The LaTeX report

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Contents

1 Setup

1.1 Command history

```
ma5>import /home/hamzeh-khanpour/MG5_aMC_v3_6_6/muLHC_DIS_tqH_FCNC/bin/internal/ufomodel
ma5>import /home/hamzeh-khanpour/MG5_aMC_v3_6_6/muLHC_DIS_tqH_FCNC/Events/run_01/-
unweighted_events.lhe.gz as run_01
ma5>define vl = 12 14 16
ma5>define vl  = -16 -14 -12
ma5>define invisible = ve  ve vm vt vm  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(mu+[1]) 40 0 500 [logY]
ma5>plot ETA(mu+[1]) 40 -10 10 [logY]
ma5>plot PT(p[1]) 40 0 500 [logY]
ma5>plot ETA(p[1]) 40 -10 10 [logY]
ma5>plot PT(t[1]) 40 0 500 [logY]
ma5>plot ETA(t[1]) 40 -10 10 [logY]
ma5>plot PT(h[1]) 40 0 500 [logY]
ma5>plot ETA(h[1]) 40 -10 10 [logY]
ma5>plot M(mu+[1] h[1]) 40 0 500 [logY ]
ma5>plot M(mu+[1] p[1]) 40 0 500 [logY ]
ma5>plot M(mu+[1] p[1] h[1]) 40 0 500 [logY ]
ma5>plot M(mu+[1] p[1] t[1]) 40 0 500 [logY ]
ma5>plot M(mu+[1] p[1] t[1] h[1]) 40 0 500 [logY ]
ma5>plot M(mu+[1] t[1]) 40 0 500 [logY ]
ma5>plot M(mu+[1] t[1] h[1]) 40 0 500 [logY ]
ma5>plot M(p[1] h[1]) 40 0 500 [logY ]
ma5>plot M(p[1] t[1]) 40 0 500 [logY ]
ma5>plot M(p[1] t[1] h[1]) 40 0 500 [logY ]
ma5>plot M(t[1] h[1]) 40 0 500 [logY ]
ma5>plot DELTAR(mu+[1],h[1]) 40 0 10 [logY ]
ma5>plot DELTAR(mu+[1],p[1]) 40 0 10 [logY ]
ma5>plot DELTAR(mu+[1],t[1]) 40 0 10 [logY ]
ma5>plot DELTAR(p[1],h[1]) 40 0 10 [logY ]
ma5>plot DELTAR(p[1],t[1]) 40 0 10 [logY ]
ma5>plot DELTAR(t[1],h[1]) 40 0 10 [logY ]
ma5>submit /home/hamzeh-khanpour/MG5_aMC_v3_6_6/muLHC_DIS_tqH_FCNC/MA5_PARTON_ANALYSIS_analysis1
```

1.2 Configuration

- MadAnalysis version 1.9.60 (2025-11-27).
- Histograms given for an integrated luminosity of 10fb^{-1}.

2 Datasets

2.1 run_01

- Sample consisting of: signal events.
- Generated events: 100000 events.
- Normalization to the luminosity: 1+/- 1 events.
- Ratio (event weight): 1e-05 .

Path to the event file	Nr. of events	Cross section (pb)	Negative wgts (%)
muLHC_DIS_tqH_FCNC/-Events/run_01/-unweighted_events.lhe.gz	100000	0.00015 @ 0.092%	0.0

3 Histos and cuts

3.1 Histogram 1

*** Plot: THT**

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
run_01	1.5	1.0	116.167	178.5	0.0	5.836

3.2 Histogram 2

*** Plot: MET**

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
run_01	1.5	1.0	4.04253e-09	3.483e-09	0.0	0.0

3.3 Histogram 3

*** Plot: SQRTS**

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
run_01	1.5	1.0	1428.37	637.3	0.0	97.23

3.4 Histogram 4

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

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
run_01	1.5	1.0	128.919	173.2	0.0	5.233

3.5 Histogram 5

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

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
run_01	1.5	1.0	-2.00854	1.343	0.0	0.0

3.6 Histogram 6

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

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
run_01	1.5	1.0	116.167	178.5	0.0	5.836

3.7 Histogram 7

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

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
run_01	1.5	1.0	1.30618	1.509	0.0	0.0

3.8 Histogram 8

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

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
run_01	1.5	1.0	241.621	188.6	0.0	10.45

3.9 Histogram 9

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

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
run_01	1.5	1.0	0.821161	1.294	0.0	0.0

3.10 Histogram 10

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

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
run_01	1.5	1.0	219.407	173.8	0.0	7.844

3.11 Histogram 11

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

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
run_01	1.5	1.0	0.800348	1.255	0.0	0.0

3.12 Histogram 12

*** Plot: M (h[1] mu+[1])**

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
run_01	1.5	1.0	661.564	412.3	0.0	56.13

3.13 Histogram 13

*** Plot: M (mu+[1] p[1])**

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
run_01	1.5	1.0	406.731	331.5	0.0	29.75

3.14 Histogram 14

*** Plot: M (h[1] mu+[1] p[1])**

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
run_01	1.5	1.0	901.846	492.1	0.0	75.41

3.15 Histogram 15

*** Plot: M (mu+[1] p[1] t[1])**

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
run_01	1.5	1.0	977.137	527.2	0.0	80.13

3.16 Histogram 16

*** Plot: M (h[1] mu+[1] p[1] t[1])**

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
run_01	1.5	1.0	1428.37	637.3	0.0	97.23

3.17 Histogram 17

*** Plot: M (mu+[1] t[1])**

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
run_01	1.5	1.0	719.781	411.2	0.0	62.72

3.18 Histogram 18

*** Plot: M (h[1] mu+[1] t[1])**

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
run_01	1.5	1.0	1197.29	543.0	0.0	93.19

3.19 Histogram 19

*** Plot: M (h[1] p[1])**

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
run_01	1.5	1.0	340.225	269.0	0.0	18.78

3.20 Histogram 20

*** Plot: M (p[1] t[1])**

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
run_01	1.5	1.0	426.162	343.8	0.0	23.43

3.21 Histogram 21

*** Plot: M (h[1] p[1] t[1])**

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
run_01	1.5	1.0	834.024	475.2	0.0	70.63

3.22 Histogram 22

*** Plot: M (h[1] t[1])**

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
run_01	1.5	1.0	614.725	317.5	0.0	50.95

3.23 Histogram 23

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

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
run_01	1.5	1.0	3.74746	1.407	0.0	0.009

3.24 Histogram 24

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

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
run_01	1.5	1.0	3.95787	1.657	0.0	0.009

3.25 Histogram 25

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

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
run_01	1.5	1.0	3.74715	1.471	0.0	0.011

3.26 Histogram 26

*** Plot: DELTAR (p[1] , h[1])**

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
run_01	1.5	1.0	2.40926	1.066	0.0	0.0

3.27 Histogram 27

*** Plot: DELTAR (p[1] , t[1])**

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
run_01	1.5	1.0	2.54591	1.065	0.0	0.0

3.28 Histogram 28

*** Plot: DELTAR (t[1] , h[1])**

Dataset	Integral	Entries per event	Mean	RMS	% underflow	% overflow
run_01	1.5	1.0	2.72713	0.9835	0.0	0.0