

Events / 10.00 GeV

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

$t_l \tau_{\text{had}} \tau_{\text{had}}$

Other MC

b-jets fake  $\tau$

$\tau_W$

Other Fake  $\tau$

$t\bar{t} \rightarrow bWcH \times 50$

$t\bar{t}$

lepton fake  $\tau$

double fake  $\tau$

data

25

20

15

10

5

0

Data/Bkg

1.4

1.2

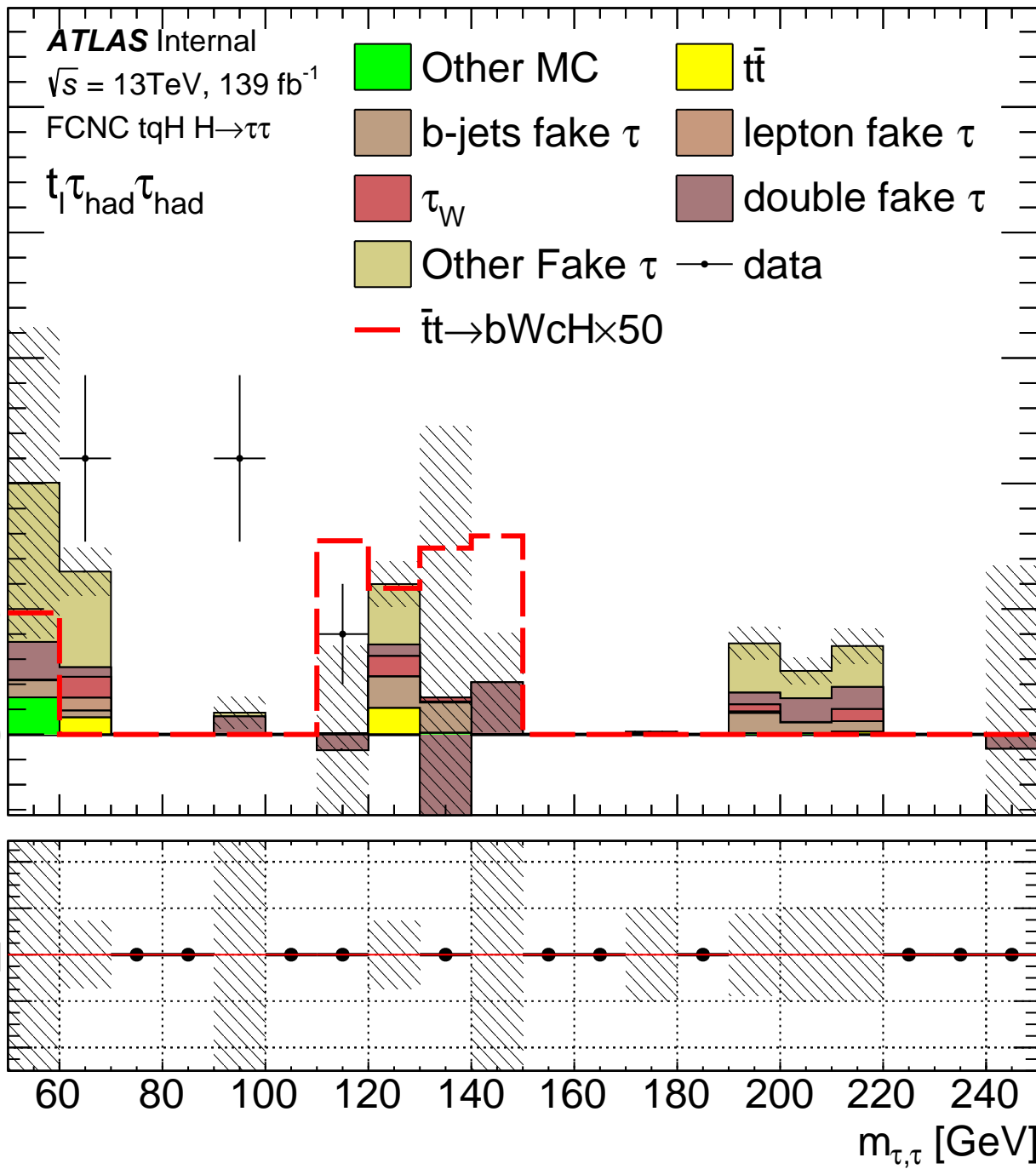
1.0

0.8

0.6

60 80 100 120 140 160 180 200 220 240

$m_{\tau,\tau} [\text{GeV}]$



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Other MC

b-jets fake  $\tau$

$\tau_W$

Other Fake  $\tau$

$cg \rightarrow tH \times 9$

$t\bar{t}$

lepton fake  $\tau$

double fake  $\tau$

data

25

20

15

10

5

0

Data/Bkg

1.4

1.2

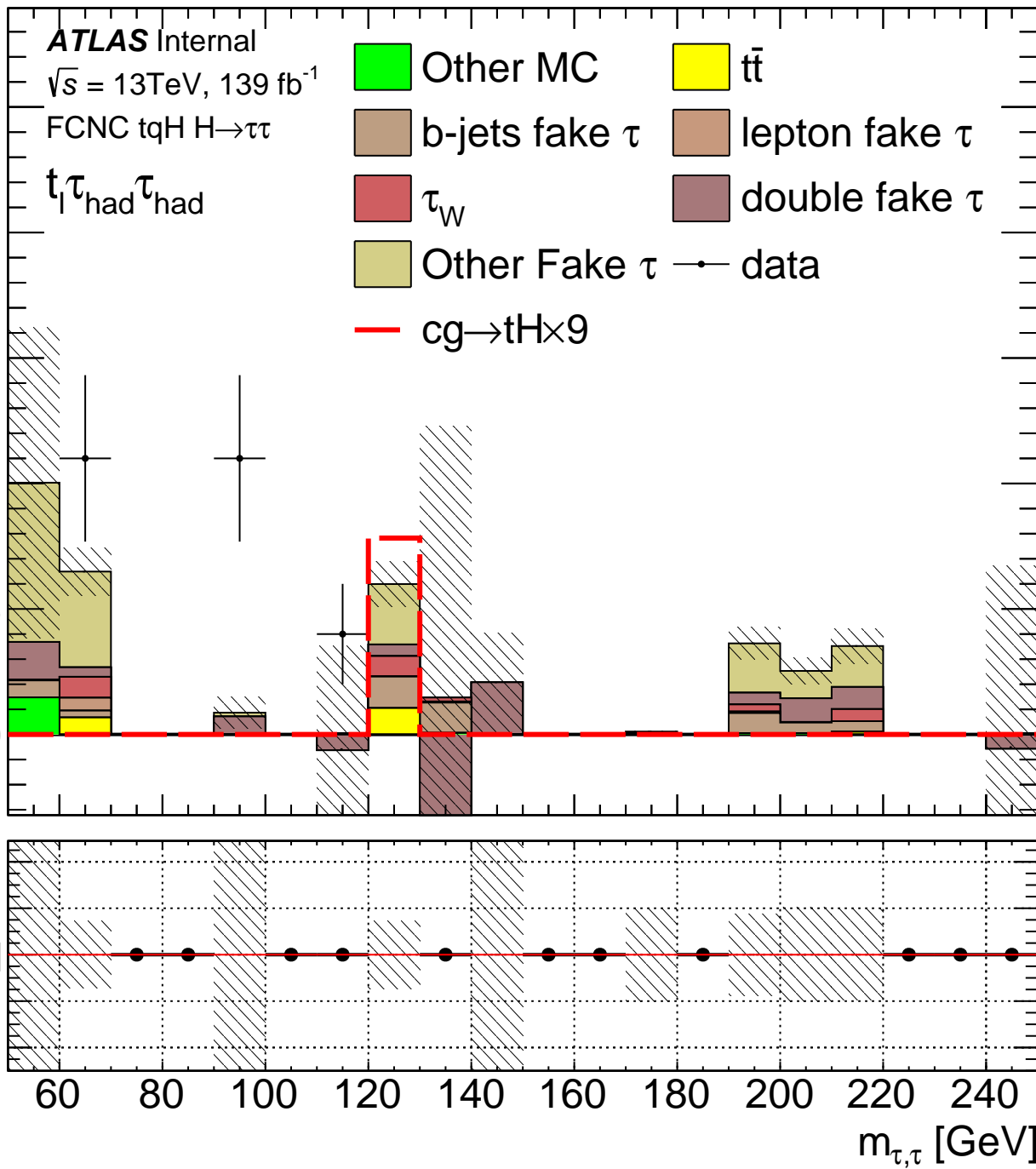
1.0

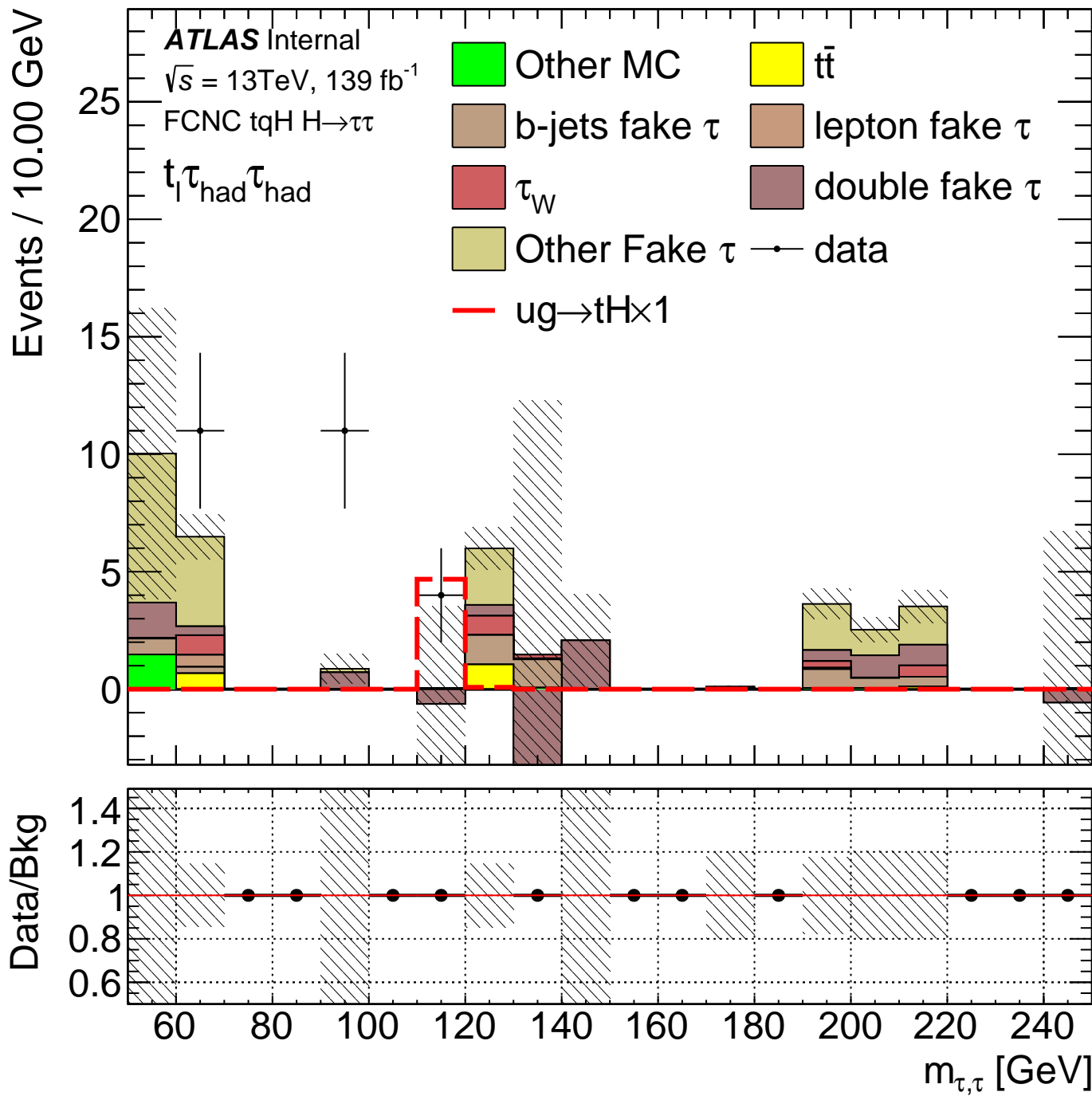
0.8

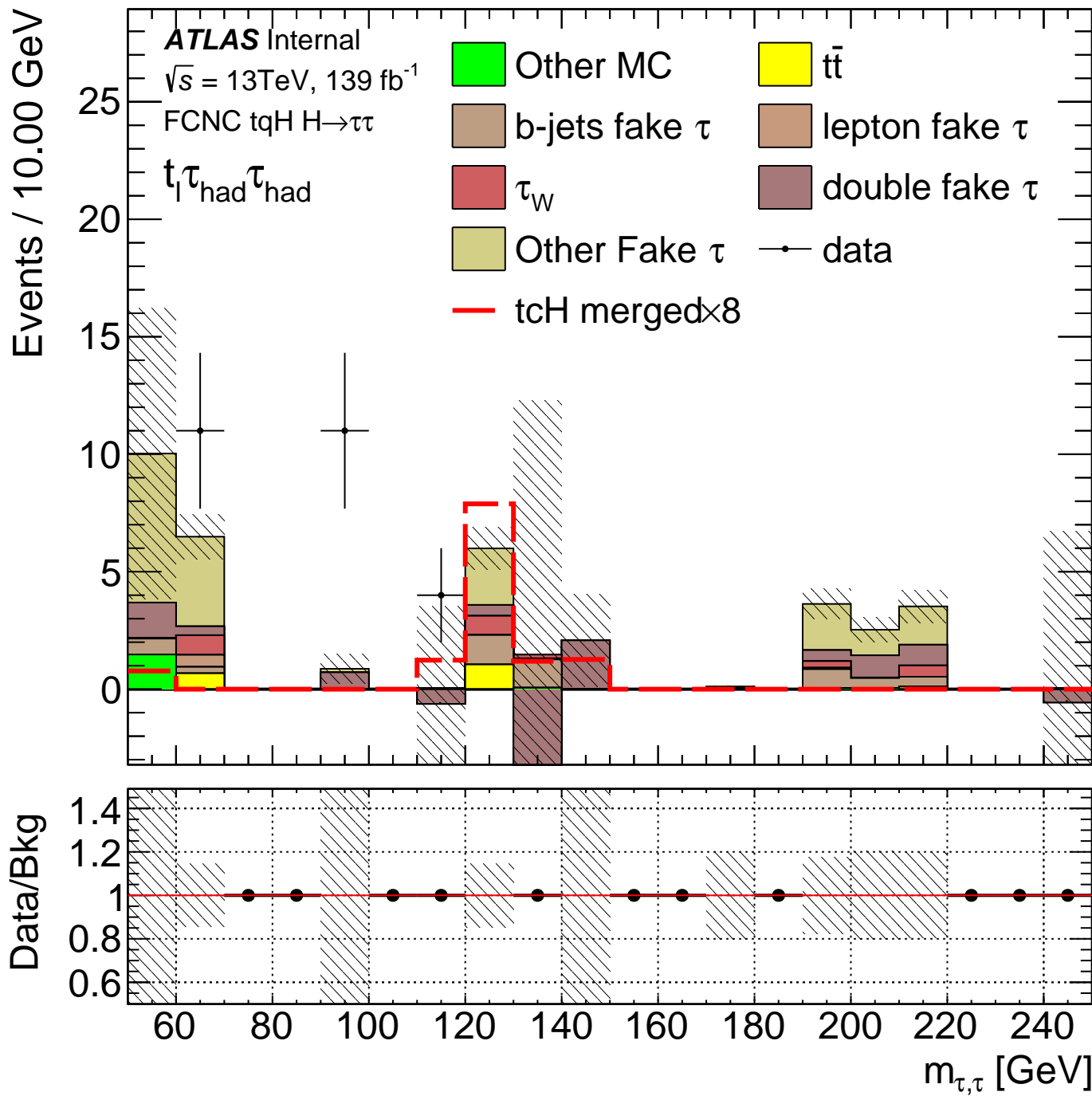
0.6

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$m_{\tau,\tau} [\text{GeV}]$







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Other Fake  $\tau$

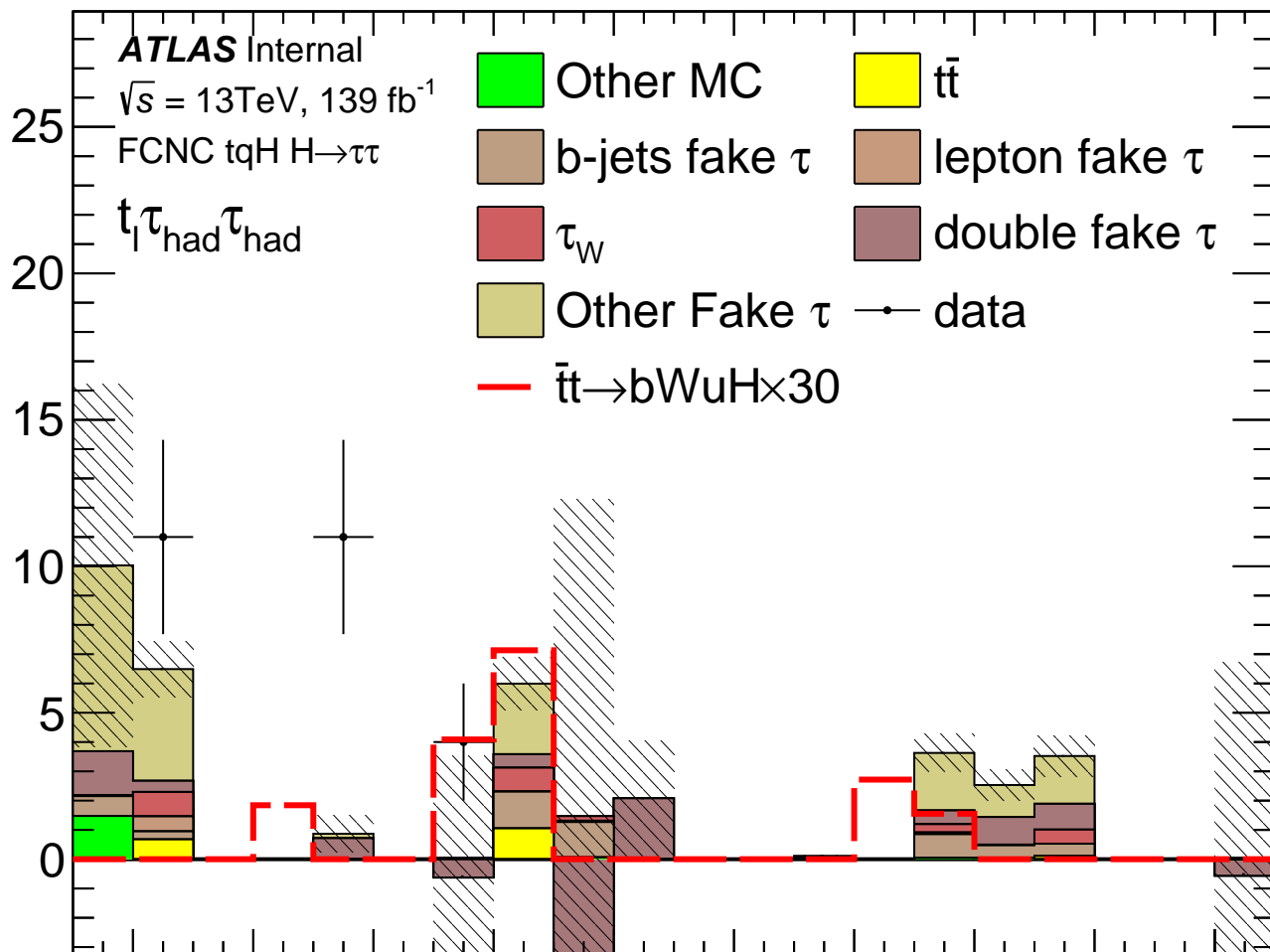
$\bar{t}t \rightarrow bWuH \times 30$

$t\bar{t}$

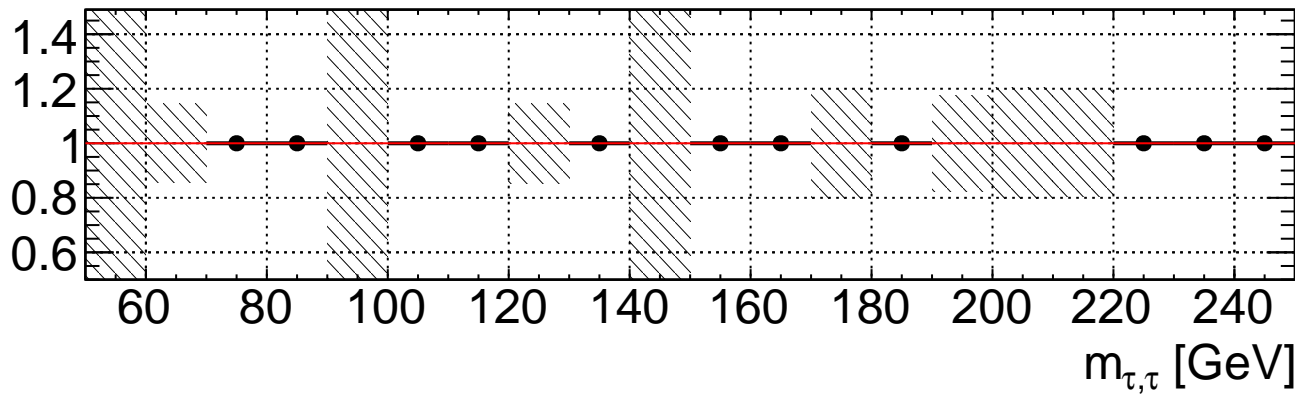
lepton fake  $\tau$

double fake  $\tau$

data



Data/Bkg



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Other MC

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$\tau_W$

Other Fake  $\tau$

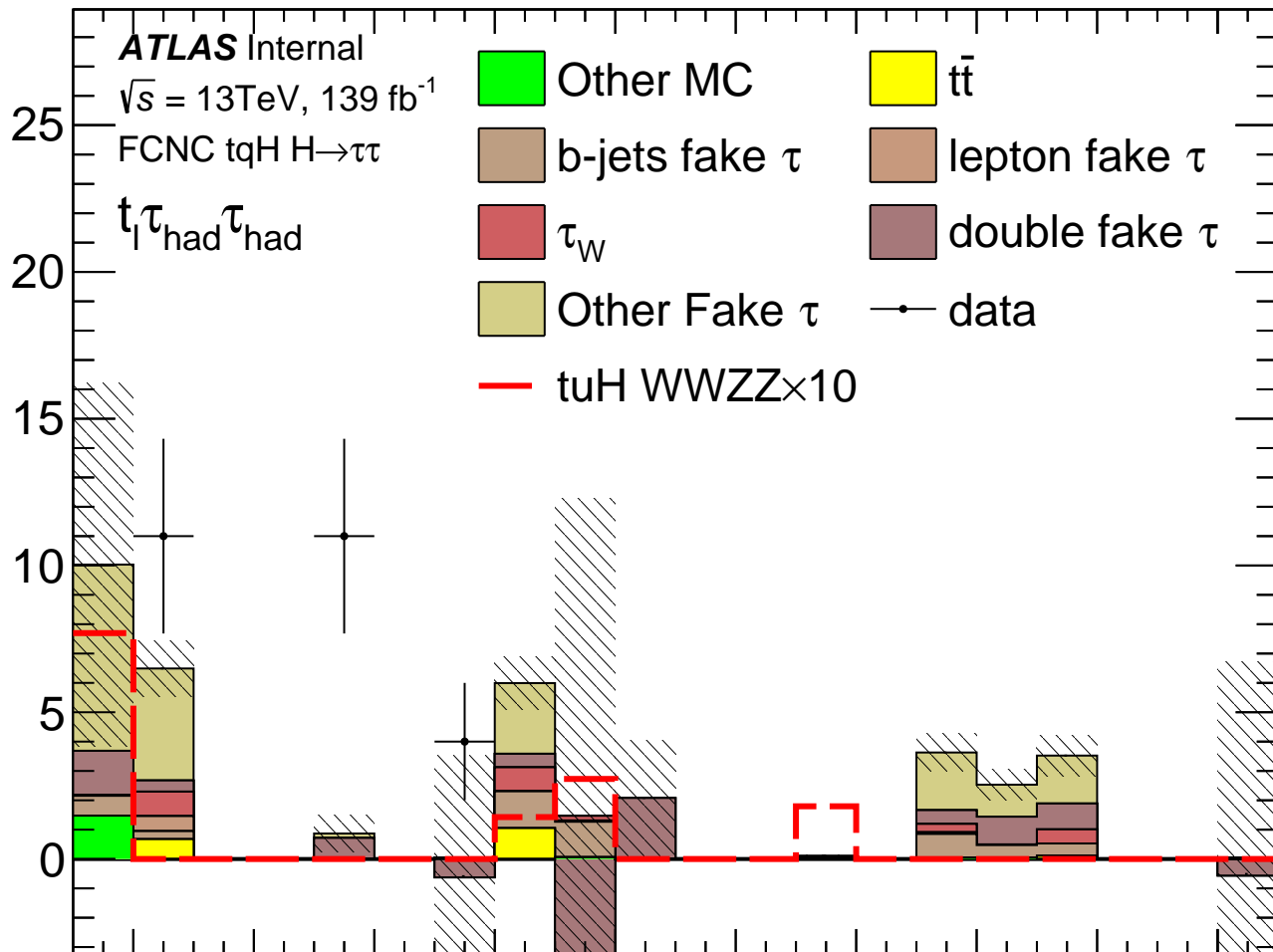
tuH WWZZ $\times 10$

$t\bar{t}$

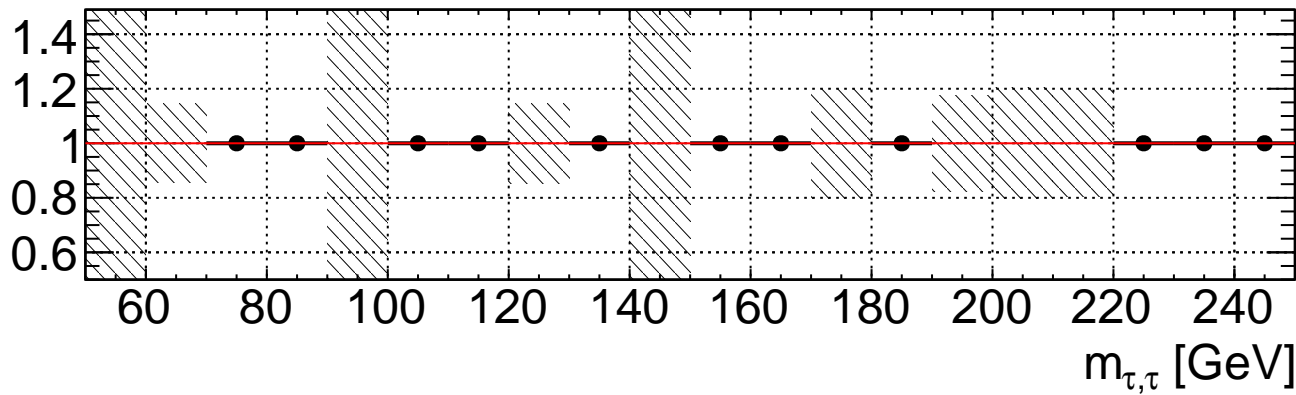
lepton fake  $\tau$

double fake  $\tau$

data



Data/Bkg



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Other MC

b-jets fake  $\tau$

$\tau_W$

Other Fake  $\tau$

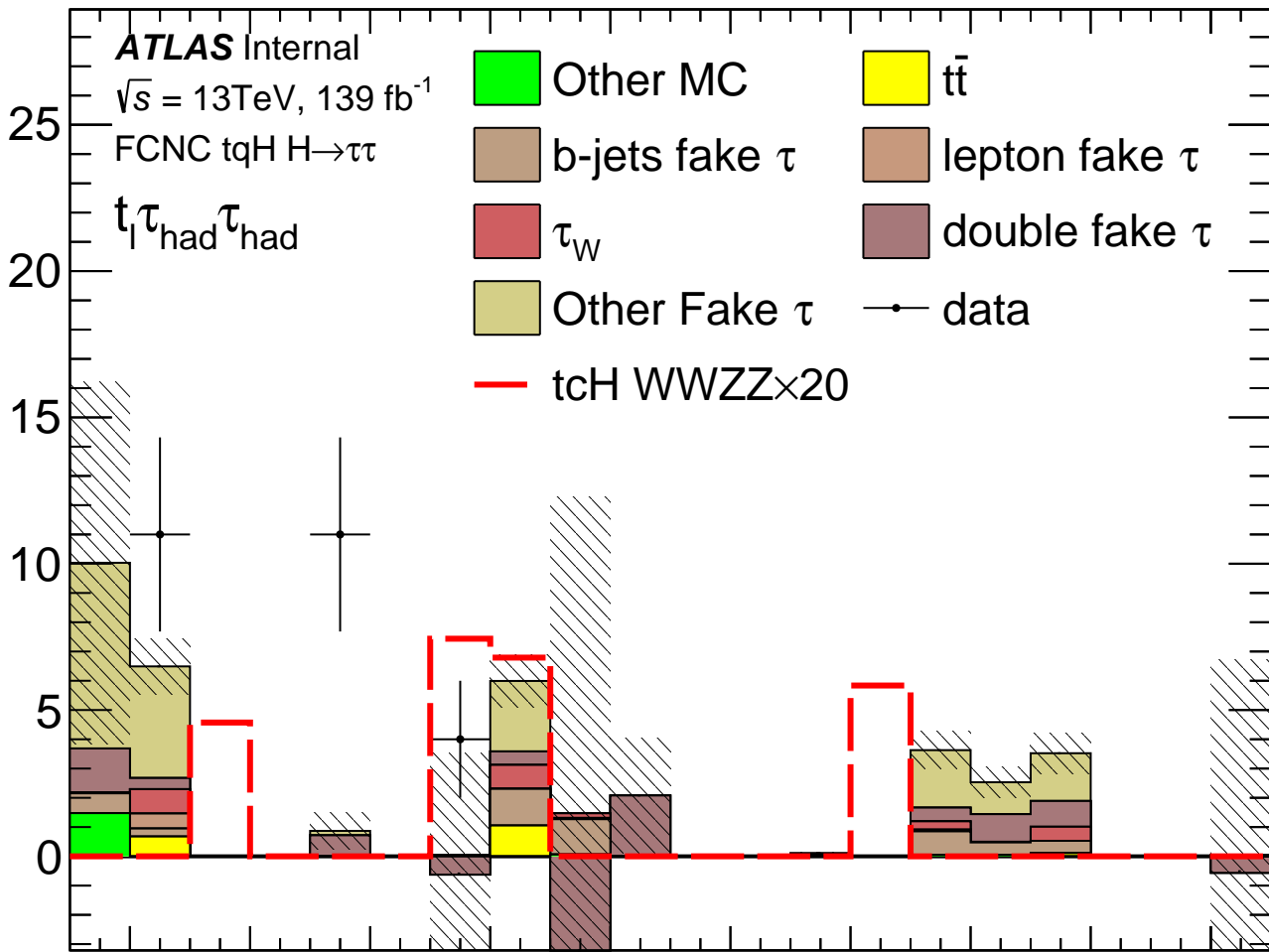
tcH WWZZ $\times 20$

$t\bar{t}$

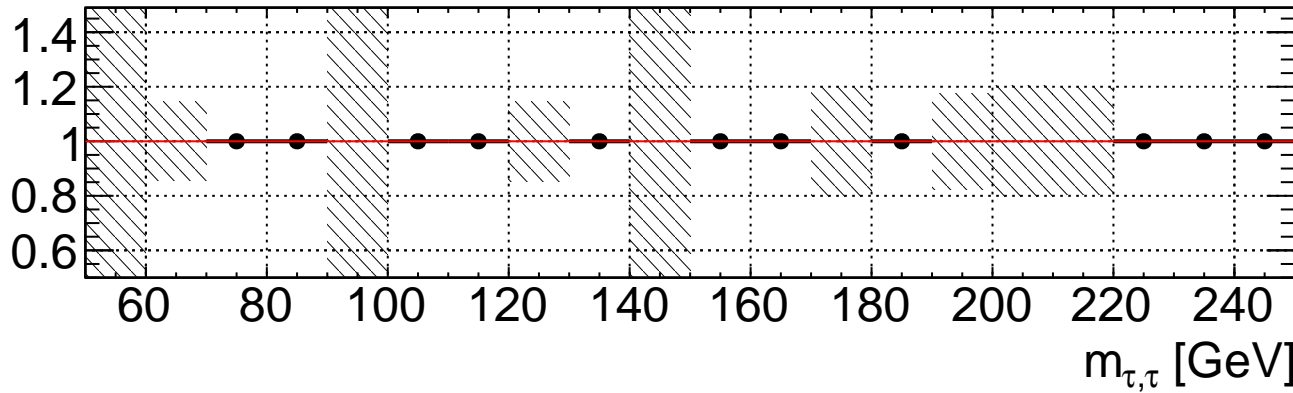
lepton fake  $\tau$

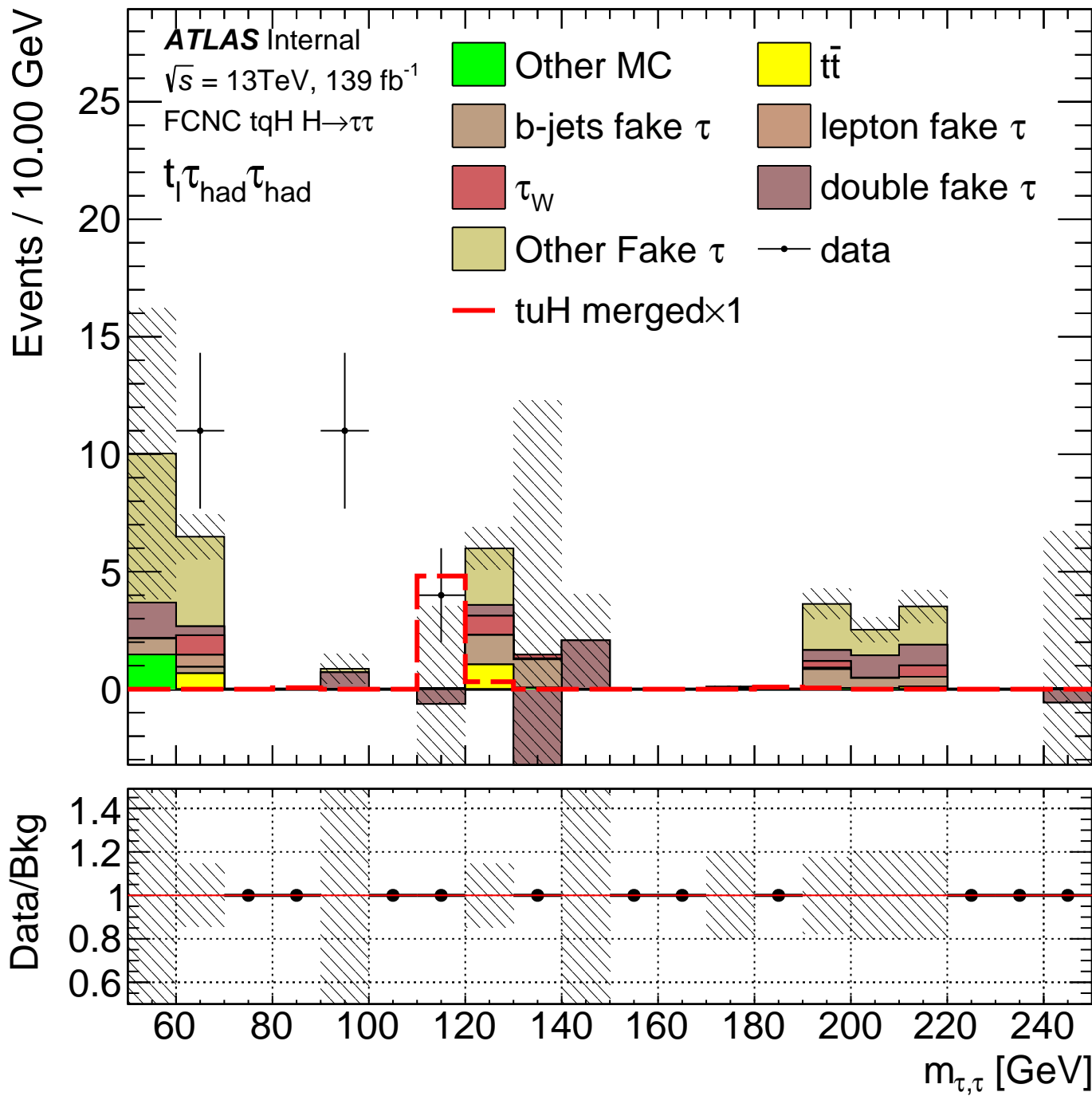
double fake  $\tau$

data



Data/Bkg







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$t_l \tau_{\text{had}} \tau_{\text{had}}$

Other MC

b-jets fake  $\tau$

$\tau_W$

Other Fake  $\tau$

$\bar{t}t \rightarrow bWcH \times 50$

$ug \rightarrow tH \times 1$

$\bar{t}t$

lepton fake  $\tau$

double fake  $\tau$

data

$cg \rightarrow tH \times 9$

$\bar{t}t \rightarrow bWuH \times 30$

25

20

15

10

5

0

Data/Bkg

1.4

1.2

1.0

0.8

0.6

60

80

100

120

140

160

180

200

220

240

$m_{\tau,\tau} [\text{GeV}]$

