The LaTeX report

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Contents

1 Setup **2**
- 1.1 Command history 2
- 1.2 Configuration 2

2 Datasets **3**
- 2.1 dy 3
- 2.2 ma1000 3
- 2.3 dy_pt250 3
- 2.4 ma1000_pt250 4

3 Histos and cuts **5**
- 3.1 Histogram 1 5
- 3.2 Histogram 2 6
- 3.3 Histogram 3 7

1 Setup

1.1 Command history

```
ma5>import /home/ernesto/Work/codes/MCgenerators/MadGraph/MG5_aMC_v2_updated/LFVHD/-
DY/LO/Events/DY.lhco as DY
ma5>import /home/ernesto/Work/codes/MCgenerators/MadGraph/MG5_aMC_v2_updated/LFVHD/-
MSSM-Higgs2ditau/LO/Events/MA1000.lhco as MA1000
ma5>import /home/ernesto/Work/codes/MCgenerators/MadGraph/MG5_aMC_v2_updated/LFVHD/-
DY/LO/Events/DY_pT250.lhco as DY_pT250
ma5>import /home/ernesto/Work/codes/MCgenerators/MadGraph/MG5_aMC_v2_updated/LFVHD/-
MSSM-Higgs2ditau/LO/Events/MA1000_pT250.lhco as MA1000_pT250
ma5>define tau = ta+ ta-
ma5>define muon = mu+ mu-
ma5>set main.stacking_method = superimpose
ma5>set DY.linecolor = black
ma5>set MA1000.linecolor = red
ma5>set DY_pT250.linecolor = green
ma5>set MA1000_pT250.linecolor = blue
ma5>plot PT(tau) 50 0 500 [logY]
ma5>plot M(tau) 50 0 150 [logY]
ma5>plot M(tau) 50 0 20 [logY]
ma5>submit Mtau_pTlep-cuts
```

1.2 Configuration

- MadAnalysis version 1.6.33 (2017/11/20).
- Histograms are not scaled.

2 Datasets

2.1 dy

- Samples stored in the directory: /home/ernesto/Work/codes/MCgenerators/MadGraph/-MG5_aMC_v2_updated/HEPTools/madanalysis5/madanalysis5 .
- Sample consisting of: signal events.
- Generated events: 10000 events.
- Normalization to the luminosity: 0+/- 0 events.
- Ratio (event weight): 0.0 .

Path to the event file	Nr. of events	Cross section (pb)	Negative wgts (%)
/home/ernesto/Work/codes/-MCgenerators/MadGraph/-MG5_aMC_v2_updated/-LFVHD/DY/LO/Events/DY.lhco	10000	0.0 @ 0.0%	0.0

2.2 ma1000

- Samples stored in the directory: /home/ernesto/Work/codes/MCgenerators/MadGraph/-MG5_aMC_v2_updated/HEPTools/madanalysis5/madanalysis5 .
- Sample consisting of: signal events.
- Generated events: 10000 events.
- Normalization to the luminosity: 0+/- 0 events.
- Ratio (event weight): 0.0 .

Path to the event file	Nr. of events	Cross section (pb)	Negative wgts (%)
/home/ernesto/Work/codes/-MCgenerators/MadGraph/-MG5_aMC_v2_updated/-LFVHD/MSSM-Higgs2ditau/-LO/Events/MA1000.lhco	10000	0.0 @ 0.0%	0.0

2.3 dy_pt250

- Samples stored in the directory: /home/ernesto/Work/codes/MCgenerators/MadGraph/-MG5_aMC_v2_updated/HEPTools/madanalysis5/madanalysis5 .
- Sample consisting of: signal events.
- Generated events: 10000 events.
- Normalization to the luminosity: 0+/- 0 events.

- Ratio (event weight): 0.0 .

Path to the event file	Nr. of events	Cross section (pb)	Negative wgts (%)
/home/ernesto/Work/codes/-MCgenerators/MadGraph/-MG5_aMC_v2_updated/-LFVHD/DY/LO/Events/-DY_pT250.lhco	10000	0.0 @ 0.0%	0.0

2.4 ma1000_pt250

- Samples stored in the directory: /home/ernesto/Work/codes/MCgenerators/MadGraph/-MG5_aMC_v2_updated/HEPTools/madanalysis5/madanalysis5 .
- Sample consisting of: signal events.
- Generated events: 10000 events.
- Normalization to the luminosity: 0+/- 0 events.
- Ratio (event weight): 0.0 .

Path to the event file	Nr. of events	Cross section (pb)	Negative wgts (%)
/home/ernesto/Work/codes/-MCgenerators/MadGraph/-MG5_aMC_v2_updated/-LFVHD/MSSM-Higgs2ditau/-LO/Events/MA1000_pT250.lhco	10000	0.0 @ 0.0%	0.0

3 Histos and cuts

3.1 Histogram 1

*** Plot: PT (tau)**

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
dy	4191	1.15	37.8416	12.02	0.0	0.0
ma1000	8043	1.26	269.837	125.5	0.0	2.337
dy_pt250	7788	1.25	220.677	107.1	0.0	1.746
ma1000_pt250	7986	1.27	281.549	120.8	0.0	2.504

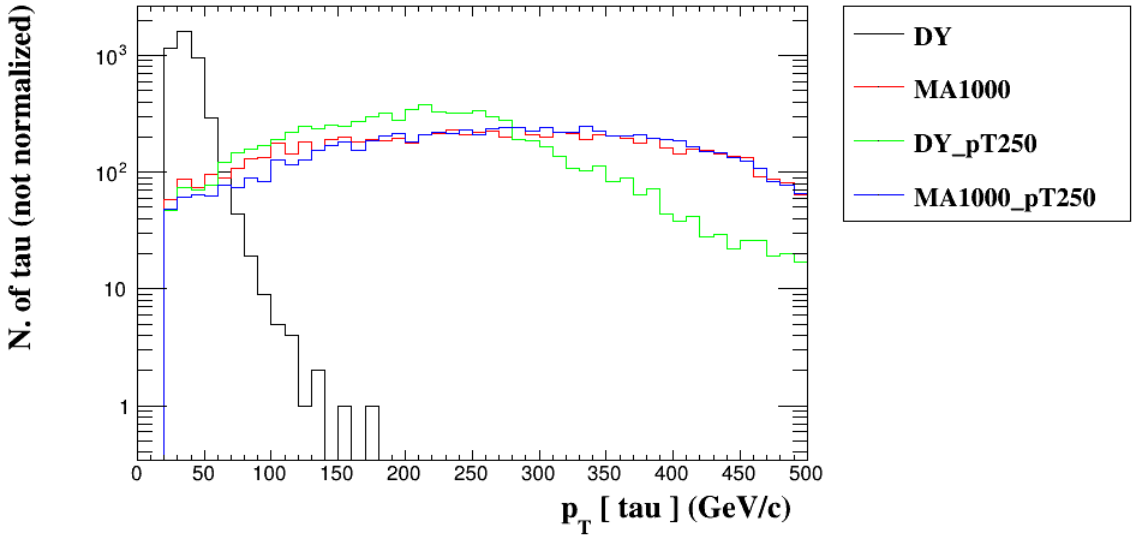

Figure 1.

3.2 Histogram 2

*** Plot: M (tau)**

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
dy	4191	1.15	3.47246	2.648	1.623	0.0
ma1000	8043	1.26	11.9557	12.79	3.419	0.0
dy_pt250	7788	1.25	10.4759	10.34	3.017	0.0
ma1000_pt250	7986	1.27	12.3108	12.69	3.306	0.0

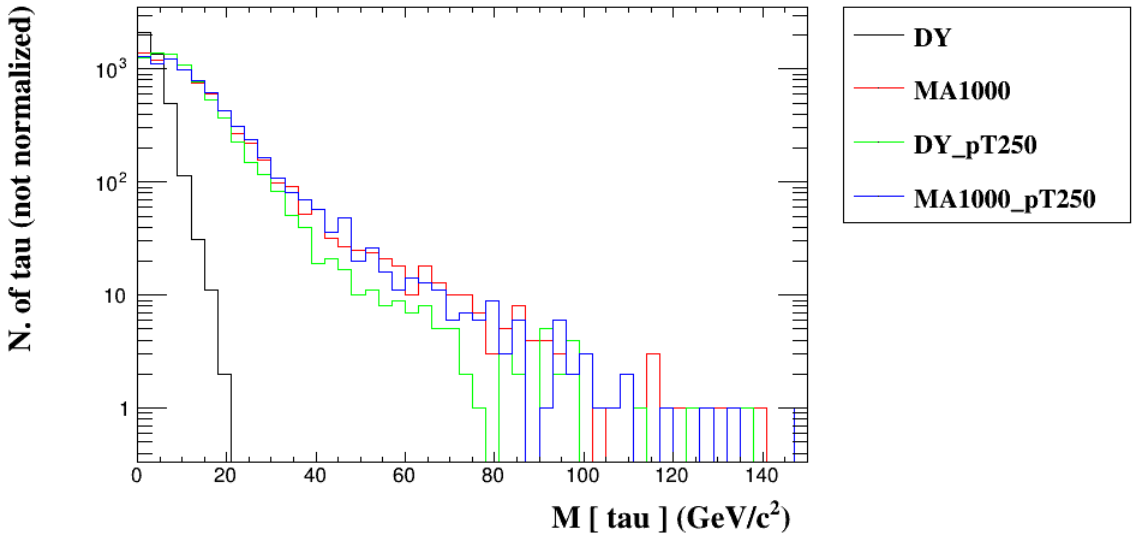

Figure 2.

3.3 Histogram 3

*** Plot: M (tau)**

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
dy	4191	1.15	3.47246	2.648	1.623	0.02386
ma1000	8043	1.26	11.9557	12.79	3.419	16.28
dy_pt250	7788	1.25	10.4759	10.34	3.017	11.68
ma1000_pt250	7986	1.27	12.3108	12.69	3.306	17.56

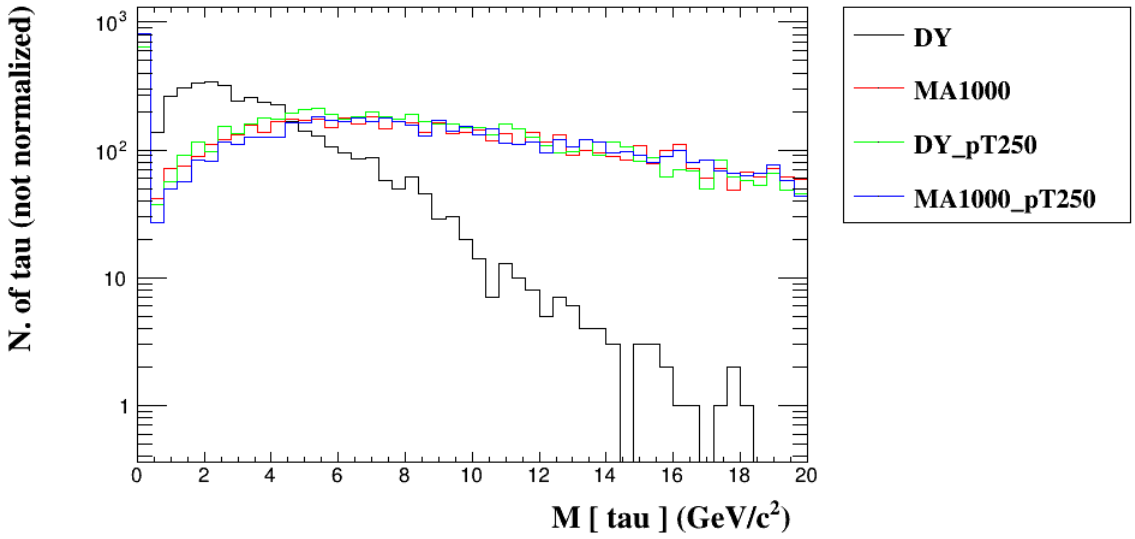

Figure 3.