SM comparisons: MadGraph vs Whizard

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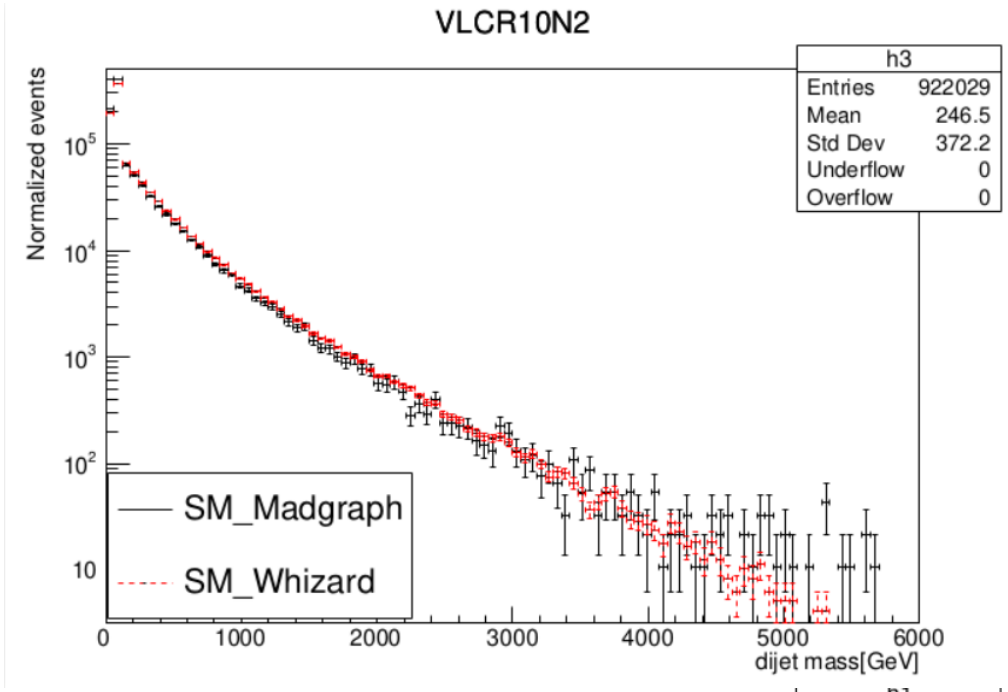
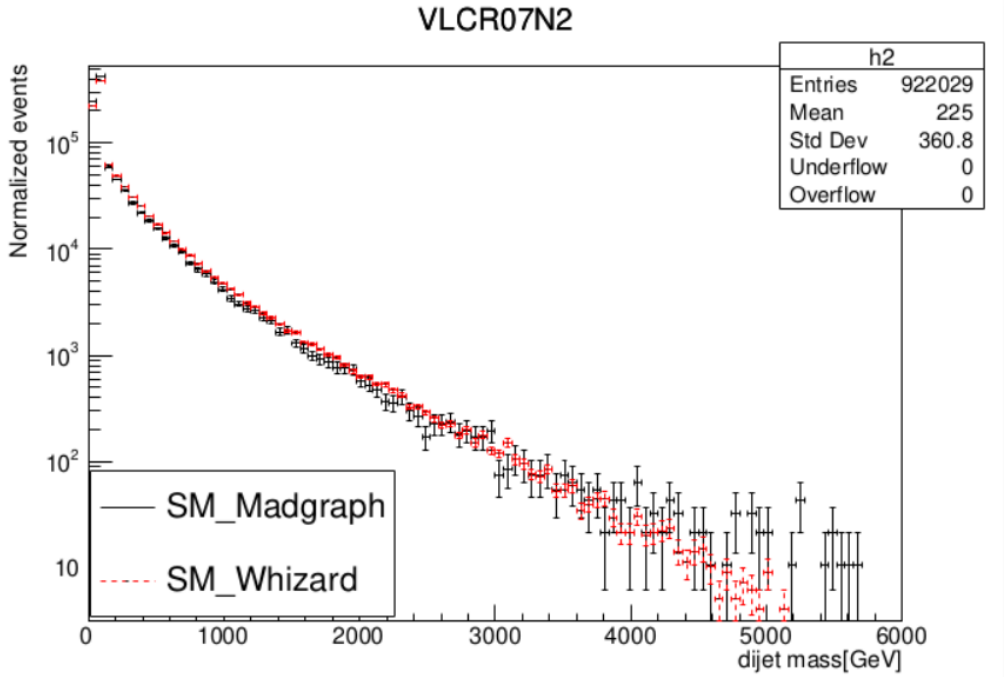
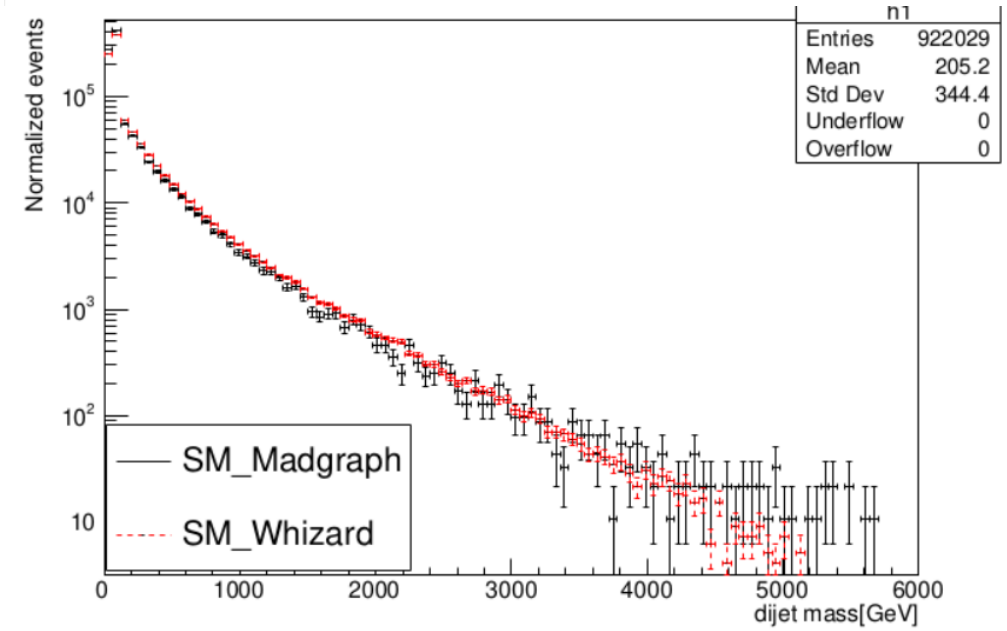
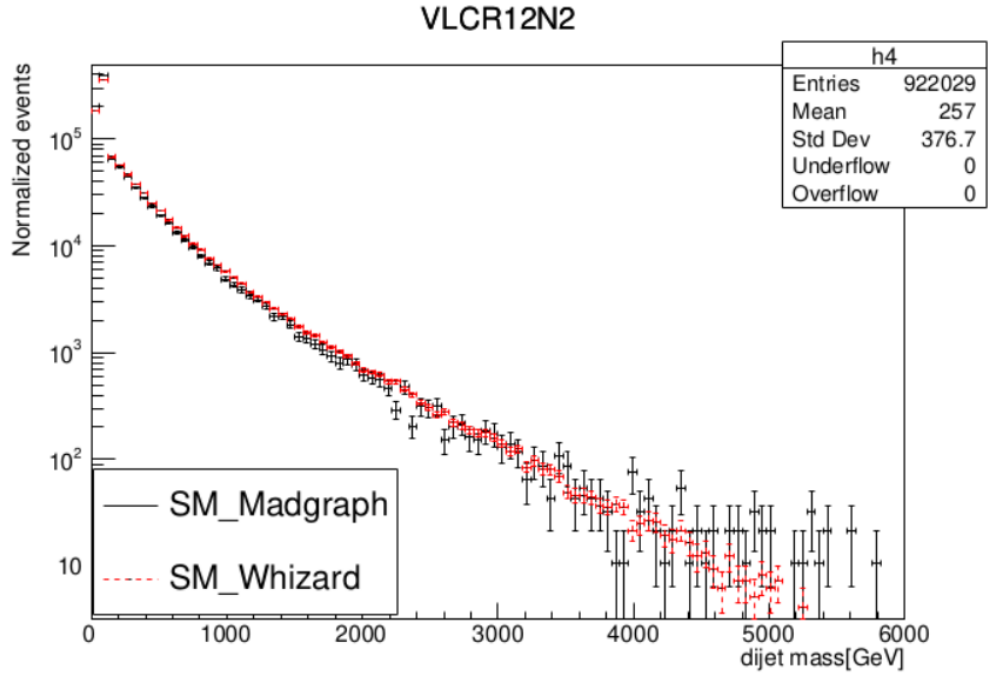
Introduction

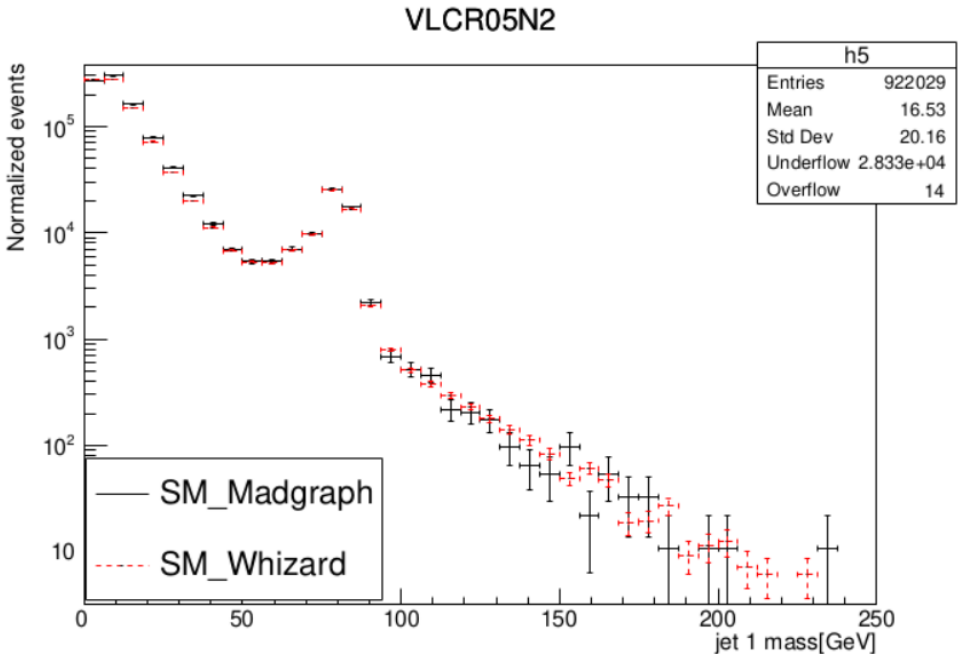
- We are looking at Valencia jets with R = 0.5, 0.7, 1 and 1.2 and N=2 using exclusive jet clustering algorithm.
- In the following slides, we look at various parameters like dijet: mass, pT; leading jet: mass, pT, eta, pT vs eta; second leading jet: mass, pT, eta; and jet multiplicity plots.
- All the plots are normalized using cross-section and luminosity (4 ab^{-1}).
- We are comparing the SM distributions for SM samples produced using MadGraph and Whizard.

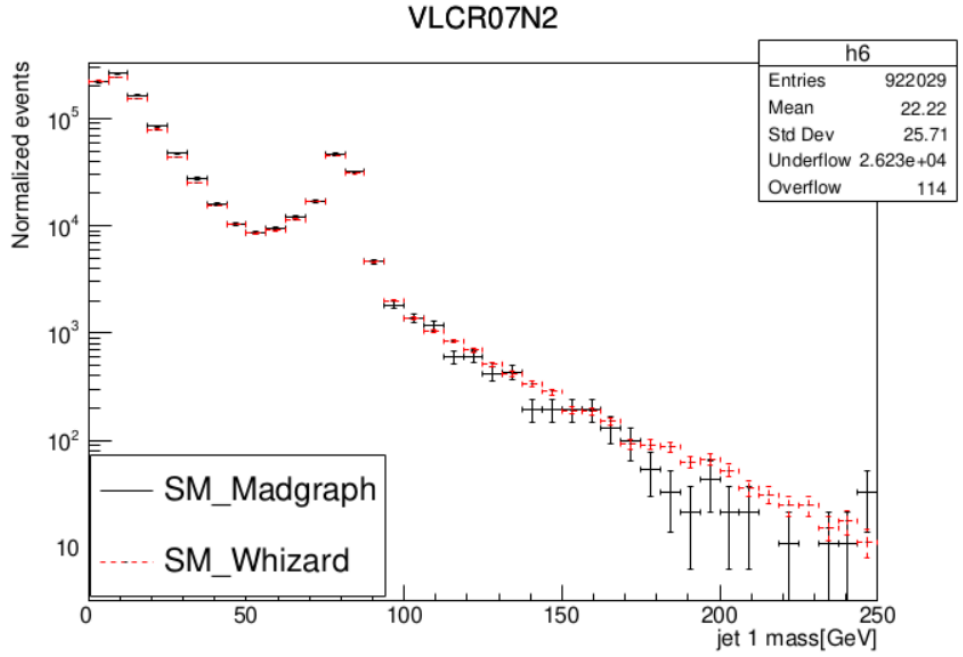

VLCR10N2
h3
Entries 922029
Mean 246.5
Std Dev 372.2
Underflow 0
Overflow 0
Normalized events
SM_Madgraph
SM_Whizard
dijet mass[GeV]

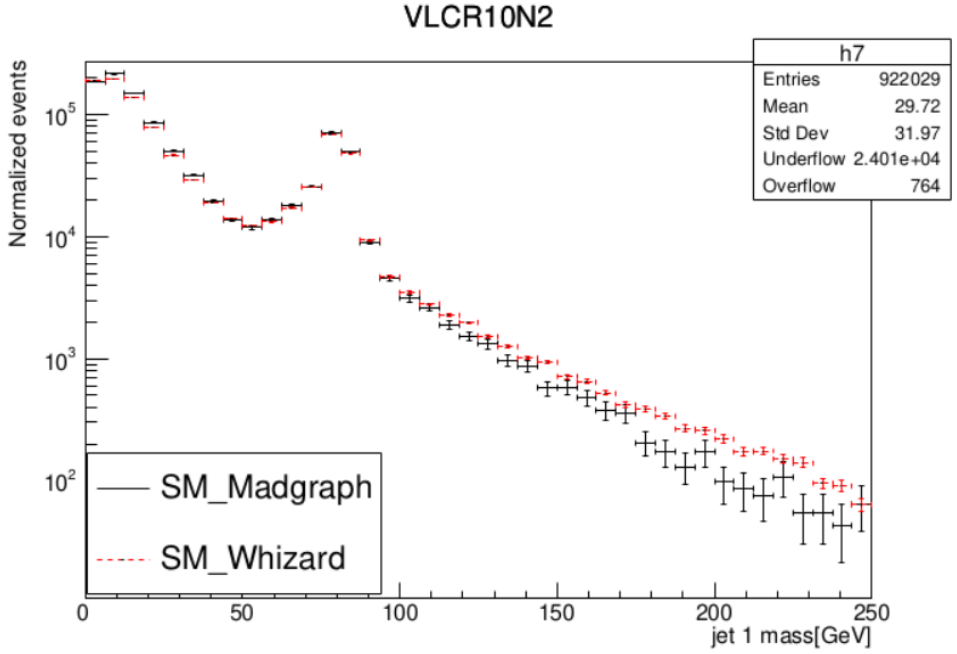

VLCR07N2
h2
Entries 922029
Mean 225
Std Dev 360.8
Underflow 0
Overflow 0
Normalized events
SM_Madgraph
SM_Whizard
dijet mass[GeV]

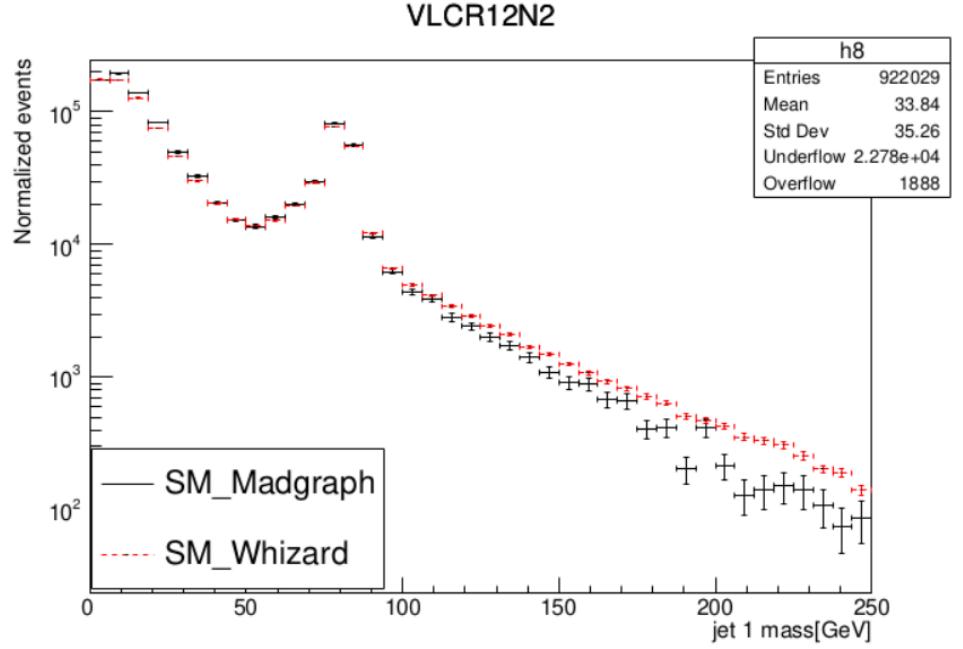

h1
Entries 922029
Mean 205.2
Std Dev 344.4
Underflow 0
Overflow 0
Normalized events
SM_Madgraph
SM_Whizard
dijet mass[GeV]

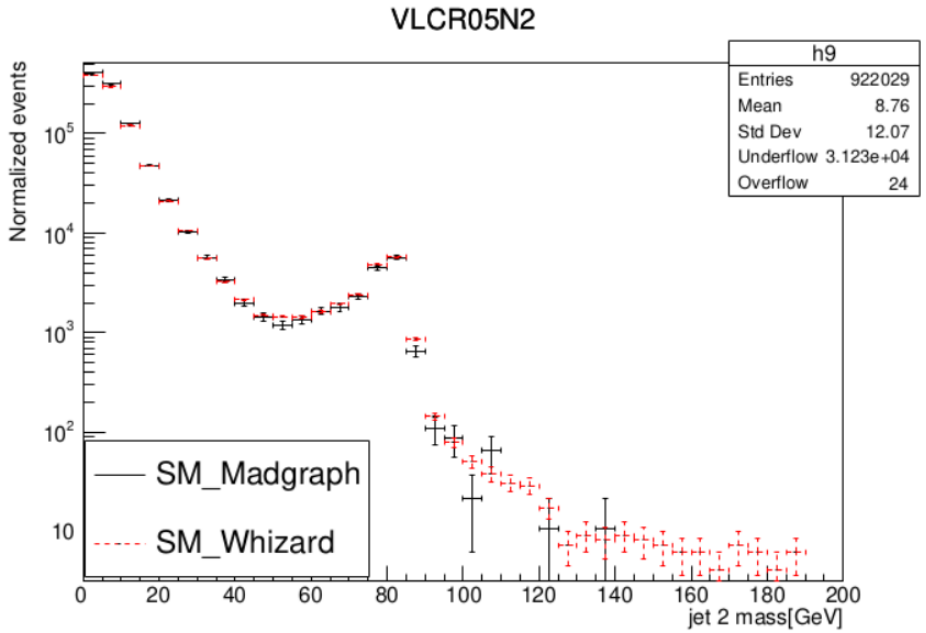

VLCR12N2
h4
Entries 922029
Mean 257
Std Dev 376.7
Underflow 0
Overflow 0
Normalized events
SM_Madgraph
SM_Whizard
dijet mass[GeV]

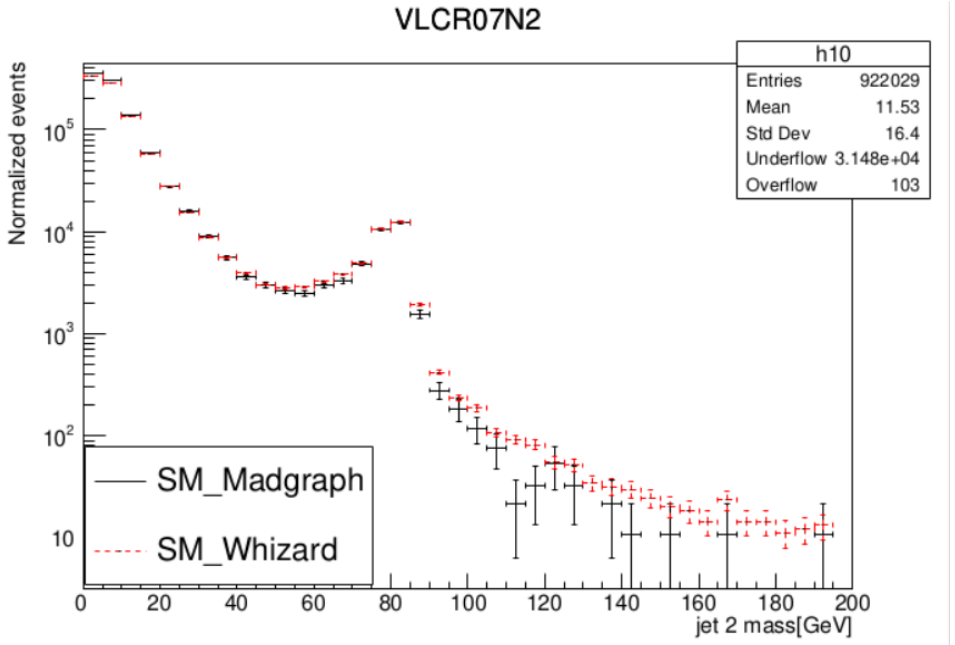

VLCR05N2
h5
Entries 922029
Mean 16.53
Std Dev 20.16
Underflow 2.833e+04
Overflow 14
Normalized events
SM_Madgraph
SM_Whizard
jet 1 mass[GeV]

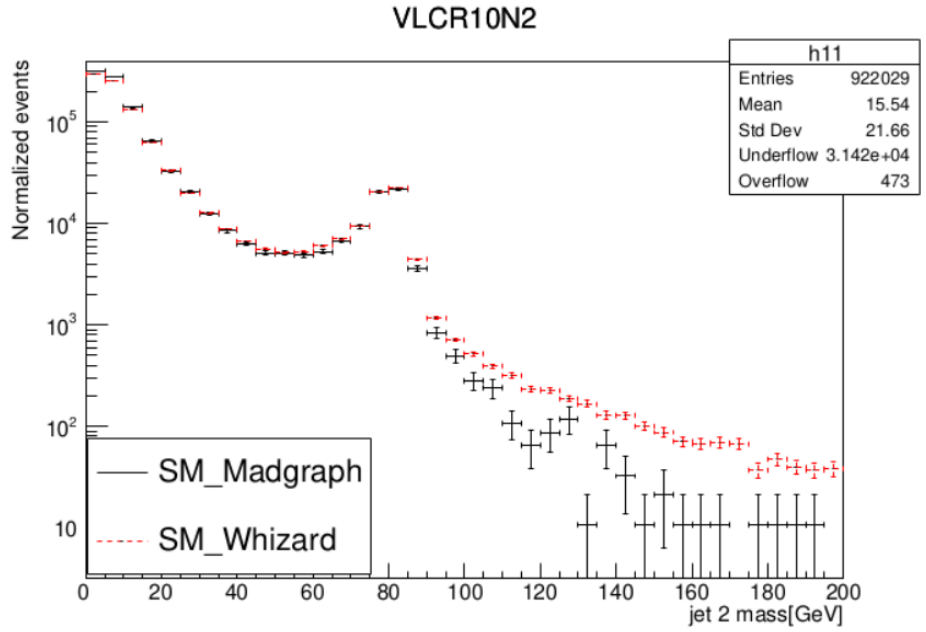

VLCR07N2
h6
Entries 922029
Mean 22.22
Std Dev 25.71
Underflow 2.623e+04
Overflow 114
Normalized events
SM_Madgraph
SM_Whizard
jet 1 mass[GeV]

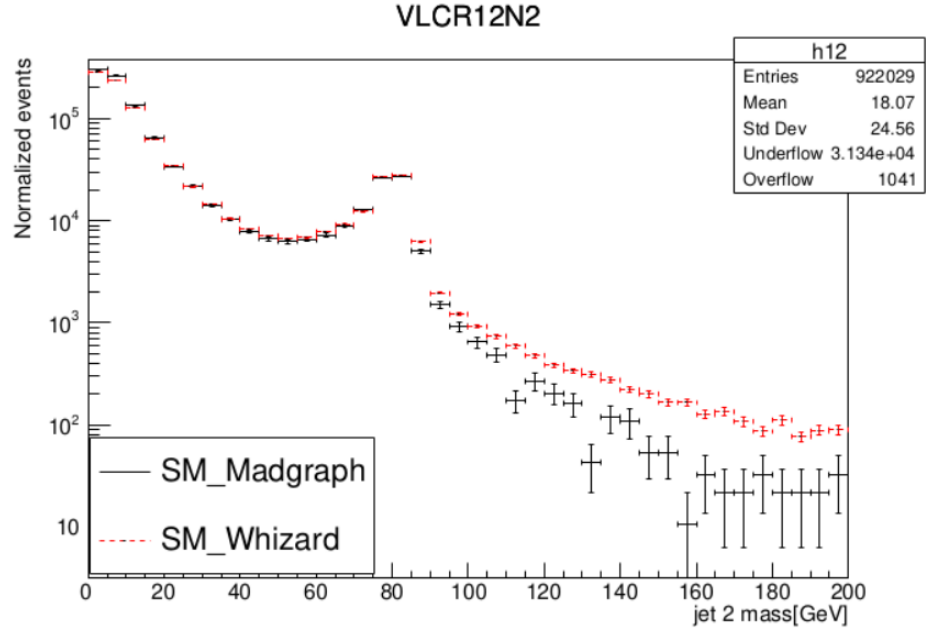

VLCR10N2
h7
Entries 922029
Mean 29.72
Std Dev 31.97
Underflow 2.401e+04
Overflow 764
Normalized events
SM_Madgraph
SM_Whizard
jet 1 mass[GeV]

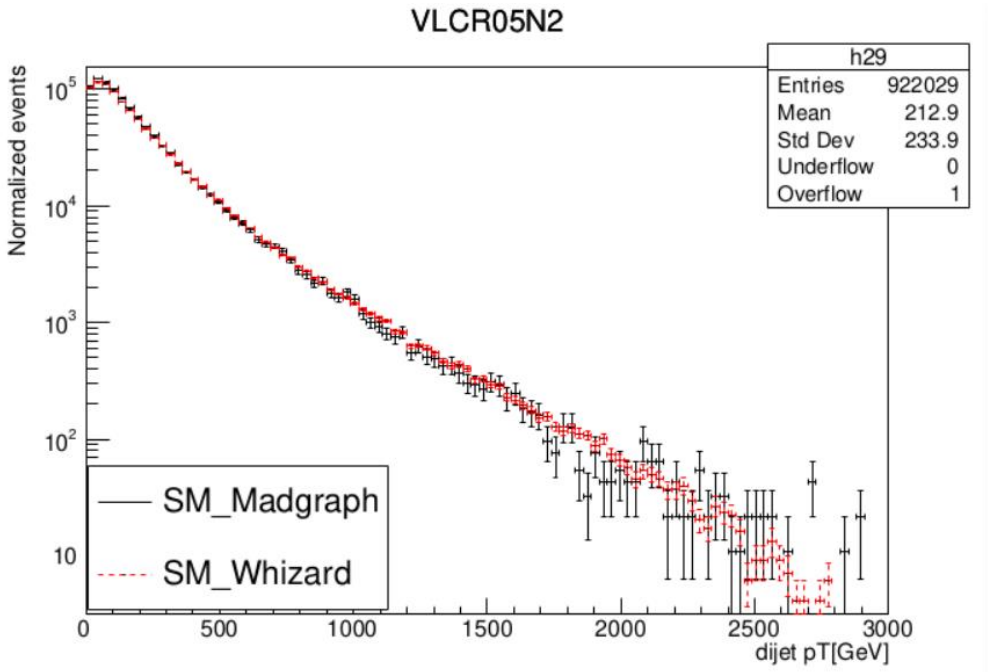

VLCR12N2
h8
Entries 922029
Mean 33.84
Std Dev 35.26
Underflow 2.278e+04
Overflow 1888
Normalized events
SM_Madgraph
SM_Whizard
jet 1 mass[GeV]

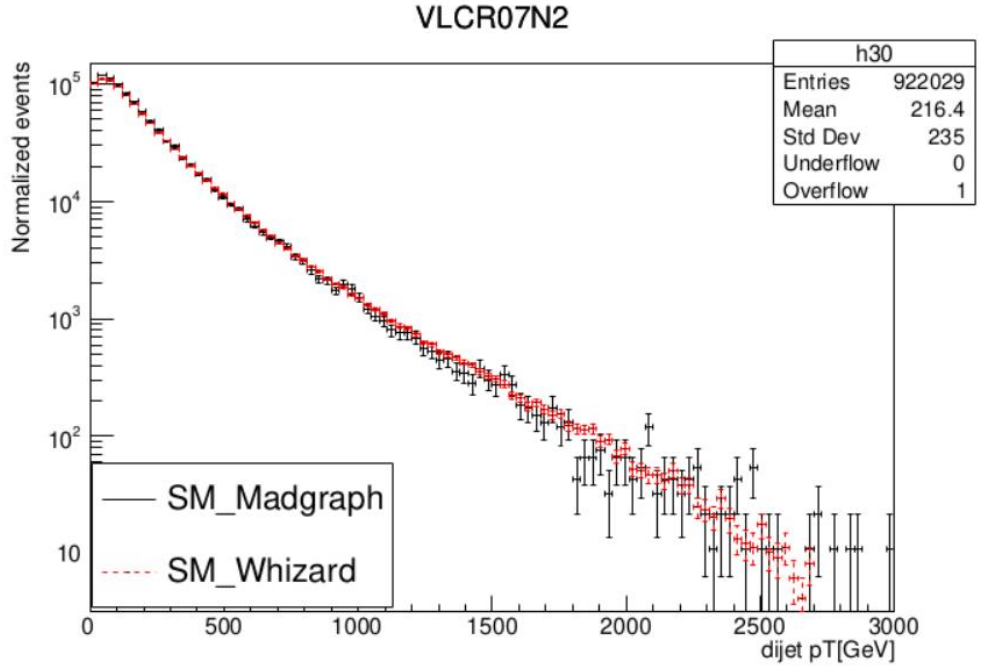

VLCR05N2
h9
Entries 922029
Mean 8.76
Std Dev 12.07
Underflow 3.123e+04
Overflow 24
Normalized events
SM_Madgraph
SM_Whizard
jet 2 mass[GeV]

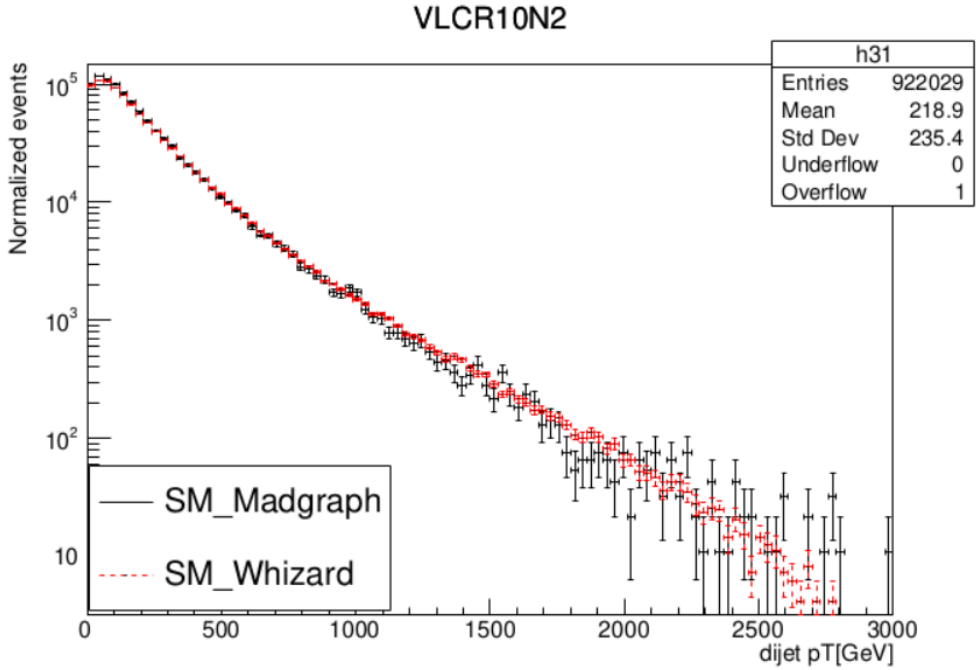

VLCR07N2
h10
Entries 922029
Mean 11.53
Std Dev 16.4
Underflow 3.148e+04
Overflow 103
Normalized events
SM_Madgraph
SM_Whizard
jet 2 mass[GeV]

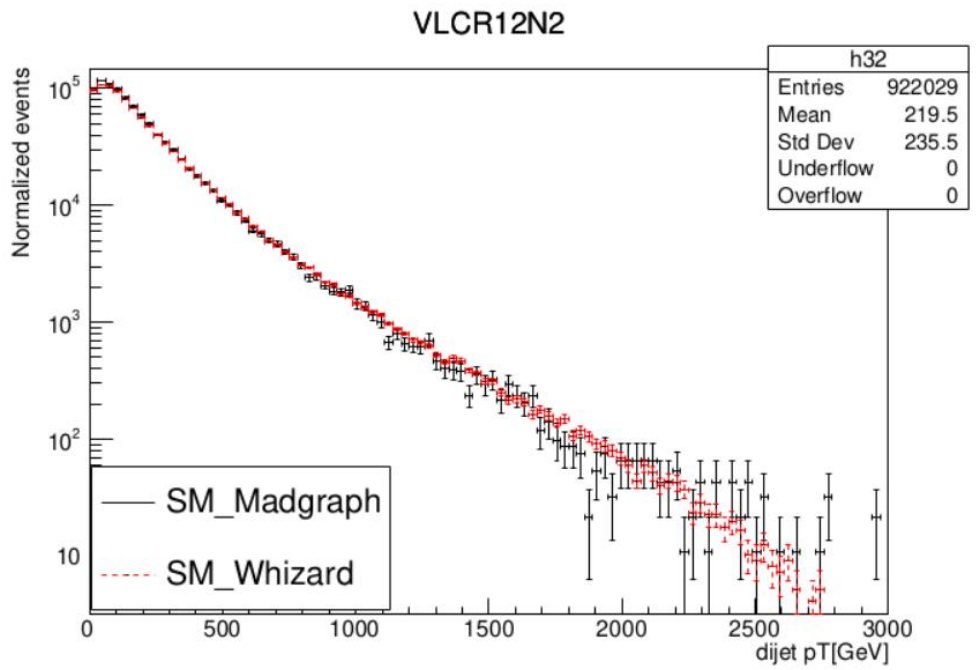

VLCR10N2
h11
Entries 922029
Mean 15.54
Std Dev 21.66
Underflow 3.142e+04
Overflow 473
Normalized events
SM_Madgraph
SM_Whizard
jet 2 mass[GeV]

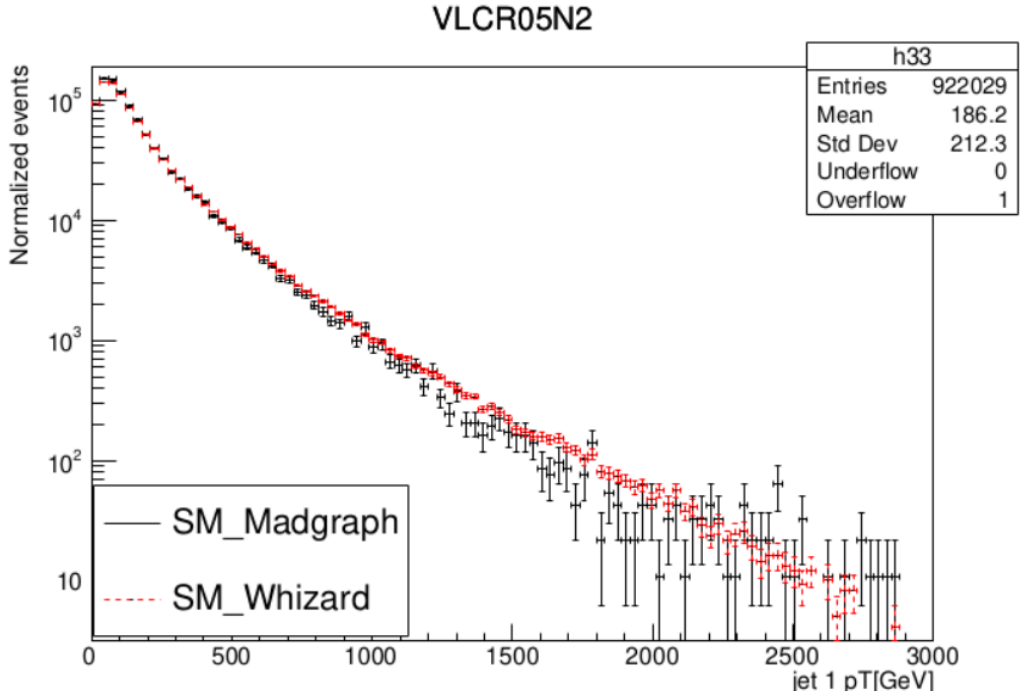

VLCR12N2
h12
Entries 922029
Mean 18.07
Std Dev 24.56
Underflow 3.134e+04
Overflow 1041
Normalized events
SM_Madgraph
SM_Whizard
jet 2 mass[GeV]

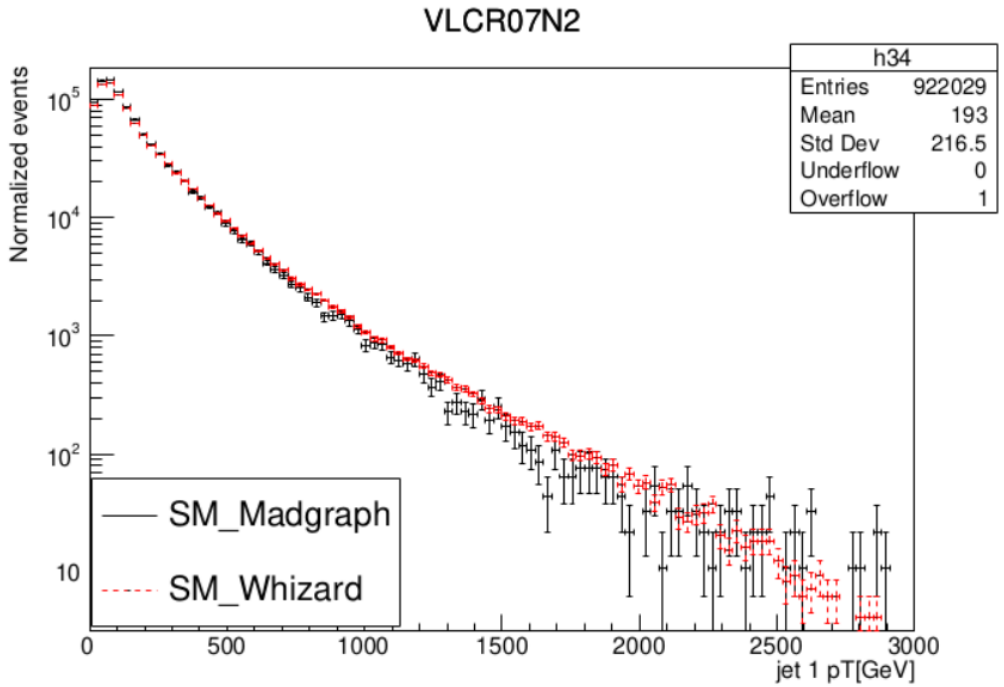

VLCR05N2
h29
Entries 922029
Mean 212.9
Std Dev 233.9
Underflow 0
Overflow 1
Normalized events
SM_Madgraph
SM_Whizard
dijet pT[GeV]

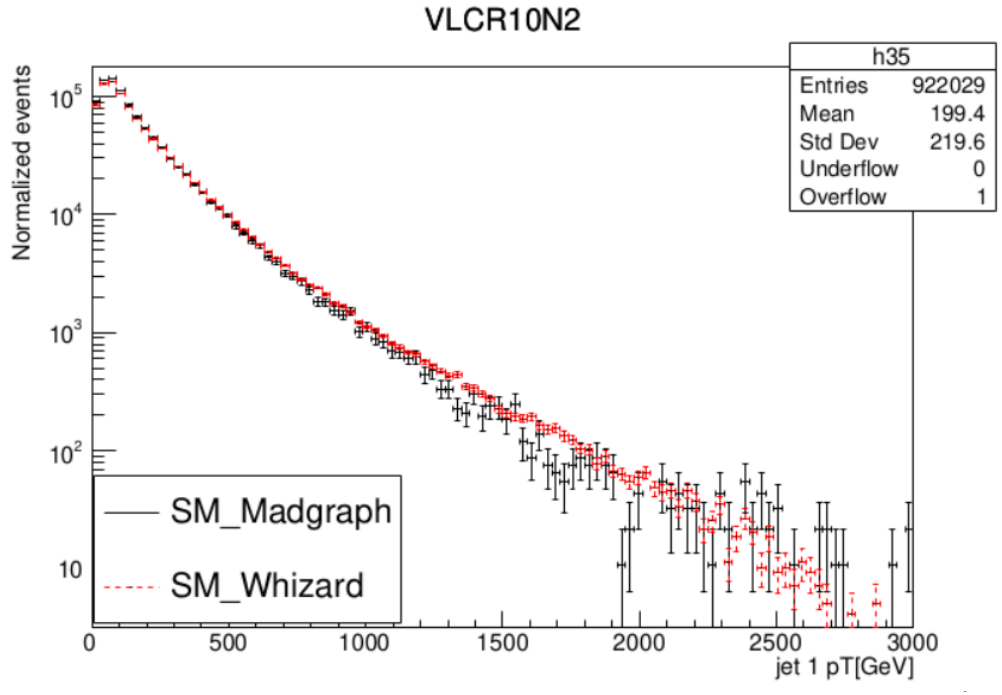

VLCR07N2
h30
Entries 922029
Mean 216.4
Std Dev 235
Underflow 0
Overflow 1
Normalized events
SM_Madgraph
SM_Whizard
dijet pT[GeV]

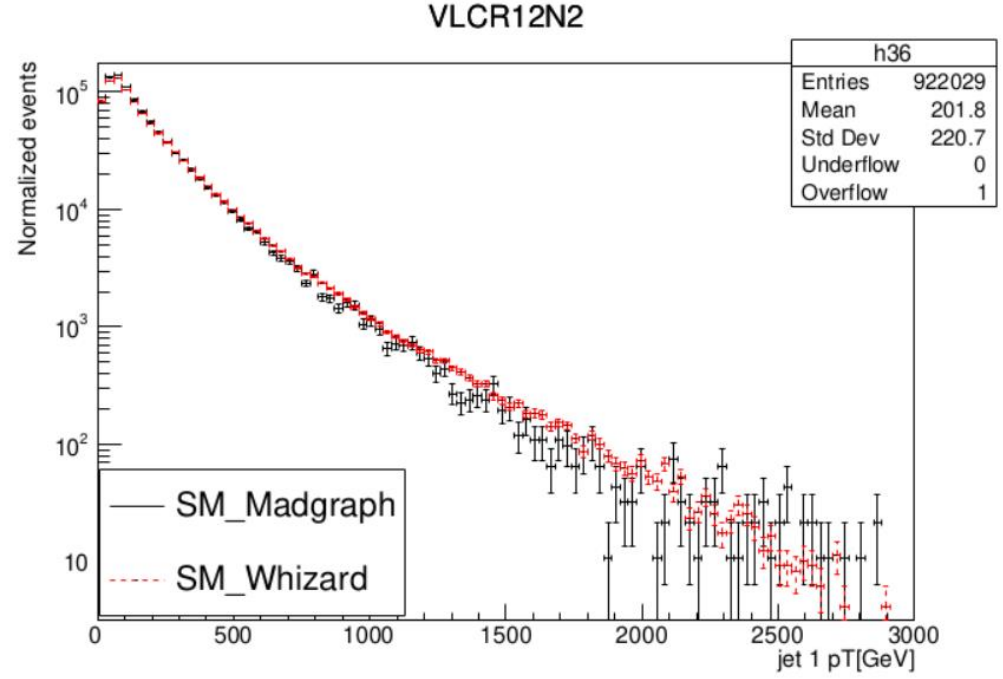

VLCR10N2
h31
Entries 922029
Mean 218.9
Std Dev 235.4
Underflow 0
Overflow 1
Normalized events
SM_Madgraph
SM_Whizard
dijet pT[GeV]

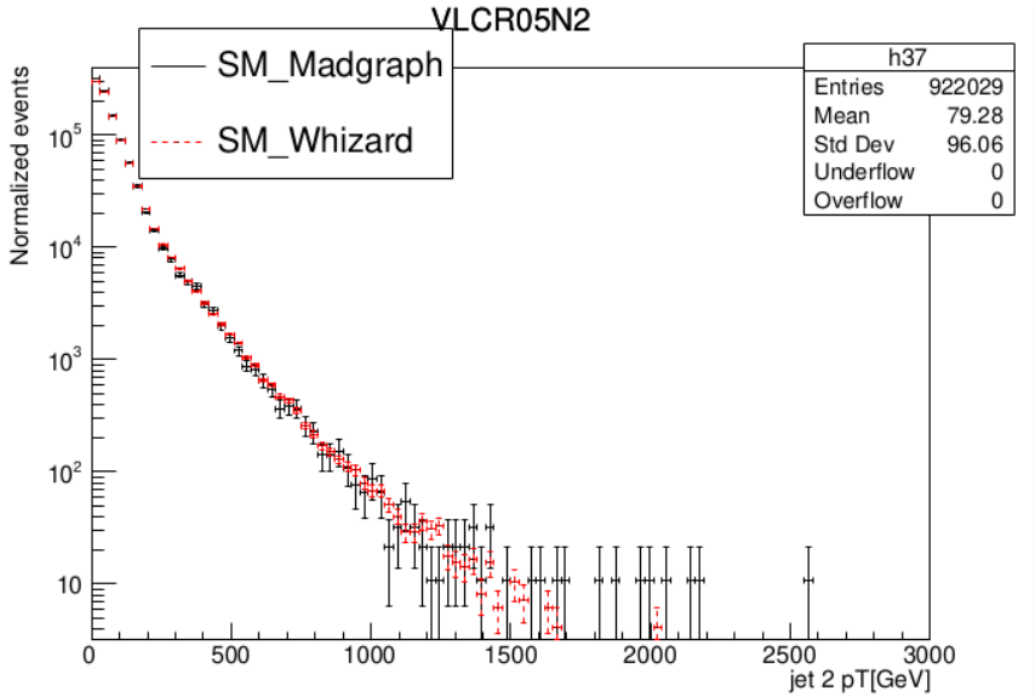

VLCR12N2
h32
Entries 922029
Mean 219.5
Std Dev 235.5
Underflow 0
Overflow 0
Normalized events
SM_Madgraph
SM_Whizard
dijet pT[GeV]

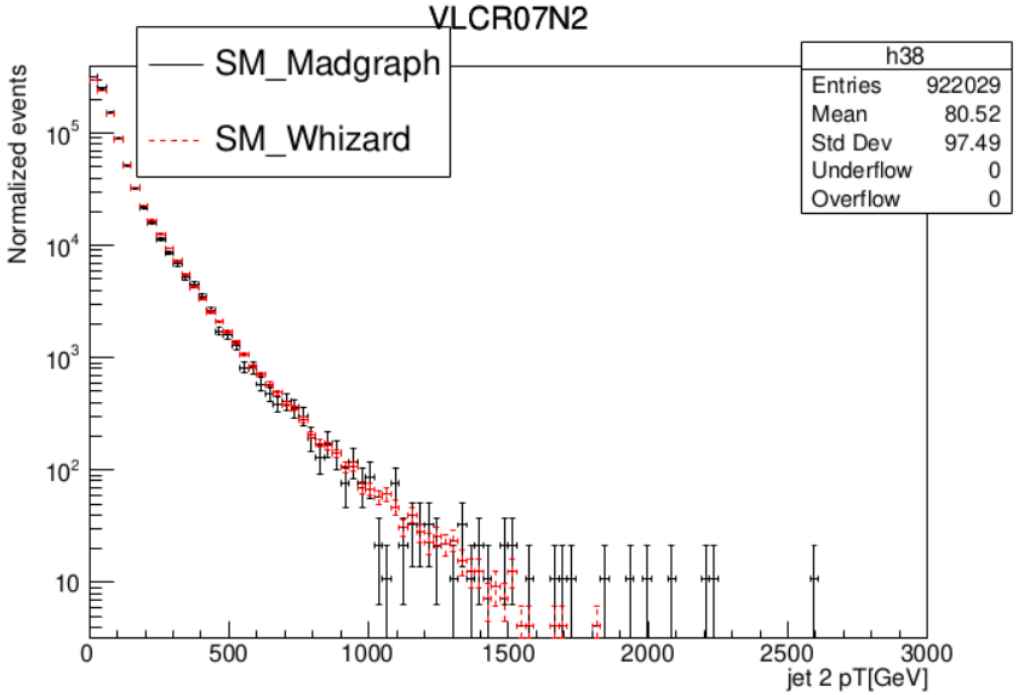

VLCR05N2
h33
Entries 922029
Mean 186.2
Std Dev 212.3
Underflow 0
Overflow 1
Normalized events
SM_Madgraph
SM_Whizard
jet 1 pT[GeV]

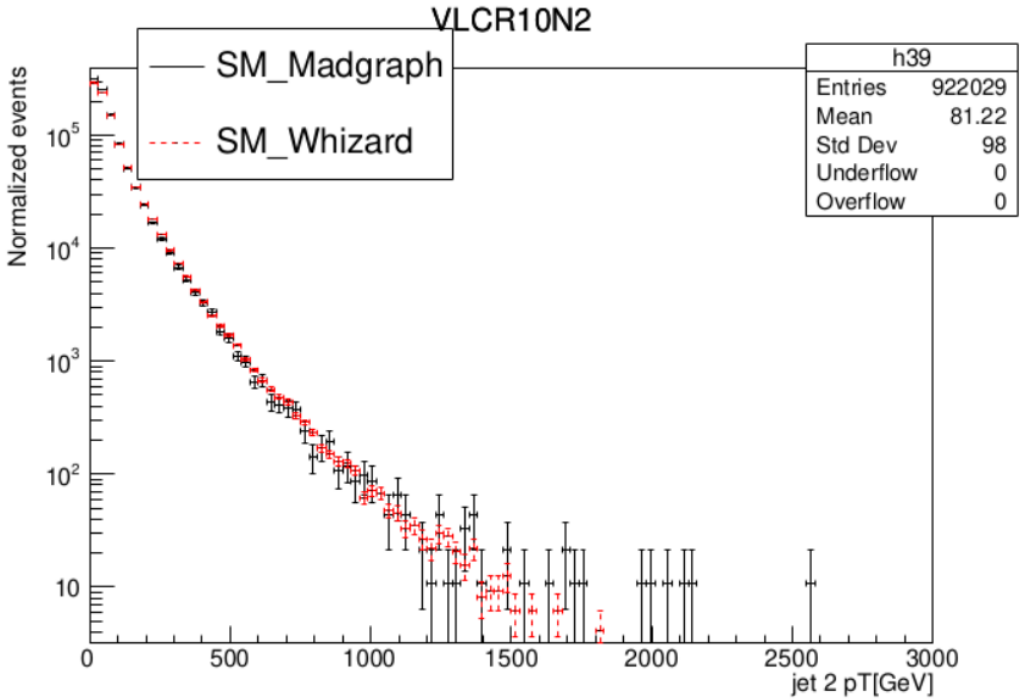

VLCR07N2
h34
Entries 922029
Mean 193
Std Dev 216.5
Underflow 0
Overflow 1
Normalized events
SM_Madgraph
SM_Whizard
jet 1 pT[GeV]

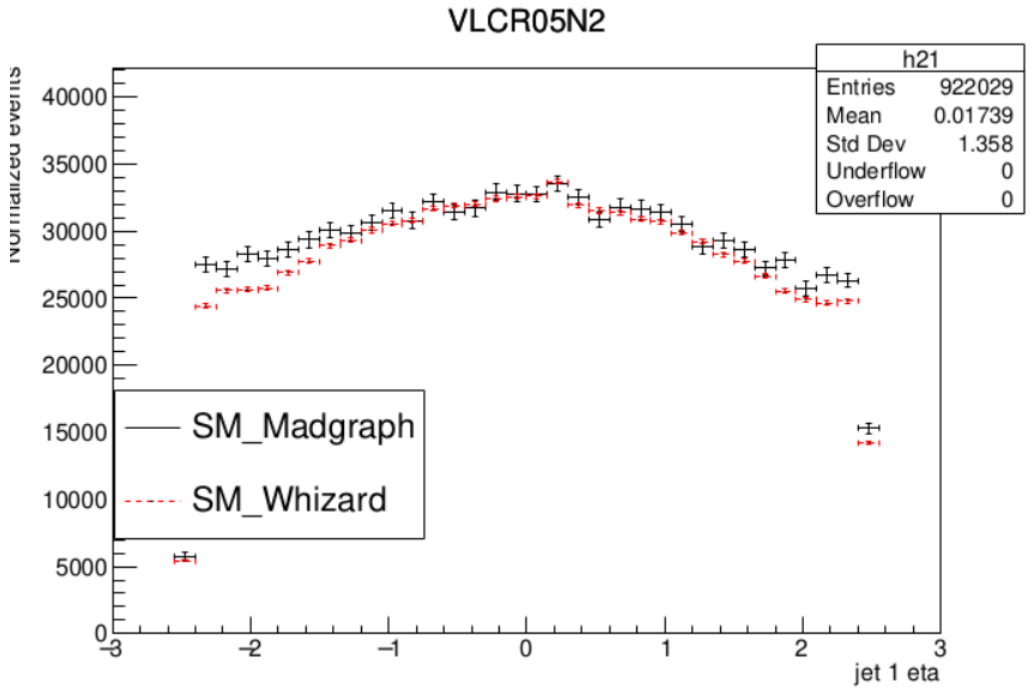

VLCR10N2
h35
Entries 922029
Mean 199.4
Std Dev 219.6
Underflow 0
Overflow 1
Normalized events
SM_Madgraph
SM_Whizard
jet 1 pT[GeV]

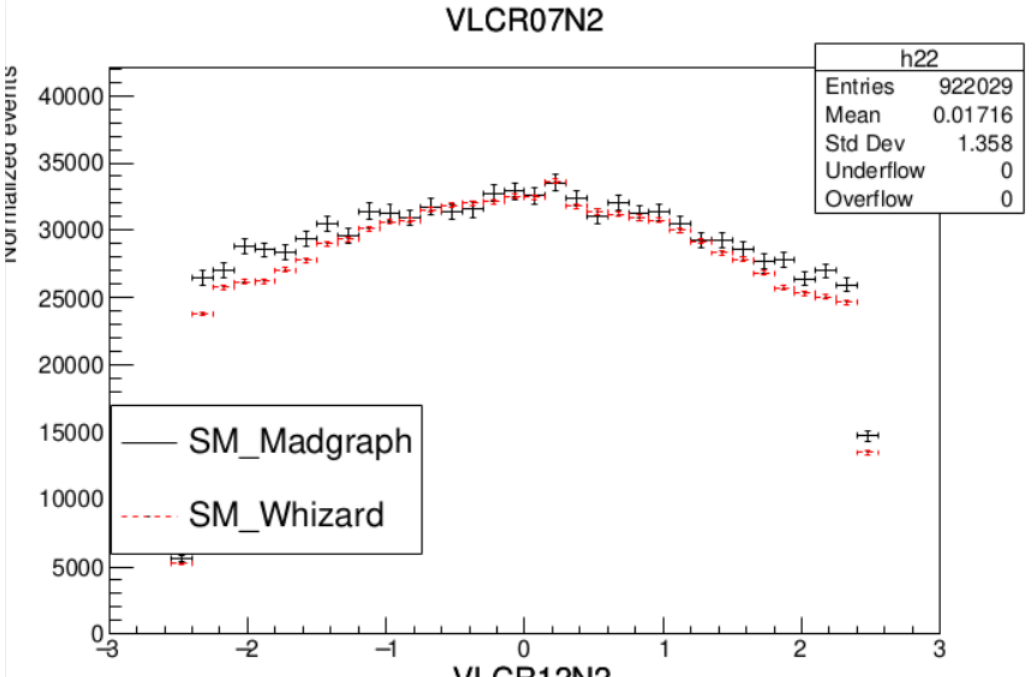

VLCR12N2
h36
Entries 922029
Mean 201.8
Std Dev 220.7
Underflow 0
Overflow 1
Normalized events
SM_Madgraph
SM_Whizard
jet 1 pT[GeV]

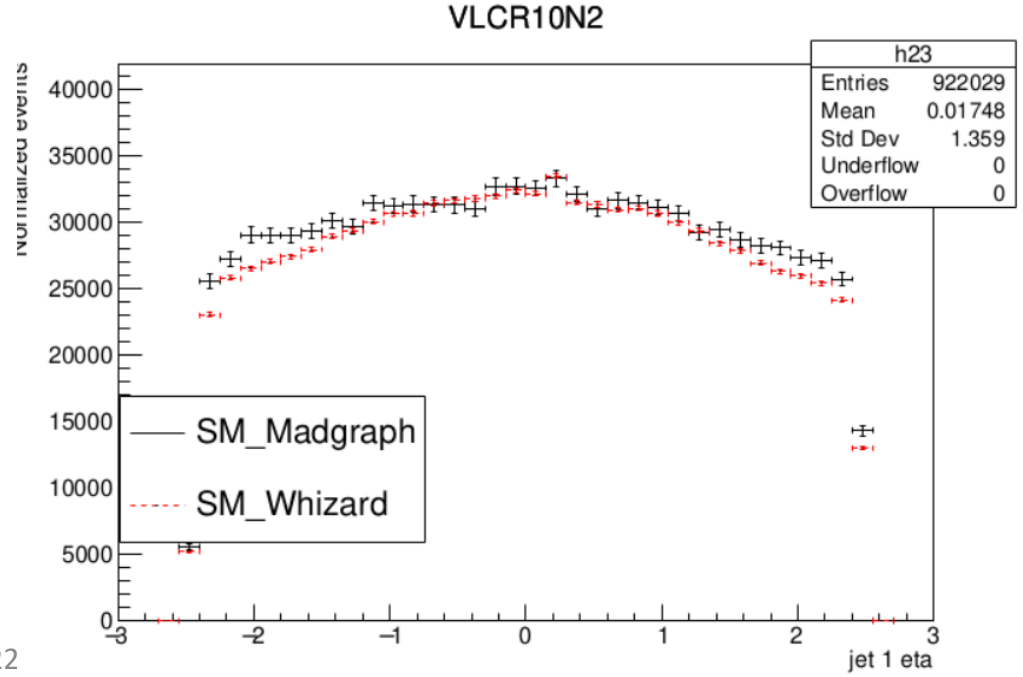

VLCR05N2
SM_Madgraph
SM_Whizard
h37
Entries 922029
Mean 79.28
Std Dev 96.06
Underflow 0
Overflow 0
Normalized events
jet 2 pT[GeV]

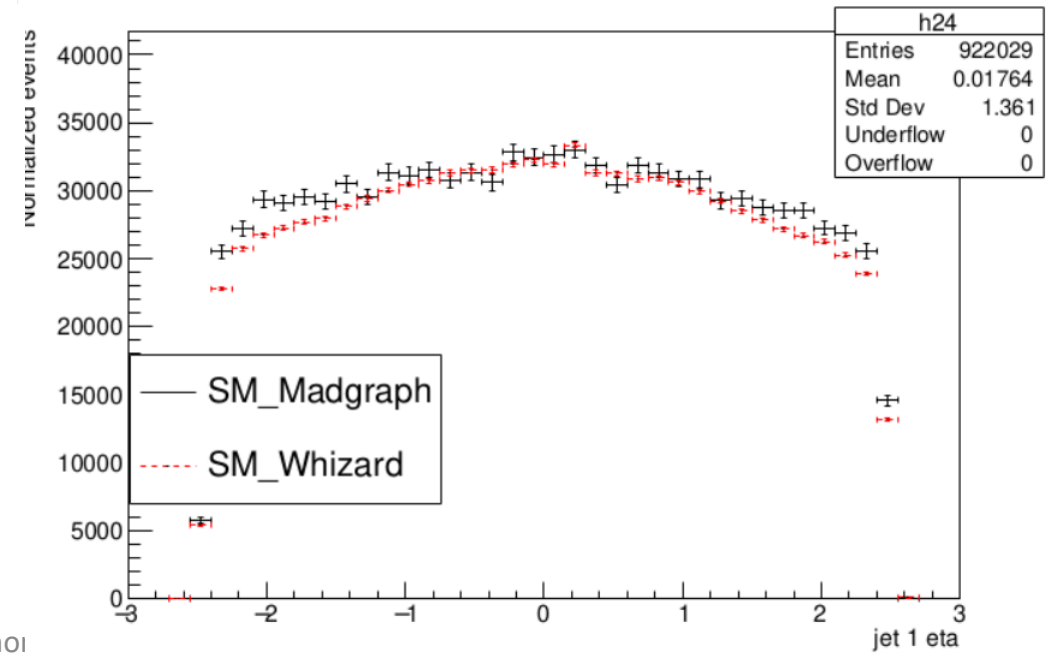

VLCR07N2
SM_Madgraph
SM_Whizard
h38
Entries 922029
Mean 80.52
Std Dev 97.49
Underflow 0
Overflow 0
Normalized events
jet 2 pT[GeV]

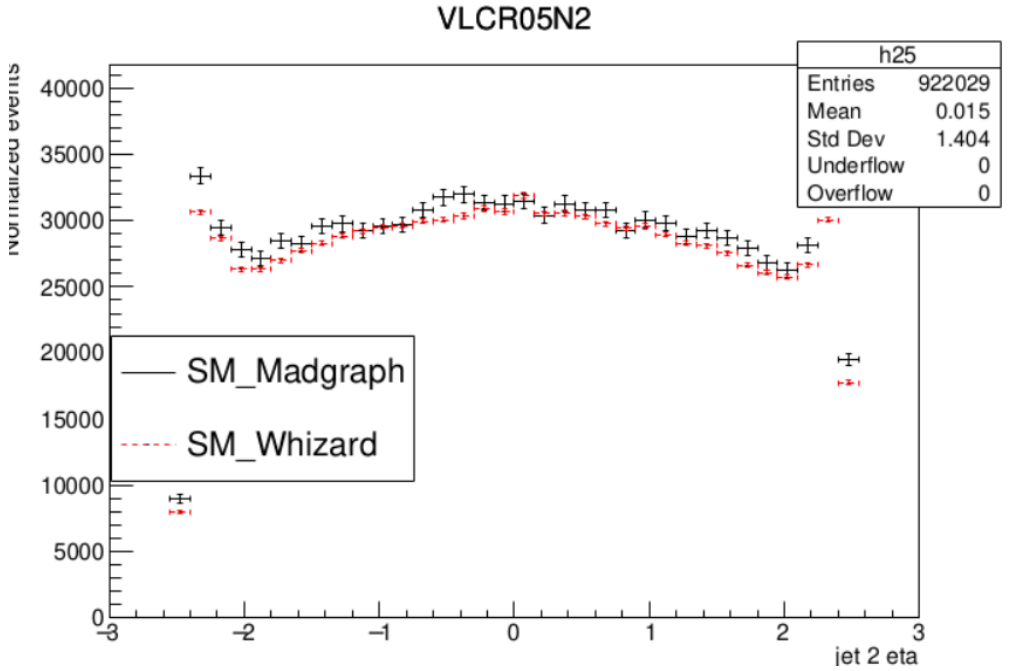

VLCR10N2
SM_Madgraph
SM_Whizard
h39
Entries 922029
Mean 81.22
Std Dev 98
Underflow 0
Overflow 0
Normalized events
jet 2 pT[GeV]

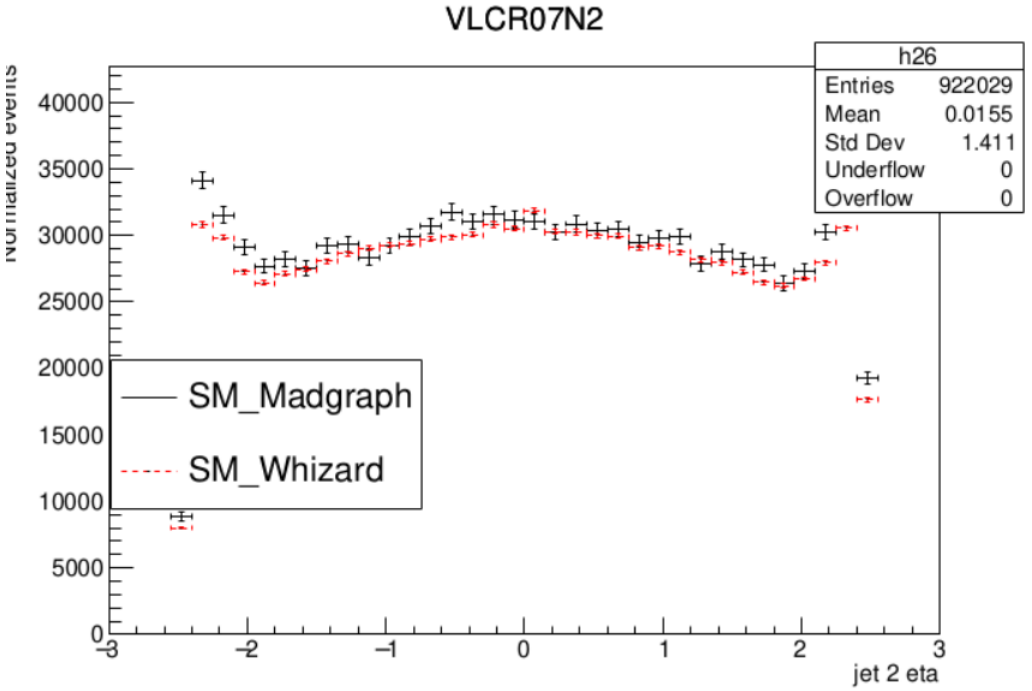

VLCR05N2
h21
Entries 922029
Mean 0.01739
Std Dev 1.358
Underflow 0
Overflow 0
SM_Madgraph
SM_Whizard
jet 1 eta

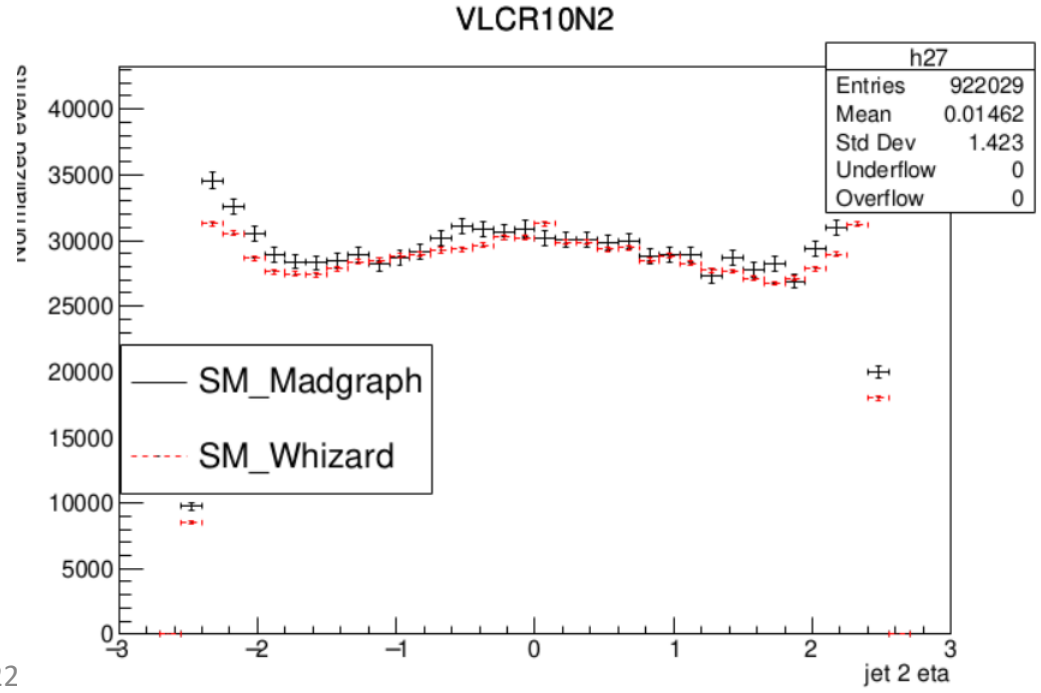

VLCR07N2
h22
Entries 922029
Mean 0.01716
Std Dev 1.358
Underflow 0
Overflow 0
SM_Madgraph
SM_Whizard

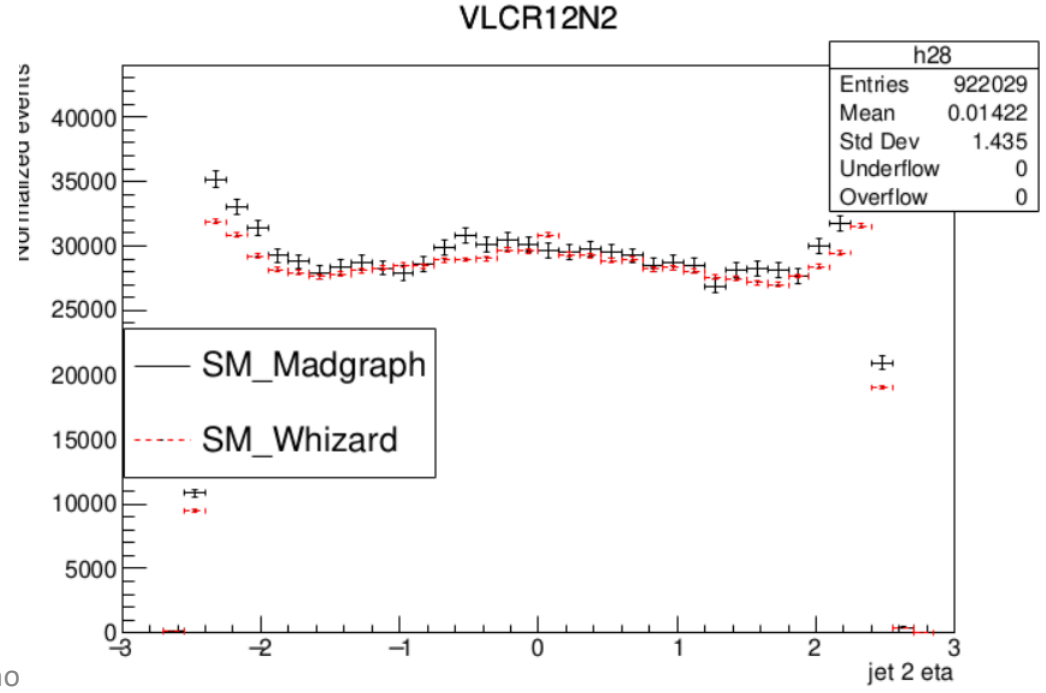

VLCR10N2
h23
Entries 922029
Mean 0.01748
Std Dev 1.359
Underflow 0
Overflow 0
SM_Madgraph
SM_Whizard
jet 1 eta


VLCR12N2
h24
Entries 922029
Mean 0.01764
Std Dev 1.361
Underflow 0
Overflow 0
SM_Madgraph
SM_Whizard
jet 1 eta


VLCR05N2
h25
Entries 922029
Mean 0.015
Std Dev 1.404
Underflow 0
Overflow 0
SM_Madgraph
SM_Whizard
jet 2 eta


VLCR07N2
h26
Entries 922029
Mean 0.0155
Std Dev 1.411
Underflow 0
Overflow 0
SM_Madgraph
SM_Whizard
jet 2 eta


VLCR10N2
h27
Entries 922029
Mean 0.01462
Std Dev 1.423
Underflow 0
Overflow 0
SM_Madgraph
SM_Whizard
jet 2 eta


VLCR12N2
h28
Entries 922029
Mean 0.01422
Std Dev 1.435
Underflow 0
Overflow 0
SM_Madgraph
SM_Whizard
jet 2 eta