

Events / 0.40

**ATLAS** Internal  
 $\sqrt{s} = 13\text{TeV}, 139\text{ fb}^{-1}$   
FCNC  $t\bar{q}H \rightarrow \tau\tau$   
 $t_h \tau_{\text{lep}} \tau_{\text{had}} - 3j$

Other MC

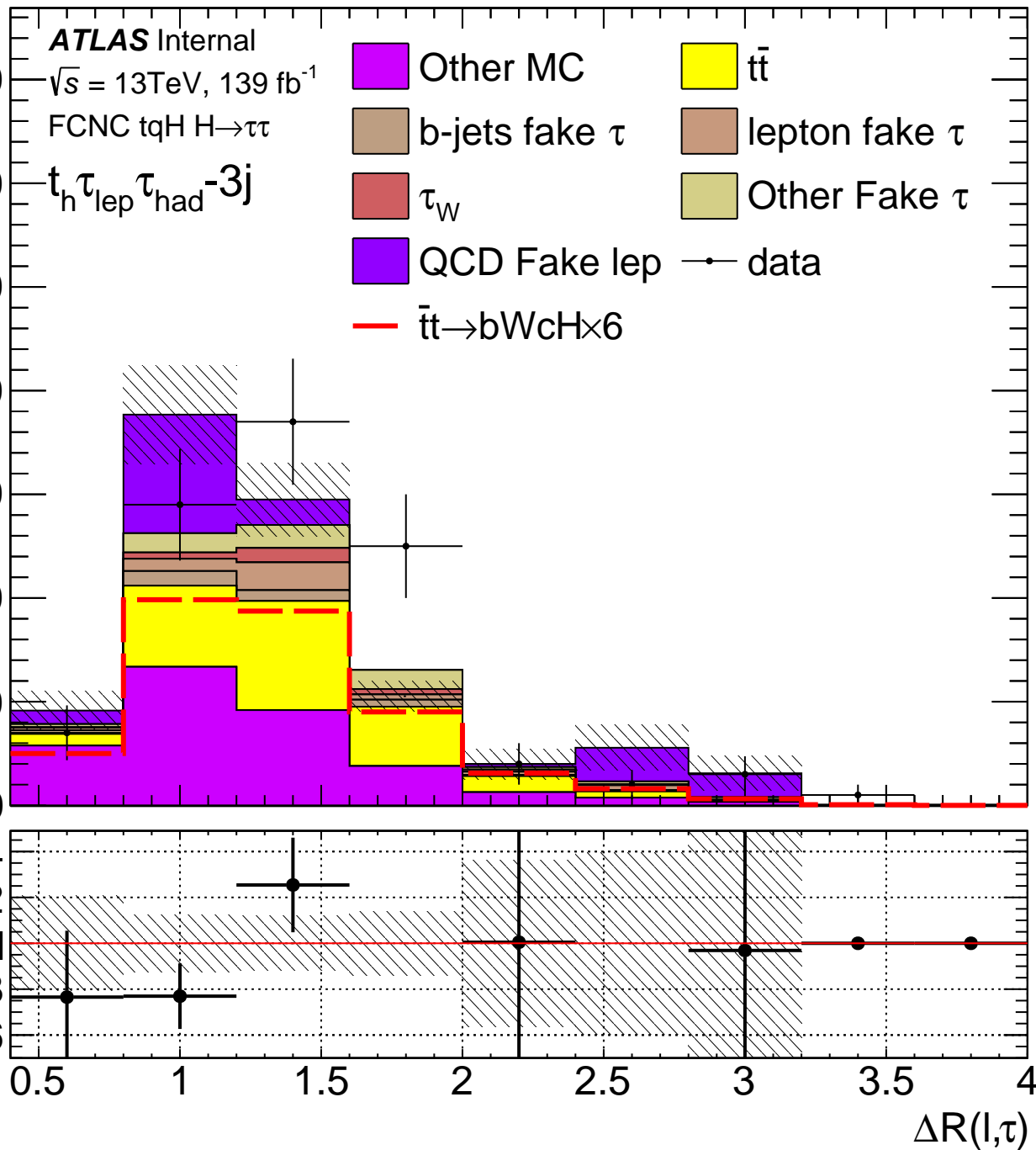
b-jets fake  $\tau$  $\tau_W$ 

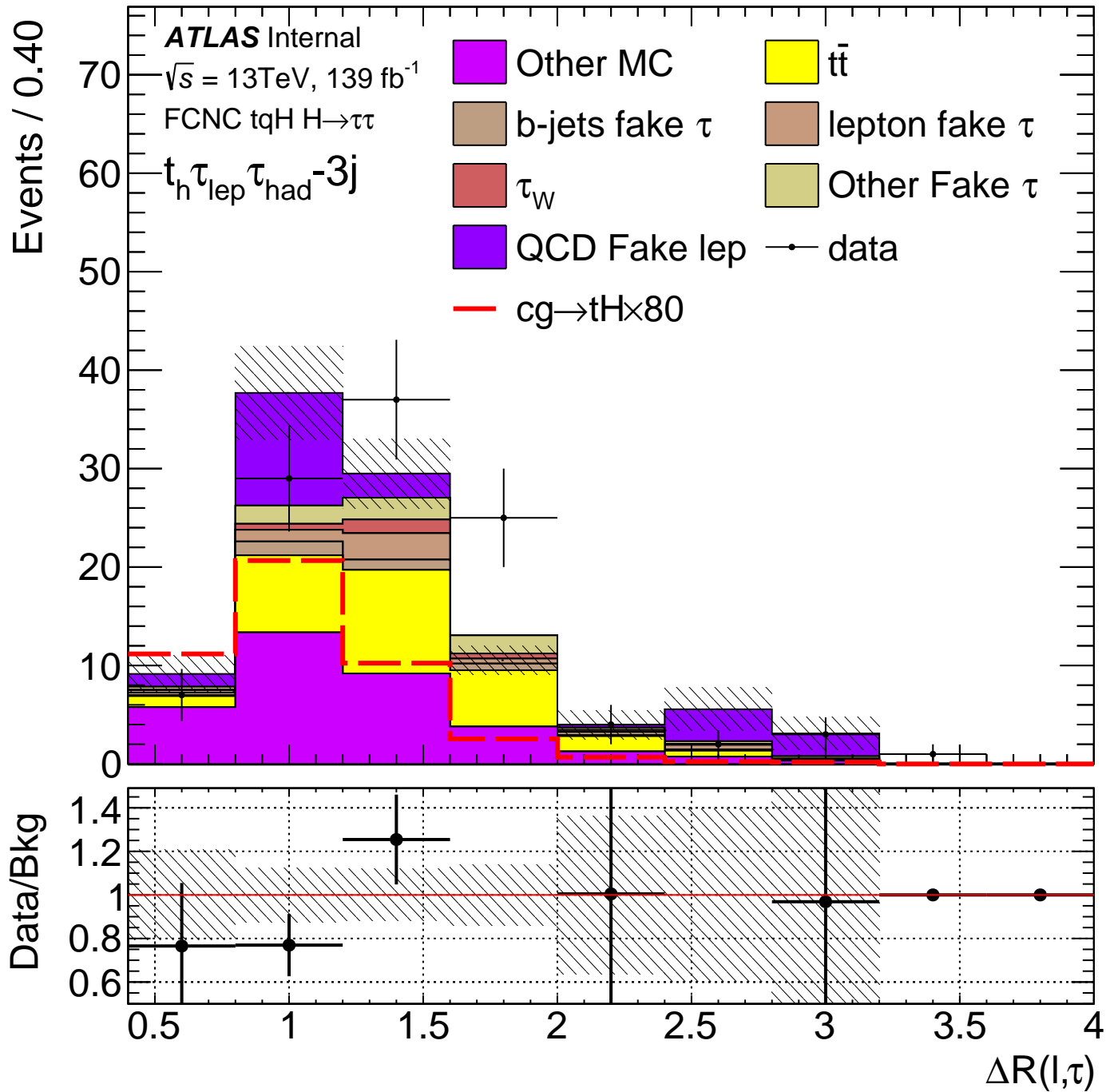
QCD Fake lep

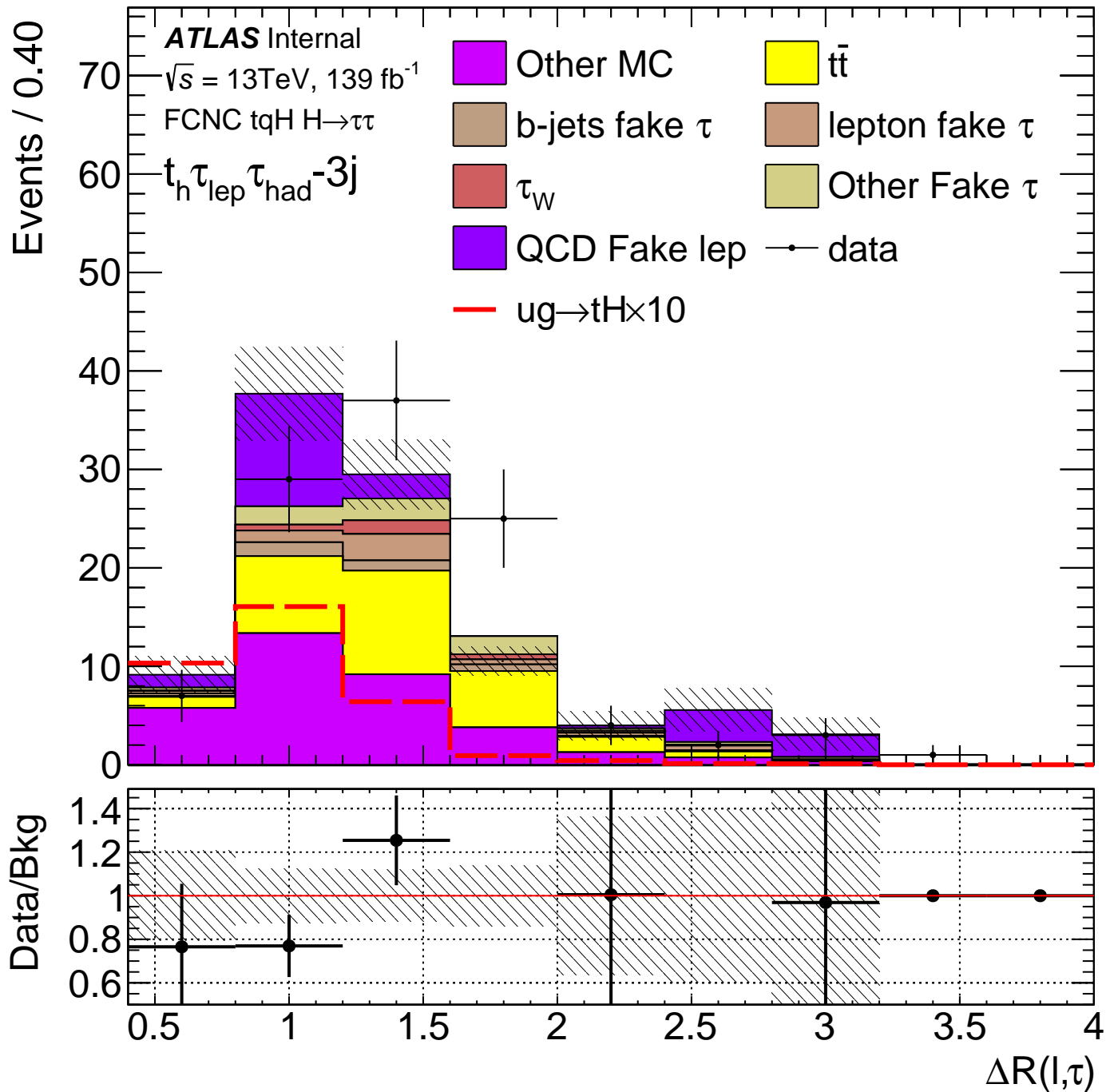
 $t\bar{t} \rightarrow bWcH \times 6$  $t\bar{t}$ lepton fake  $\tau$ Other Fake  $\tau$ 

data

Data/Bkg







Events / 0.40

**ATLAS** Internal $\sqrt{s} = 13\text{TeV}, 139\text{ fb}^{-1}$ FCNC tqH  $H \rightarrow \tau\tau$  $t_h \tau_{\text{lep}} \tau_{\text{had}} - 3j$ 

Other MC

b-jets fake  $\tau$  $\tau_W$ 

QCD Fake lep

tcH merged $\times 6$  $t\bar{t}$ lepton fake  $\tau$ Other Fake  $\tau$ 

data

70

60

50

40

30

20

10

0

Data/Bkg

1.4

1.2

1.0

0.8

0.6

 $\Delta R(l, \tau)$ 

0.5

1

1.5

2

2.5

3

3.5

4

Events / 0.40

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FCNC  $t\bar{q}H \rightarrow \tau\tau$   
 $t_h \tau_{\text{lep}} \tau_{\text{had}} - 3j$

Other MC

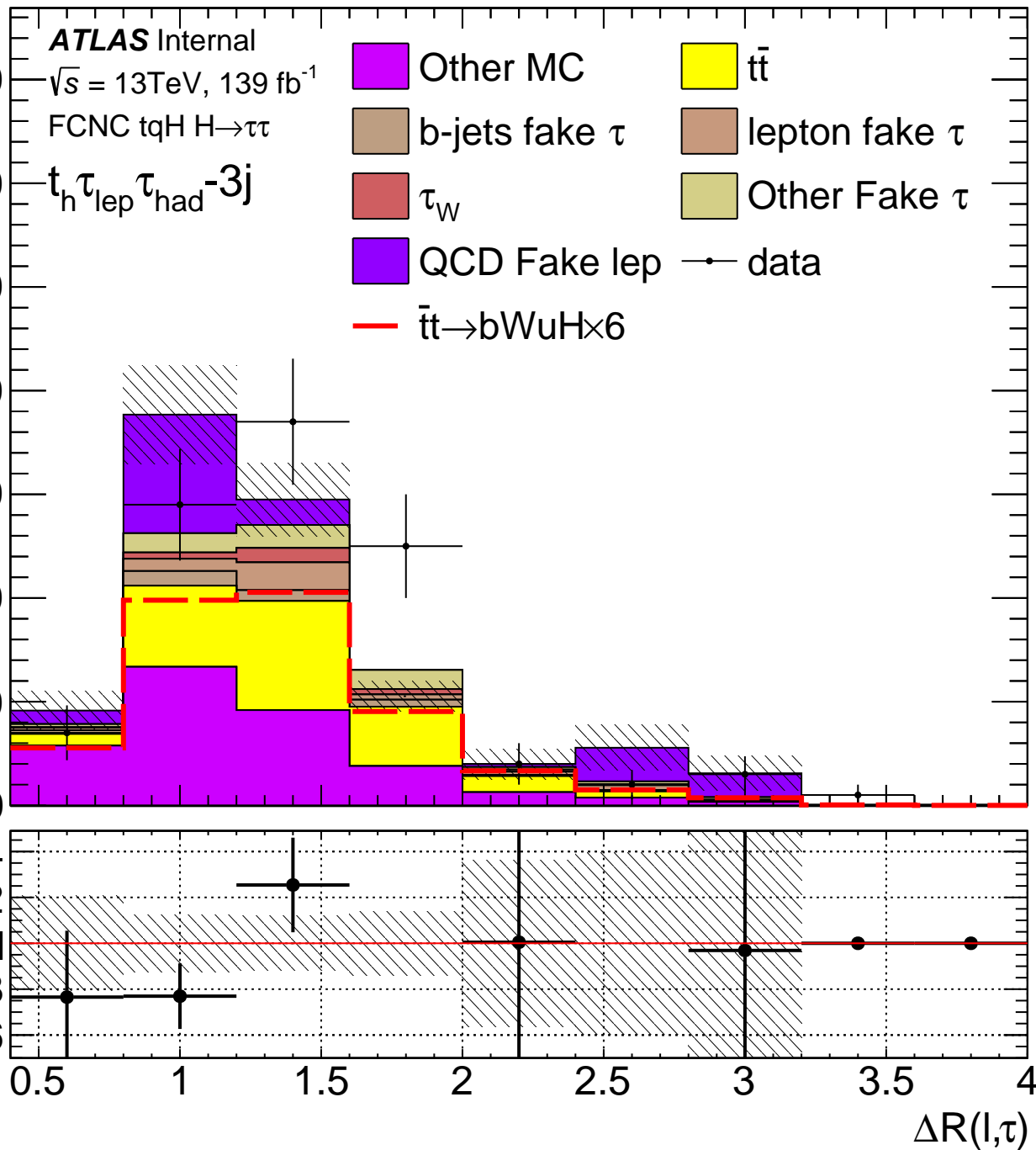
b-jets fake  $\tau$  $\tau_W$ 

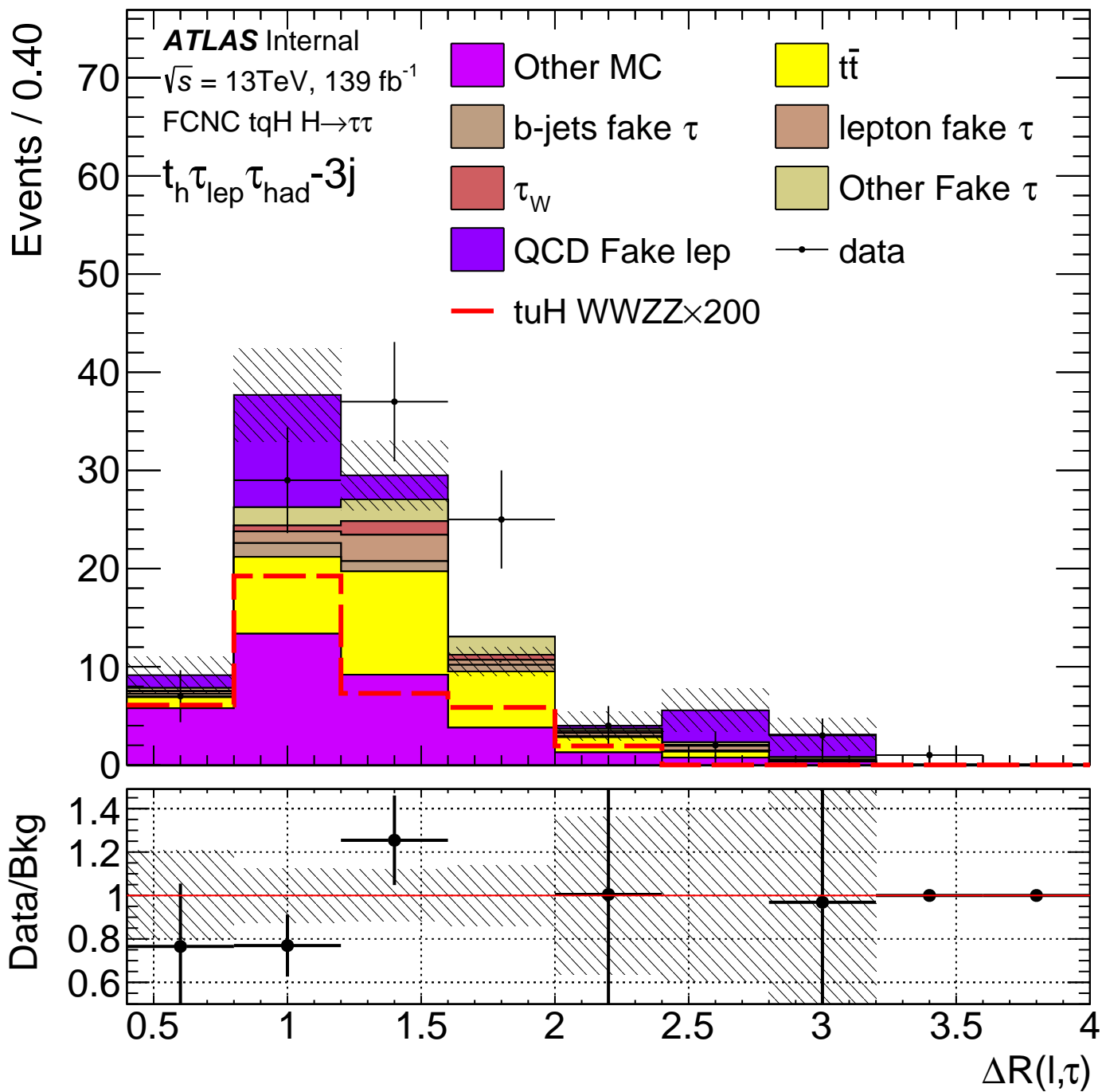
QCD Fake lep

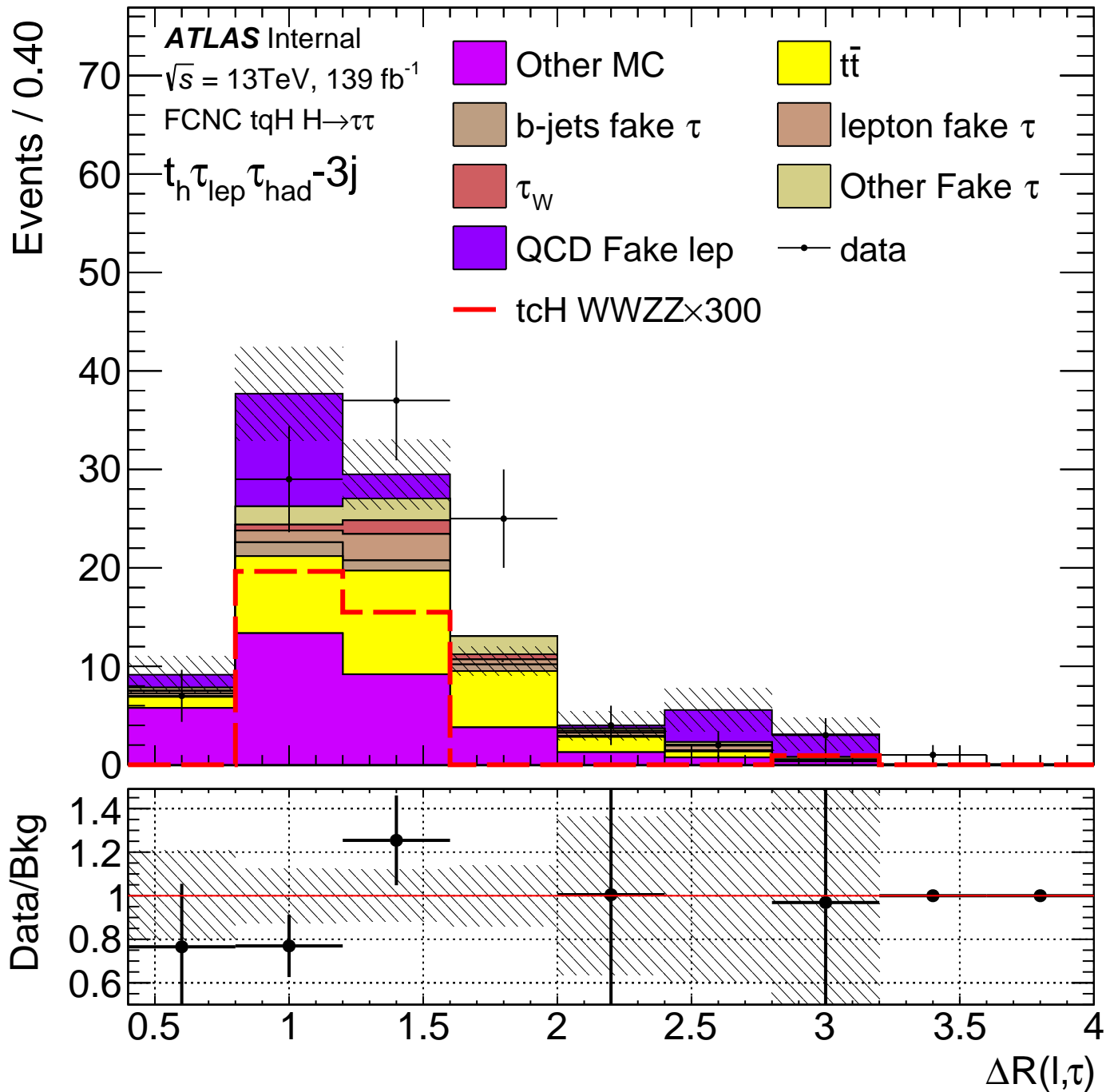
 $\bar{t}t \rightarrow bWuH \times 6$  $\bar{t}t$ lepton fake  $\tau$ Other Fake  $\tau$ 

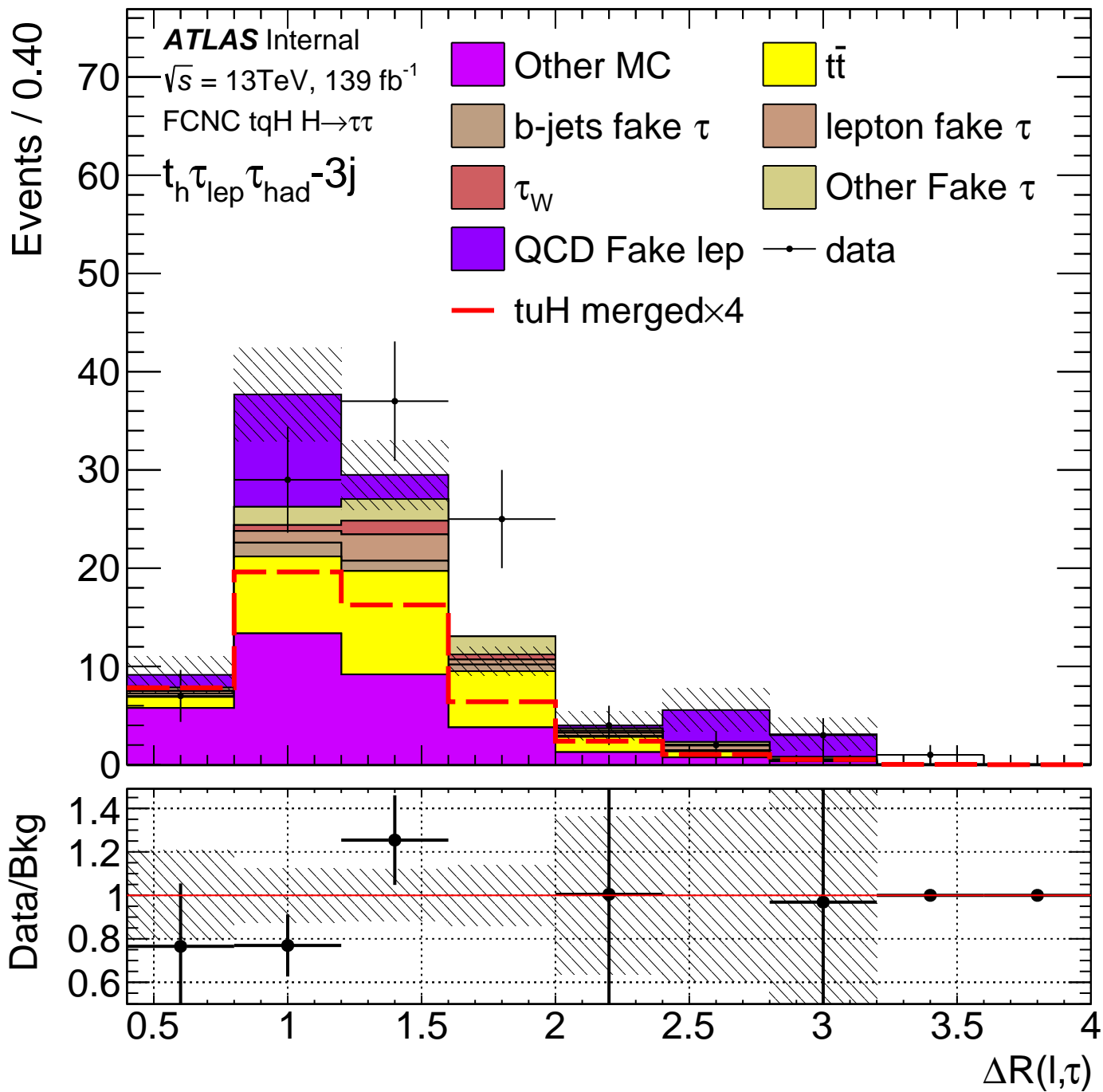
data

Data/Bkg

 $\Delta R(l, \tau)$









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 $\sqrt{s} = 13\text{TeV}, 139\text{ fb}^{-1}$   
FCNC tqH  $H \rightarrow \tau\tau$   
 $t_h \tau_{\text{lep}} \tau_{\text{had}} - 3j$

Other MC	$t\bar{t}$
b-jets fake $\tau$	lepton fake $\tau$
$\tau_W$	Other Fake $\tau$
QCD Fake lep	data
$t\bar{t} \rightarrow bWcH \times 6$	$cg \rightarrow tH \times 80$
$ug \rightarrow tH \times 10$	$t\bar{t} \rightarrow bWuH \times 6$
$tuH\text{ WWZZ} \times 200$	$tcH\text{ WWZZ} \times 300$

Data/Bkg

