The LaTeX report

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Contents

1 Setup

1.1 Command history

```
ma5>import Events/run_04/tag_2_delphes_events.root as sigzh
ma5>
ma5>set sigzh.type=signal
ma5>set sigzh.xsection=0.001592
ma5>set main.lumi=1000
ma5>set main.normalize = lumi_weight
ma5>
ma5>set sigzh.linecolor = orange
ma5>set sigzh.linestyle = dashed
ma5>plot N(e+) 5 0 5
ma5>plot N(mu+) 5 0 5
ma5>plot N(mu-) 5 0 5
ma5>plot N(j) 5 0 5
ma5>plot N(b) 5 0 5
ma5>plot PT(j[1]) 500 0 500
ma5>plot PT(b[1]) 500 0 500
ma5>plot PT(b[2]) 500 0 500
ma5>plot DELTAR(mu+[1],mu-[1]) 100 -2 10
ma5>plot DELTAR(b[1],b[2]) 100 -2 10
ma5>plot PT(b[1]) 500 0 500
ma5>plot PT(j[2]) 500 0 500
ma5>
ma5>submit SS_ee2zh2mumubb_rootcheck
```

1.2 Configuration

- MadAnalysis version 1.9.32 (2021/07/16).
- Histograms given for an integrated luminosity of 1000.0fb^{-1}.

2 Datasets

2.1 sigzh

- Sample consisting of: signal events.
- Generated events: 10000 events.
- Cross section imposed by the user: 0.001592 pb.
- Normalization to the luminosity: 1592+/- 0 events.
- Ratio (event weight): 0.16 .

Path to the event file	Nr. of events	Cross section (pb)	Negative wgts (%)
Events/run_04/-tag_2_delphes_events.root	10000	0.001592	0.0

3 Histos and cuts

3.1 Histogram 1

*** Plot: N (e+)**

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
sigzh	1592	1.0	0.0058	0.07594	0.0	0.0

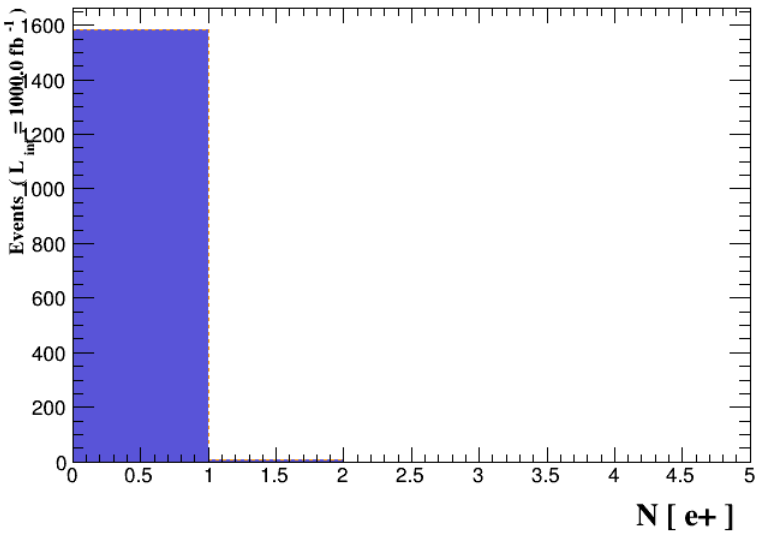

Figure 1.

3.2 Histogram 2

*** Plot: N (mu+)**

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
sigzh	1592	1.0	0.965	0.2083	0.0	0.0

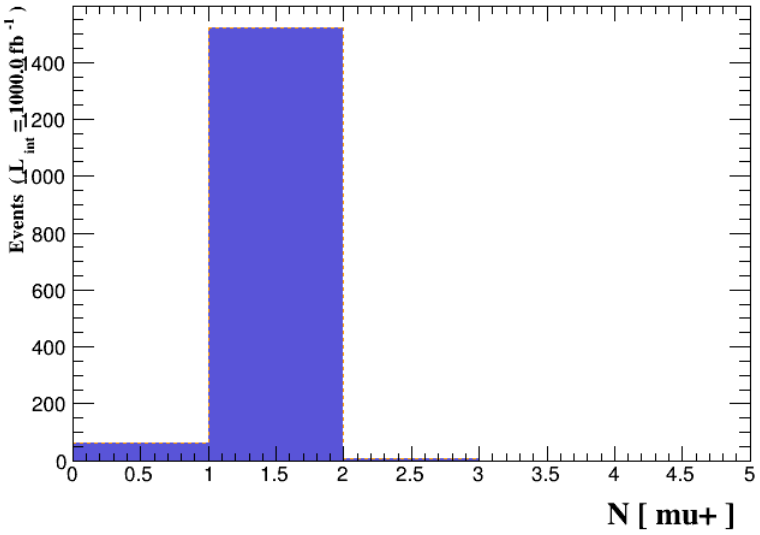

Figure 2.

3.3 Histogram 3

*** Plot: N (mu-)**

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
sigzh	1592	1.0	0.9667	0.2088	0.0	0.0

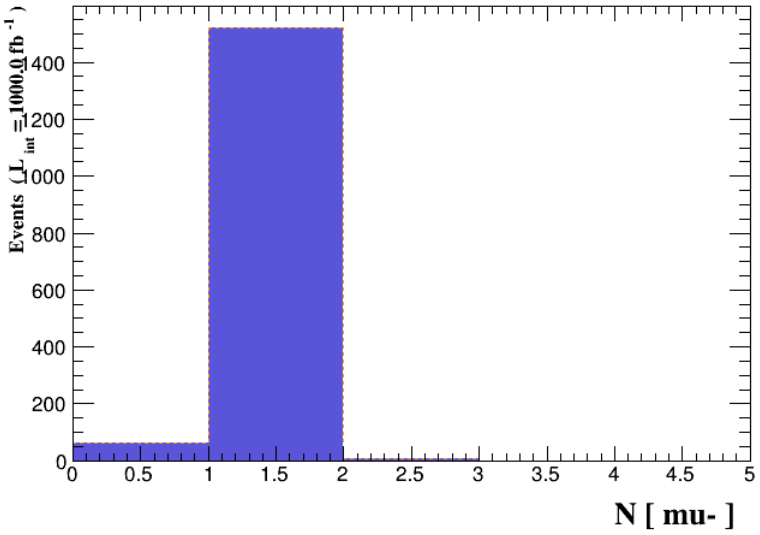

Figure 3.

3.4 Histogram 4

*** Plot: N (j)**

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
sigzh	1592	1.0	1.8638	0.5137	0.0	0.0

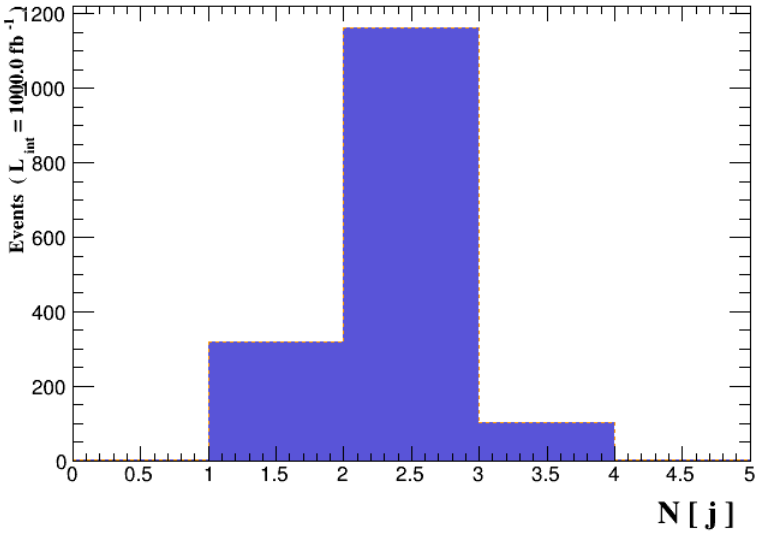

Figure 4.

3.5 Histogram 5

*** Plot: N (b)**

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
sigzh	1592	1.0	1.5118	0.6374	0.0	0.0

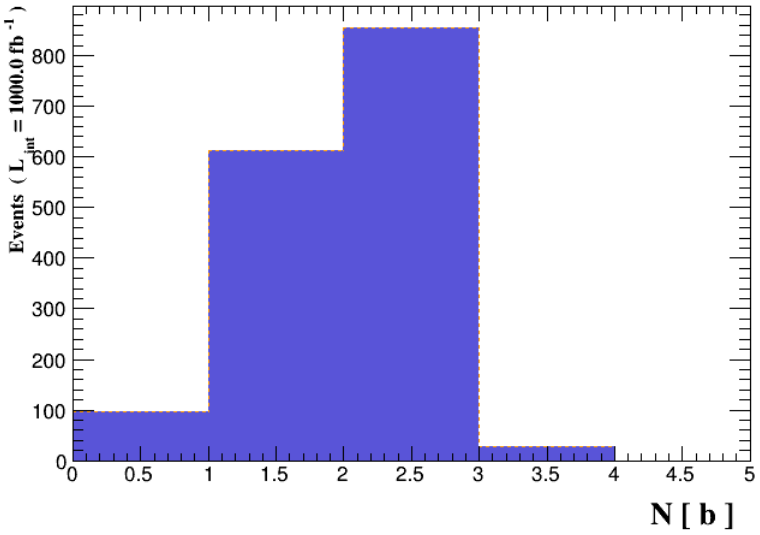

Figure 5.

3.6 Histogram 6

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

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
sigzh	1588	1.0	144.99	42.14	0.0	0.0

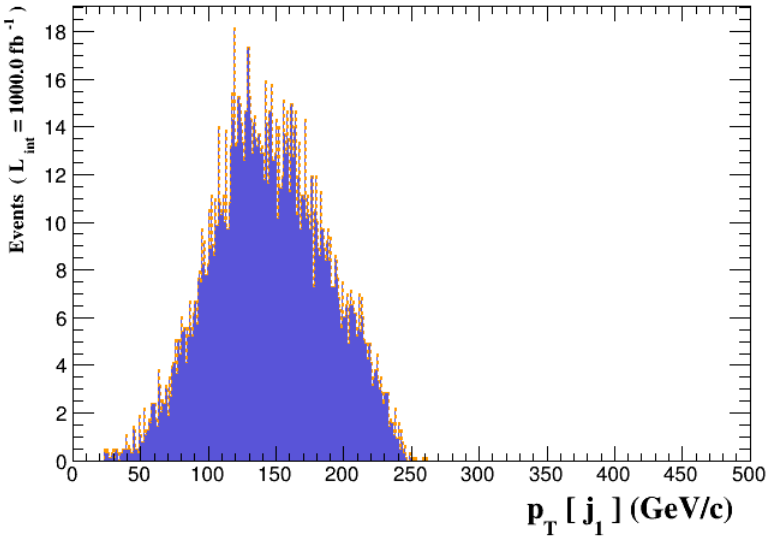

Figure 6.

3.7 Histogram 7

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

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
sigzh	1495	1.0	135.654	48.31	0.0	0.0

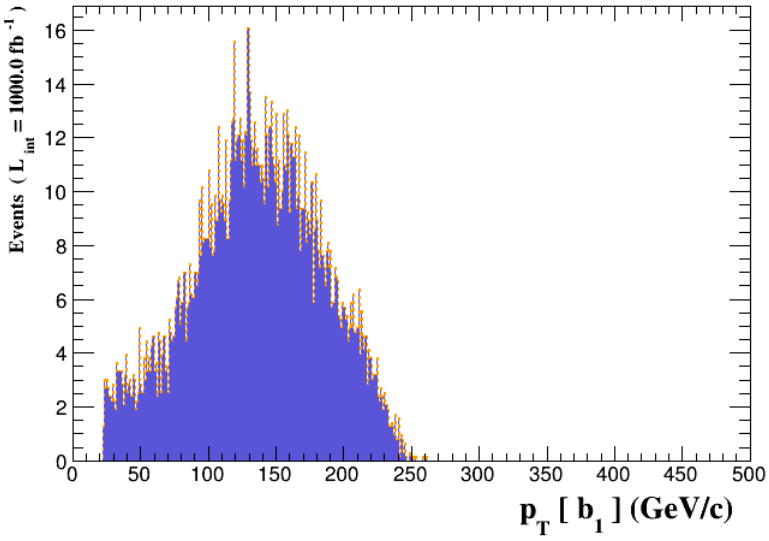

Figure 7.

3.8 Histogram 8

*** Plot: PT (b[2])**

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
sigzh	882	1.0	60.168	25.35	0.0	0.0

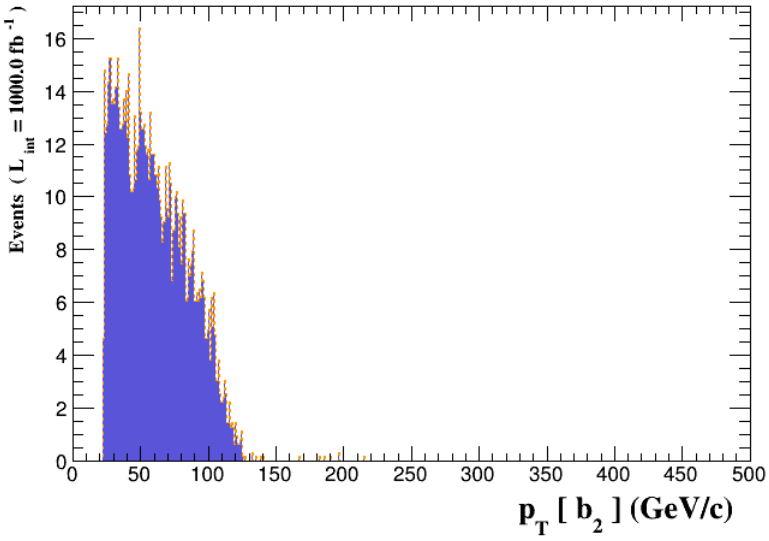

Figure 8.

3.9 Histogram 9

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

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
sigzh	1469	1.0	1.14743	0.4504	0.0	0.0

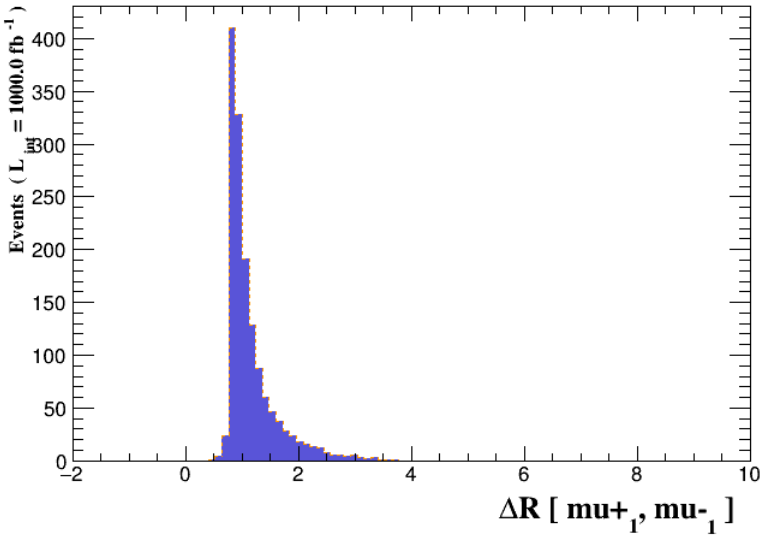

Figure 9.

3.10 Histogram 10

*** Plot: DELTAR (b[1] , b[2])**

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
sigzh	882	1.0	1.32253	0.414	0.0	0.0

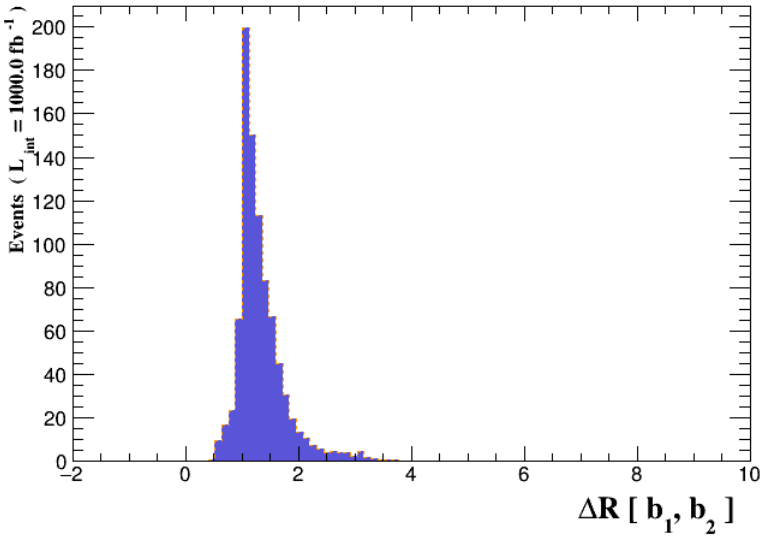

Figure 10.

3.11 Histogram 11

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

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
sigzh	1495	1.0	135.654	48.31	0.0	0.0

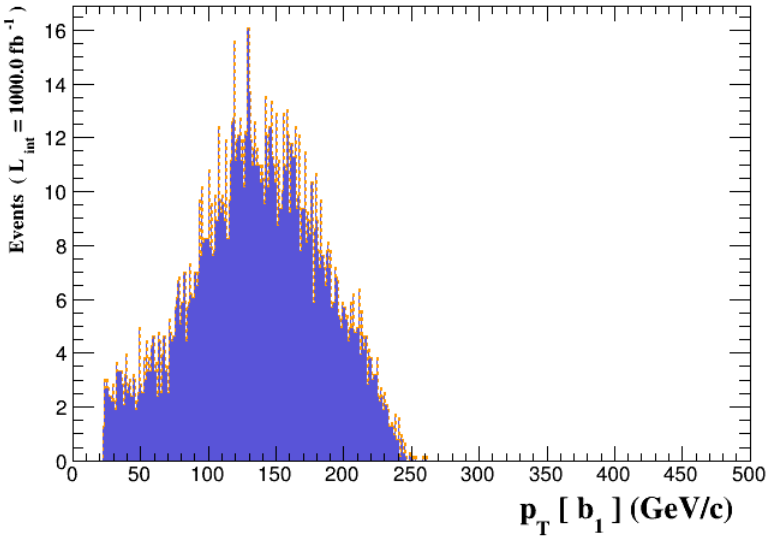

Figure 11.

3.12 Histogram 12

*** Plot: PT (j[2])**

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
sigzh	1268	1.0	61.2159	26.23	0.0	0.0

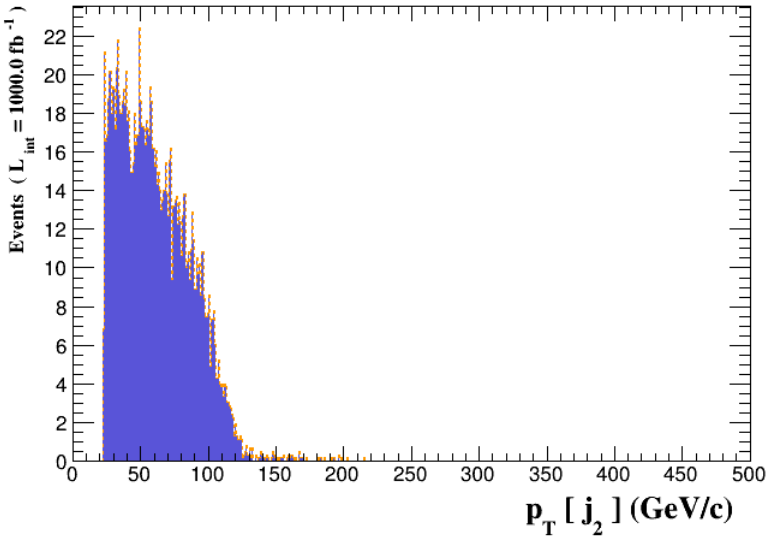

Figure 12.