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>import /home/jcordero/CMS/Theory/MG5_aMC_v2_7_2/sm_QED2_QCD2/bin/internal/ufomodel
ma5>import /home/jcordero/CMS/Theory/MG5_aMC_v2_7_2/sm_QED2_QCD2/Events/run_01/unweighted_events.l
as unweighted_events
ma5>define vl = 12 14 16
ma5>define vl  = -16 -14 -12
ma5>define invisible = ve ve  vm vm  vt vt  vl vl
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 0 500 [logY interstate]
ma5>plot ETA(z[1]) 40 -10 10 [logY interstate]
ma5>plot PT(a[1]) 40 0 500 [logY]
ma5>plot ETA(a[1]) 40 -10 10 [logY]
ma5>plot M(z[1] a[1]) 40 0 500 [logY allstate]
ma5>plot DELTAR(z[1],a[1]) 40 0 10 [logY allstate]
ma5>plot PT(a[1]) 40 0 500 [logY]
ma5>plot ETA(a[1]) 40 -10 10 [logY]
ma5>plot PT(l-[1]) 40 0 500 [logY]
ma5>plot ETA(l-[1]) 40 -10 10 [logY]
ma5>plot PT(l+[1]) 40 0 500 [logY]
ma5>plot ETA(l+[1]) 40 -10 10 [logY]
ma5>plot M(a[1] l+[1]) 40 0 500 [logY ]
ma5>plot M(a[1] l-[1]) 40 0 500 [logY ]
ma5>plot M(a[1] l-[1] l+[1]) 40 0 500 [logY ]
ma5>plot M(l-[1] l+[1]) 40 0 500 [logY ]
ma5>plot DELTAR(a[1],l+[1]) 40 0 10 [logY ]
ma5>plot DELTAR(a[1],l-[1]) 40 0 10 [logY ]
ma5>plot DELTAR(l-[1],l+[1]) 40 0 10 [logY ]
ma5>submit /home/jcordero/CMS/Theory/MG5_aMC_v2_7_2/sm_QED2_QCD2/MA5_PARTON_ANALYSIS_analysis1
```

1.2 Configuration

- MadAnalysis version 1.8.34 (2019/12/04).
- Histograms given for an integrated luminosity of 10fb^{-1}.

2 Datasets

2.1 unweighted_events

- Sample consisting of: signal events.
- Generated events: 10000 events.
- Normalization to the luminosity: 46540+/- 202 events.
- Ratio (event weight): 4.7 - warning: please generate more events (weight larger than 1)!

Path to the event file	Nr. of events	Cross section (pb)	Negative wgts (%)
sm_QED2_QCD2/Events/-run_01/unweighted_events.lhe.gz	10000	4.65 @ 0.43%	0.0

3 Histos and cuts

3.1 Histogram 1

*** Plot: THT**

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
unweighted_eve	46541	1.0	0.0	0.0	0.0	0.0

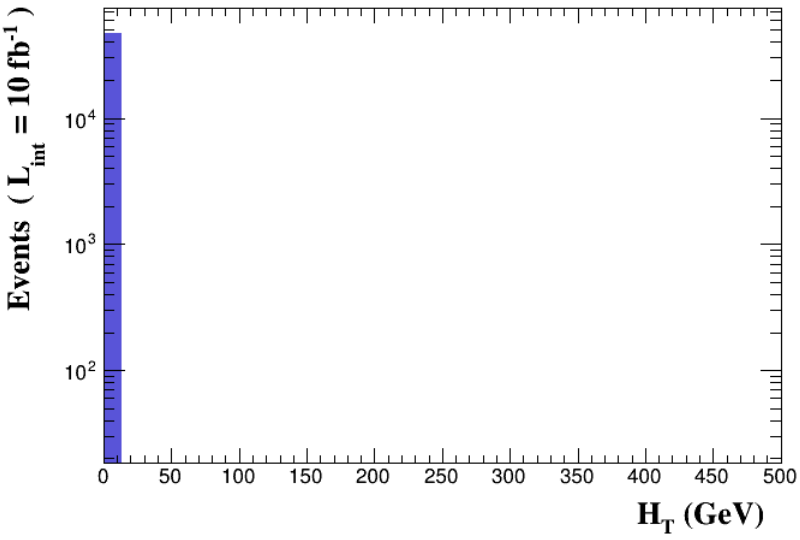

Figure 1.

3.2 Histogram 2

*** Plot: MET**

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
unweighted_eve	46541	1.0	5.01178e-10	5.317e-10	0.0	0.0

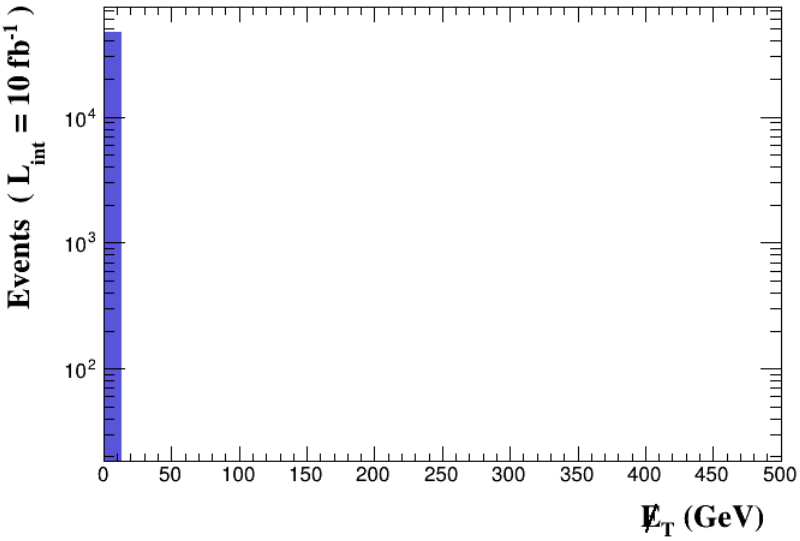

Figure 2.

3.3 Histogram 3

*** Plot: SQRTS**

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
unweighted_eve	46541	1.0	140.456	56.98	0.0	0.35

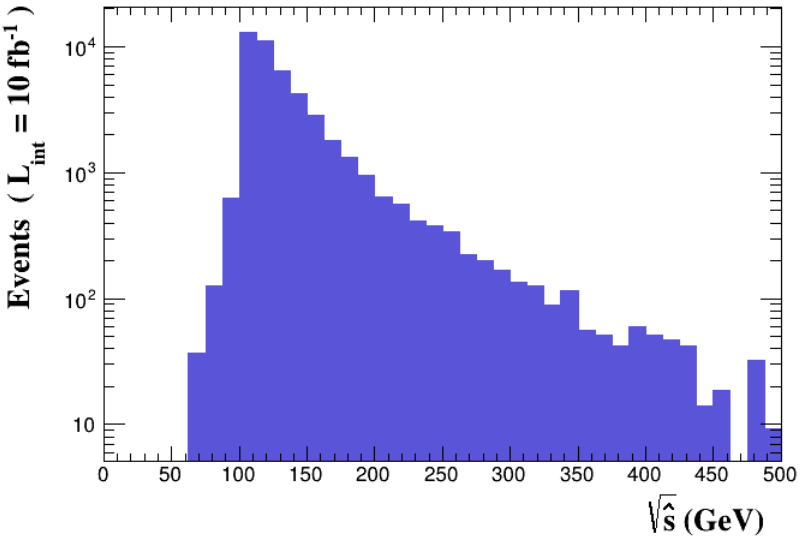

Figure 3.

3.4 Histogram 4

*** Plot: PT (z[1])**

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
unweighted_eve	46541	1.0	24.0	21.44	0.0	0.0

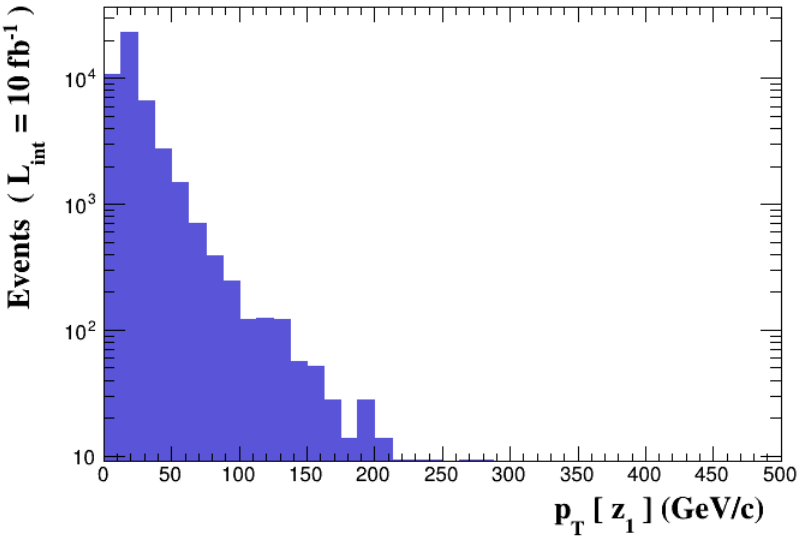

Figure 4.

3.5 Histogram 5

*** Plot: ETA (z[1])**

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
unweighted_eve	46541	1.0	0.0142624	3.179	0.0	0.0

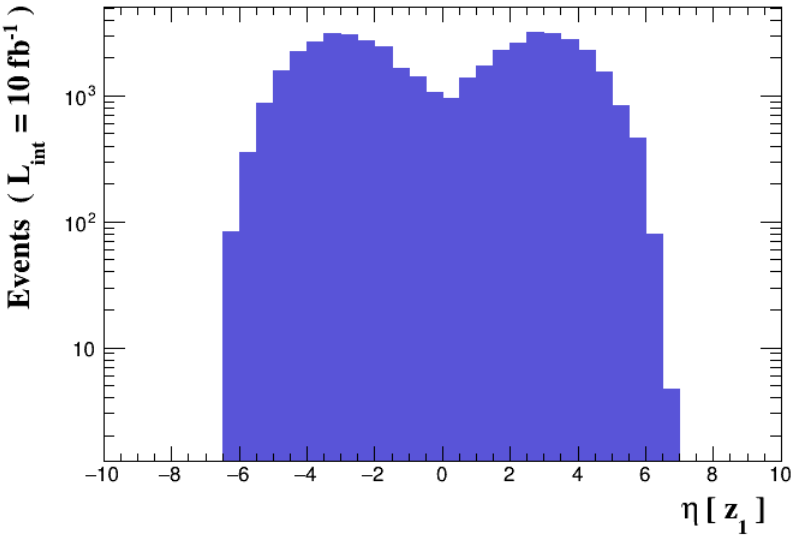

Figure 5.

3.6 Histogram 6

*** Plot: PT (a[1])**

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
unweighted_eve	46541	1.0	24.0	21.44	0.0	0.0

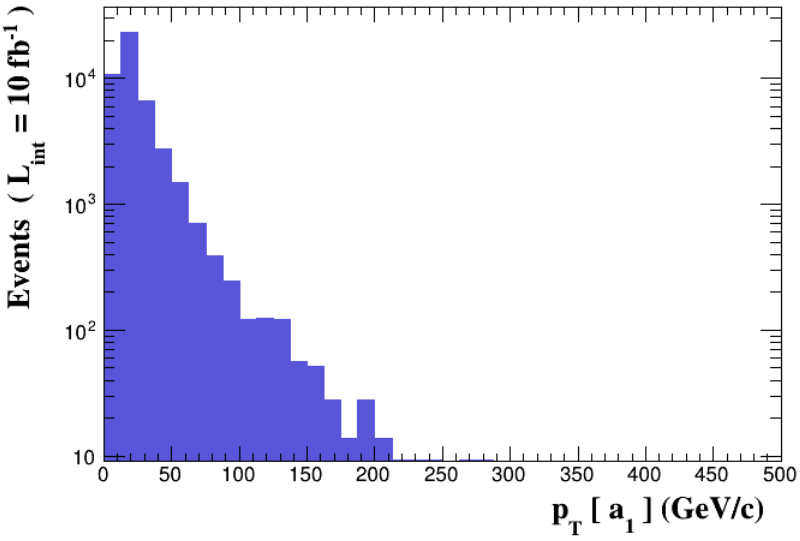

Figure 6.

3.7 Histogram 7

*** Plot: ETA (a[1])**

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
unweighted_eve	46541	1.0	0.00994075	1.397	0.0	0.0

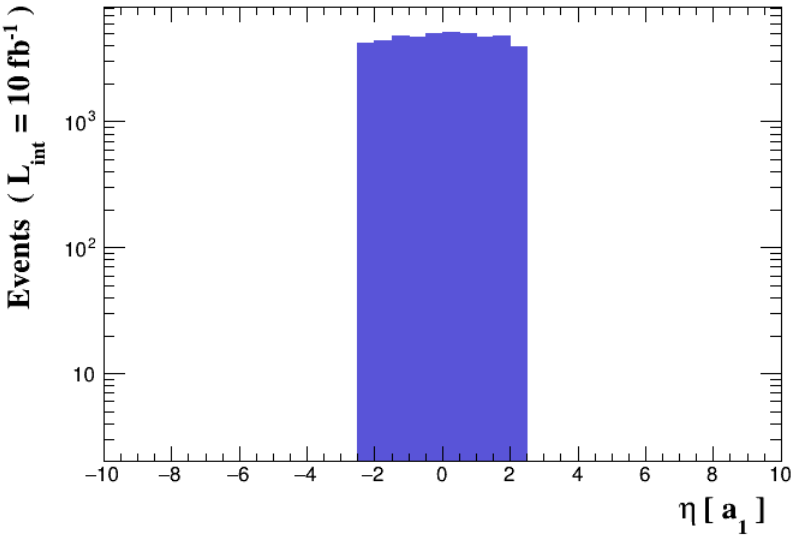

Figure 7.

3.8 Histogram 8

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

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
unweighted_eve	46541	1.0	140.456	56.98	0.0	0.35

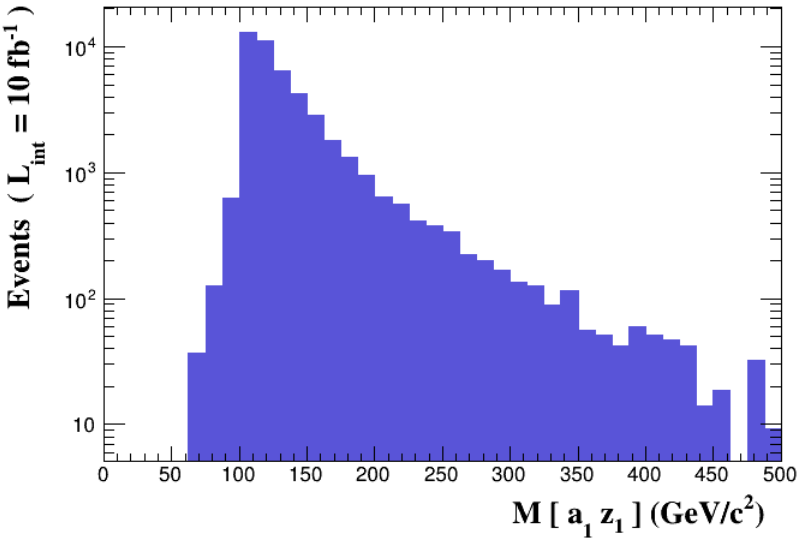

Figure 8.

3.9 Histogram 9

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

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
unweighted_eve	46541	1.0	3.94468	0.7488	0.0	0.0

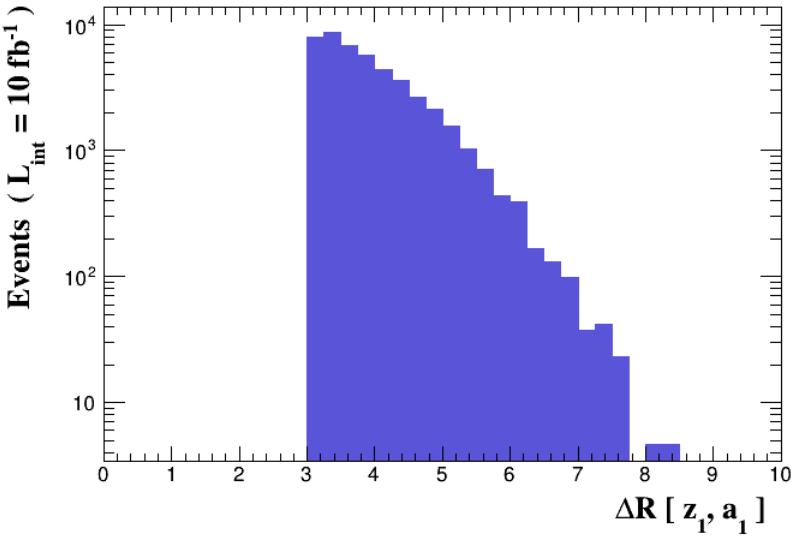

Figure 9.

3.10 Histogram 10

*** Plot: PT (a[1])**

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
unweighted_eve	46541	1.0	24.0	21.44	0.0	0.0

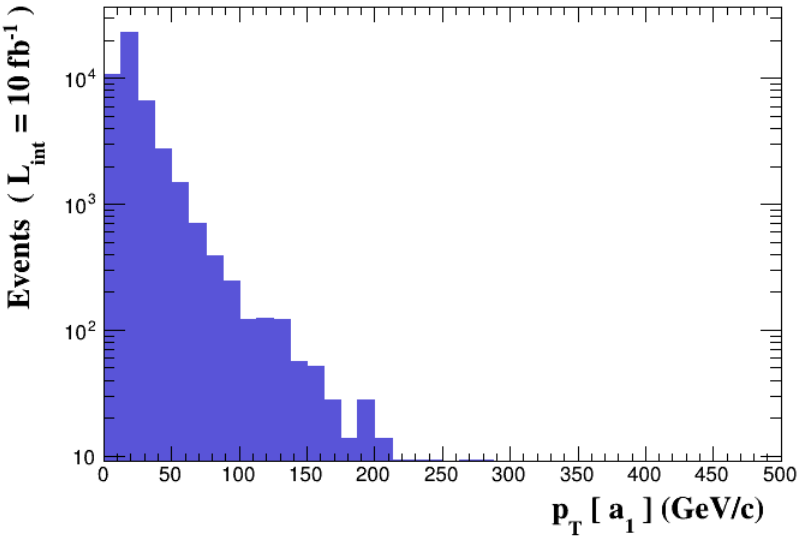

Figure 10.

3.11 Histogram 11

*** Plot: ETA (a[1])**

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
unweighted_eve	46541	1.0	0.00994075	1.397	0.0	0.0

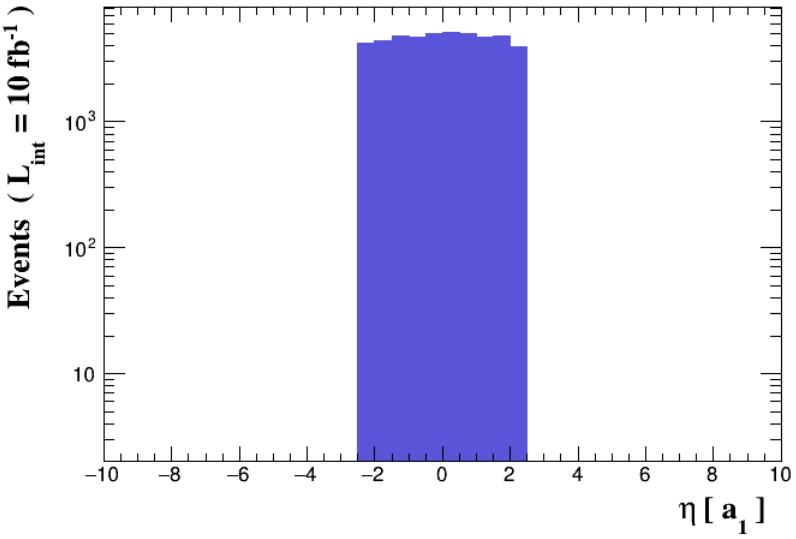

Figure 11.

3.12 Histogram 12

*** Plot: PT (l-[1])**

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
unweighted_eve	46541	1.0	36.7657	16.58	0.0	0.0

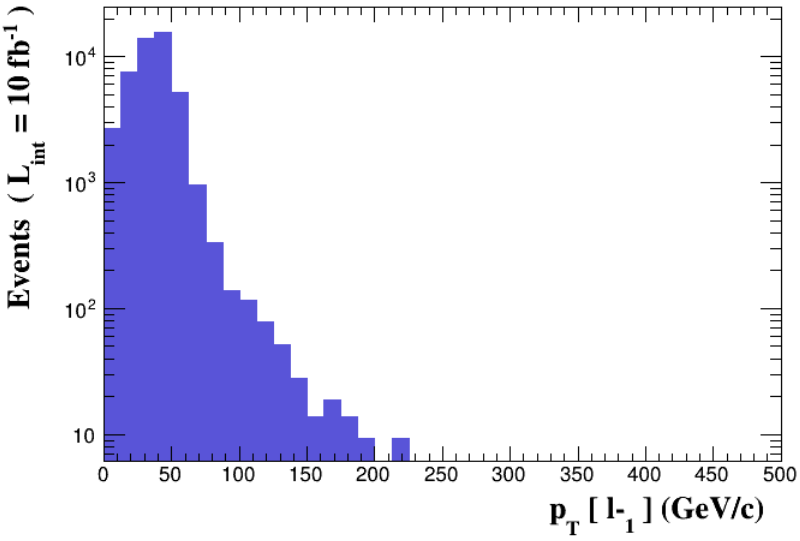

Figure 12.

3.13 Histogram 13

*** Plot: ETA (l-[1])**

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
unweighted_eve	46541	1.0	0.0332206	2.115	0.0	0.0

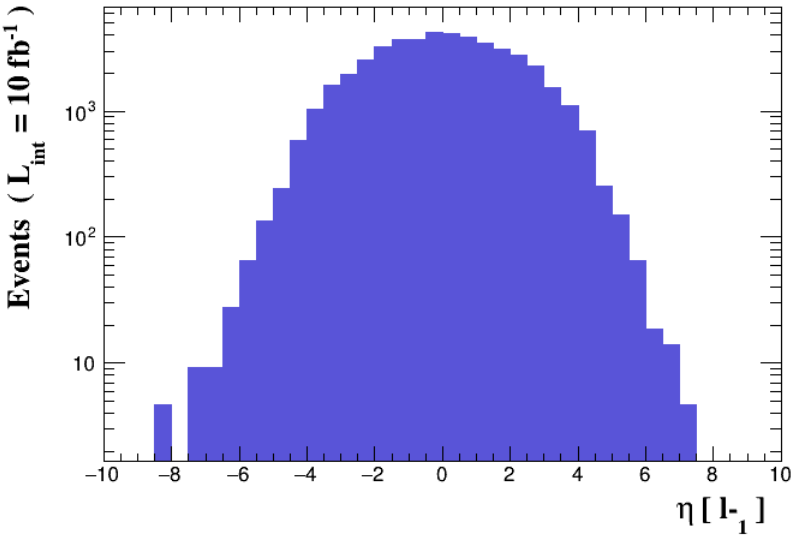

Figure 13.

3.14 Histogram 14

*** Plot: PT (l+[1])**

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
unweighted_eve	46541	1.0	36.4035	16.09	0.0	0.0

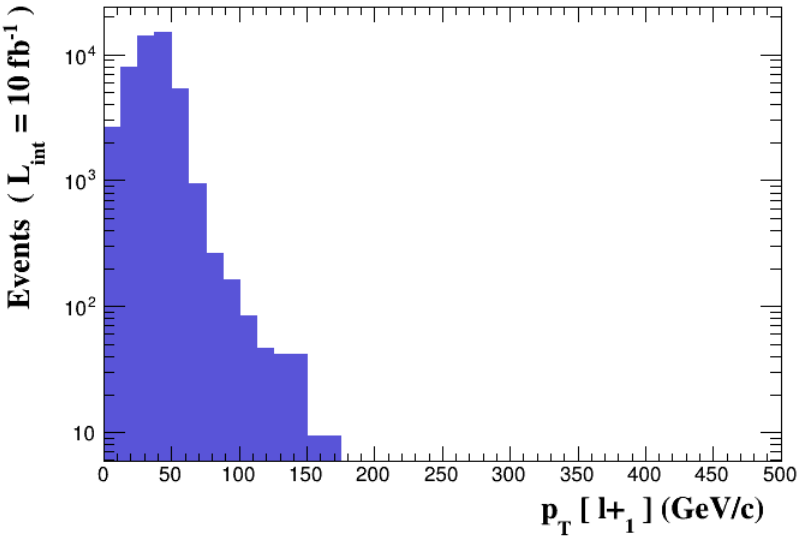

Figure 14.

3.15 Histogram 15

*** Plot: ETA (l+[1])**

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
unweighted_eve	46541	1.0	-0.00241522	2.04	0.0	0.0

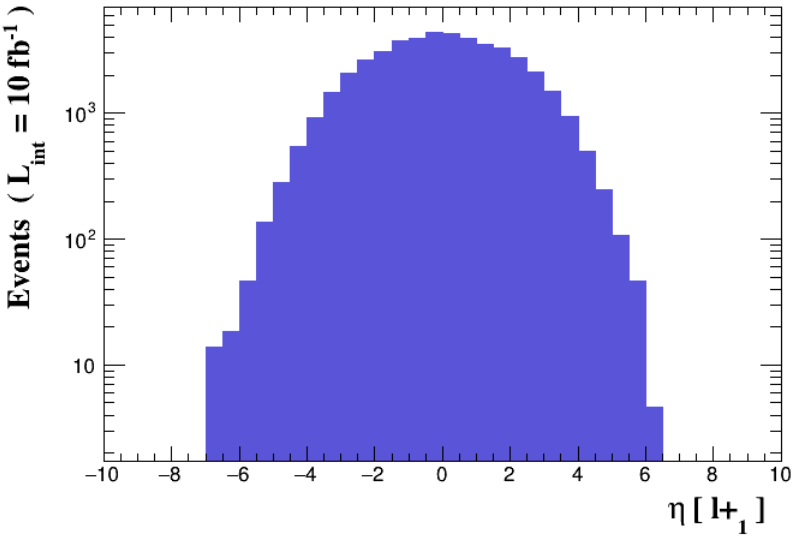

Figure 15.

3.16 Histogram 16

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

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
unweighted_eve	46541	1.0	66.3253	50.69	0.0	0.09

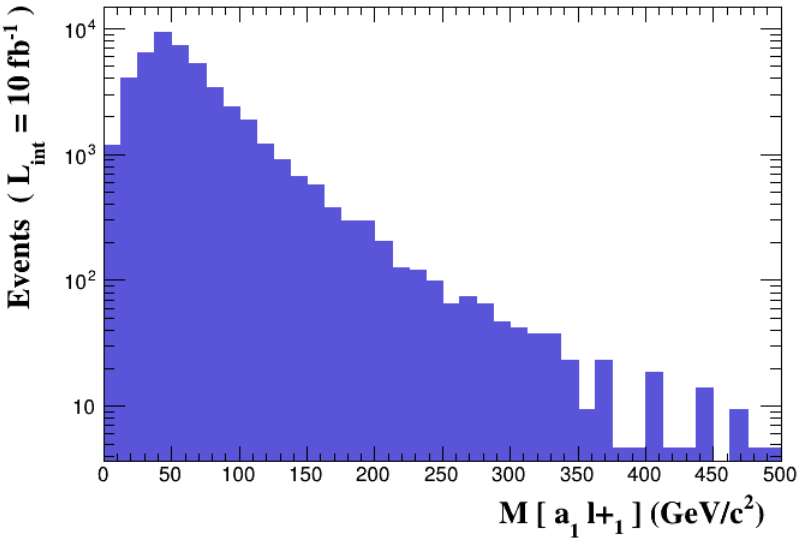

Figure 16.

3.17 Histogram 17

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

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
unweighted_eve	46541	1.0	68.1533	54.84	0.0	0.13

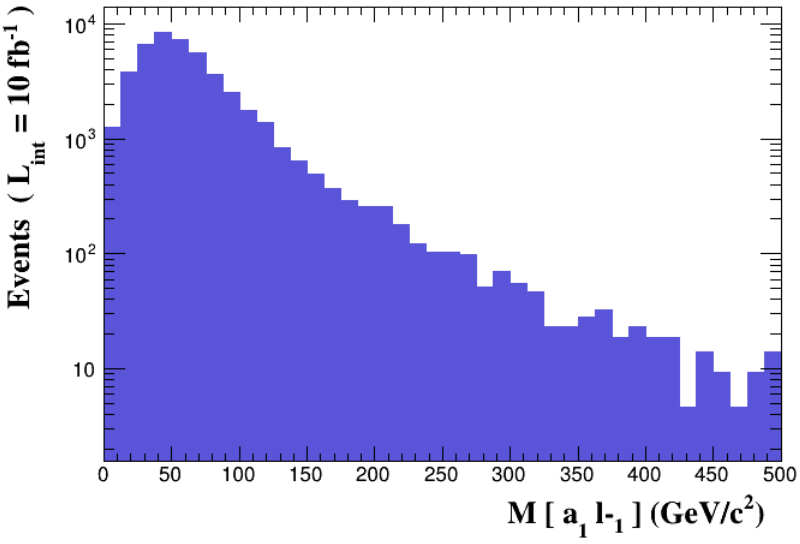

Figure 17.

3.18 Histogram 18

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

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
unweighted_eve	46541	1.0	140.456	56.98	0.0	0.35

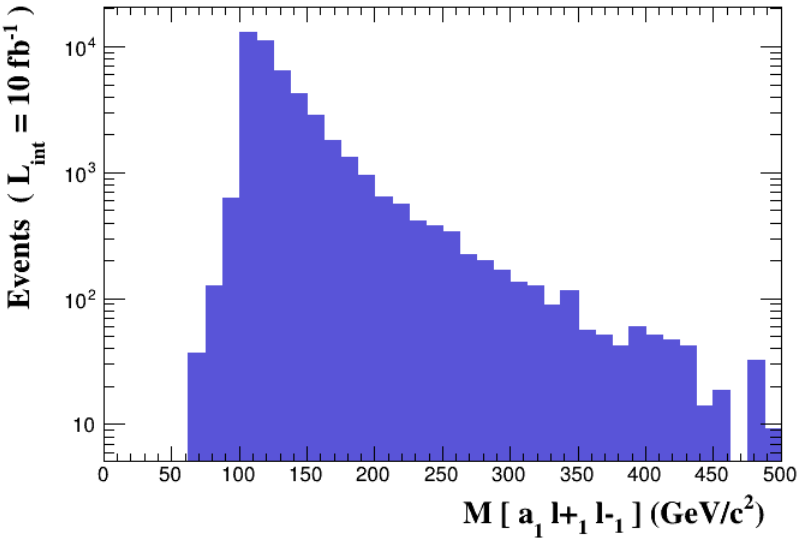

Figure 18.

3.19 Histogram 19

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

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
unweighted_eve	46541	1.0	91.2524	5.094	0.0	0.0

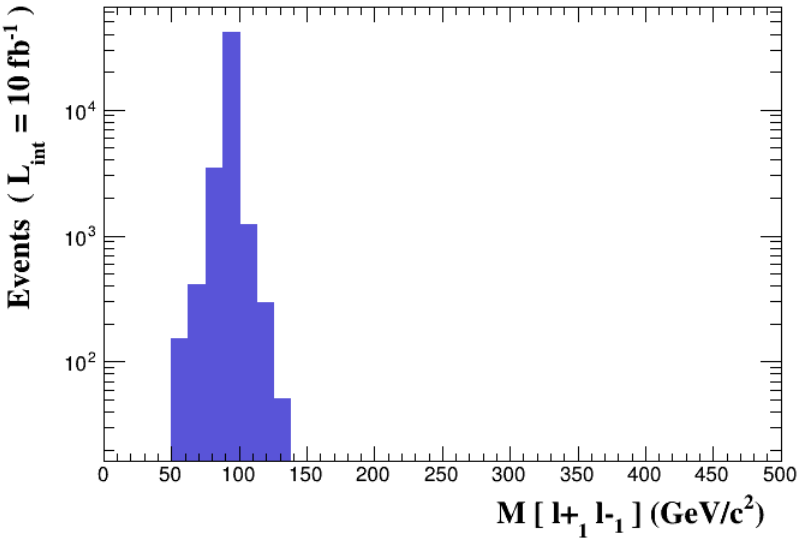

Figure 19.

3.20 Histogram 20

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

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
unweighted_eve	46541	1.0	2.46223	0.9722	0.0	0.0

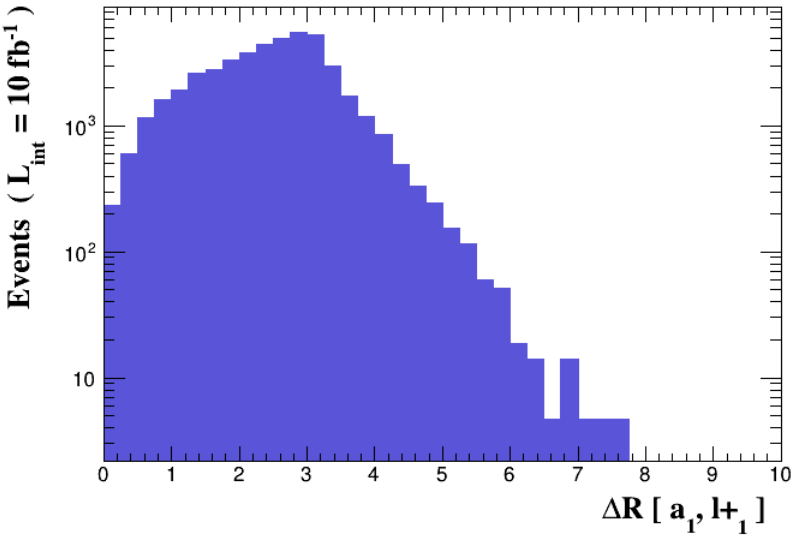

Figure 20.

3.21 Histogram 21

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

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
unweighted_eve	46540	1.0	2.48366	0.9966	0.0	0.0

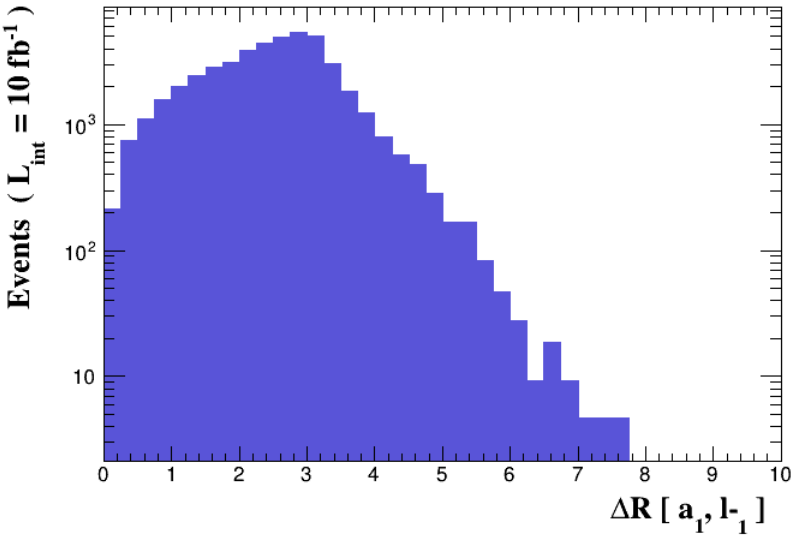

Figure 21.

3.22 Histogram 22

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

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
unweighted_eve	46541	1.0	3.24001	0.6497	0.0	0.0

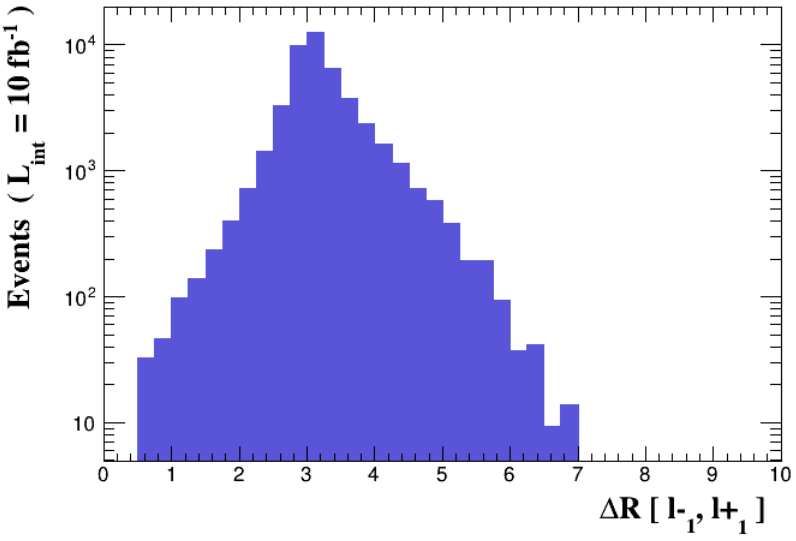

Figure 22.