The LaTeX report

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To contact us:

http://madanalysis.irmp.ucl.ac.be
ma5team@iphc.cnrs.fr

Contents

1 Setup

1.1 Command history

```
ma5>
ma5>import /uscms/home/corderom/nobackup/Theory/CMSSW_10_2_13/src/SMP_MG5aMC/submitter_MG5_aMC/-
../MG5_aMC_v2_7_2/bin/internal/ufomodel
ma5>import /uscms/home/corderom/nobackup/Theory/CMSSW_10_2_13/src/SMP_MG5aMC/submitter_MG5_aMC/-
output/results/ntgc_llg_CBBL4_20/Events/run_01/unweighted_events.lhe.gz as unweighted_events
ma5>set main.graphic_render = root
ma5>plot THT 40 0 500 [logY]
ma5>plot MET 40 0 500 [logY]
ma5>plot SQRTS 40 0 500 [logY]
ma5>plot PT(z[1]) 40 0 1000 [logY interstate]
ma5>plot ETA(z[1]) 40 -7 7 [logY interstate]
ma5>plot PT(a[1]) 40 0 1000 [logY]
ma5>plot ETA(a[1]) 40 -7 7 [logY]
ma5>plot M(z[1] a[1]) 40 0 800 [logY allstate]
ma5>plot DELTAR(z[1],a[1]) 40 0 8 [logY allstate]
ma5>plot PT(a[1]) 40 0 800 [logY]
ma5>plot ETA(a[1]) 40 -7 7 [logY]
ma5>plot PT(l-[1]) 40 0 650 [logY]
ma5>plot ETA(l-[1]) 40 -7 7 [logY]
ma5>plot PT(l+[1]) 40 0 650 [logY]
ma5>plot ETA(l+[1]) 40 -7 7 [logY]
ma5>plot M(a[1] l+[1]) 40 0 800 [logY ]
ma5>plot M(a[1] l-[1]) 40 0 800 [logY ]
ma5>plot M(a[1] l-[1] l+[1]) 40 0 900 [logY ]
ma5>plot M(l-[1] l+[1]) 40 20 200 [logY ]
ma5>plot DELTAR(a[1],l+[1]) 40 0 8 [logY ]
ma5>plot DELTAR(a[1],l-[1]) 40 0 8 [logY ]
ma5>plot DELTAR(l-[1],l+[1]) 40 0 5 [logY ]
ma5>submit /uscms/home/corderom/nobackup/Theory/CMSSW_10_2_13/src/SMP_MG5aMC/submitter_MG5_aMC/-
output/results/ntgc_llg_CBBL4_20/MA5_PARTON_ANALYSIS_analysis1
```

1.2 Configuration

- MadAnalysis version 1.8.44 (2020/04/17).

- Histograms given for an integrated luminosity of 10fb^{-1}.

2   Datasets

2.1   unweighted_events

- Samples stored in the directory: /uscms_data/d3/corderom/Theory/CMSSW_10_2_13/-src/SMP_MG5aMC/submitter_MG5_aMC .

- Sample consisting of: signal events.

- Generated events: 10000   events.

- Normalization to the luminosity: 2240+/- 6   events.

- Ratio (event weight): 0.22   .

Path to the event file	Nr. of events	Cross section (pb)	Negative wgts (%)
/uscms/home/corderom/-nobackup/Theory/-CMSSW_10_2_13/-src/SMP_MG5aMC/-submitter_MG5_aMC/output/-results/ntgc_llg_CBBL4_20/-Events/run_01/-unweighted_events.lhe.gz	10000	0.224 @ 0.26%	0.0

3   Histos and cuts

3.1   Histogram 1

* Plot: THT

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
unweighted_eve	2240	1.0	0.0	0.0	0.0	0.0
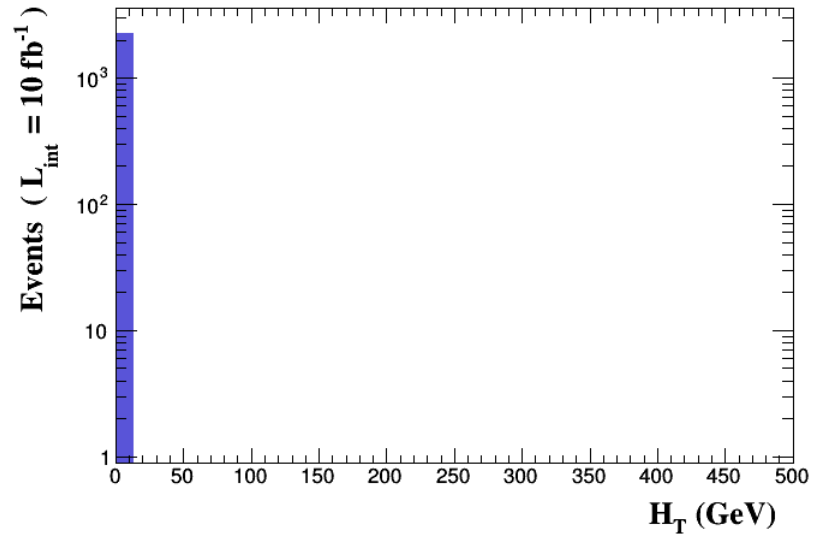
Figure 1.

3.2   Histogram 2

* Plot: MET

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
unweighted_eve	2240	1.0	1.25084e-08	1.732e-08	0.0	0.0
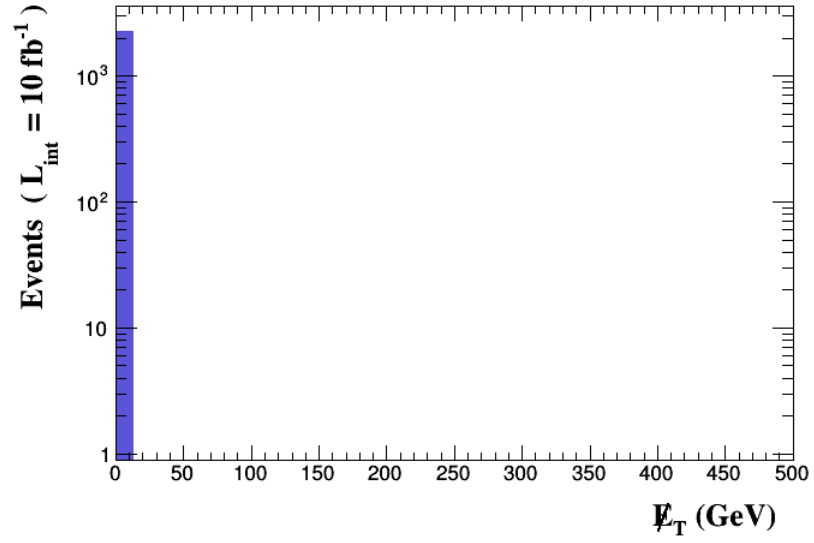
Figure 2.

3.3   Histogram 3

* Plot: SQRTS

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
unweighted_eve	2240	1.0	2434.09	1259	0.0	98.39
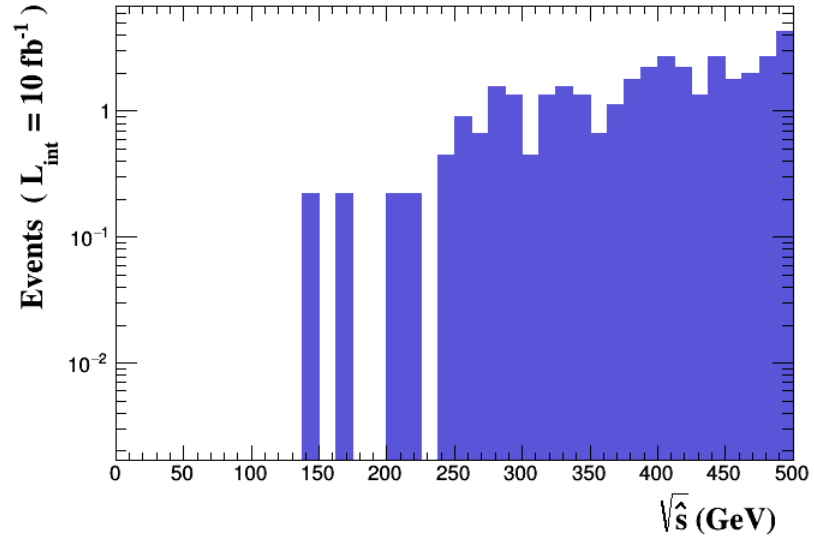
Figure 3.

3.4 Histogram 4

* Plot: PT (z[1])

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
unweighted_eve	2240	1.0	919.996	562.8	0.0	36.94
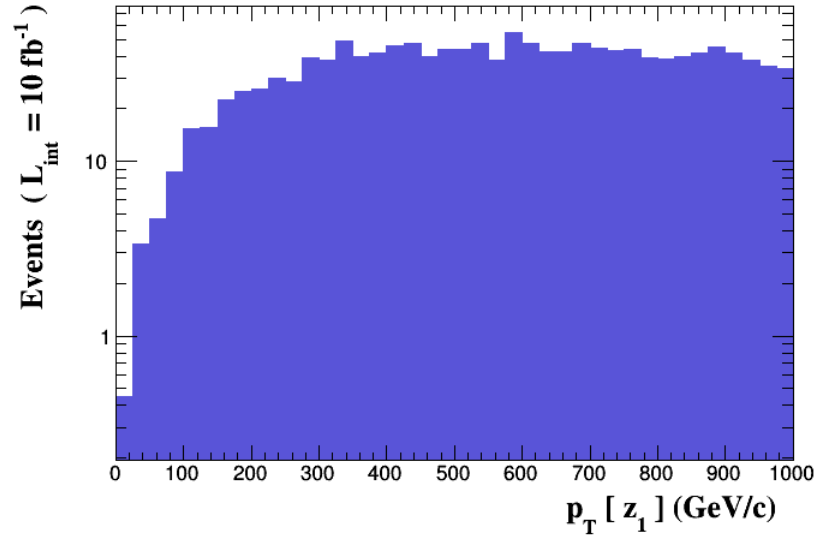
Figure 4.

3.5 Histogram 5

* Plot: ETA (z[1])

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
unweighted_eve	2240	1.0	-0.00629505	1.232	0.0	0.0
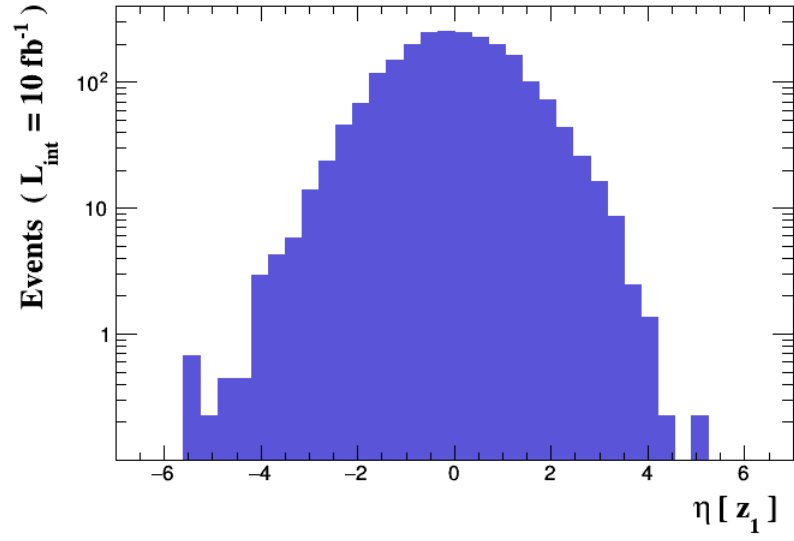
Figure 5.

3.6 Histogram 6

* Plot: PT (a[1])

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
unweighted_eve	2240	1.0	919.996	562.8	0.0	36.94
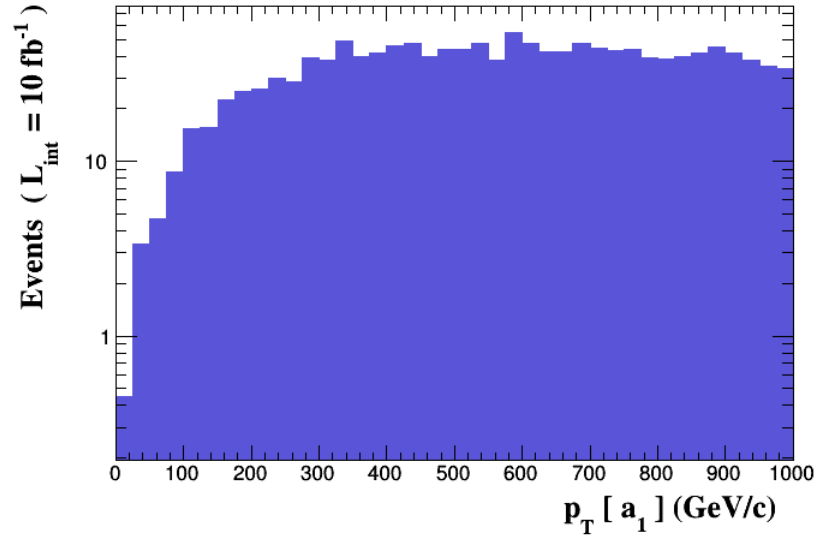
Figure 6.

3.7 Histogram 7

* Plot: ETA (a[1])

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
unweighted_eve	2240	1.0	-0.000903441	1.095	0.0	0.0
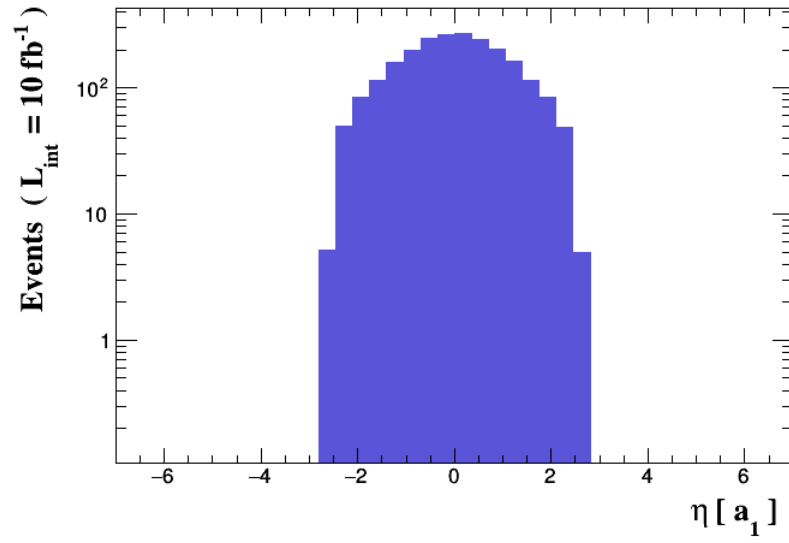
Figure 7.

3.8 Histogram 8

* Plot: M (a[1] z[1])

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
unweighted_eve	2240	1.0	2434.09	1259	0.0	93.97
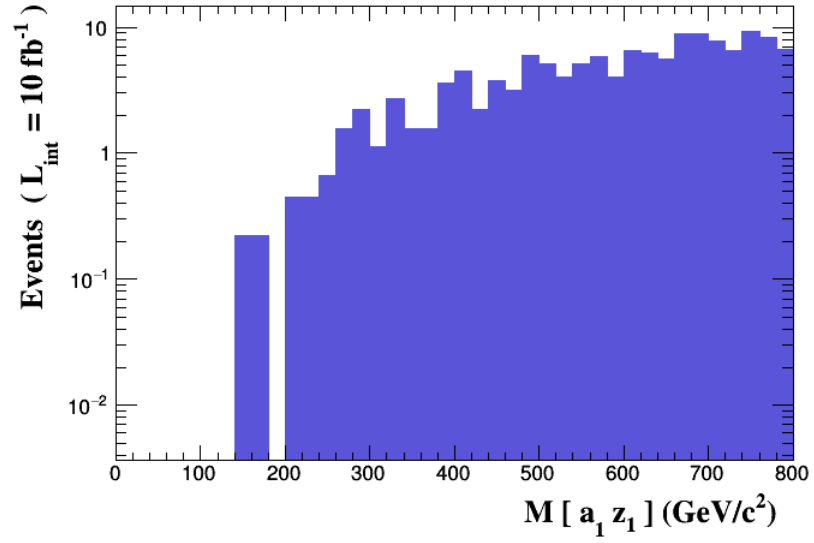
Figure 8.

3.9   Histogram 9

* Plot: DELTAR (z[1] , a[1])

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
unweighted_eve	2240	1.0	3.60417	0.5599	0.0	0.0
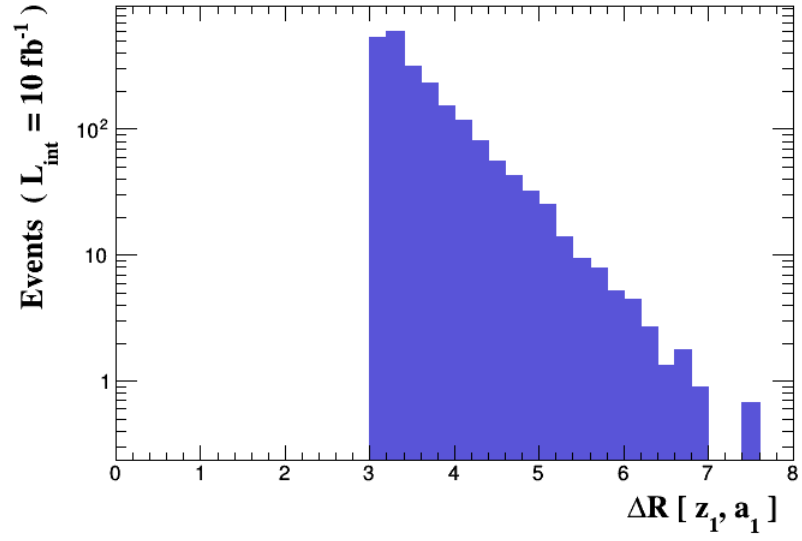
Figure 9.

3.10 Histogram 10

* Plot: PT (a[1])

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
unweighted_eve	2240	1.0	919.996	562.8	0.0	50.94
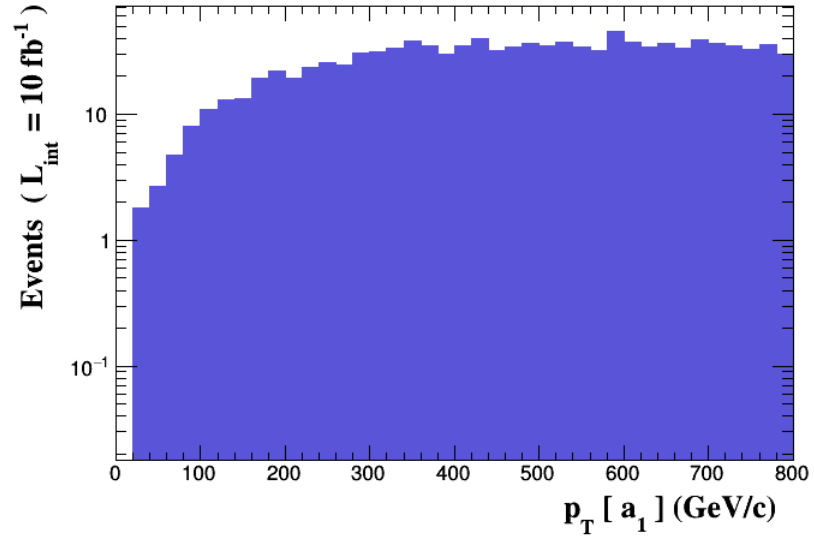
Figure 10.

3.11   Histogram 11

* Plot: ETA (a[1])

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
unweighted_eve	2240	1.0	-0.000903441	1.095	0.0	0.0
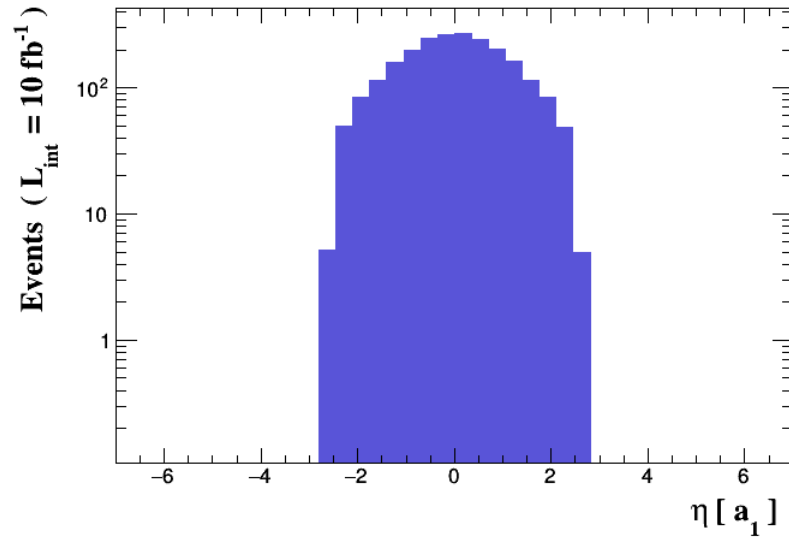
Figure 11.

3.12   Histogram 12

* Plot: PT (l-[1])

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
unweighted_eve	2240	1.0	463.409	376.1	0.0	23.52
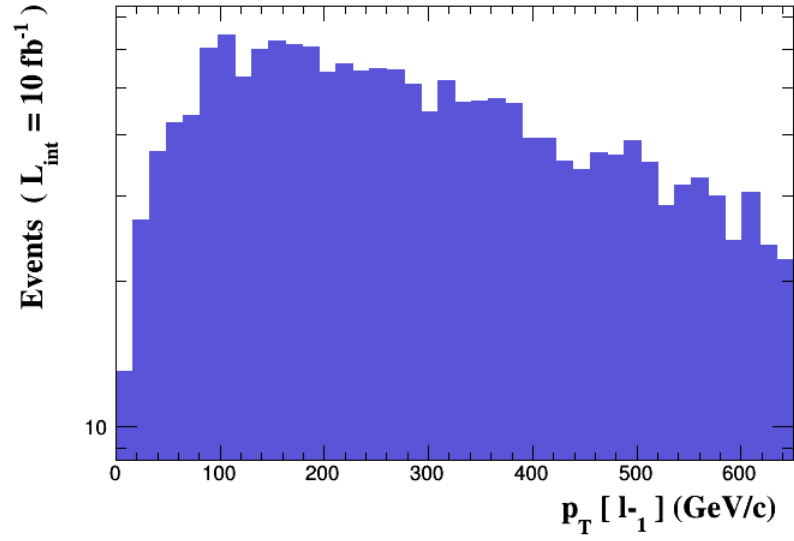
Figure 12.

3.13 Histogram 13

* Plot: ETA (l-[1])

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
unweighted_eve	2240	1.0	-0.00679359	1.236	0.0	0.0
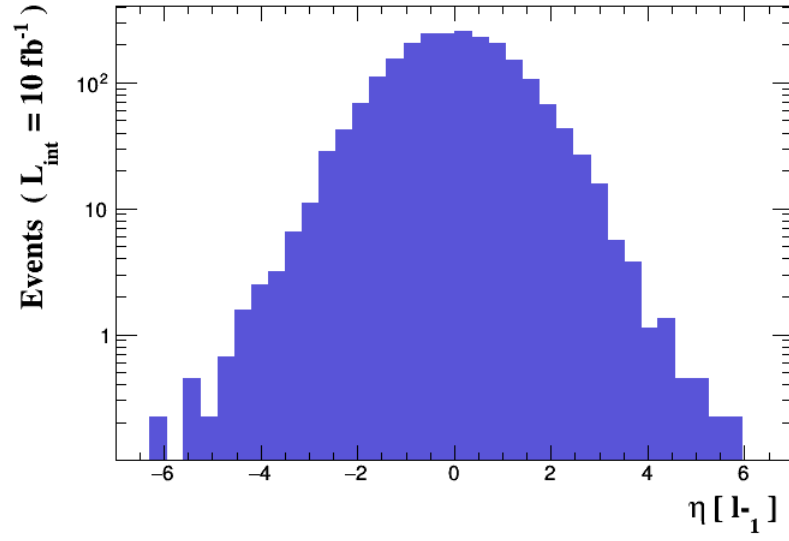
Figure 13.

3.14   Histogram 14

* Plot: PT (l+[1])

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
unweighted_eve	2240	1.0	460.271	366.9	0.0	22.97
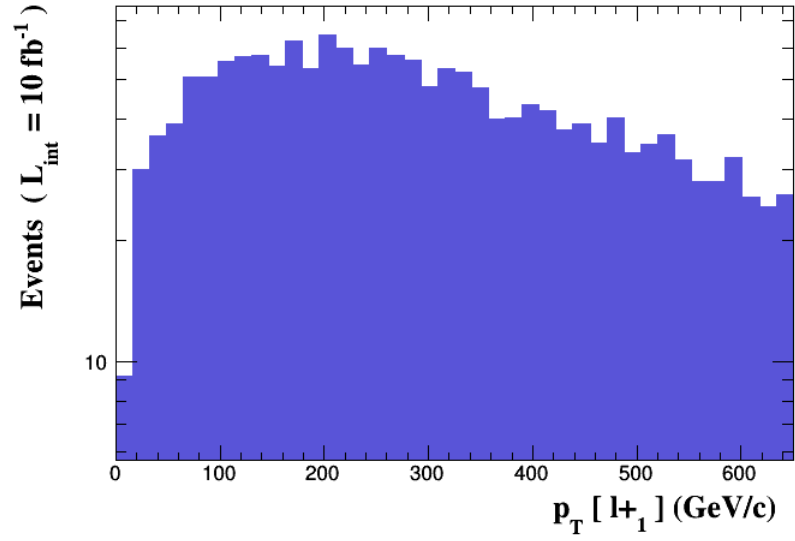
Figure 14.

3.15   Histogram 15

* Plot: ETA (l+[1])

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
unweighted_eve	2240	1.0	-0.00406644	1.234	0.0	0.0
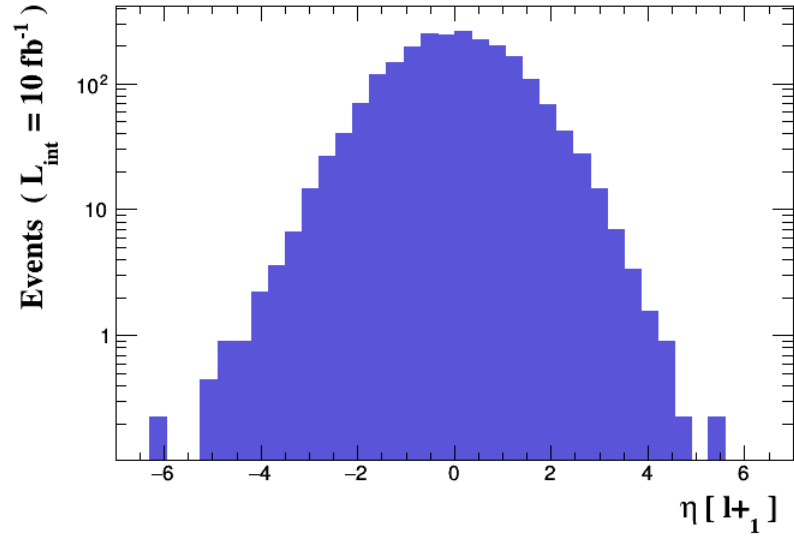
Figure 15.

3.16   Histogram 16

* Plot: M (a[1] l+[1])

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
unweighted_eve	2240	1.0	1664.65	979.3	0.0	80.96
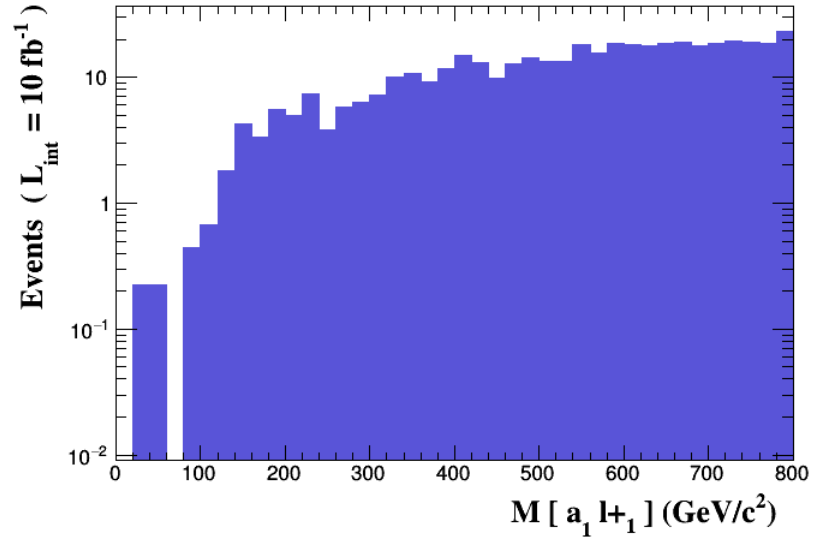
Figure 16.

3.17   Histogram 17

* Plot: M (a[1] l-[1])

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
unweighted_eve	2240	1.0	1668.35	994.3	0.0	80.78
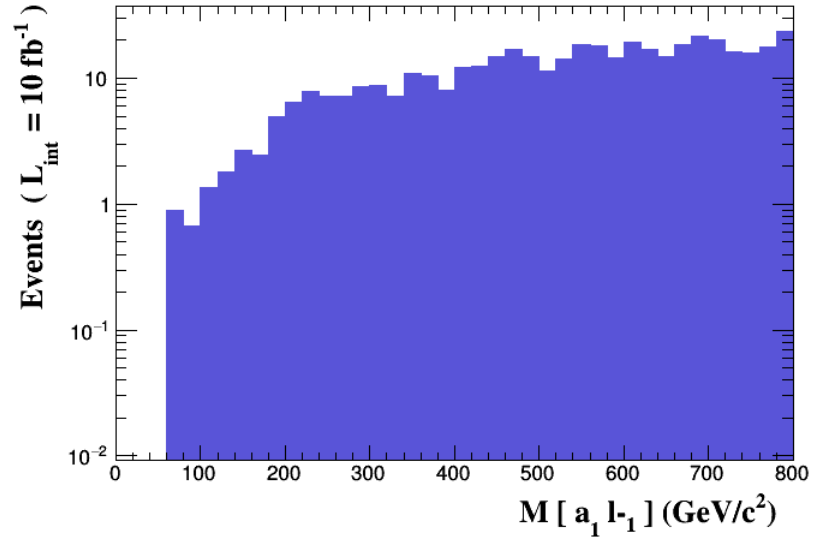
Figure 17.

3.18   Histogram 18

* Plot: M (a[1] l+[1] l-[1])

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
unweighted_eve	2240	1.0	2434.09	1259	0.0	91.68
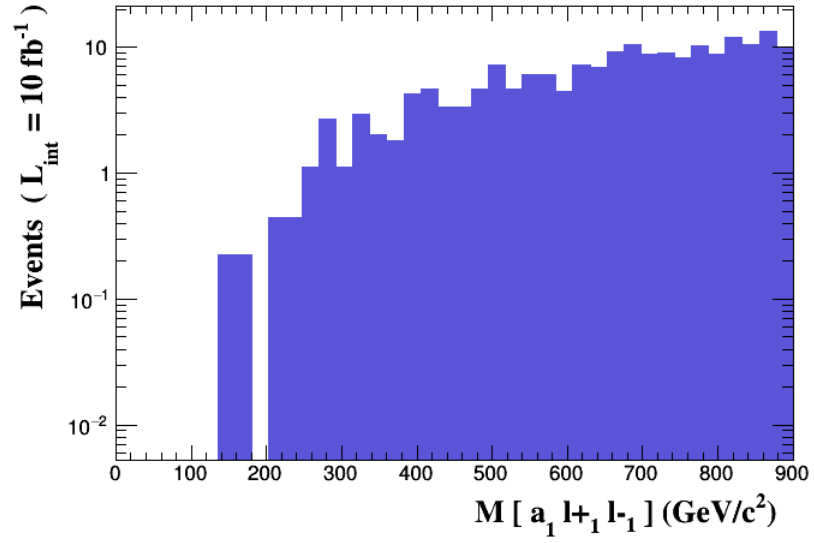
Figure 18.

3.19 Histogram 19

* Plot: M (l+[1] l-[1])

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
unweighted_eve	2240	1.0	91.1584	5.168	0.0	0.0
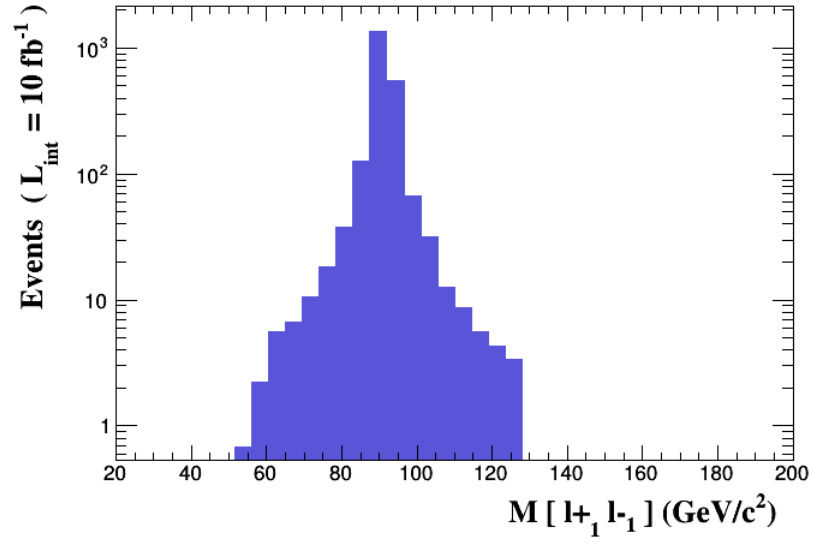
Figure 19.

3.20   Histogram 20

* Plot: DELTAR (a[1] , l+[1])

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
unweighted_eve	2240	1.0	3.50683	0.5484	0.0	0.0
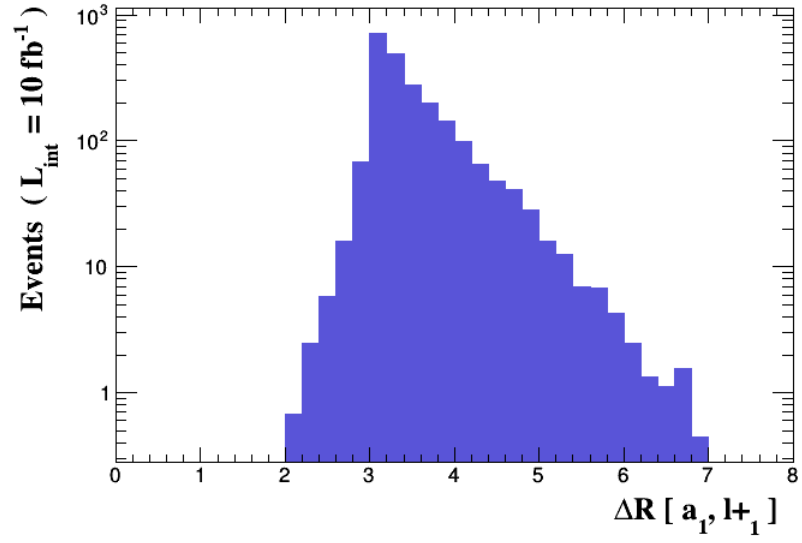
Figure 20.

3.21 Histogram 21

* Plot: DELTAR (a[1] , l-[1])

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
unweighted_eve	2240	1.0	3.5066	0.5537	0.0	0.0
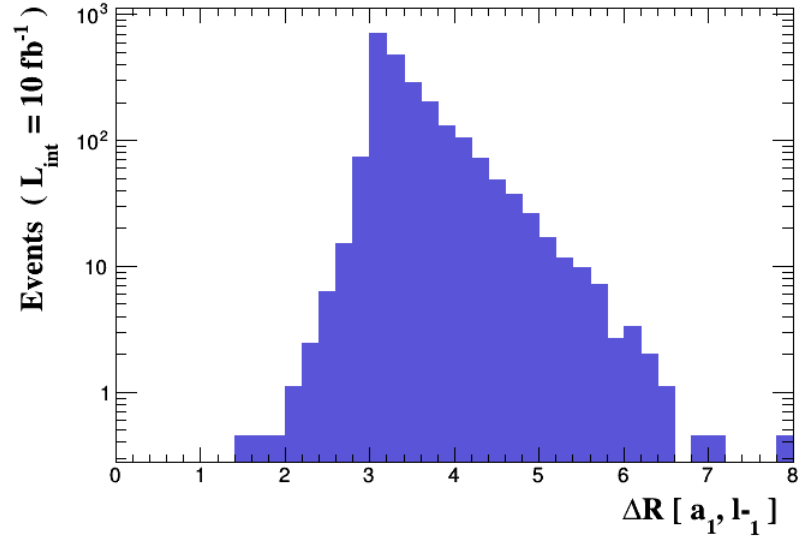
Figure 21.

3.22   Histogram 22

* Plot: DELTAR (l-[1] , l+[1])

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
unweighted_eve	2240	1.0	0.370242	0.3658	0.0	0.0

Figure 22.