

# Validation of ATLAS\_CONF\_2016\_013

ATLAS  
 atlas\_conf\_2016\_013  
 vector-like top quark pairs  
 Energy: 13 TeV  
 Luminosity: 3.2 fb  
 Montecarlo: MadGraph5+Pythia6  
 Normalization: normalized to NLO values calculated with Top++ by hand

## Normalization

signal region	# events ATLAS	# events CheckMATE	rel error
1J , $\geq$ 6j, $\geq$ 4b, LM	$1.90 \pm 0.26$	2.15	$-1.9 \sigma$
1J , $\geq$ 6j, $\geq$ 4b, HM	$3.08 \pm 0.50$	1.47	$-1.7 \sigma$
2J , $\geq$ 6j, 3b	$4.83 \pm 0.45$	5.25	$0.9 \sigma$
2J , $\geq$ 6j, $\geq$ 4b	$4.14 \pm 0.65$	3.88	$-0.4 \sigma$

Table 1: Signal region validation for atlas\_conf\_2016\_013 for  $T\bar{T}$  singlet. Shown are numbers of Monte-Carlo generated events passing the cuts for each signal region for the experimental collaboration. The CheckMATE result is normalized to the same value. The relative error is given in terms of the error given by ATLAS.

signal region	# events ATLAS	# events CheckMATE	rel error
1J , $\geq$ 6j, $\geq$ 4b, LM	$4.18 \pm 0.53$	3.76	$-2.8 \sigma$
1J , $\geq$ 6j, $\geq$ 4b, HM	$6.00 \pm 0.81$	3.34	$-1.6 \sigma$
2J , $\geq$ 6j, 3b	$8.90 \pm 0.70$	9.95	$1.5 \sigma$
2J , $\geq$ 6j, $\geq$ 4b	$10.0 \pm 1.4$	8.93	$-0.8 \sigma$

Table 2: Signal region validation for atlas\_conf\_2016\_013 for  $T\bar{T}$  doublet. Shown are numbers of Monte-Carlo generated events passing the cuts for each signal region for the experimental collaboration. The CheckMATE result is normalized to the same value. The relative error is given in terms of the error given by ATLAS.

signal region	# events ATLAS	# events CheckMATE	rel error
1J , $\geq$ 6j, $\geq$ 4b, LM	$5.52 \pm 0.76$	7.02	$-2.5 \sigma$
1J , $\geq$ 6j, $\geq$ 4b, HM	$10.5 \pm 1.4$	4.44	$-1.4 \sigma$
2J , $\geq$ 6j, 3b	$12.2 \pm 1.2$	13.0	$0.7 \sigma$
2J , $\geq$ 6j, $\geq$ 4b	$19.6 \pm 2.7$	14.9	$-1.7 \sigma$

Table 3: Signal region validation for atlas\_conf\_2016\_013 for  $T\bar{T}$  singlet with  $\text{BR}(T \rightarrow Ht) = 1$ . Shown are numbers of Monte-Carlo generated events passing the cuts for each signal region for the experimental collaboration. The CheckMATE result is normalized to the same value. The relative error is given in terms of the error given by ATLAS.

## Distributions

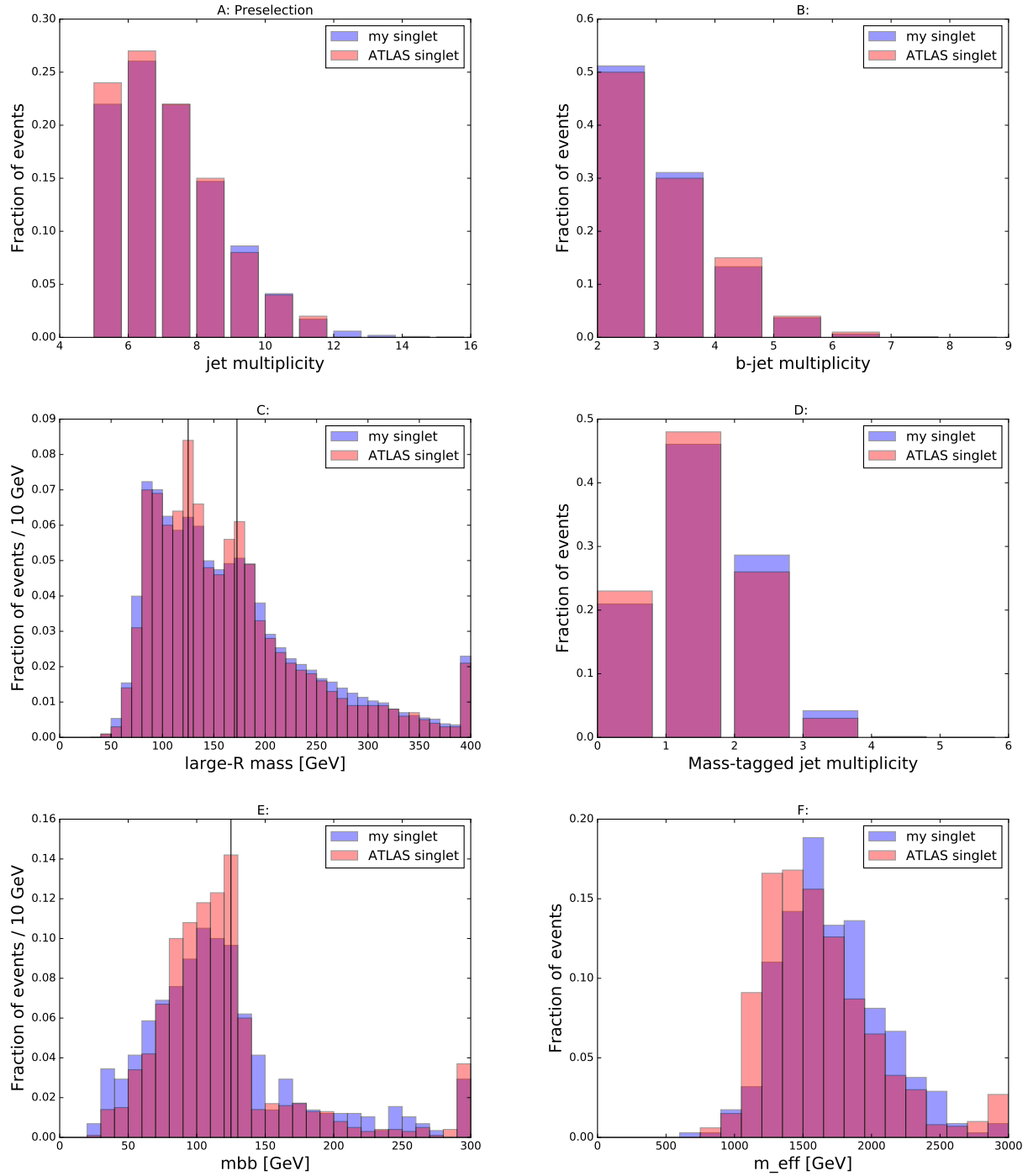


Figure 1: Kinematic distributions for  $T\bar{T}$  singlet compared to distributions obtained by ATLAS. Cuts in addition to the preselection cuts are given in the title of each distribution.

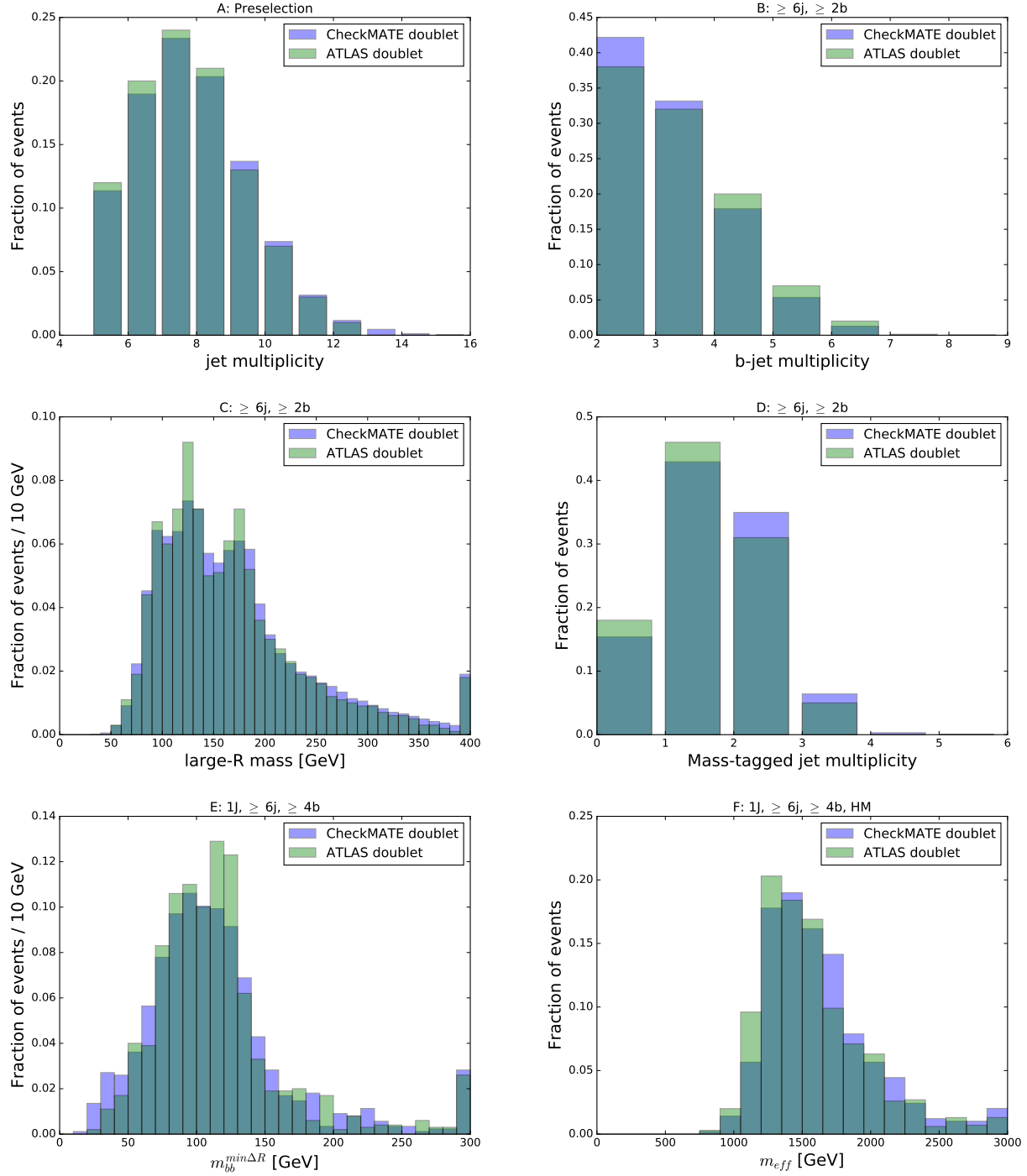


Figure 2: Kinematic distributions for  $T\bar{T}$  doublet compared to distributions obtained by ATLAS. Cuts in addition to the preselection cuts are given in the title of each distribution.