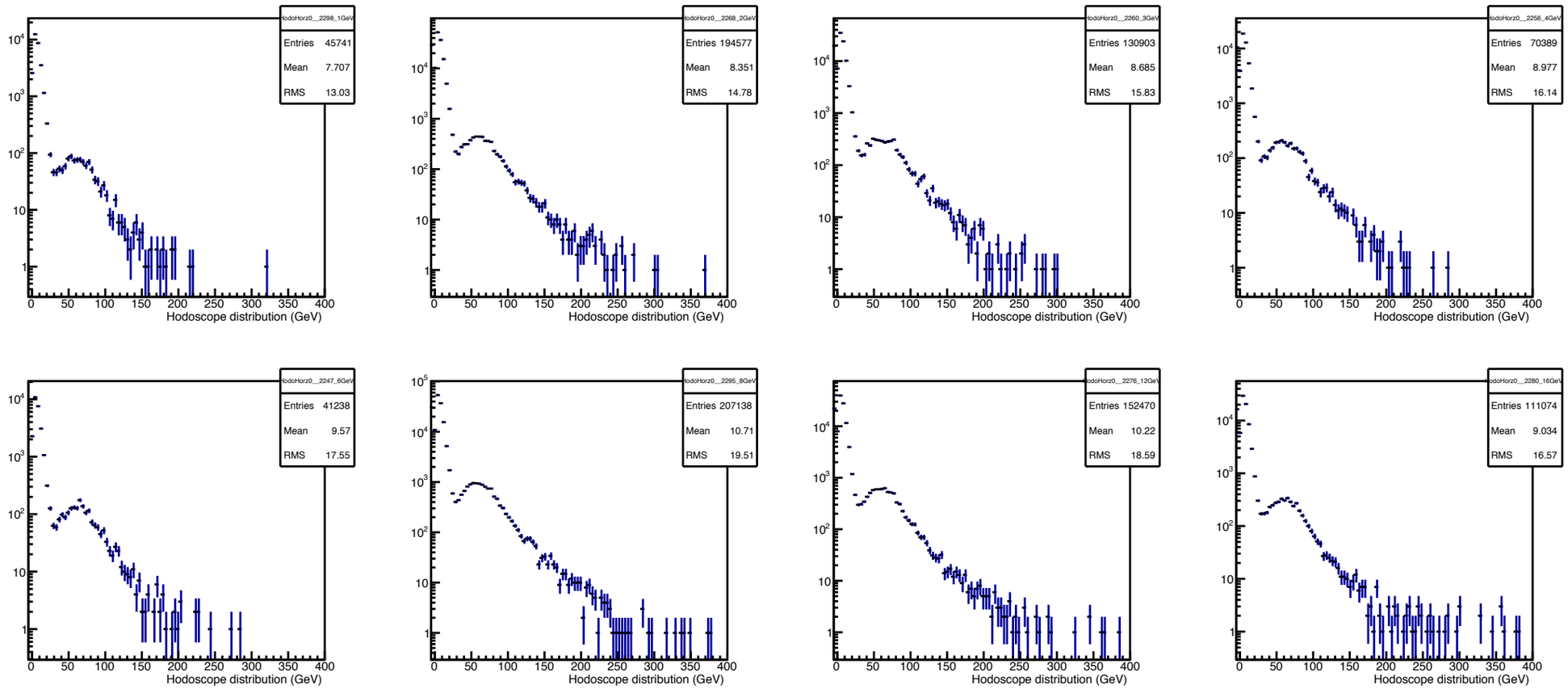


V7

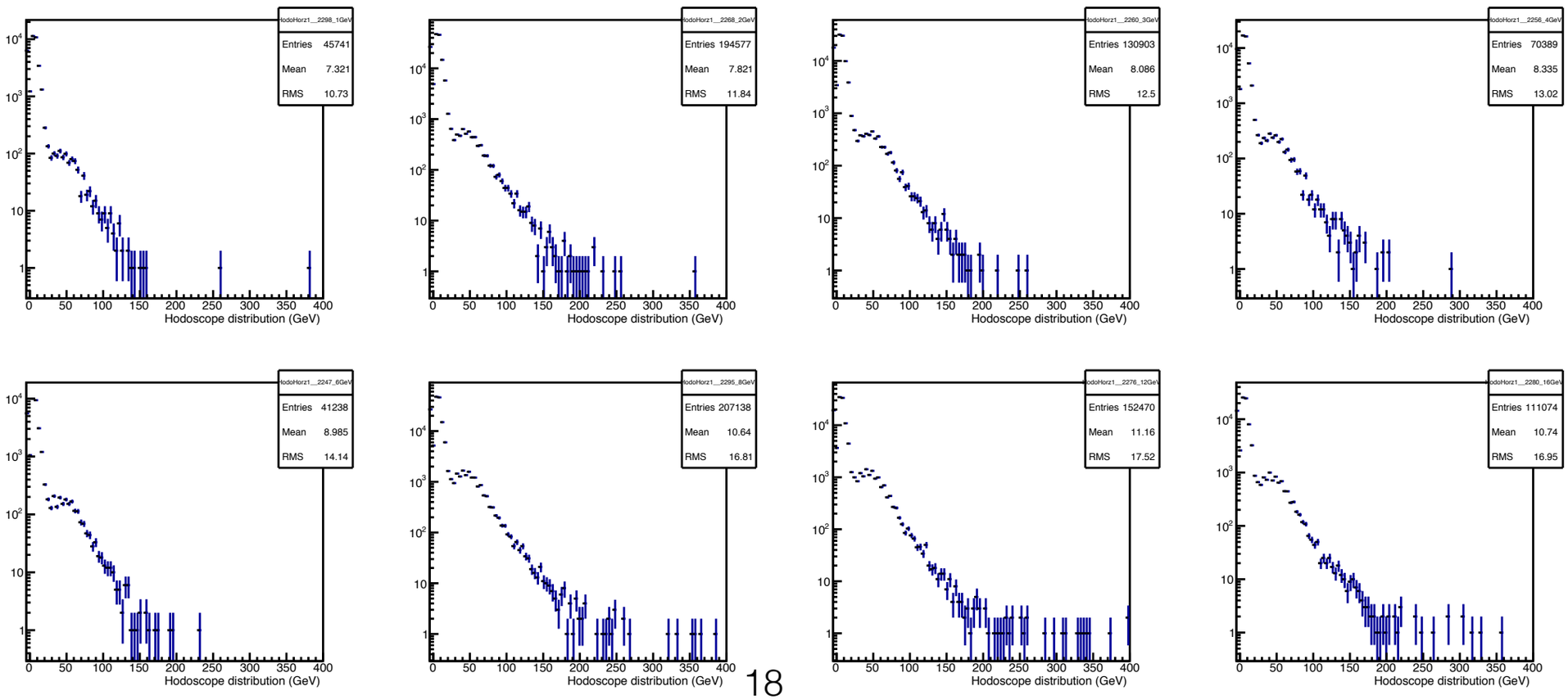


Hodoscope Distributions:Horizontal

H0

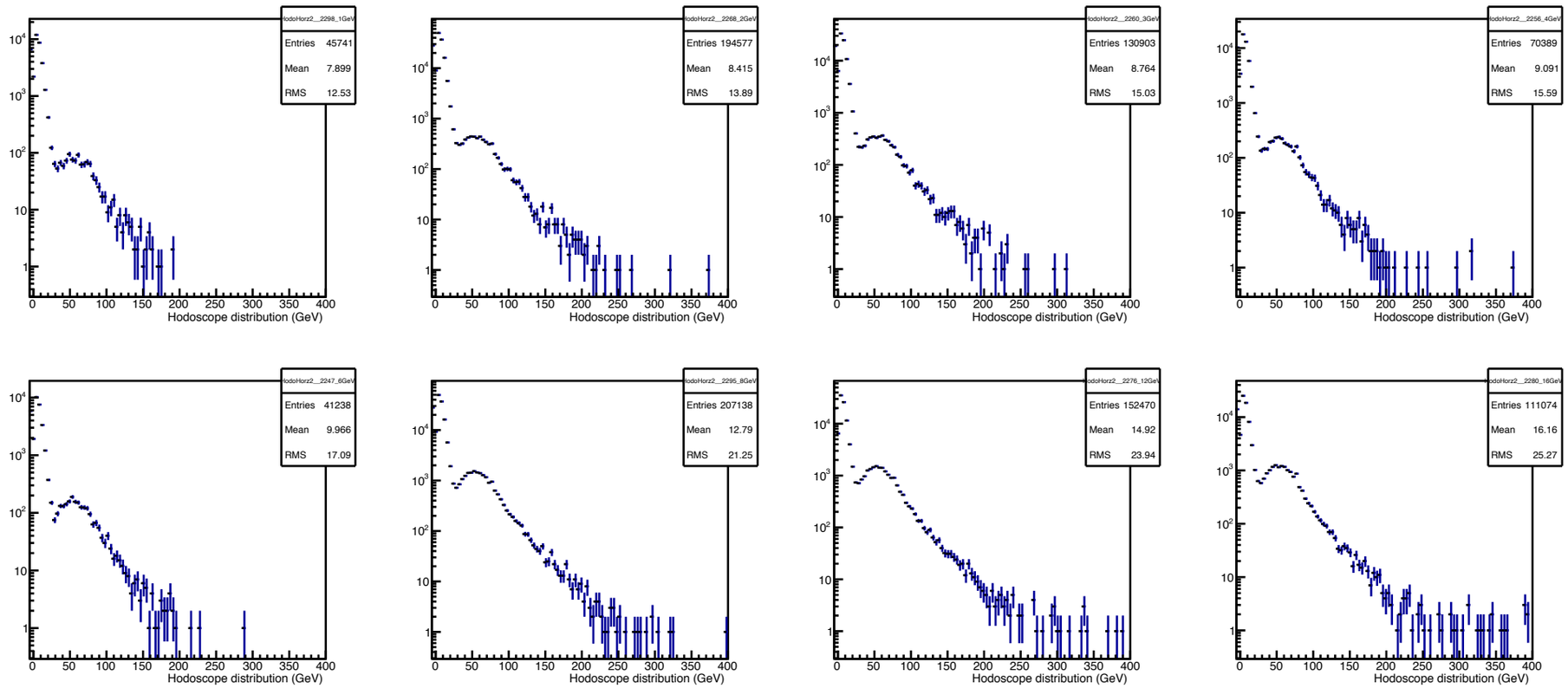


H1

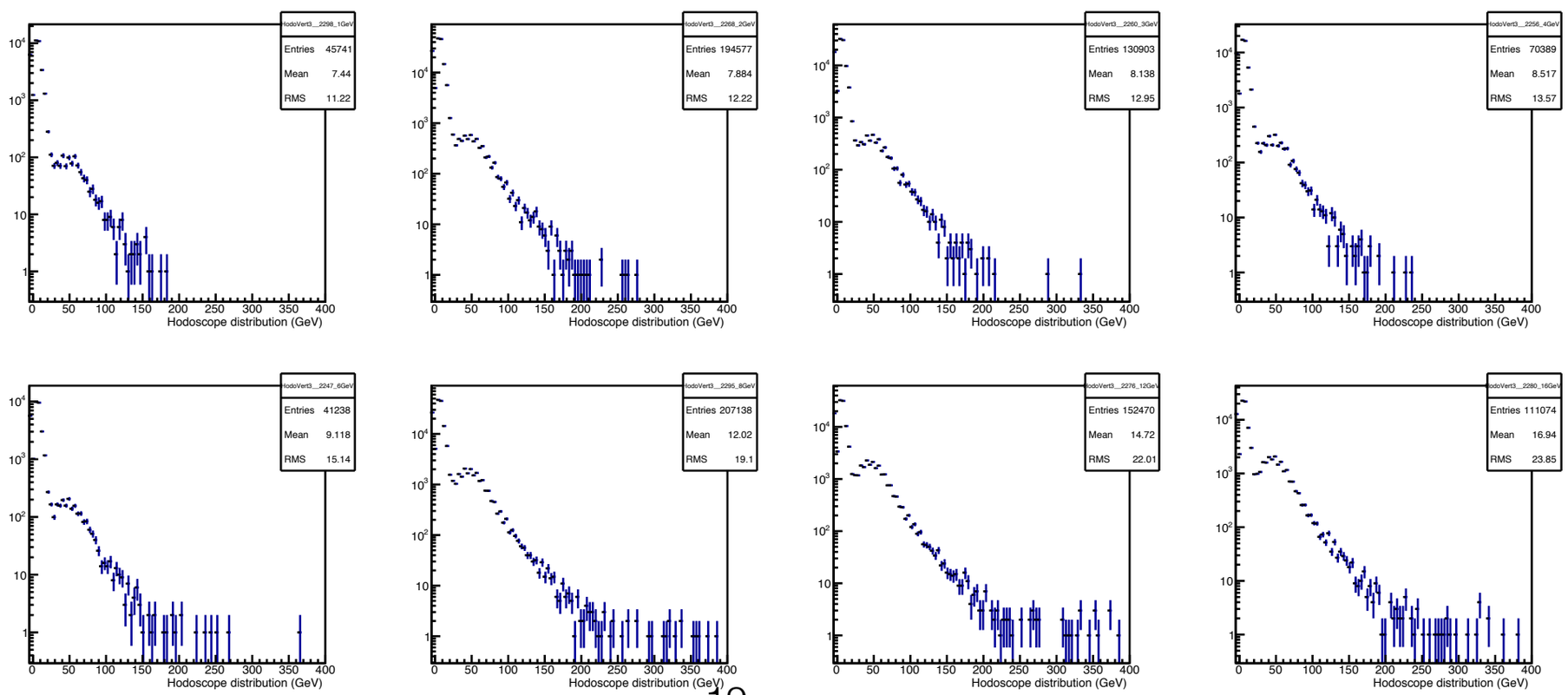


Hodoscope Distributions:Horizontal

H2

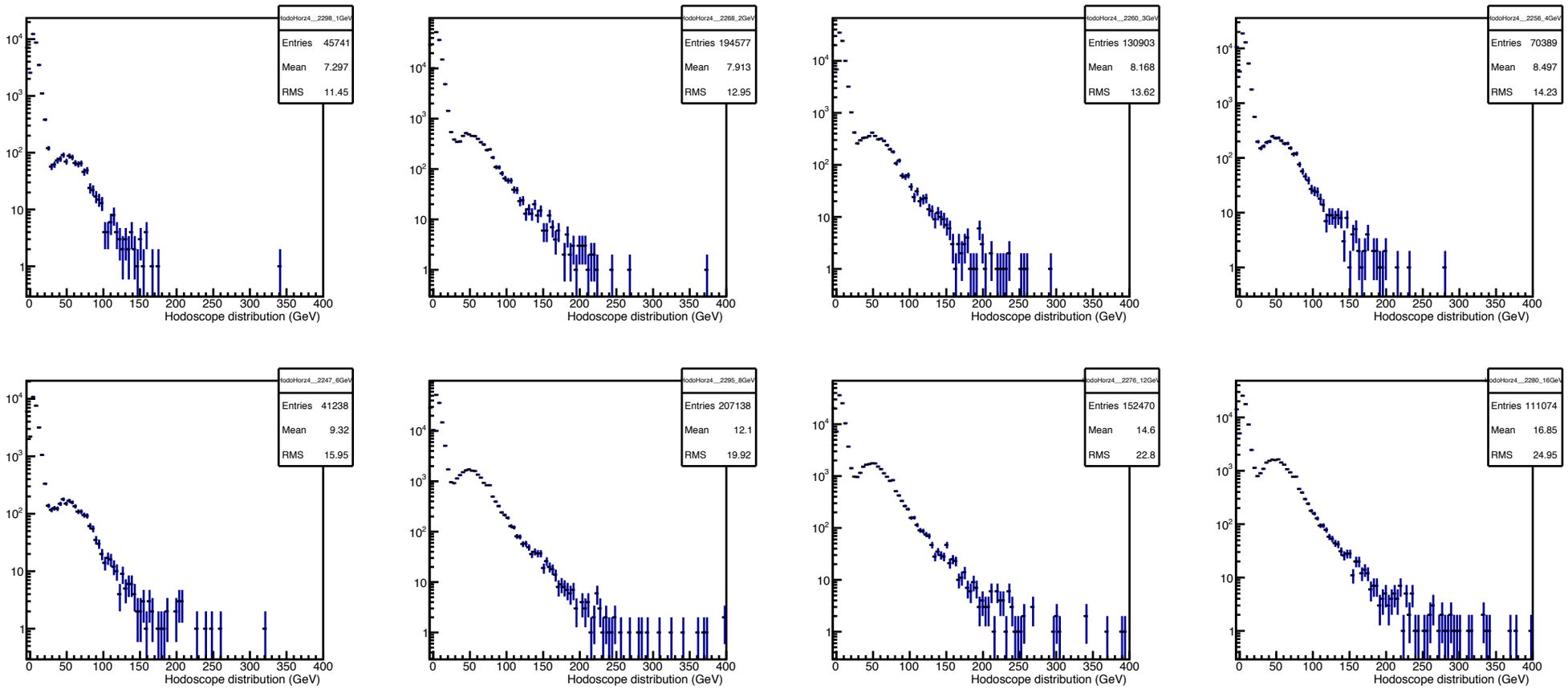


H3

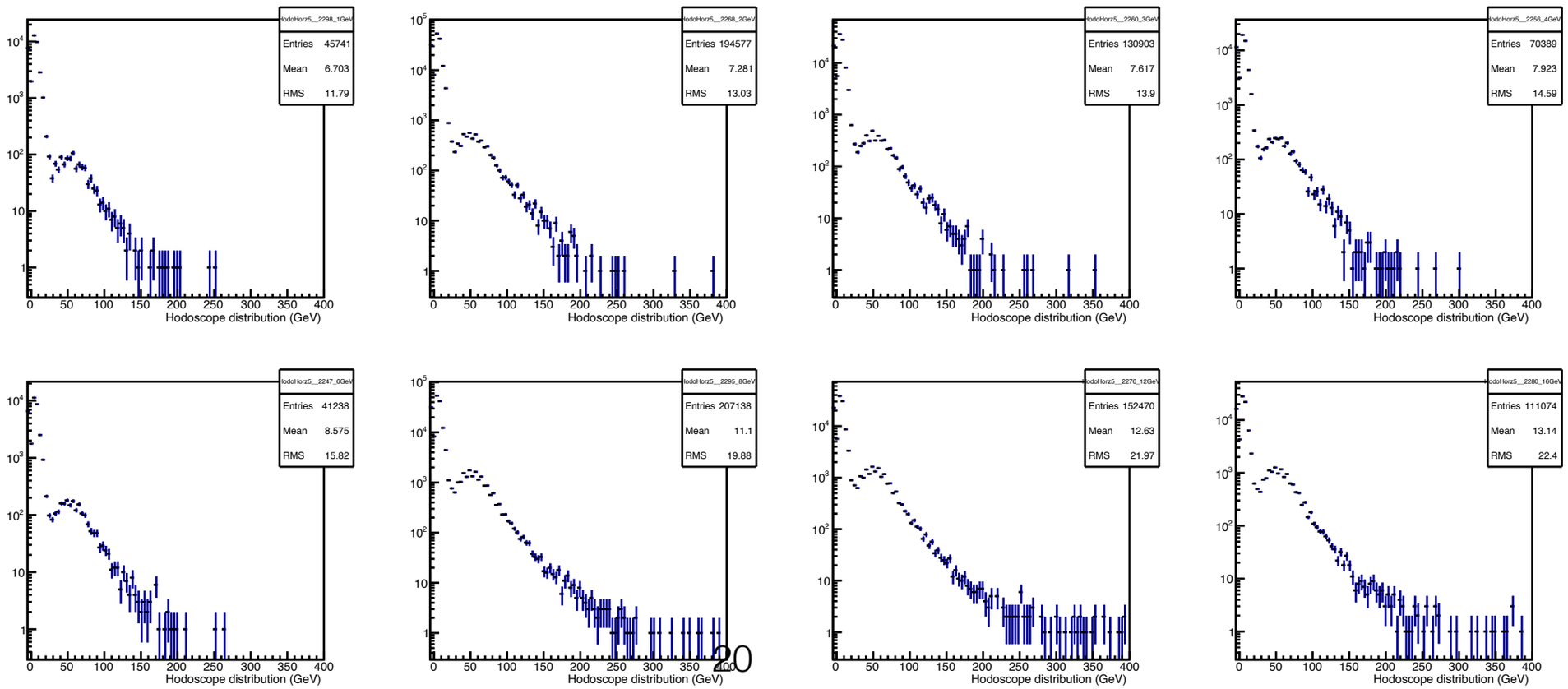


Hodoscope Distributions:Horizontal

H4

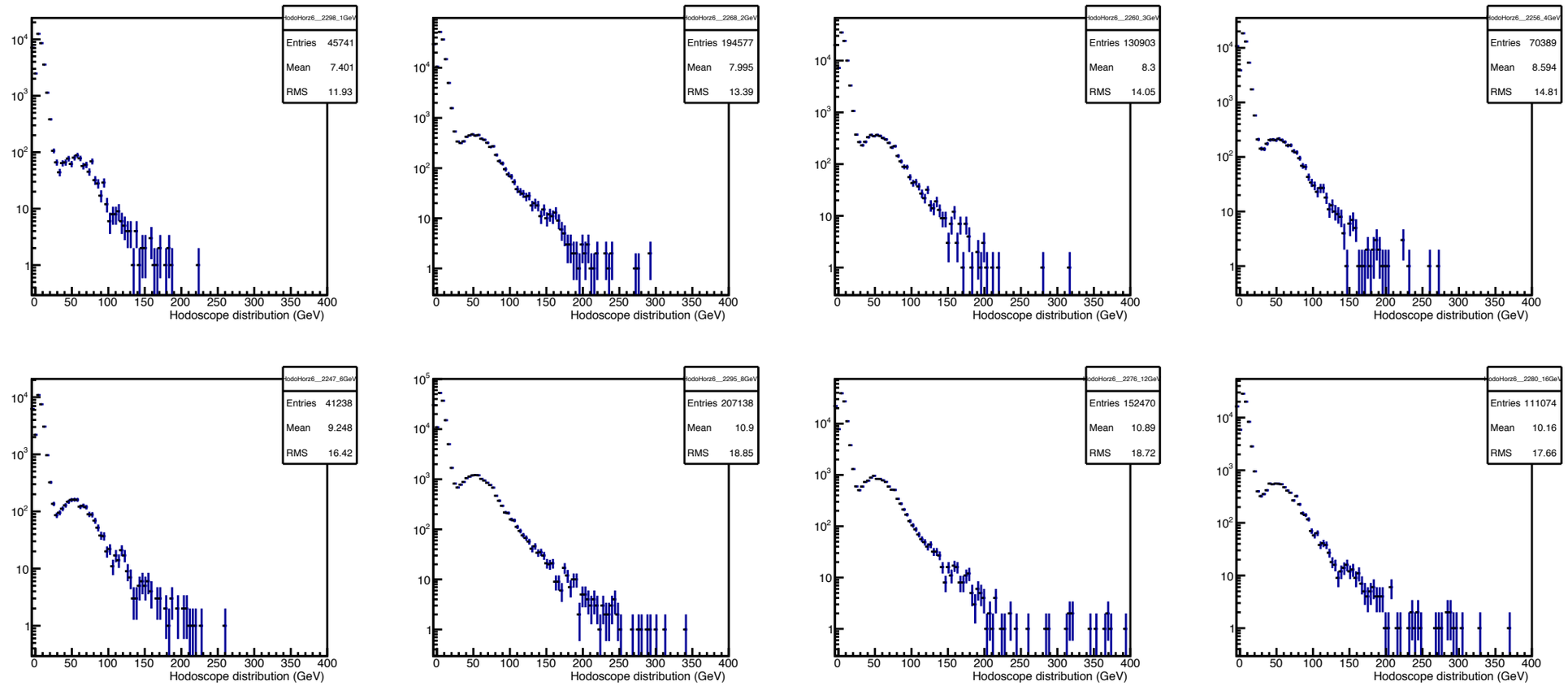


H5

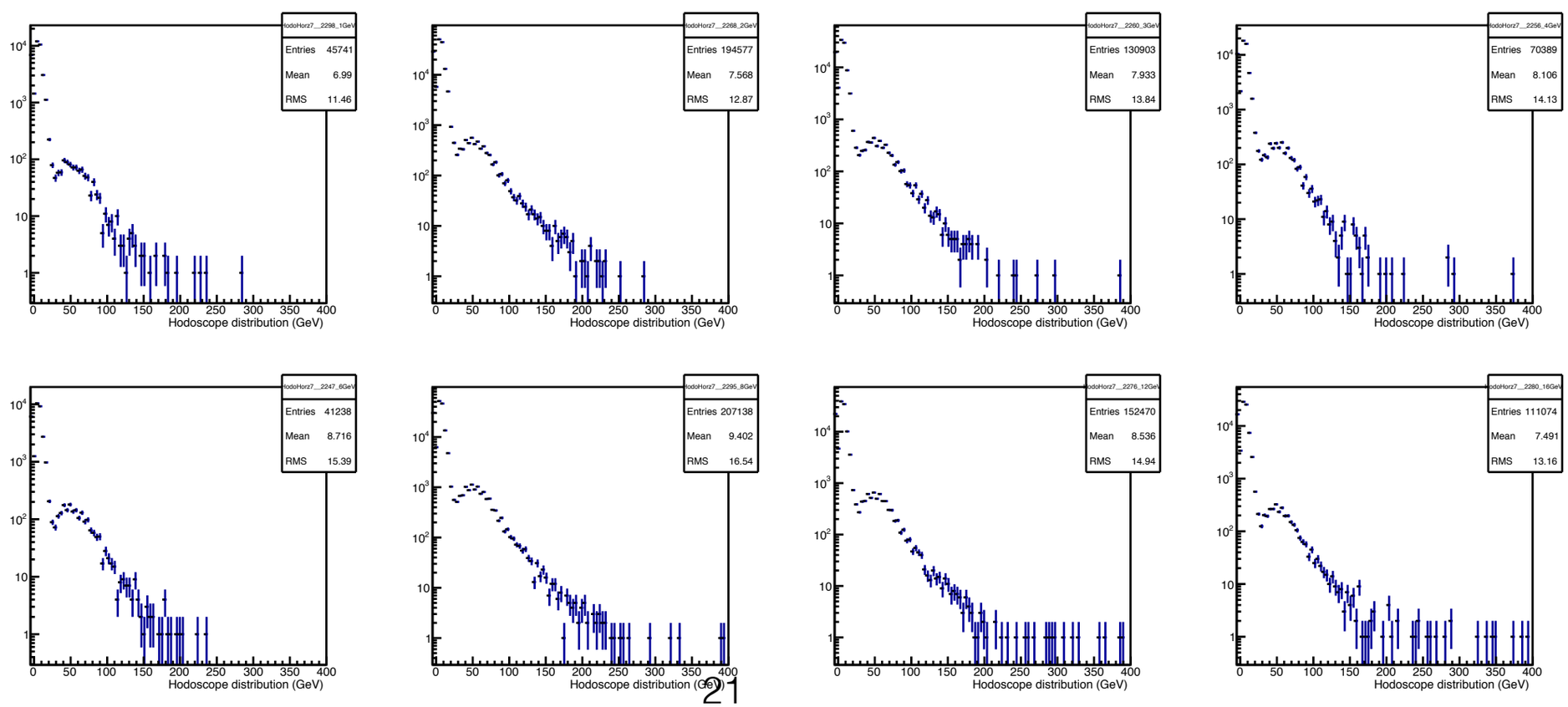


Hodoscope Distributions:Horizontal

H6

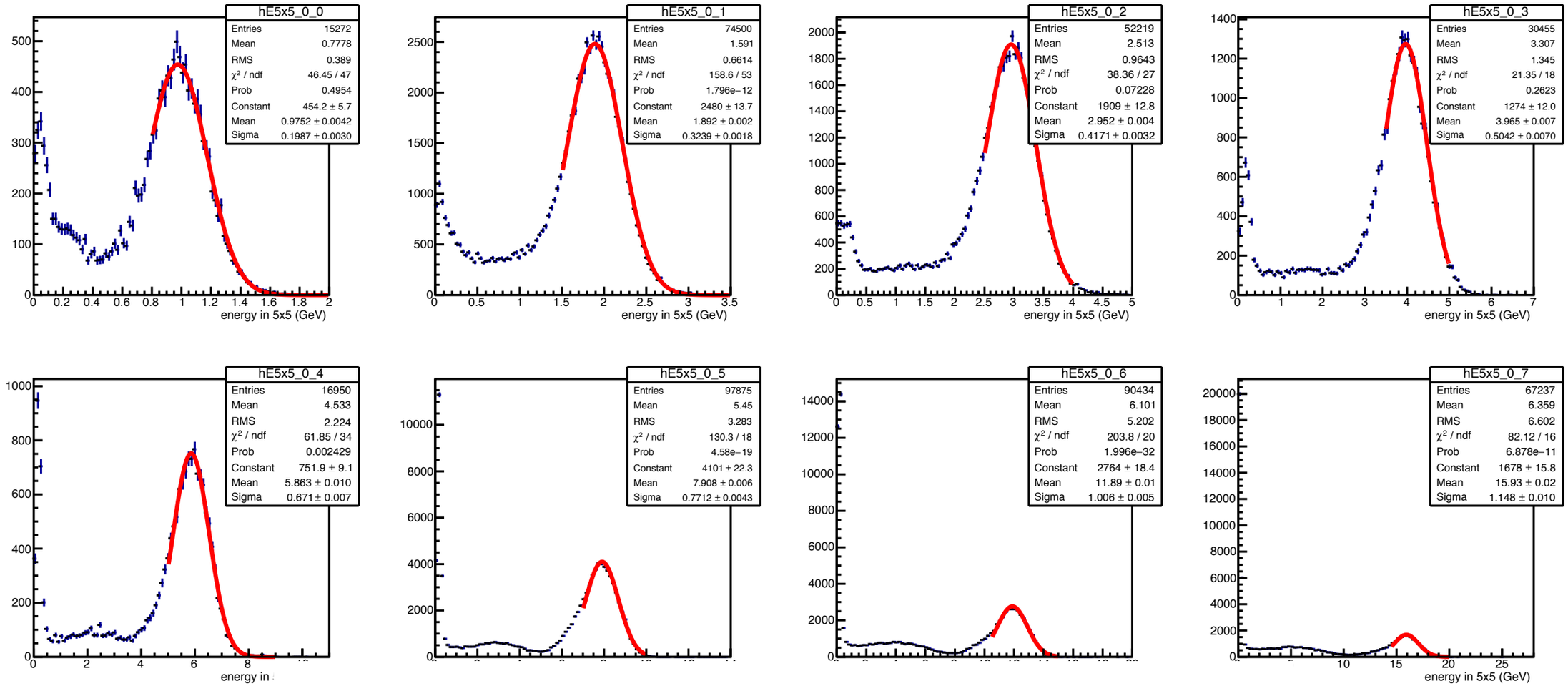


H7

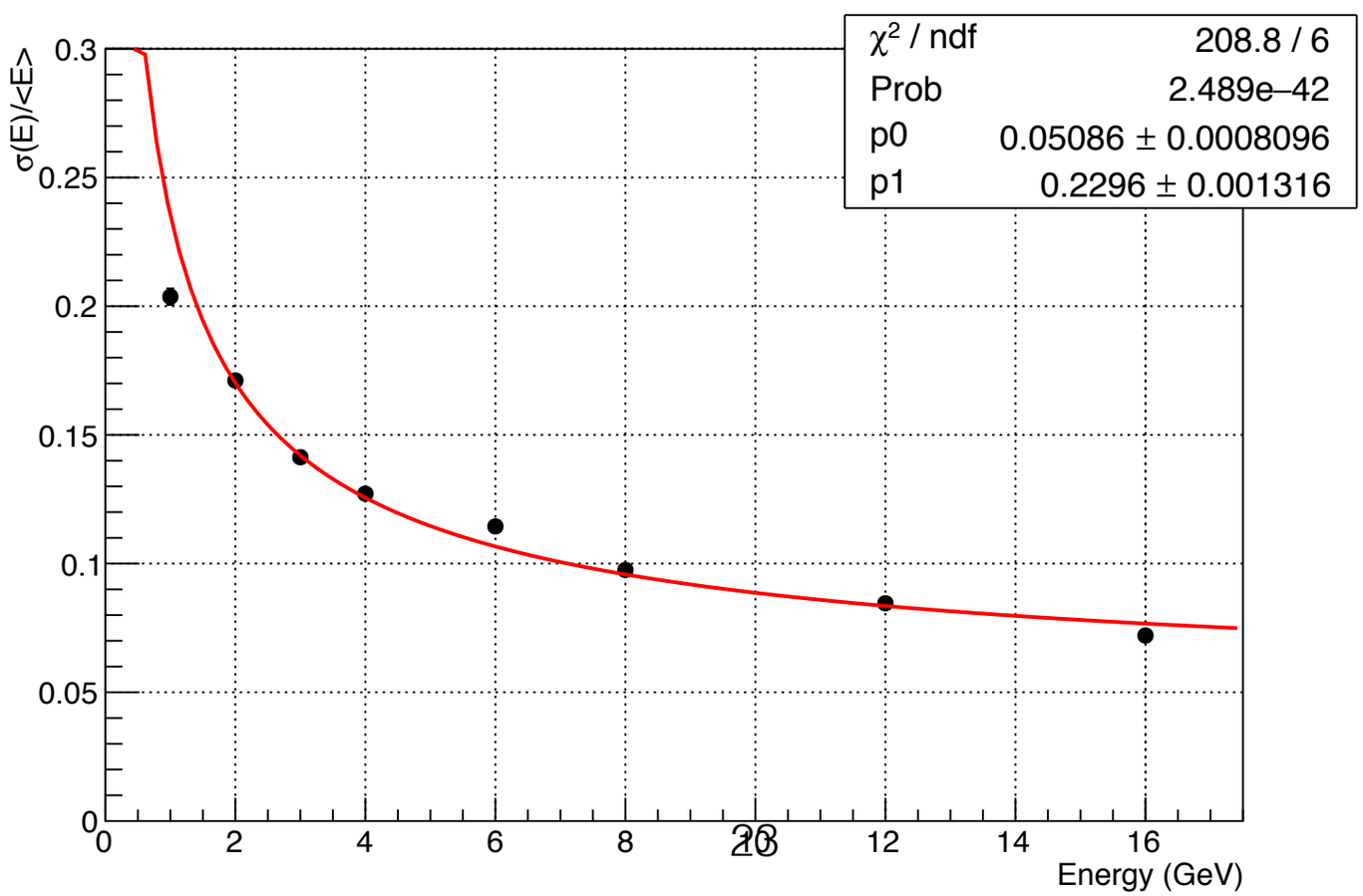


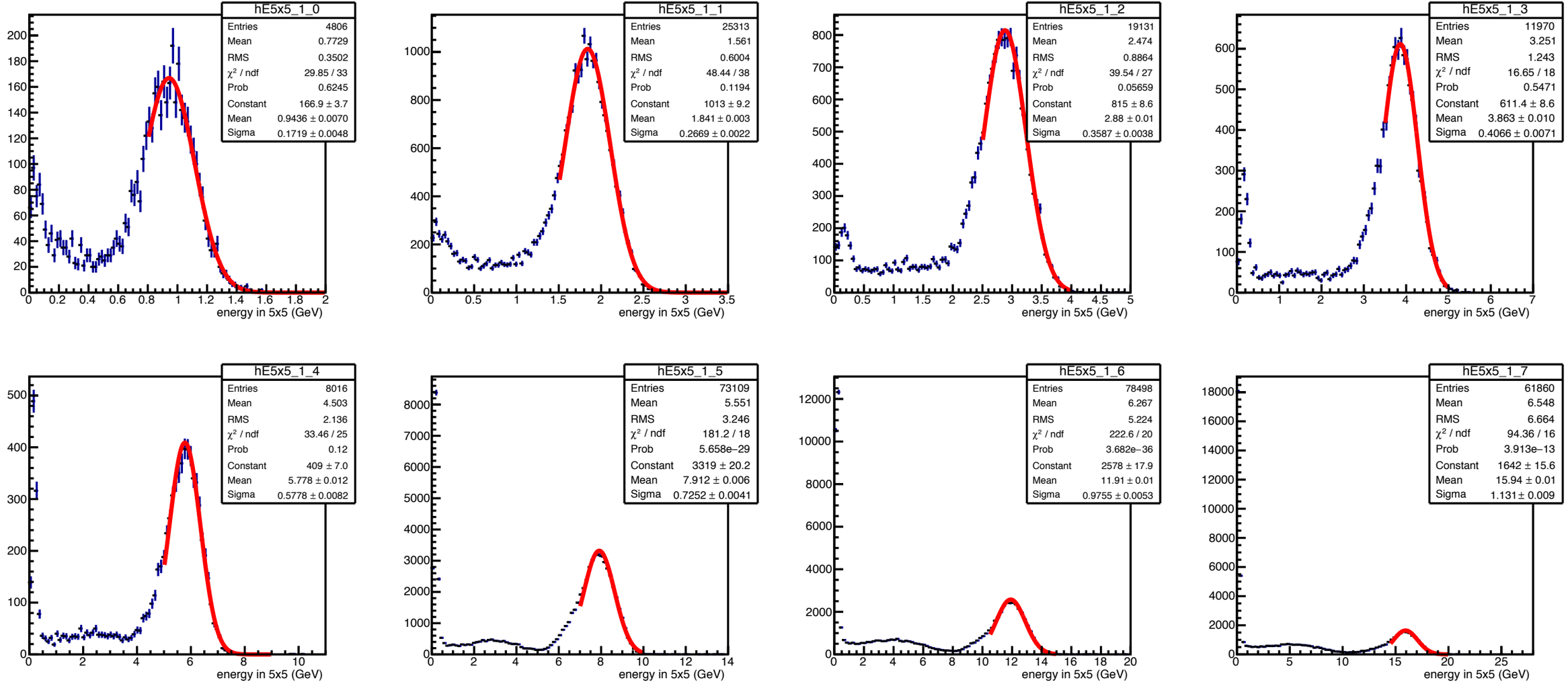
different Tower 21 cut

select row==2 only

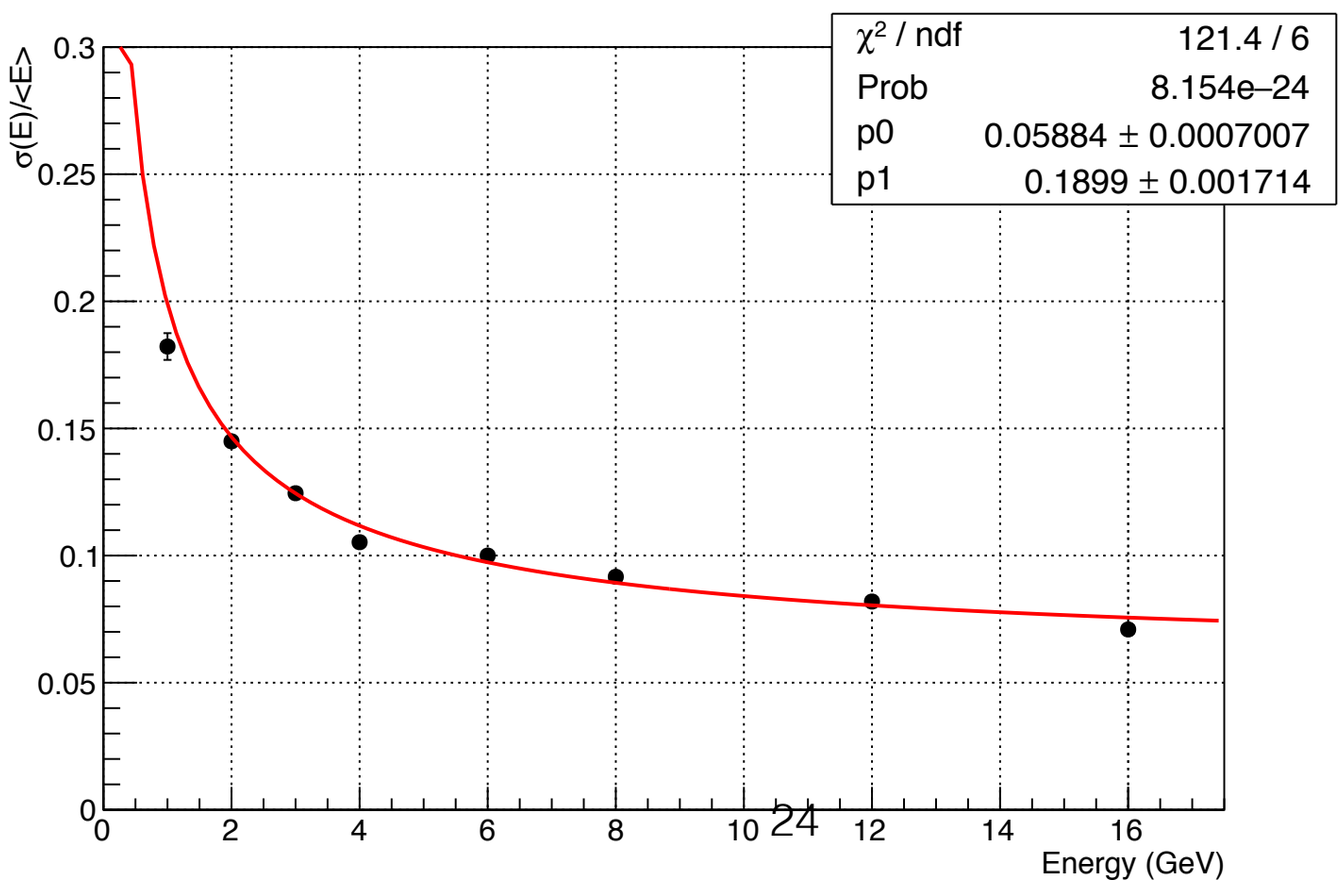


no cuts applied

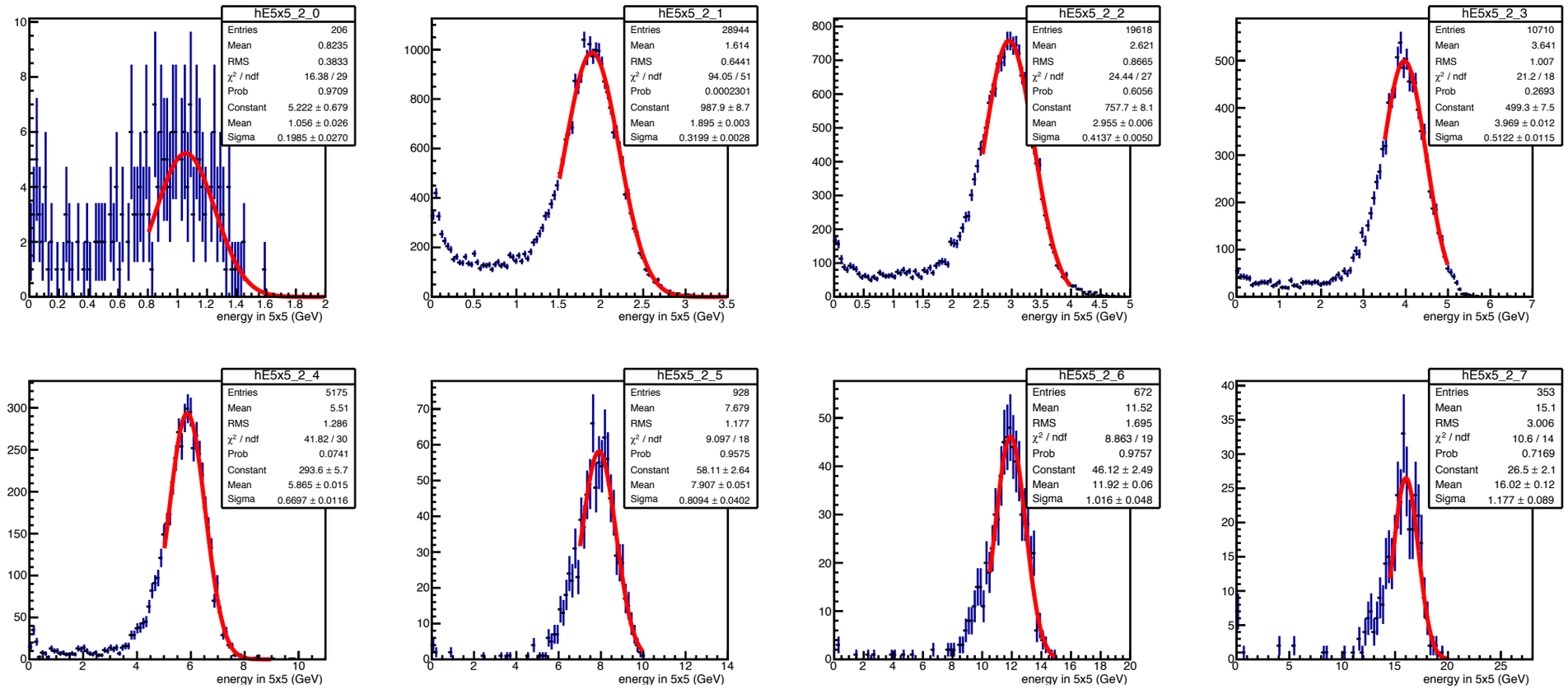




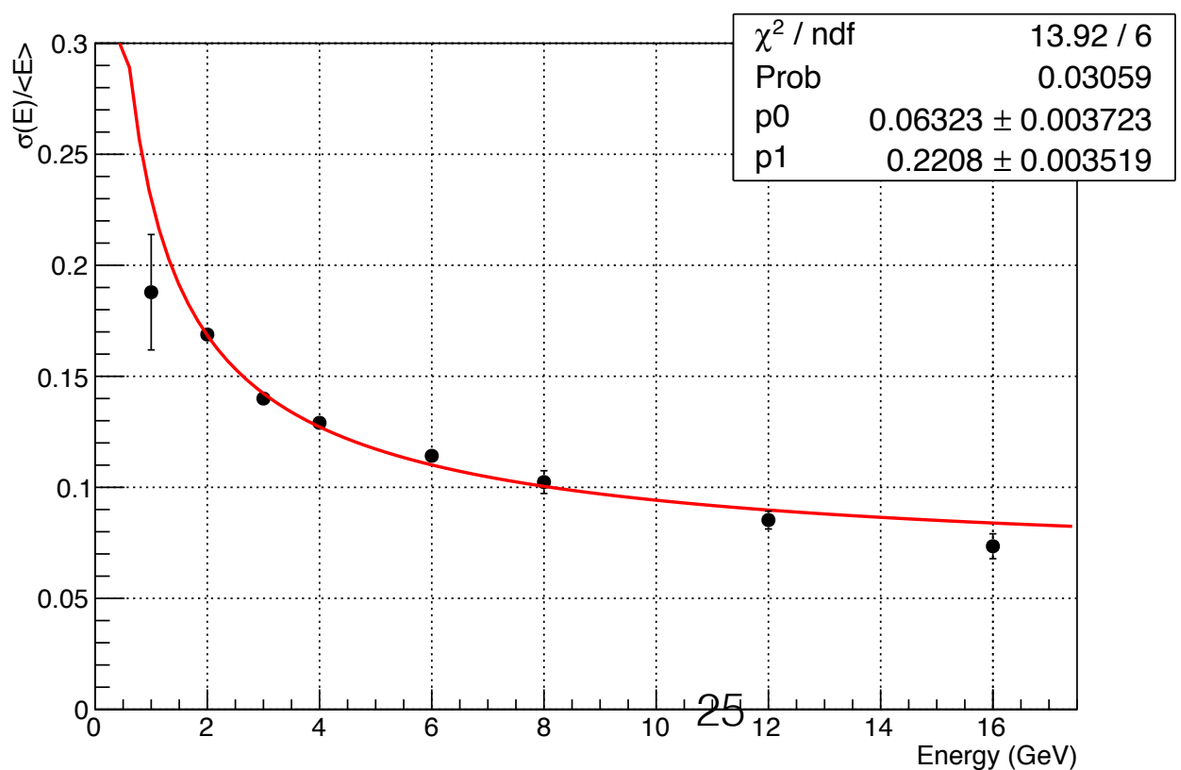
Tower 21 only

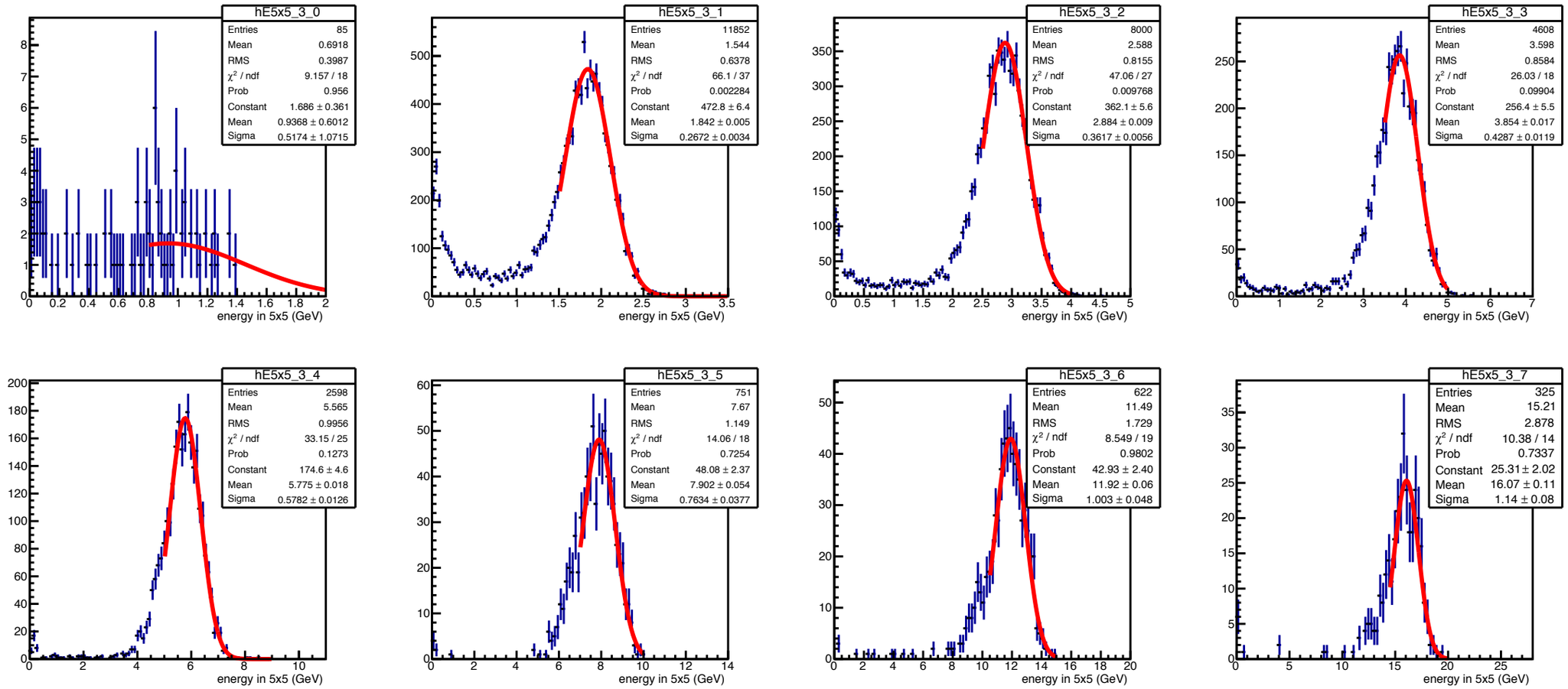


if Row==2

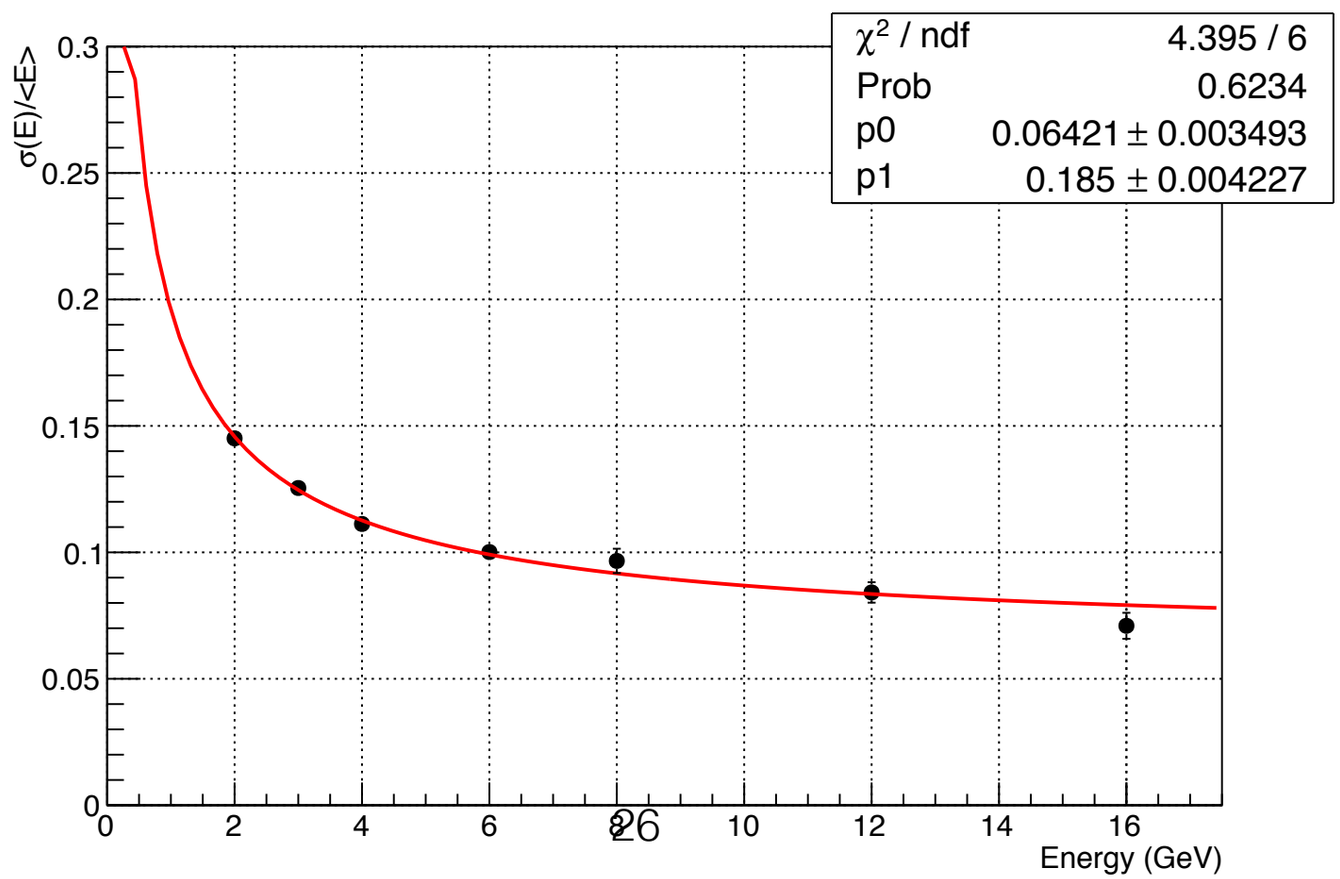


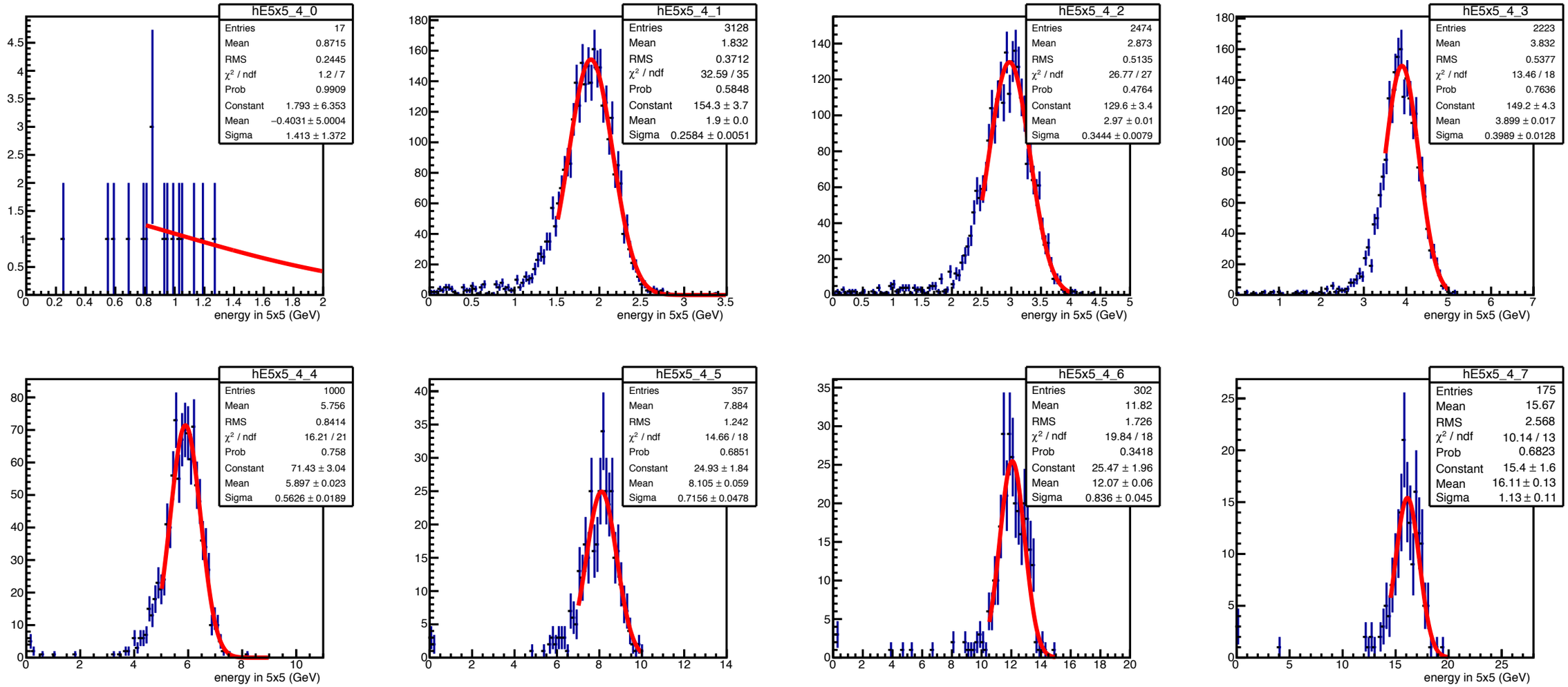
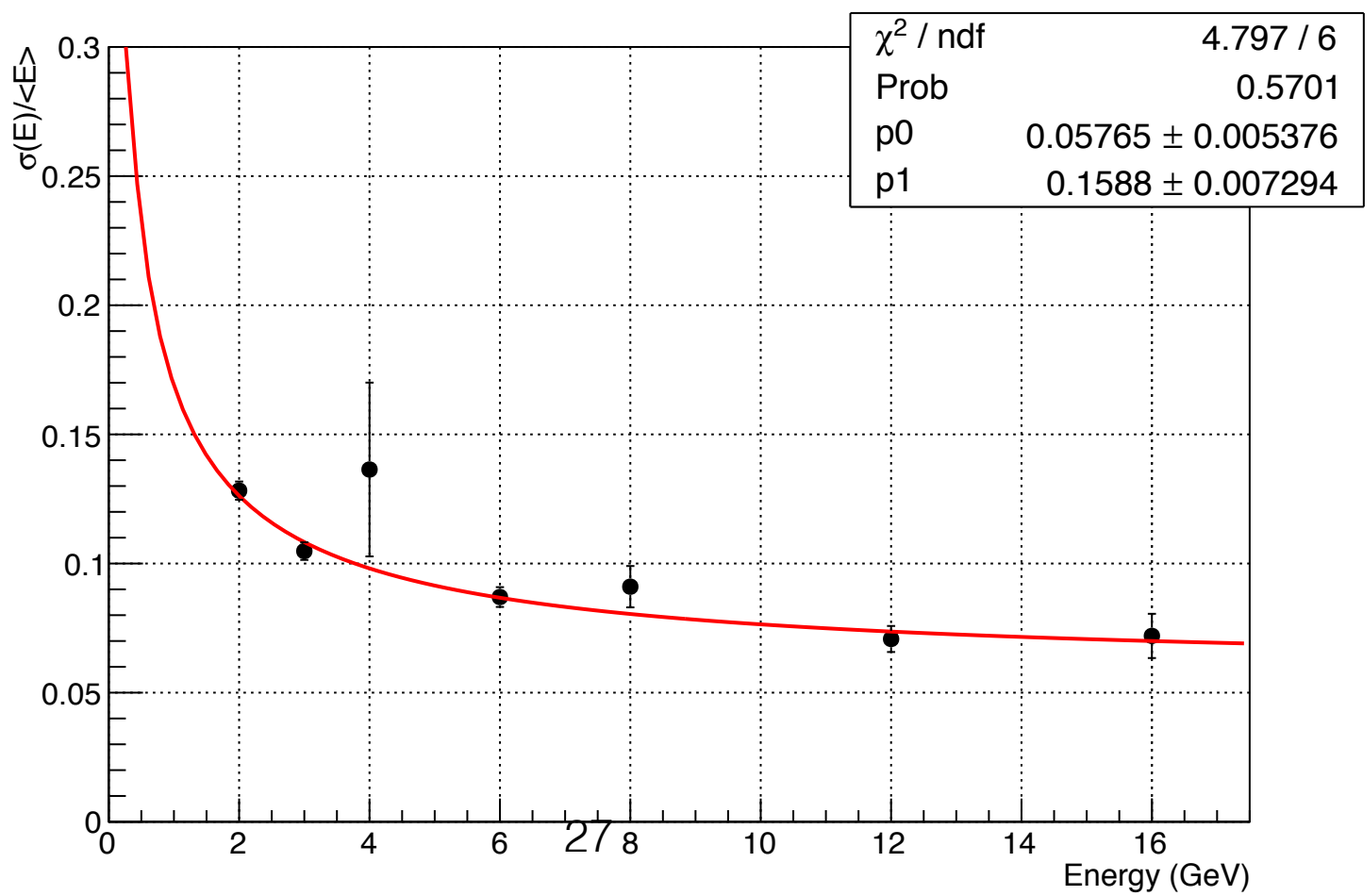
Chrenkov cut





Chrenkov + veto cut





Chrenkov + veto +Tower 21 +hodoscope cut