

The LaTeX report

Generated by jhkim on 13 February 2020, 17:39:51

This report has been generated automatically by MADANALYSIS 5.

Please cite:

E. Conte, B. Fuks and G. Serret,
MadAnalysis 5, A User-Friendly Framework for Collider Phenomenology,
Comput. Phys. Commun. **184** (2013) 222-256,
arXiv:1206.1599 [hep-ph].

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1 Setup

1.1 Command history

```
ma5>install samples
ma5>display_multiparticles
ma5>define mu = mu+ mu-
ma5>import samples/ttbar_*.lhe.gz
ma5>plot PT(mu)
ma5>reject plot PT(mu) < 40
ma5>reject PT(mu) < 40
ma5>plot PT(mu)
ma5>submit
```

1.2 Configuration

- MadAnalysis version 1.8.40 (2020/01/29).
- Histograms given for an integrated luminosity of 10fb^{-1} .

2 Datasets

2.1 defaultset

- Sample consisting of: [signal](#) events.
- Generated events: [3000](#) events.
- Normalization to the luminosity: [146623](#)+/- [1054](#) events.
- **Ratio (event weight): 48 - warning: please generate more events (weight larger than 1)!**

Paths to the event files	Nr. of events	Cross section (pb)	Negative wgts (%)
samples/ttbar_sl_1.lhe.gz	1000	15.4 @ 0.74%	0.0
samples/ttbar_sl_2.lhe.gz	1000	15.2 @ 0.66%	0.0
samples/ttbar_fh.lhe.gz	1000	13.3 @ 2.1%	0.0
Sum	3000	14.7 @ 0.72%	0.0

3 Histos and cuts

3.1 Histogram 1

* Plot: PT (mu)

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
defaultset	48239	1.0	49.6728	34.55	0.0	0.0

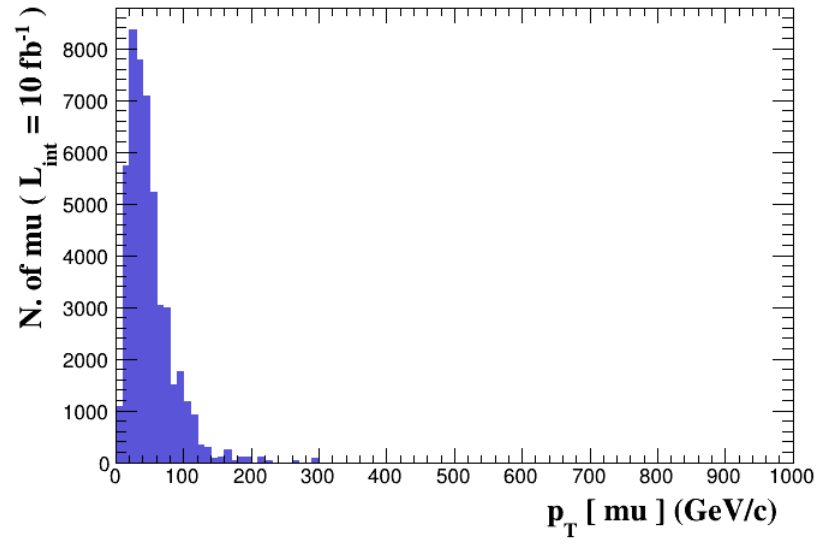


Figure 1.

3.2 Cut 1

* Cut: reject $PT(\mu) < 40.0$

Dataset	Events kept: K	Rejected events: R	Efficiency: $K / (K + R)$	Cumul. efficiency: $K / \text{Initial}$
defaultset	122632 +/- 892	23991 +/- 223	0.836374 +/- 0.000966	0.836374 +/- 0.000966

3.3 Histogram 2

* Plot: PT (mu)

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
defaultset	25316	1.0	71.8934	34.18	0.0	0.0

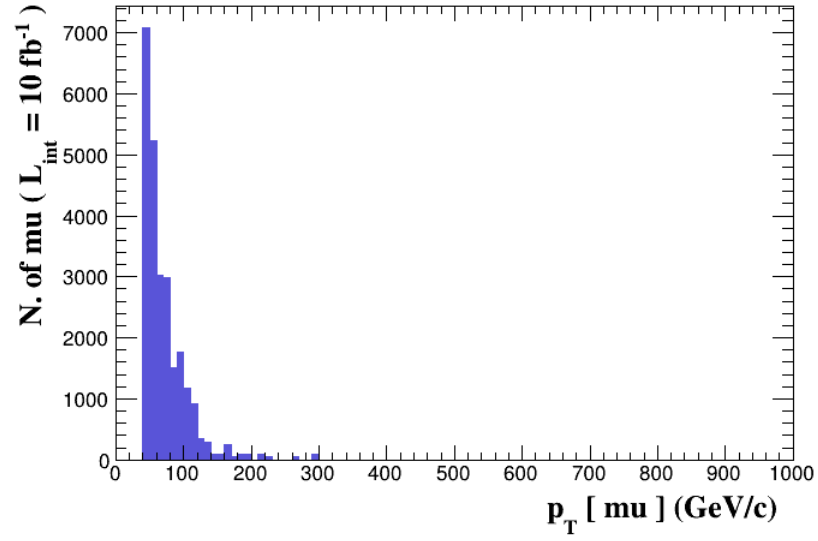


Figure 2.

4 Summary

4.1 Cut-flow charts

- How to compare signal (S) and background (B): $S/\sqrt{S+B}$.
- Object definition selections are indicated in cyan.
- Reject and select are indicated by 'REJ' and 'SEL' respectively

Cuts	Signal (S)	Background (B)	S vs B
Initial (no cut)	146623 +/- 1053		
REJ: PT (mu) < 40.0	122632 +/- 892		