# The LaTeX report

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## Contents

# 1 Setup

## 1.1 Command history

```
ma5>import /home/marco/PhD/unimi/courses/Maltoni-Zaro/sep2021/Day_1/3/bin/internal/-
ufomodel
ma5>import /home/marco/PhD/unimi/courses/Maltoni-Zaro/sep2021/Day_1/3/Events/run_01/-
unweighted_events.lhe.gz as unweighted_events
ma5>define vl = 12 14 16
ma5>define vl  = -16 -14 -12
ma5>define invisible = ve  ve vm  vt  vt vm 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(e-[1]) 40 0 500 [logY]
ma5>plot ETA(e-[1]) 40 -10 10 [logY]
ma5>plot E (e-[1]) 40 0 0.06 [ logY ]
ma5>plot MT_MET(e-[1]) 40 0 500 [logY]
ma5>submit /home/marco/PhD/unimi/courses/Maltoni-Zaro/sep2021/Day_1/3/MA5_PARTON_ANALYSIS_analysis
```

## 1.2 Configuration

- MadAnalysis version 1.9.bzr.alpha (2021-09-06).
- Histograms given for an integrated luminosity of $10 \text{fb}^{-1}$.

## 2 Datasets

### 2.1 unweighted_events

- Sample consisting of: signal events.
- Generated events: 10000 events.
- Normalization to the luminosity: 0+/- 1 events.
- Ratio (event weight): 0.0 .

| Path to the event file | Nr. of events | Cross section (pb) | Negative wgts (%) |
|---|---|---|---|
| Day_1/3/Events/run_01/-unweighted_events.lhe.gz | 10000 | 3.02e-19 @ 0.2% | 0.0 |

# 3 Histos and cuts

## 3.1 Histogram 1

*** Plot: THT**

| Dataset | Integral | Entries per event | Mean | RMS | % underflow | % overflow |
|---|---|---|---|---|---|---|
| unweighted_eve | 3.02e-15 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 |

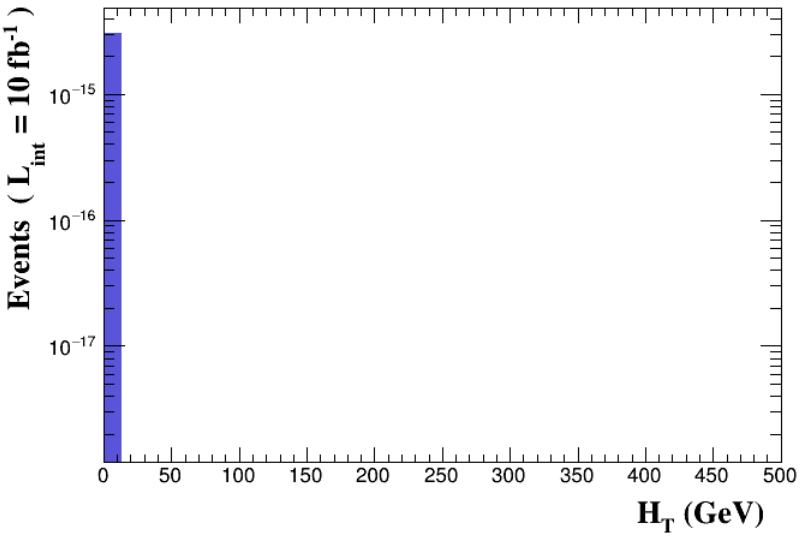


**Figure 1**.

### 3.2 Histogram 2

*** Plot: MET**

| Dataset | Integral | Entries per event | Mean | RMS | % underflow | % overflow |
|---|---|---|---|---|---|---|
| unweighted_eve | 3.02e-15 | 1.0 | 0.0290192 | 0.01212 | 0.0 | 0.0 |

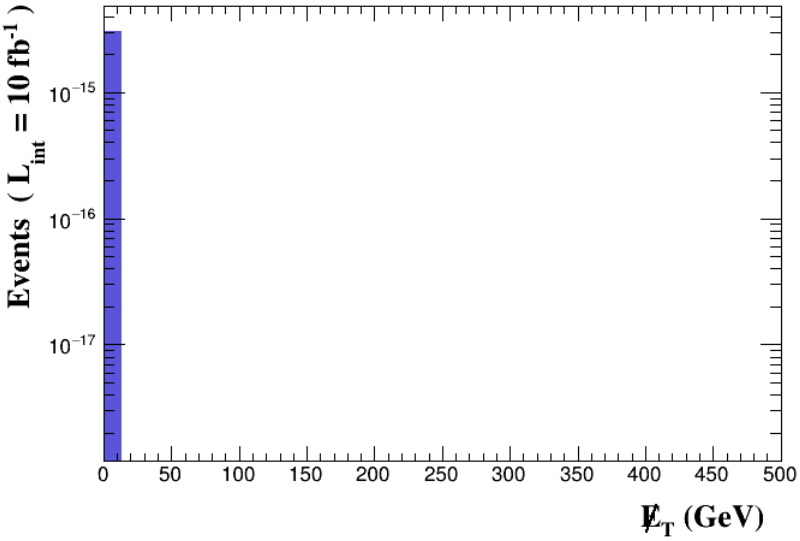


**Figure 2.**

### 3.3 Histogram 3

*** Plot: SQRTS**

| Dataset | Integral | Entries per event | Mean | RMS | % underflow | % overflow |
|---|---|---|---|---|---|---|
| unweighted_eve | 3.02e-15 | 1.0 | 0.10566 | 5.707e-05 | 0.0 | 0.0 |

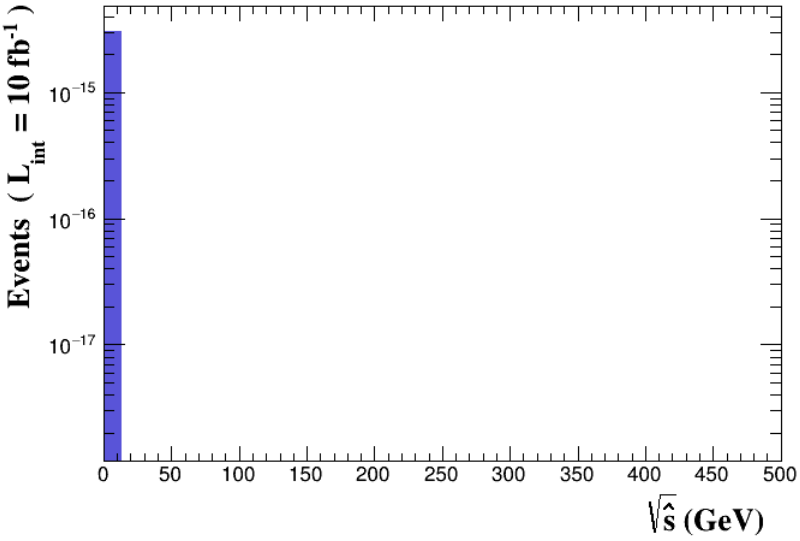


**Figure 3**.

### 3.4 Histogram 4

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

| Dataset | Integral | Entries per event | Mean | RMS | % underflow | % overflow |
|---|---|---|---|---|---|---|
| unweighted_eve | 3.02e-15 | 1.0 | 0.0290192 | 0.01212 | 0.0 | 0.0 |

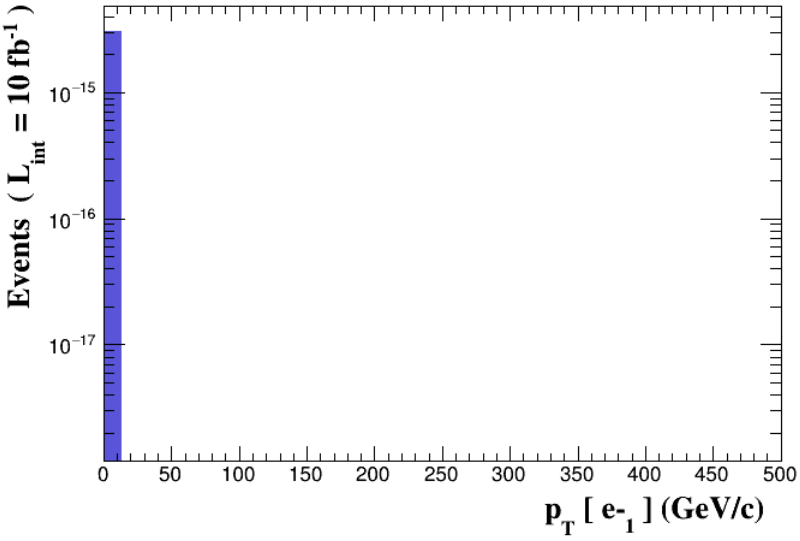


**Figure 4.**

### 3.5 Histogram 5

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

| Dataset | Integral | Entries per event | Mean | RMS | % underflow | % overflow |
|---|---|---|---|---|---|---|
| unweighted_eve | 3.02e-15 | 1.0 | -0.00613056 | 0.9032 | 0.0 | 0.0 |

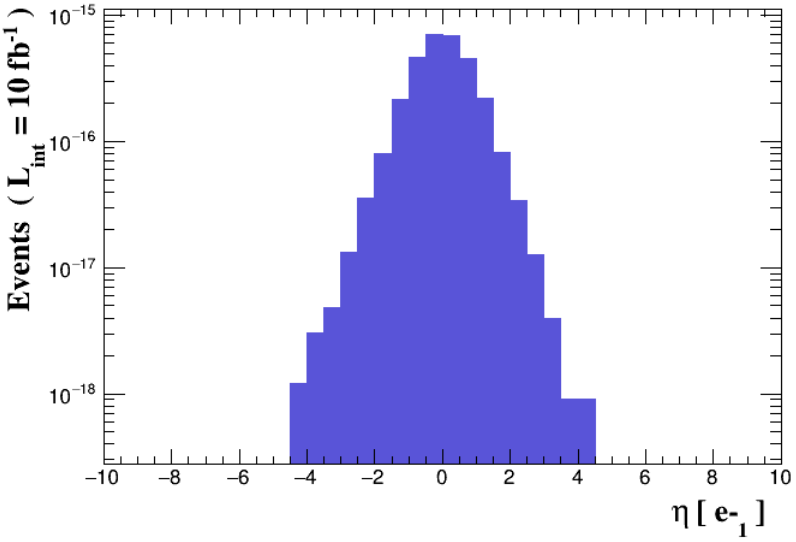


**Figure 5.**

### 3.6 Histogram 6

*** Plot: E ( e-[1] )**

| Dataset | Integral | Entries per event | Mean | RMS | % underflow | % overflow |
|---|---|---|---|---|---|---|
| unweighted_eve | 3.02e-15 | 1.0 | 0.0369079 | 0.01097 | 0.0 | 0.0 |

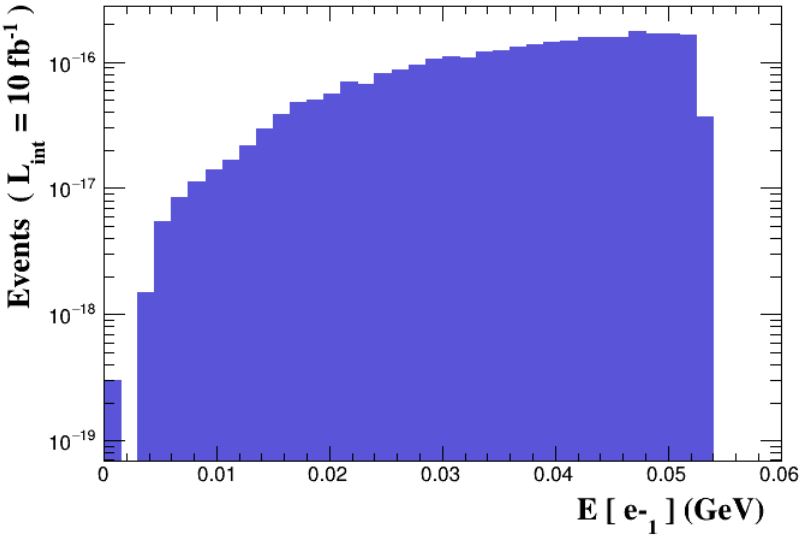


**Figure 6.**

### 3.7 Histogram 7

*** Plot: MT_MET ( e-[1] )**

| Dataset | Integral | Entries per event | Mean | RMS | % underflow | % overflow |
|---|---|---|---|---|---|---|
| unweighted_eve | 3.02e-15 | 1.0 | 0.0580448 | 0.02424 | 0.0 | 0.0 |

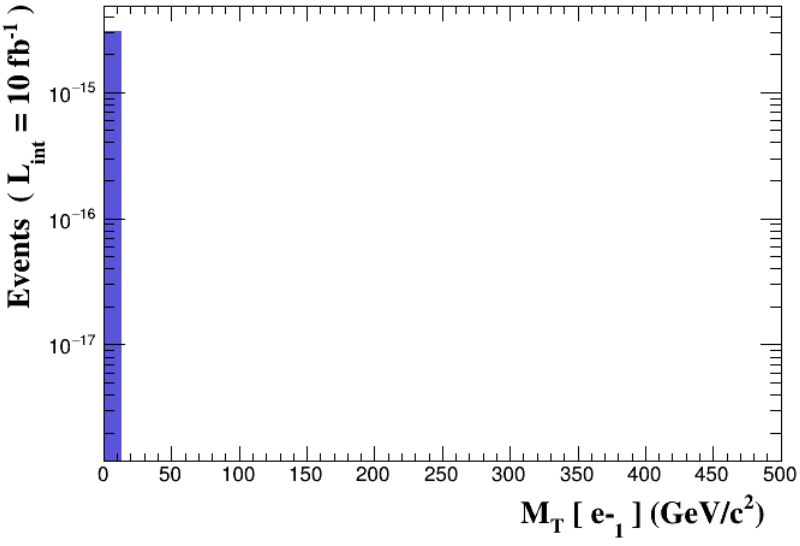


**Figure 7.**