

Events / 0.20

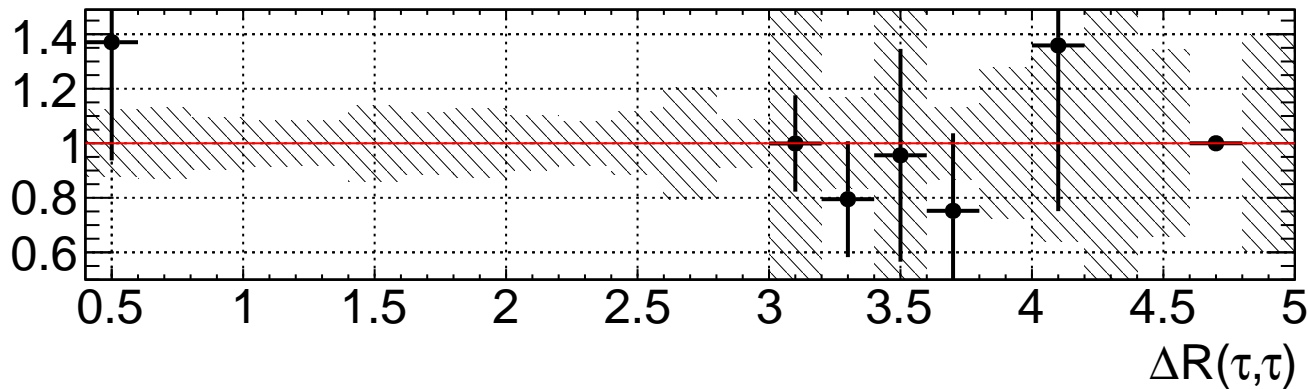
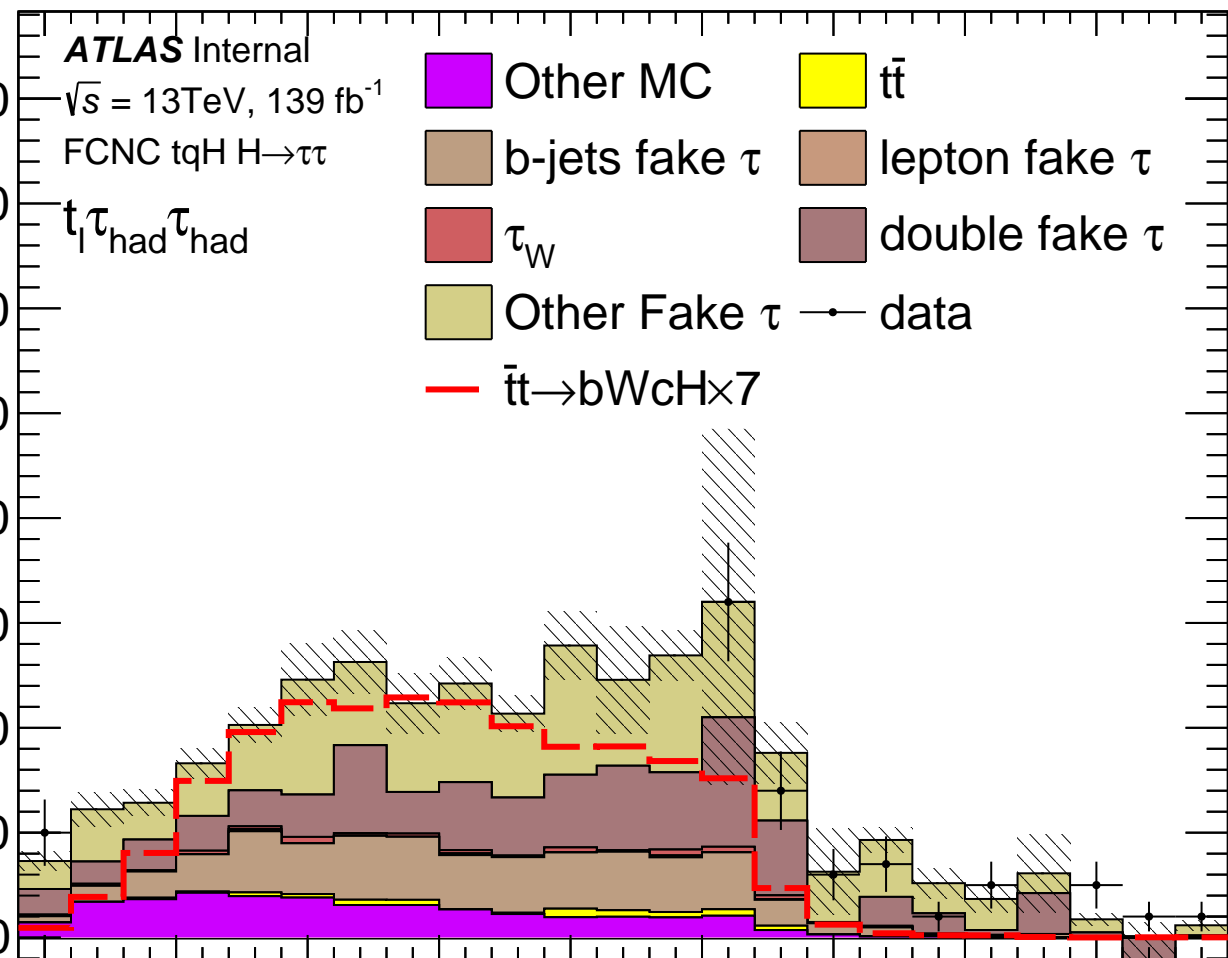
**ATLAS** Internal $\sqrt{s} = 13\text{TeV}, 139\text{ fb}^{-1}$ FCNC tqH  $H \rightarrow \tau\tau$  $t_l \tau_{\text{had}} \tau_{\text{had}}$ 

Other MC

b-jets fake  $\tau$  $\tau_W$ Other Fake  $\tau$  $\bar{t}t \rightarrow bWcH \times 7$  $\bar{t}t$ lepton fake  $\tau$ double fake  $\tau$ 

—•— data

Data/Bkg



Events / 0.20

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

Other MC

b-jets fake  $\tau$  $\tau_W$ Other Fake  $\tau$ cg $\rightarrow$ tH $\times$ 70 $t\bar{t}$ lepton fake  $\tau$ double fake  $\tau$ 

—•— data

80

70

60

50

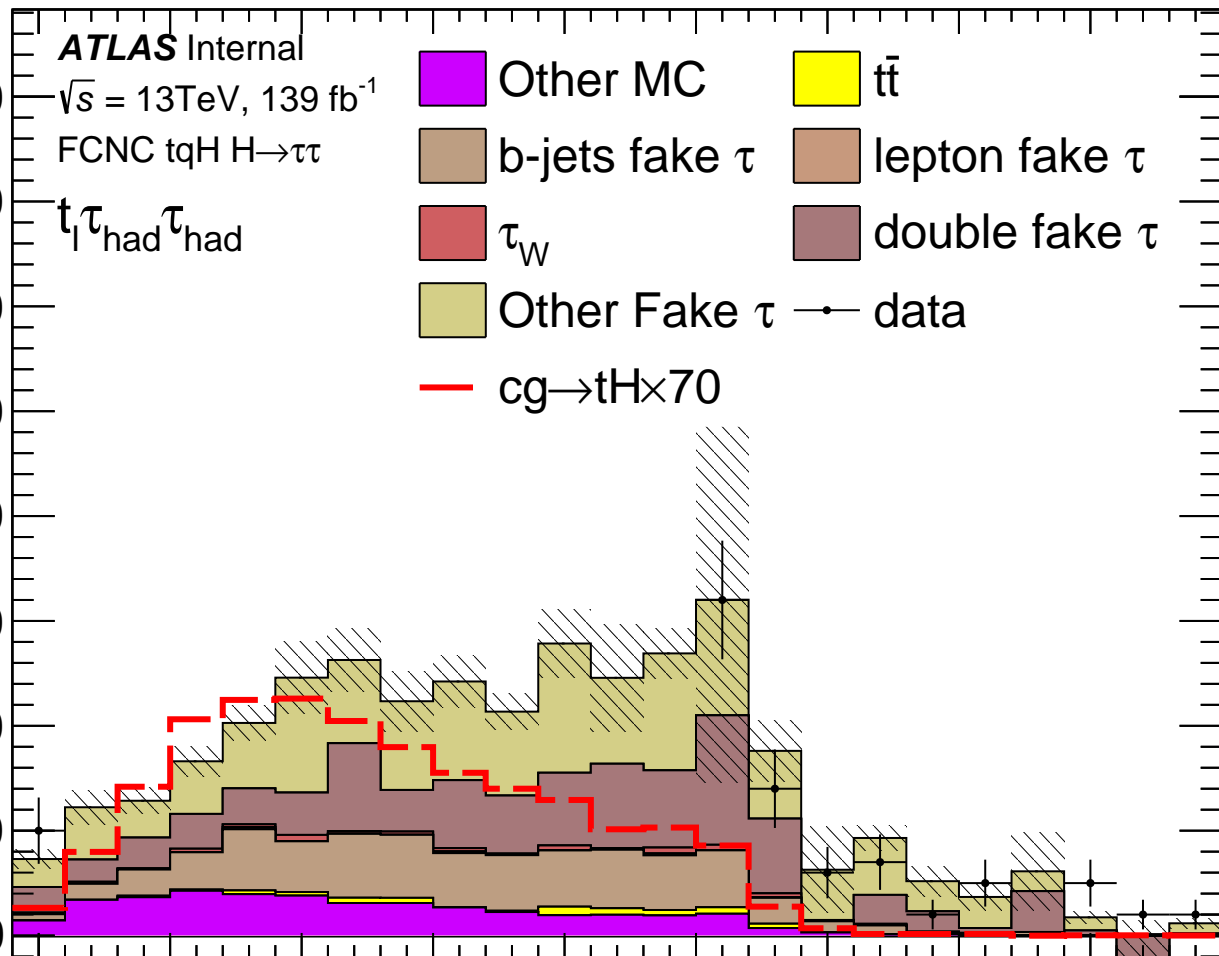
40

30

20

10

0



Data/Bkg

1.4

1.2

1.0

0.8

0.6

0.5

1

1.5

2

2.5

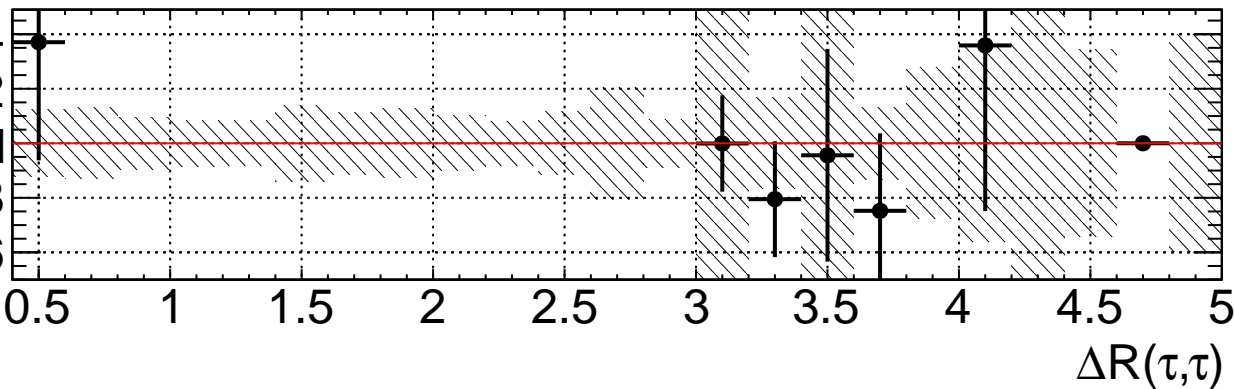
3

3.5

4

4.5

5

 $\Delta R(\tau, \tau)$ 

Events / 0.20

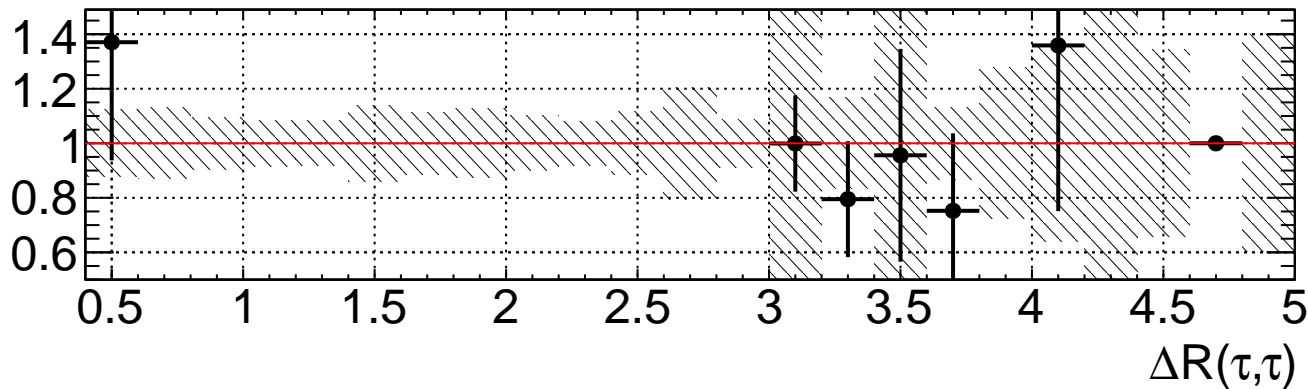
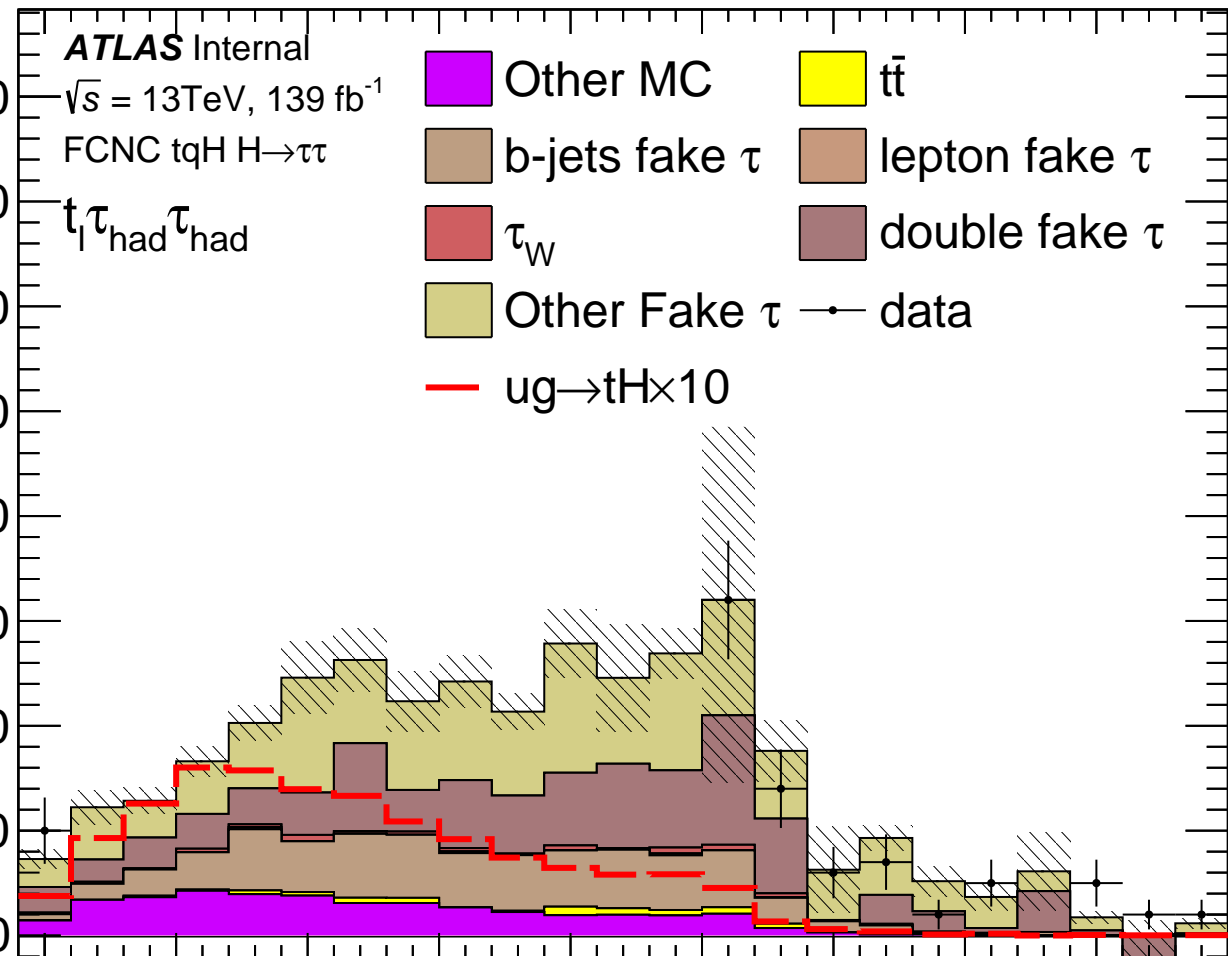
**ATLAS** Internal $\sqrt{s} = 13\text{TeV}, 139\text{ fb}^{-1}$ FCNC  $t\bar{q}H \rightarrow \tau\tau$  $t_l \tau_{\text{had}} \tau_{\text{had}}$ 

Other MC

b-jets fake  $\tau$  $\tau_W$ Other Fake  $\tau$ —  $u\bar{g} \rightarrow tH \times 10$  $t\bar{t}$ lepton fake  $\tau$ double fake  $\tau$ 

—•— data

Data/Bkg



Events / 0.20

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

Other MC

b-jets fake  $\tau$  $\tau_W$ Other Fake  $\tau$ tcH merged $\times 7$  $t\bar{t}$ lepton fake  $\tau$ double fake  $\tau$ 

—•— data

80

70

60

50

40

30

20

10

0

Data/Bkg

1.4

1.2

1.0

0.8

0.6

0.5

1

1.5

2

2.5

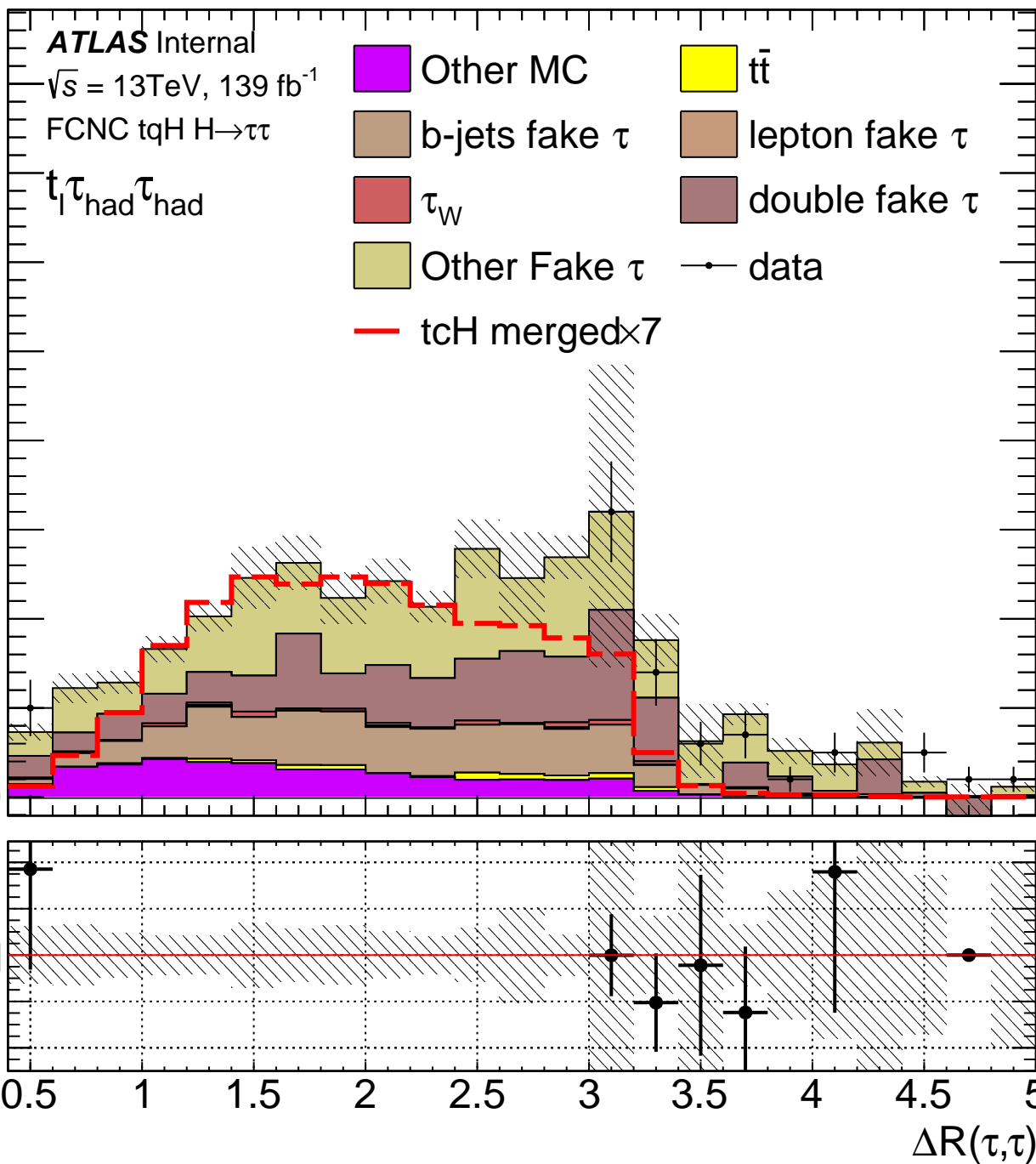
3

3.5

4

4.5

5

 $\Delta R(\tau, \tau)$ 

Events / 0.20

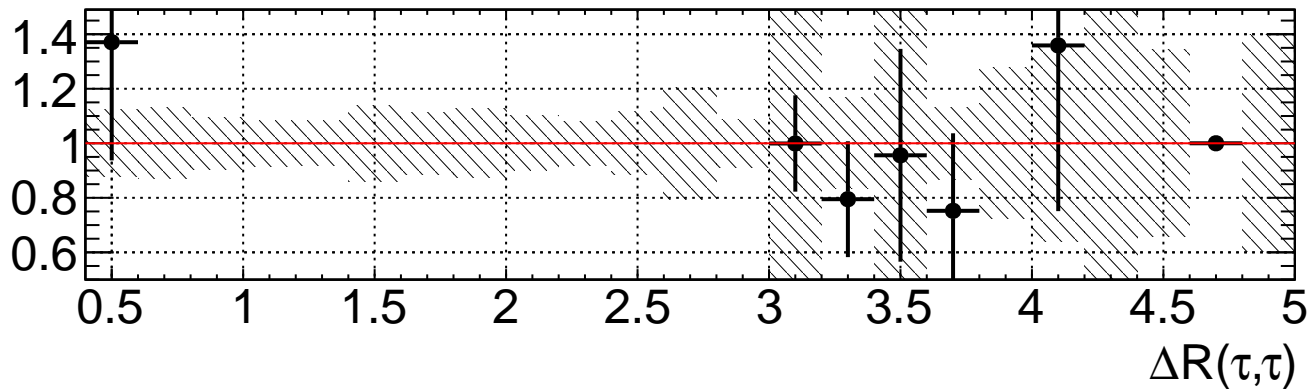
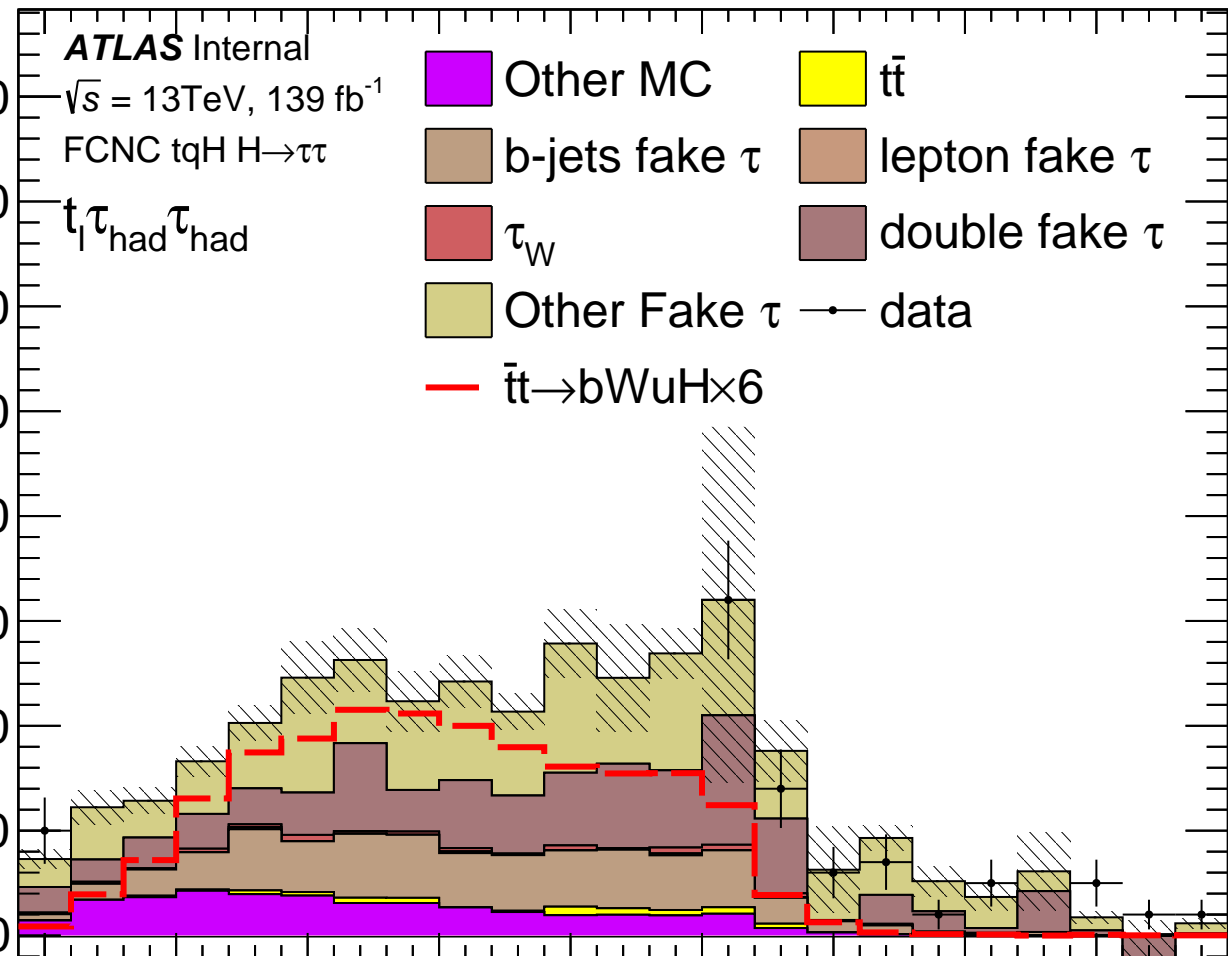
**ATLAS** Internal $\sqrt{s} = 13\text{TeV}, 139\text{ fb}^{-1}$ FCNC tqH  $H \rightarrow \tau\tau$  $t_l \tau_{\text{had}} \tau_{\text{had}}$ 

Other MC

b-jets fake  $\tau$  $\tau_W$ Other Fake  $\tau$  $\bar{t}t \rightarrow bWuH \times 6$  $\bar{t}t$ lepton fake  $\tau$ double fake  $\tau$ 

—•— data

Data/Bkg



Events / 0.20

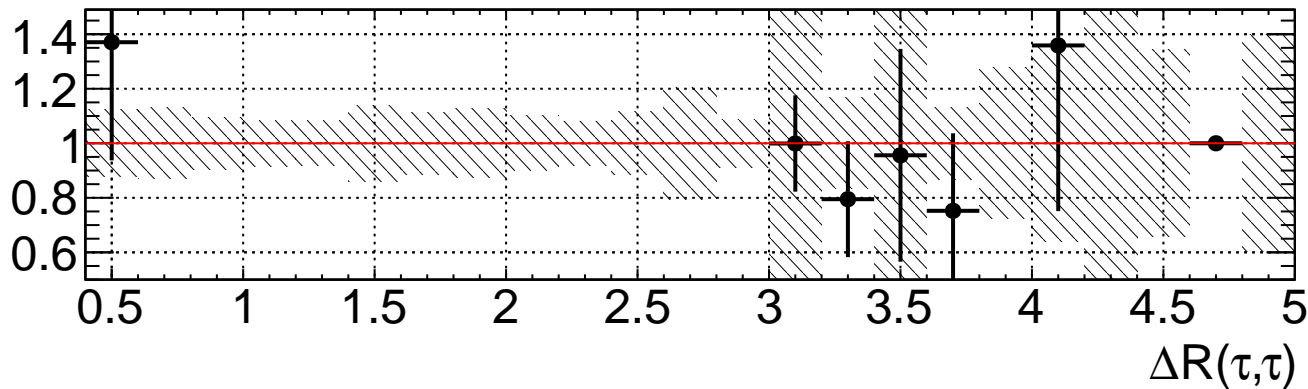
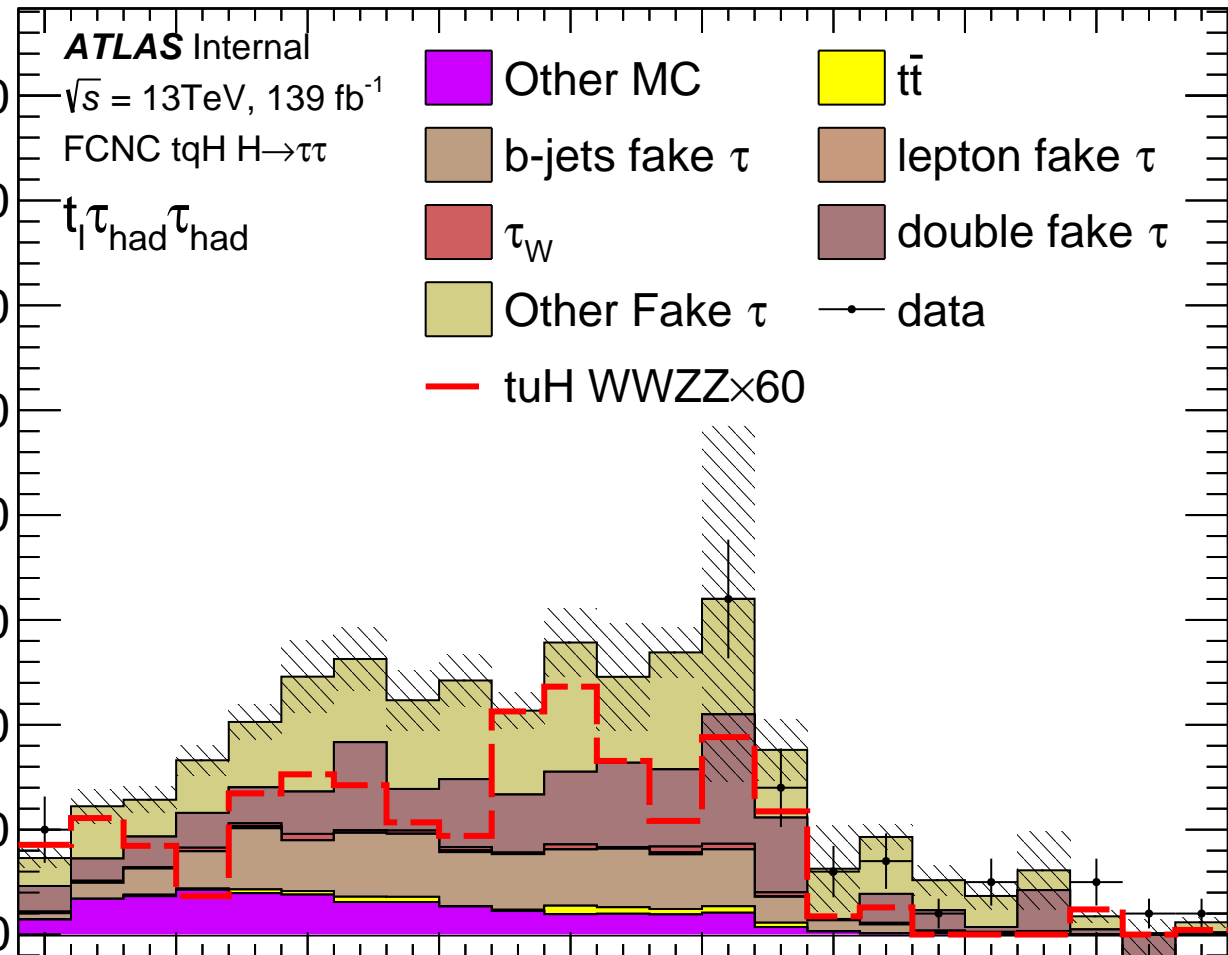
**ATLAS** Internal $\sqrt{s} = 13\text{TeV}, 139\text{ fb}^{-1}$ FCNC tqH  $H \rightarrow \tau\tau$  $t_l \tau_{\text{had}} \tau_{\text{had}}$ 

Other MC

b-jets fake  $\tau$  $\tau_W$ Other Fake  $\tau$ —  $t_u H WWZZ \times 60$  $t\bar{t}$ lepton fake  $\tau$ double fake  $\tau$ 

—•— data

Data/Bkg



Events / 0.20

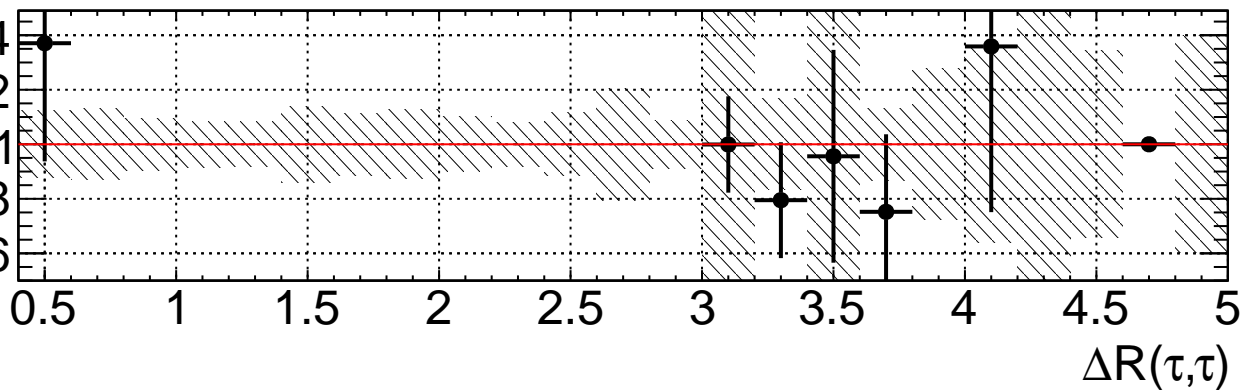
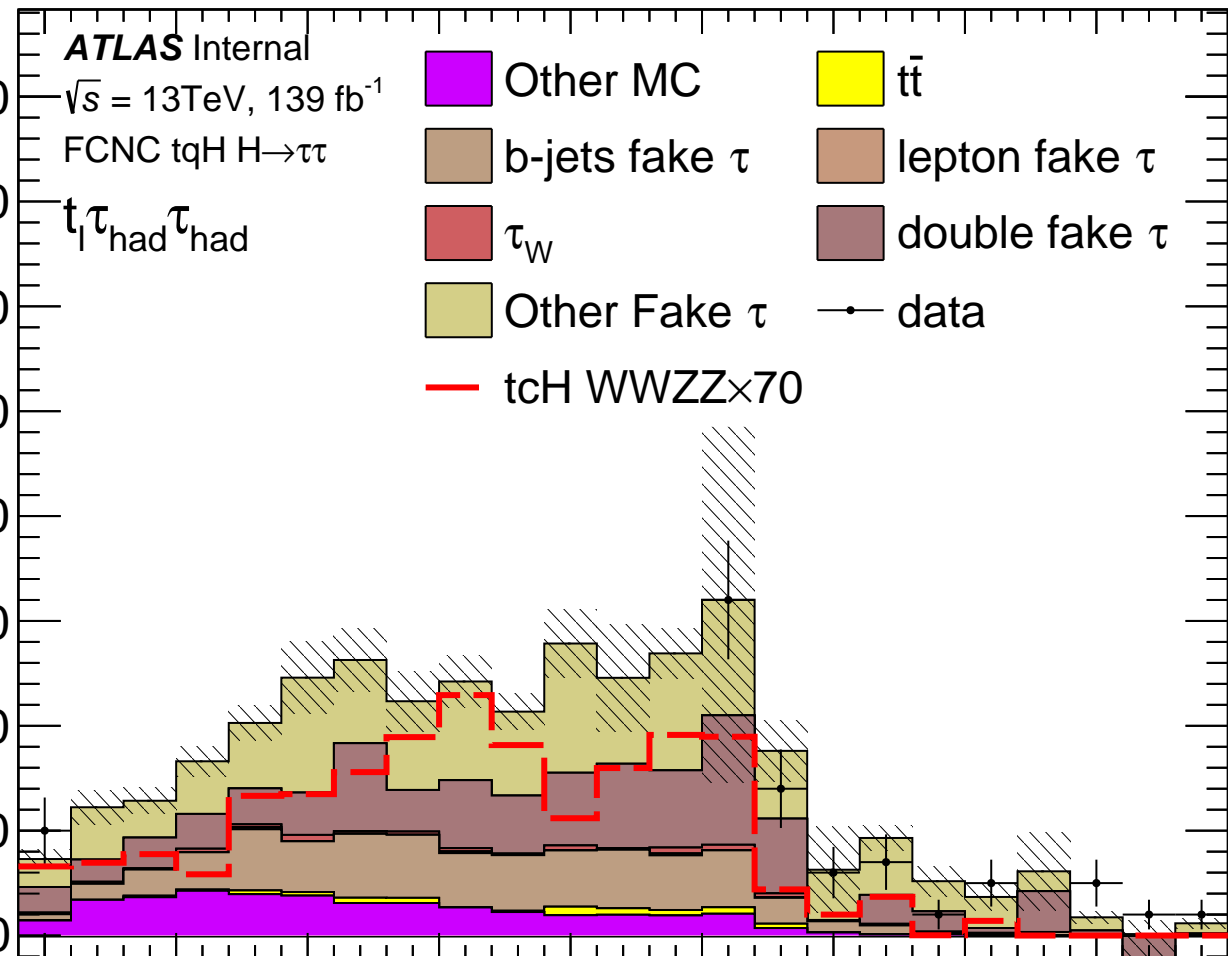
**ATLAS** Internal $\sqrt{s} = 13\text{TeV}, 139\text{ fb}^{-1}$ FCNC tqH  $H \rightarrow \tau\tau$  $t_l \tau_{\text{had}} \tau_{\text{had}}$ 

Other MC

b-jets fake  $\tau$  $\tau_W$ Other Fake  $\tau$ tcH WWZZ $\times 70$  $t\bar{t}$ lepton fake  $\tau$ double fake  $\tau$ 

data

Data/Bkg



Events / 0.20

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

Other MC

b-jets fake  $\tau$  $\tau_W$ Other Fake  $\tau$ —  $t_u H$  merged  $\times 5$  $t\bar{t}$ lepton fake  $\tau$ double fake  $\tau$ 

—•— data

80

70

60

50

40

30

20

10

0

Data/Bkg

1.4

1.2

1.0

0.8

0.6

0.5

1

1.5

2

2.5

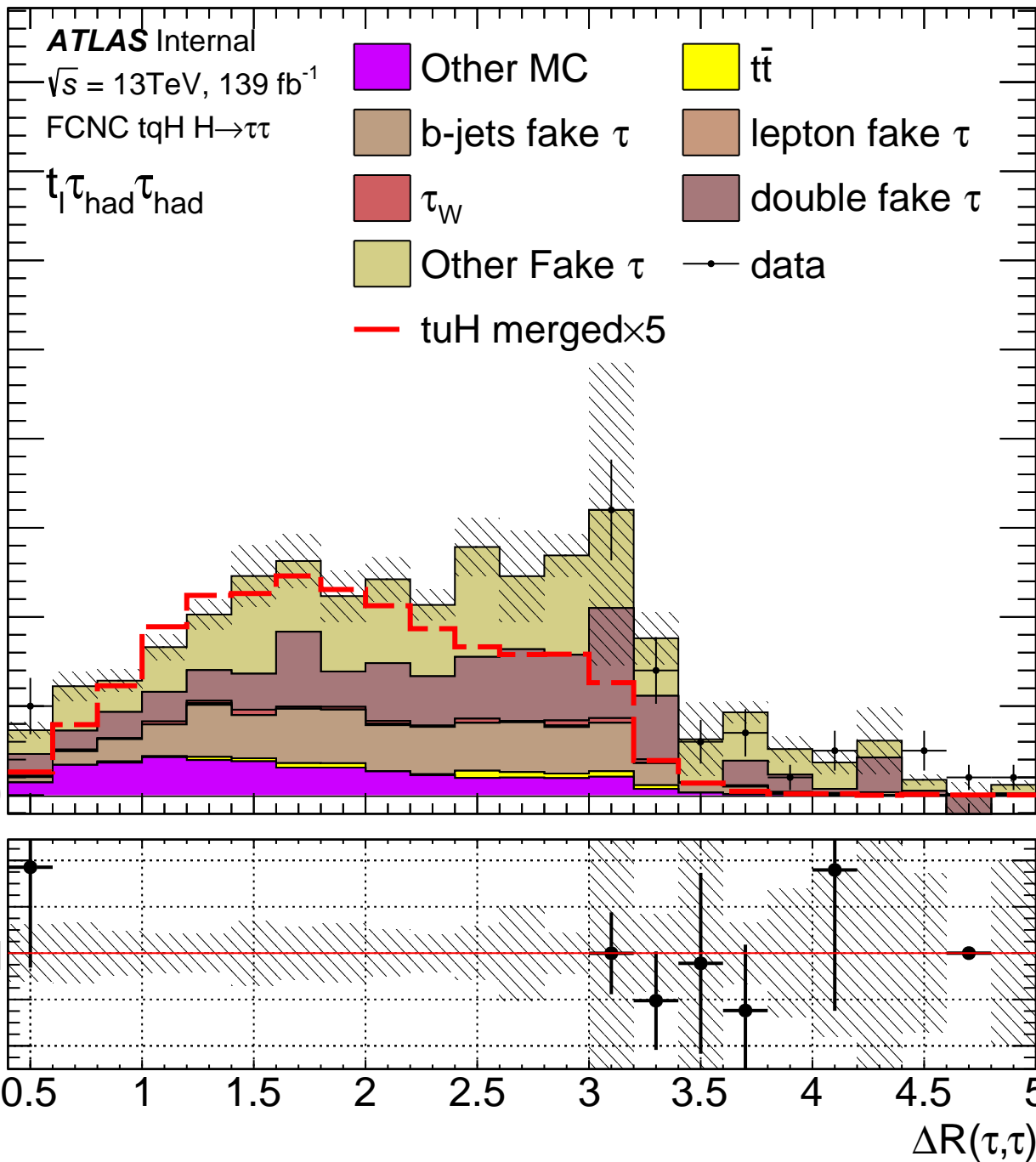
3

3.5

4

4.5

5

 $\Delta R(\tau, \tau)$ 



Events / 0.20

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

Other MC

b-jets fake  $\tau$  $\tau_W$ Other Fake  $\tau$  $\bar{t}t \rightarrow bWcH \times 7$  $ug \rightarrow tH \times 10$  $tuH\text{ WWZZ} \times 60$  $t\bar{t}$ lepton fake  $\tau$ double fake  $\tau$ 

—•— data

 $cg \rightarrow tH \times 70$  $\bar{t}t \rightarrow bWuH \times 6$  $tcH\text{ WWZZ} \times 70$ 

Data/Bkg

