

# Résumé de l'analyse

Top group, Lyon

29 août 2012

## Table des matières

<b>1</b>	<b>Datasets</b>	<b>2</b>
1.1	MC . . . . .	2
1.2	Data . . . . .	2
<b>2</b>	<b>Frit</b>	<b>2</b>
2.1	$m = 750$ GeV . . . . .	2
2.2	$m = 1000$ GeV . . . . .	2
2.3	$m = 1250$ GeV . . . . .	2
2.4	$m = 1500$ GeV . . . . .	2
2.5	Efficacités . . . . .	2
2.5.1	Efficacités de sélection . . . . .	2
2.5.2	Efficacité totales . . . . .	3
<b>3</b>	<b><math>\sigma_{ref}</math></b>	<b>3</b>
3.1	$m = 750$ GeV . . . . .	3
3.2	$m = 1000$ GeV . . . . .	4
3.3	$m = 1250$ GeV . . . . .	5
3.4	$m = 1500$ GeV . . . . .	6
3.5	Sections efficaces . . . . .	6
<b>4</b>	<b>Erreurs systématiques</b>	<b>7</b>

---

4.1	JEC . . . . .	7
4.2	Signal . . . . .	7
4.3	Background . . . . .	7
<b>5</b>	<b>Likelihood scan</b>	<b>7</b>
5.1	$m = 750$ GeV . . . . .	7
5.2	$m = 1000$ GeV . . . . .	8
5.3	$m = 1250$ GeV . . . . .	9
5.4	$m = 1500$ GeV . . . . .	10
5.5	Limites observées . . . . .	10
<b>6</b>	<b>Toy MC</b>	<b>10</b>
6.1	$m = 750$ GeV . . . . .	11
6.2	$m = 1000$ GeV . . . . .	12
6.3	$m = 1250$ GeV . . . . .	13
6.4	$m = 1500$ GeV . . . . .	14
6.5	Limites attendues . . . . .	15
<b>7</b>	<b>Limites</b>	<b>15</b>

# 1 Datasets

## 1.1 MC

- $m = 500$  GeV : @@m-500-entries@@ entrées.
- $m = 750$  GeV : @@m-750-entries@@ entrées.
- $m = 1000$  GeV : @@m-1000-entries@@ entrées.
- $m = 1250$  GeV : @@m-1250-entries@@ entrées.
- $m = 1500$  GeV : @@m-1500-entries@@ entrées.

## 1.2 Data

@@data-entries@@ entrées.

# 2 Frit

## 2.1 $m = 750$ GeV

## 2.2 $m = 1000$ GeV

## 2.3 $m = 1250$ GeV

## 2.4 $m = 1500$ GeV

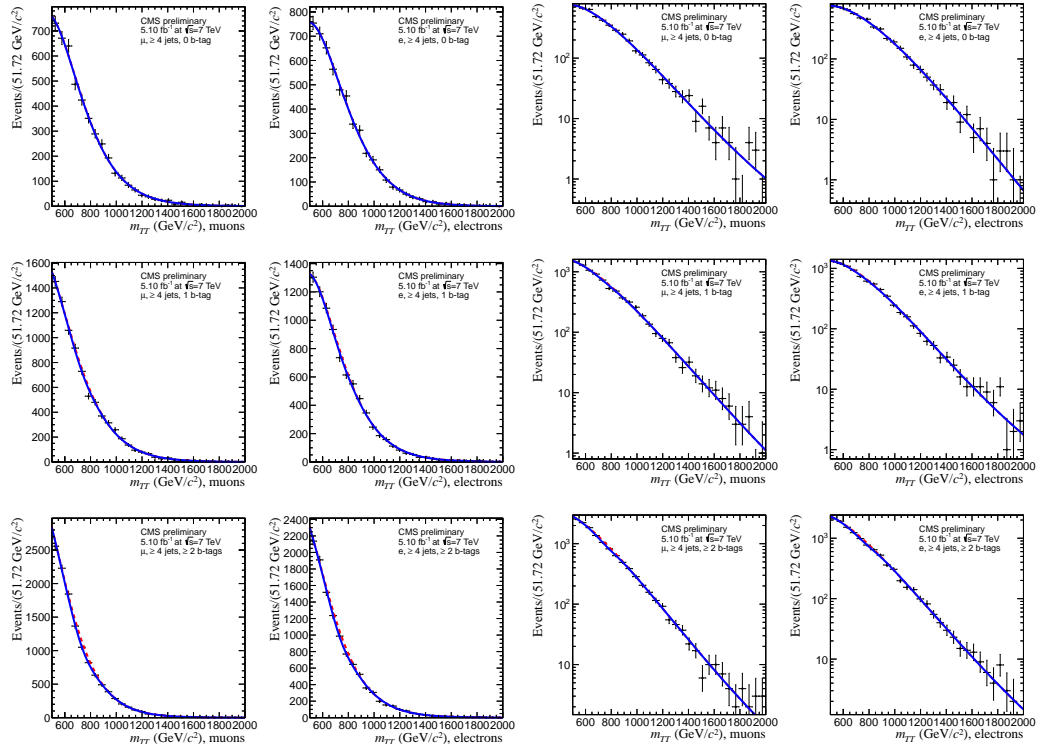
## 2.5 Efficacités

### 2.5.1 Efficacités de sélection

## 2.5.2 Efficacité totales

## 3 $\sigma_{ref}$

### 3.1 $m = 750$ GeV

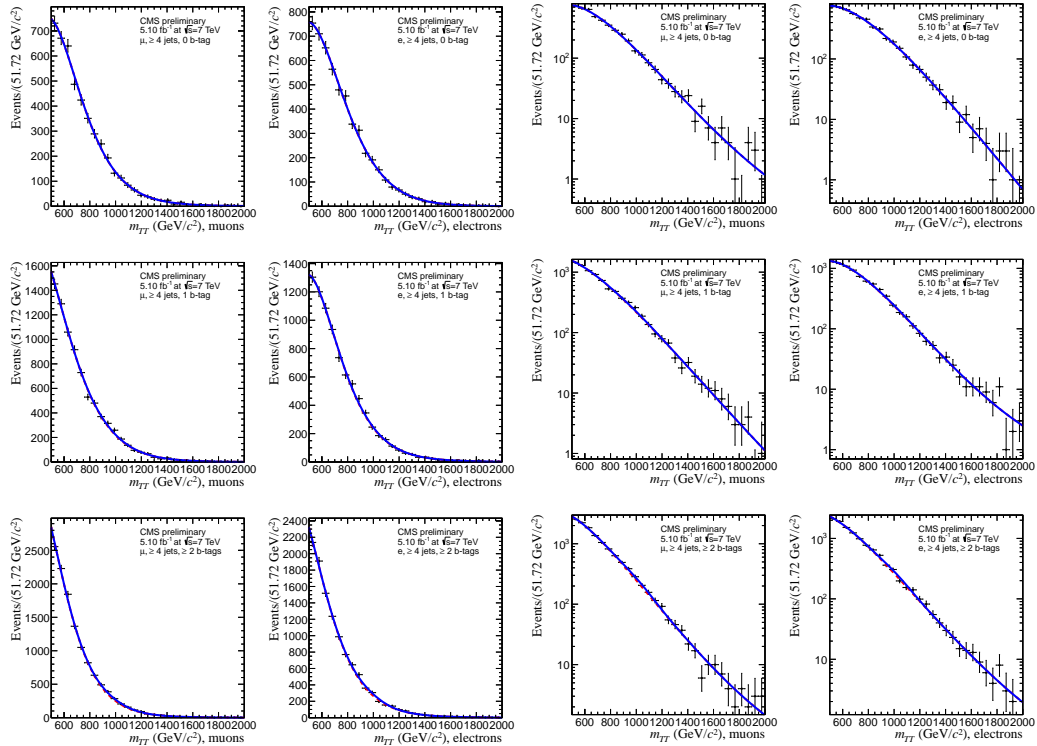


Nominal

Nominal, échelle log

- $\chi^2 = 1.01299405098$
- Statut du fit : Echec

### 3.2 $m = 1000 \text{ GeV}$

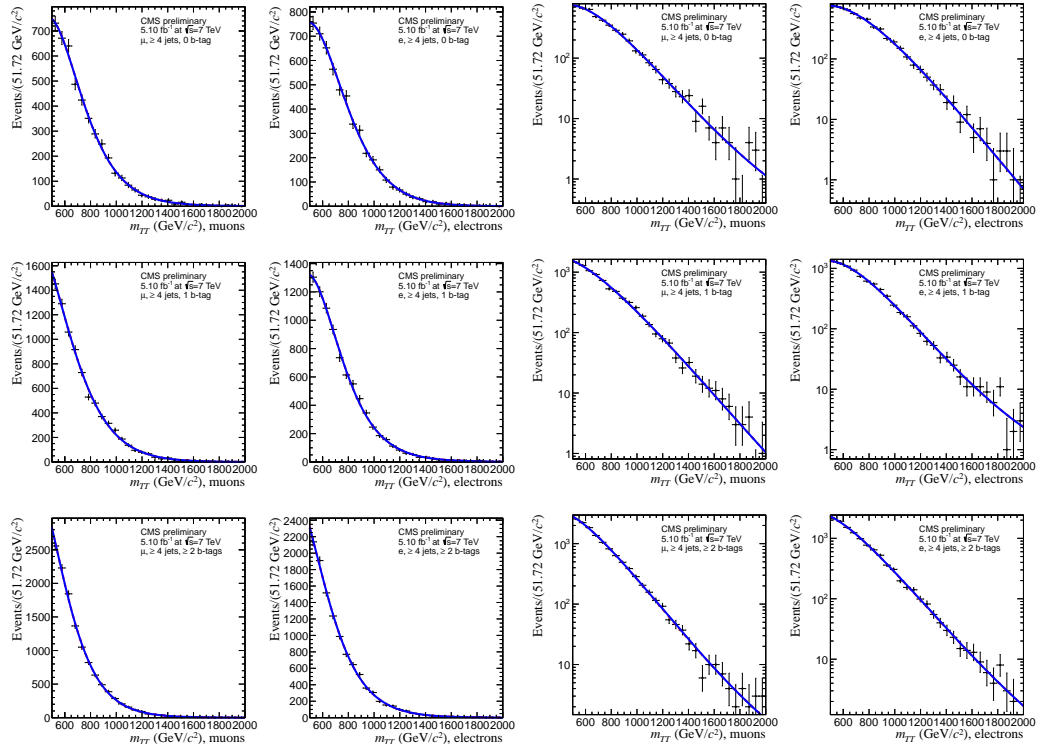


Nominal

Nominal, échelle log

- $\chi^2 = 0.981320261955$
- Statut du fit : OK

### 3.3 $m = 1250$ GeV

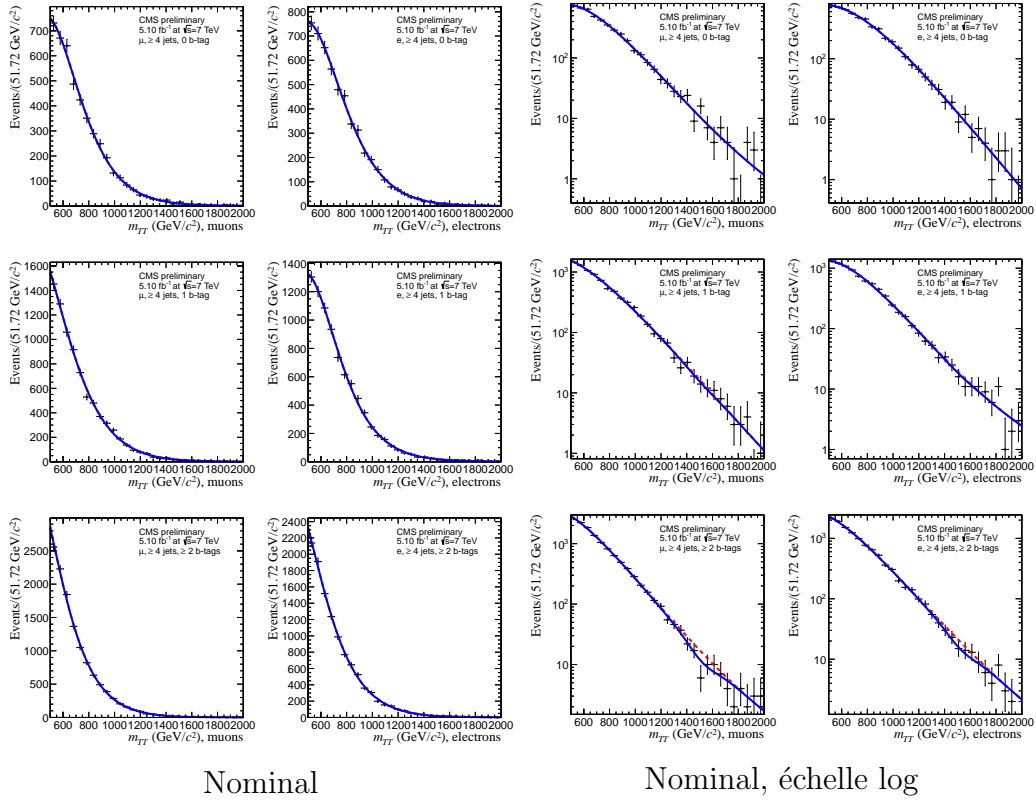


Nominal

Nominal, échelle log

- $\chi^2 = 0.990370869637$
- Statut du fit : OK

### 3.4 $m = 1500$ GeV



- $\chi^2 = 0.974906921387$
- Statut du fit : OK

### 3.5 Sections efficaces

$m_{t\bar{t}}$	750 GeV	1000 GeV	1250 GeV	1500 GeV
$\sigma$ (pb)	-3.21186156633	1.04907737751	0.0970084398455	-0.656284319286

## 4 Erreurs systématiques

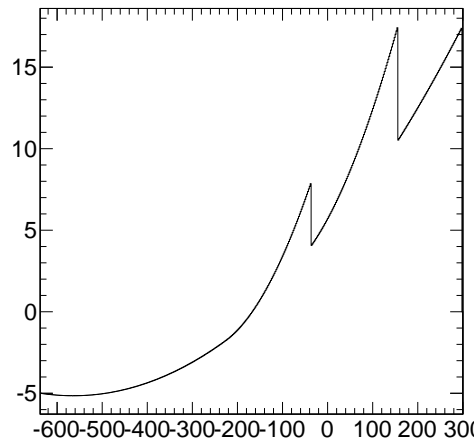
### 4.1 JEC

### 4.2 Signal

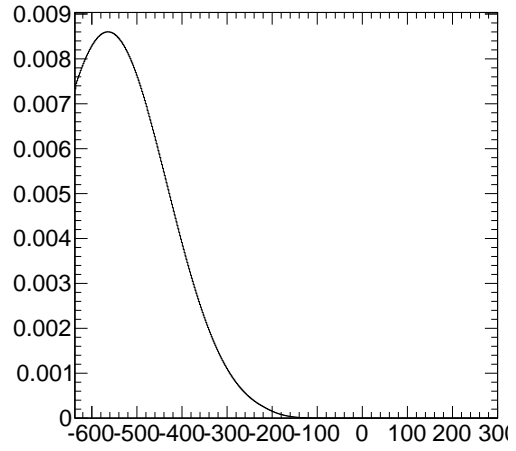
### 4.3 Background

## 5 Likelihood scan

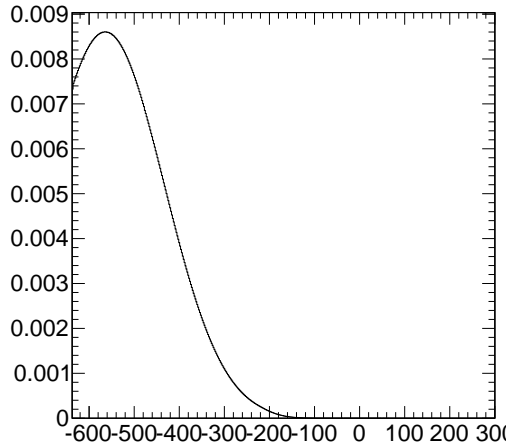
### 5.1 $m = 750$ GeV



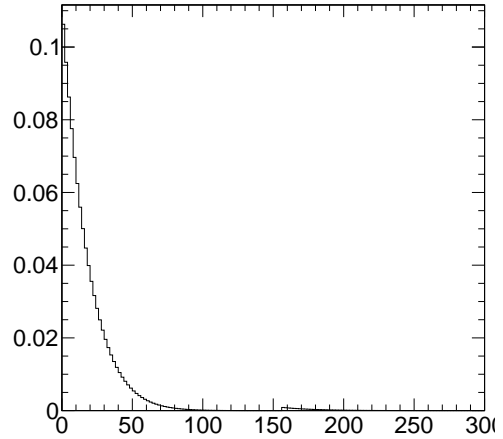
Likelihood scan



PDF scan

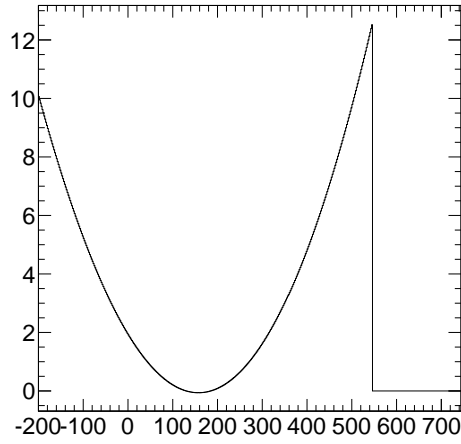


PDF scan + systématiques

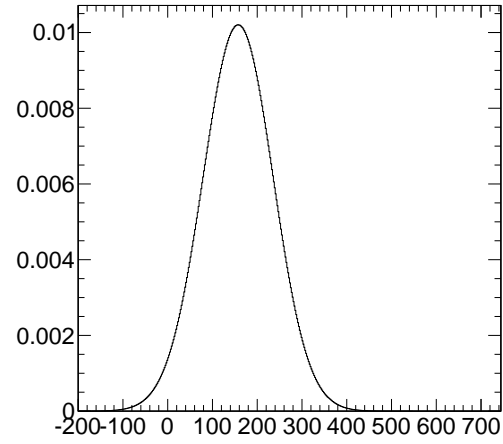
PDF scan + systématiques pour  
 $N_{sig} > 0$



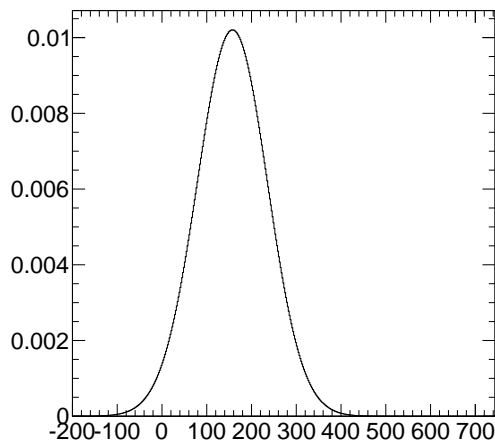
## 5.2 $m = 1000$ GeV



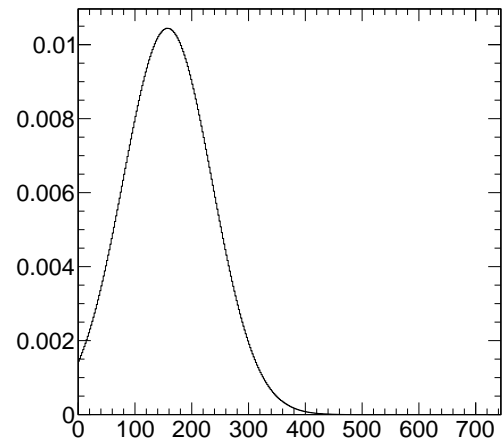
Likelihood scan



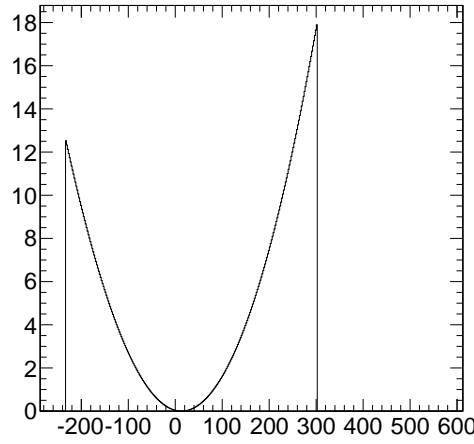
PDF scan



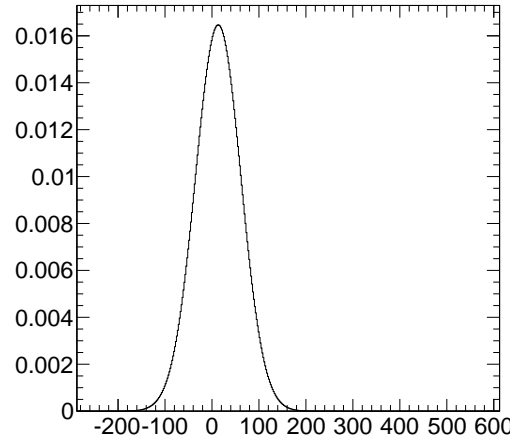
PDF scan + systématiques


 PDF scan + systématiques pour  
 $N_{sig} > 0$

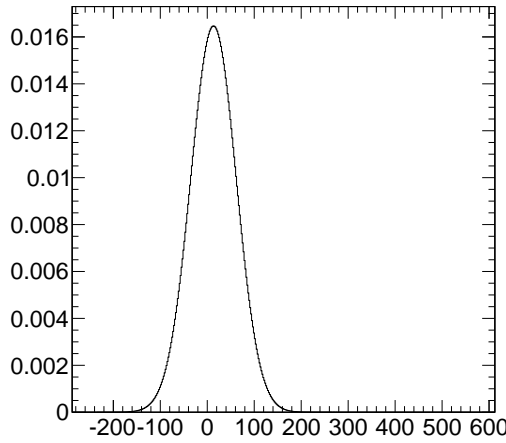
### 5.3 $m = 1250$ GeV



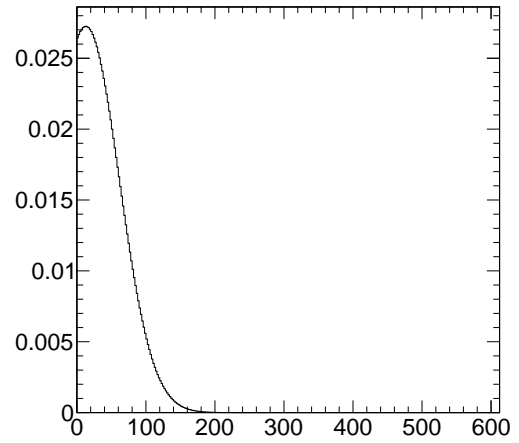
Likelihood scan



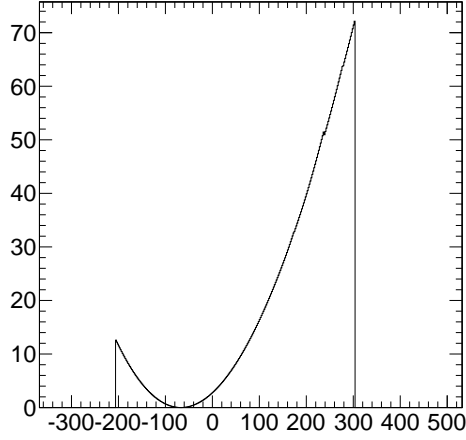
PDF scan



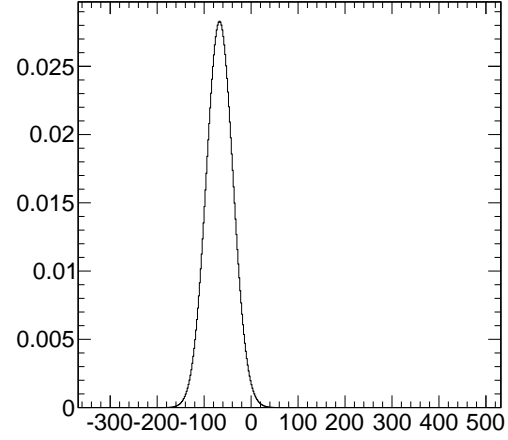
PDF scan + systématiques


 PDF scan + systématiques pour  
 $N_{sig} > 0$

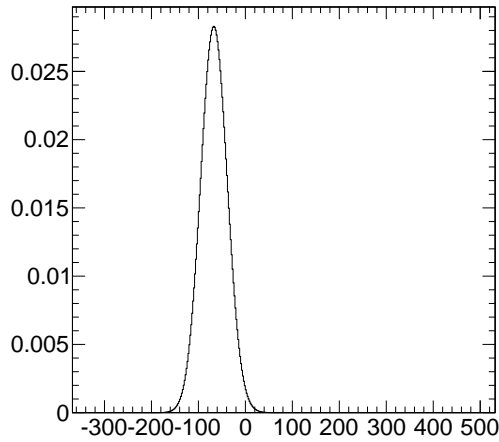
### 5.4 $m = 1500$ GeV



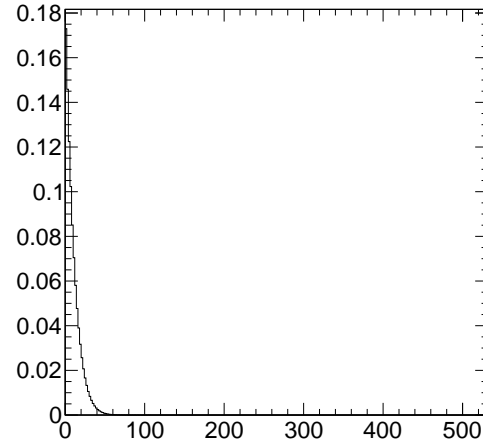
Likelihood scan



PDF scan



PDF scan + systématiques

PDF scan + systématiques pour  
 $N_{sig} > 0$ 

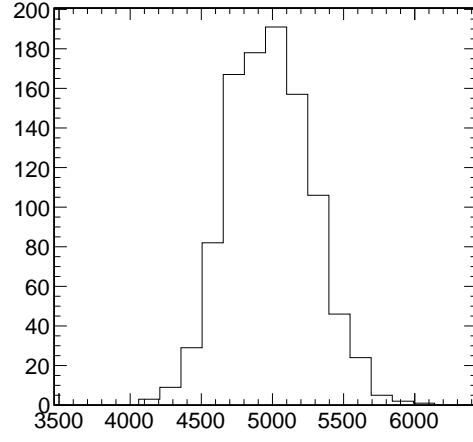
### 5.5 Limites observées

$m_{t\bar{t}}$	750 GeV	1000 GeV	1250 GeV	1500 GeV
Limite observée (pb)	0.477	2.0795	0.8153	0.2678

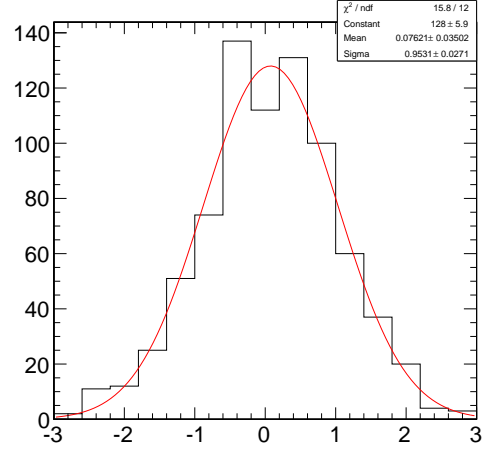
## 6 Toy MC

- Nombre de toys par masse : 1000
- Nombre de jobs par masse : 100
- Nombre de toys par jobs : 10

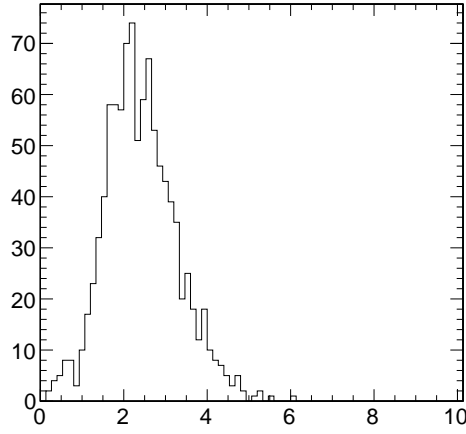
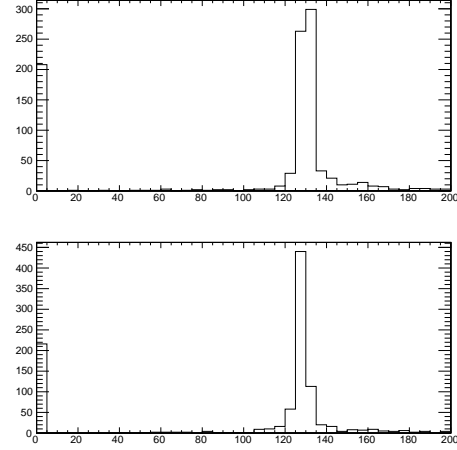
## 6.1 $m = 750$ GeV



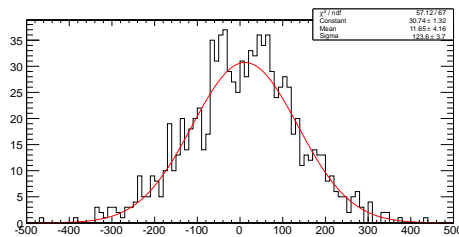
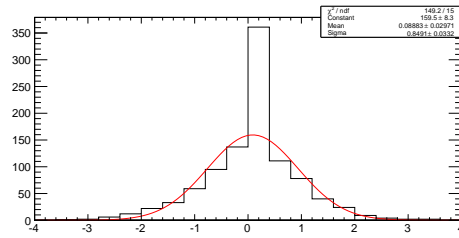
Nll Toy exp

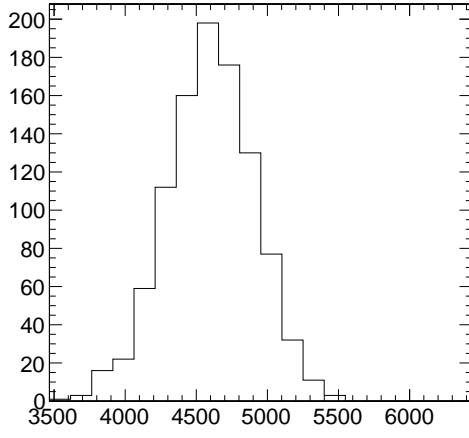


Pull

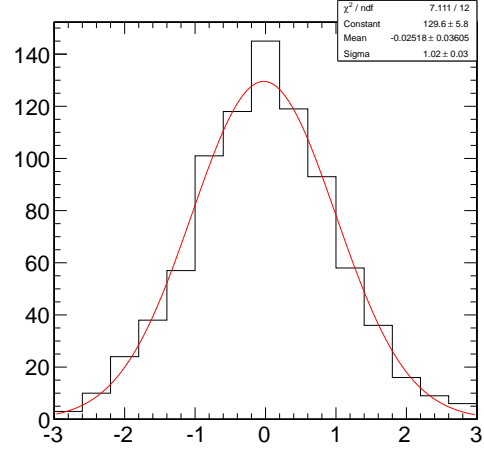
Limite  $Z'$ 

Erreur sur limite

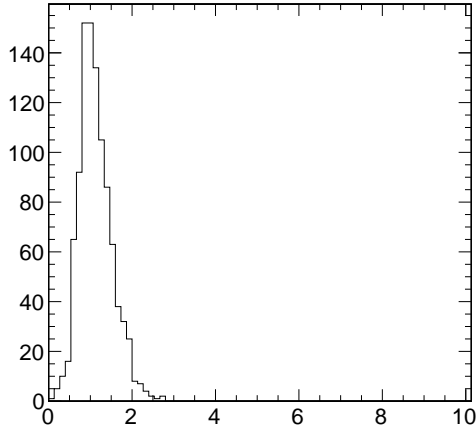
Plots  $e \mu$

6.2  $m = 1000$  GeV

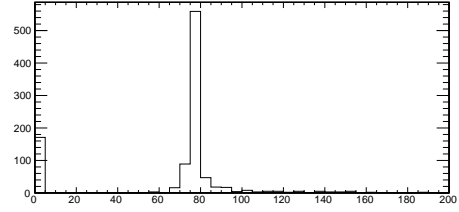
Nll Toy exp



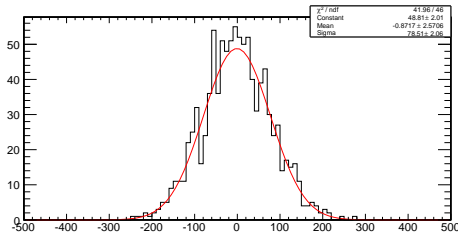
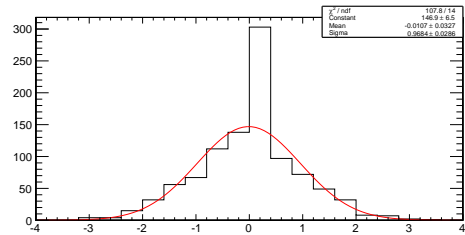
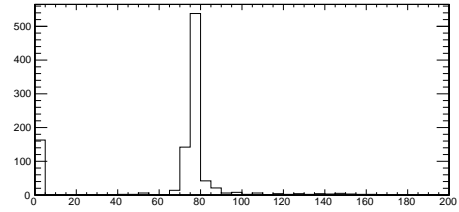
Pull



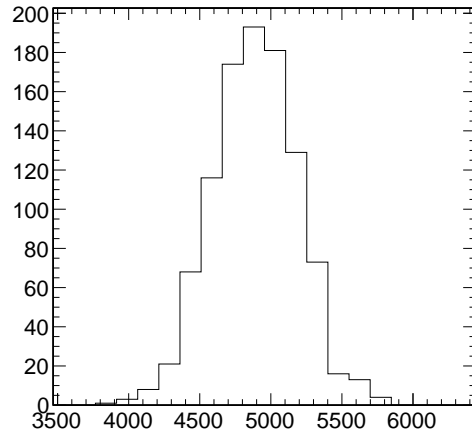
Limite Z'



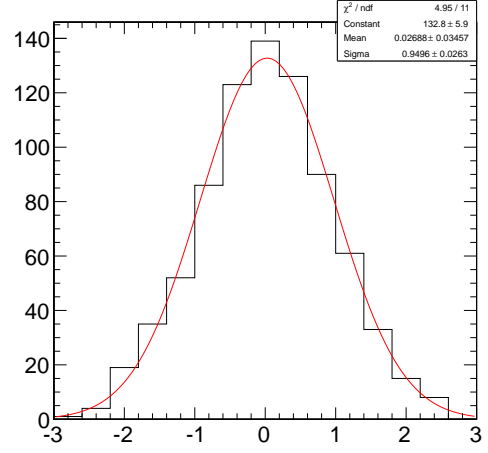
Erreur sur limite

Plots  $e \mu$

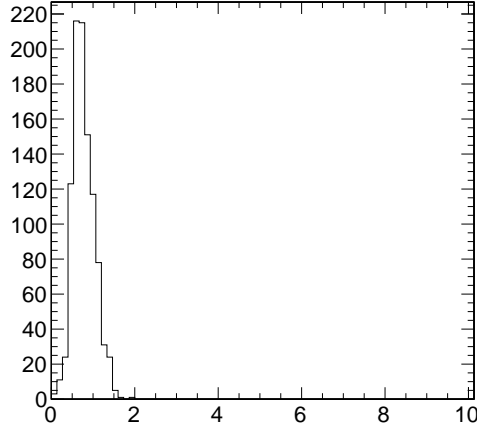
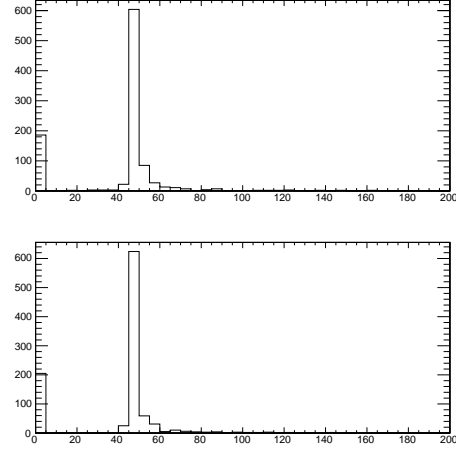
### 6.3 $m = 1250$ GeV



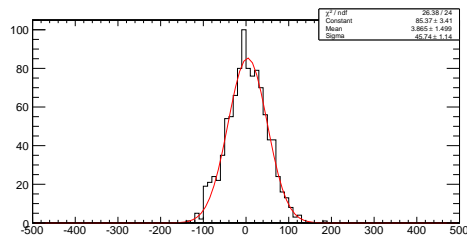
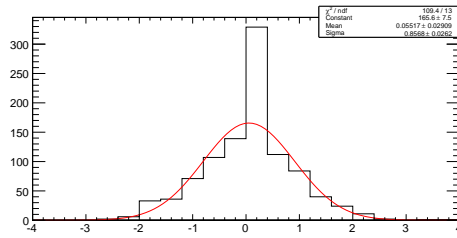
Nll Toy exp

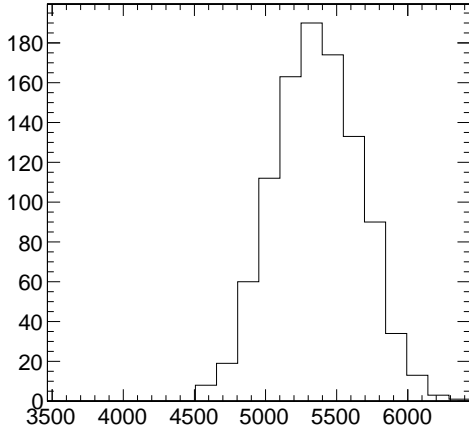


Pull

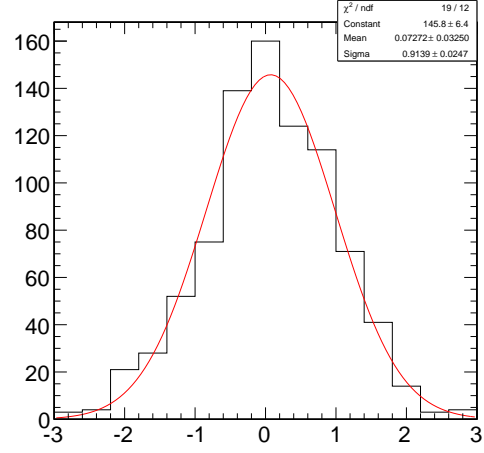
Limite  $Z'$ 

Erreur sur limite

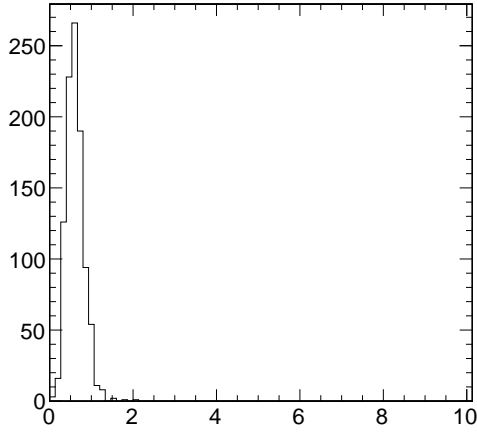
Plots  $e \mu$

6.4  $m = 1500$  GeV

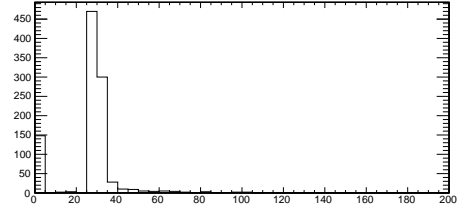
Nll Toy exp



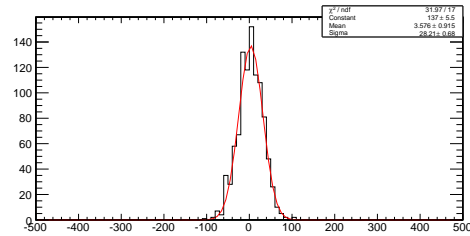
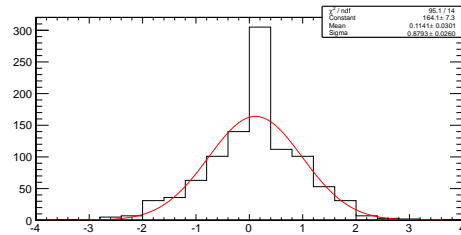
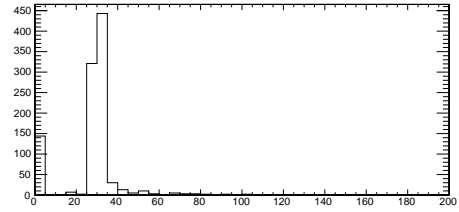
Pull



Limite Z'



Erreur sur limite

Plots  $e \mu$

## 6.5 Limites attendues

$m_{t\bar{t}}$	750 GeV	1000 GeV	1250 GeV	1500 GeV
Limite attendue (pb)	2.3477	1.0736	0.7429	0.597
Bande d'exclusion (68%) (pb)	+0.9018 -0.7293	+0.4396 -0.3157	+0.3009 -0.2107	+0.2186 -0.1882
Bande d'exclusion (95%) (pb)	+1.957 -1.581	+0.921 -0.5986	+0.6237 -0.4152	+0.4647 -0.324

## 7 Limites

$m_{t\bar{t}}$	750 GeV	1000 GeV	1250 GeV	1500 GeV
Limite observée (pb)	0.477	2.0795	0.8153	0.2678
Limite attendue (pb)	2.3477	1.0736	0.7429	0.597
Bande d'exclusion (68%) (pb)	+0.9018 -0.7293	+0.4396 -0.3157	+0.3009 -0.2107	+0.2186 -0.1882
Bande d'exclusion (95%) (pb)	+1.957 -1.581	+0.921 -0.5986	+0.6237 -0.4152	+0.4647 -0.324

