

Events / 0.20

45

40

35

30

25

20

15

10

5

0

ATLAS Internal $\sqrt{s} = 13\text{TeV}, 139\text{ fb}^{-1}$ FCNC tqH $H \rightarrow \tau\tau$ $t_h \tau_{\text{had}} \tau_{\text{had}} - 2j \text{ SS}($

SM Higgs

 $Z \rightarrow \tau\tau$ $t\bar{t}$ only τ_{sub} real

—•— data

Diboson

Rare

 $t\bar{t}V$

Fake

— $t\bar{t} \rightarrow bWcH \times 100$

Data/Bkg

1.4

1.2

0.8

0.6

-1

-0.8

-0.6

-0.4

-0.2

0

0.2

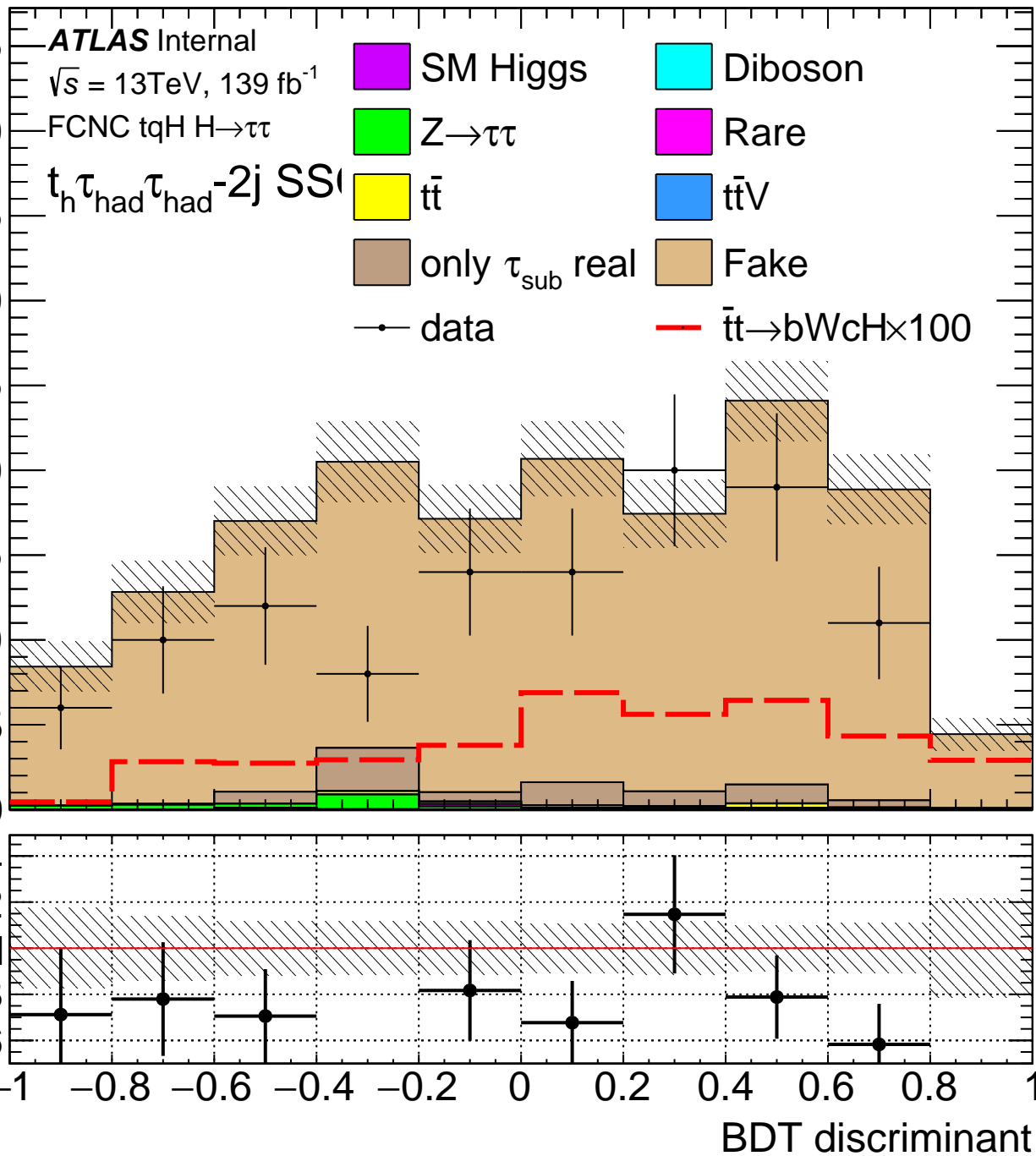
0.4

0.6

0.8

1

BDT discriminant



Events / 0.20

45
40
35
30
25
20
15
10
5
0

ATLAS Internal
 $\sqrt{s} = 13\text{TeV}, 139\text{ fb}^{-1}$
FCNC tqH $H \rightarrow \tau\tau$
 $t_h \tau_{\text{had}} \tau_{\text{had}} - 2j \text{ SS}($

SM Higgs

 $Z \rightarrow \tau\tau$ $t\bar{t}$ only τ_{sub} real

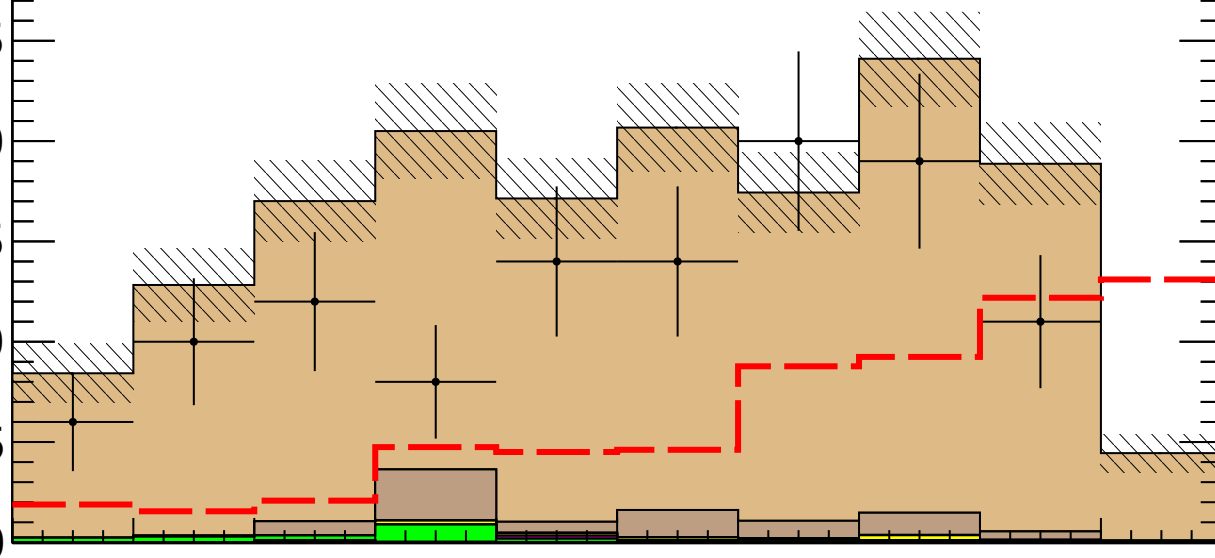
data

Diboson

Rare

 $t\bar{t}V$

Fake

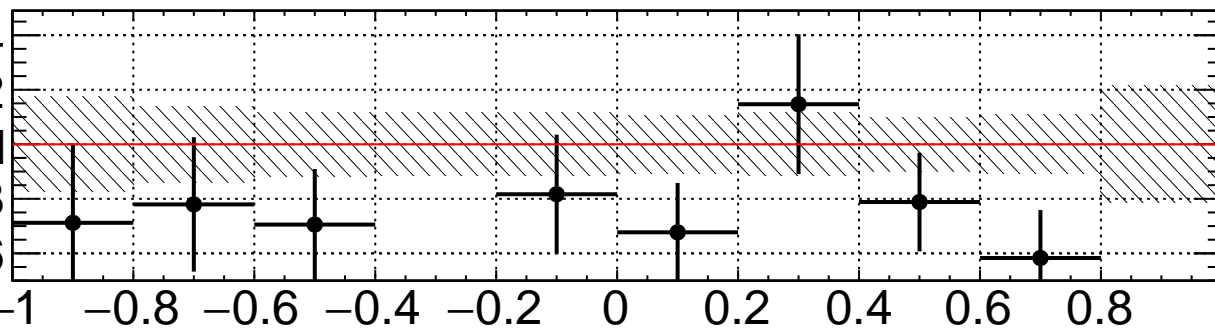
 $cg \rightarrow tH \times 3000$ 

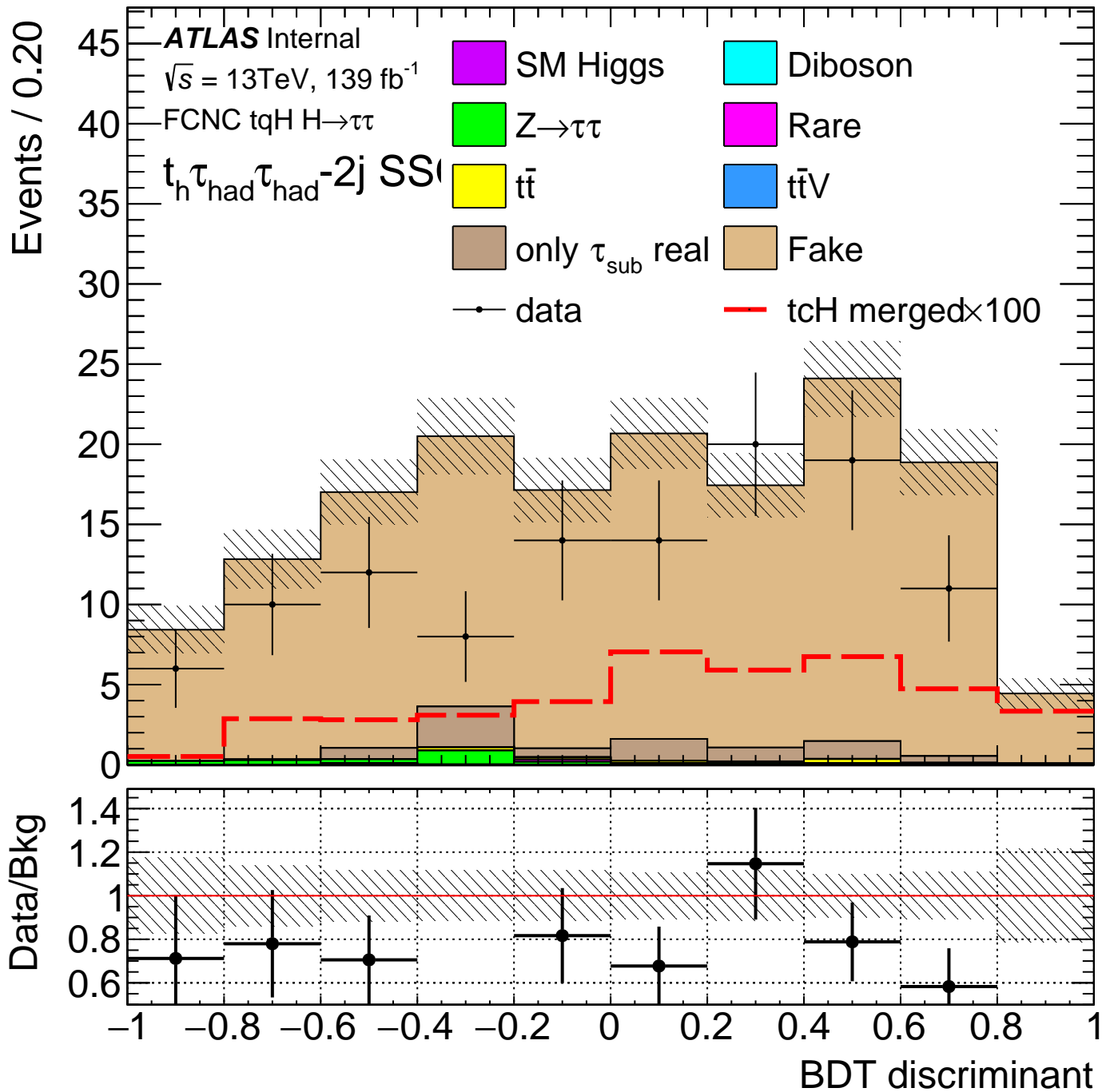
Data/Bkg

1.4
1.2
1.0
0.8
0.6

-1 -0.8 -0.6 -0.4 -0.2 0 0.2 0.4 0.6 0.8 1

BDT discriminant





Events / 0.20

ATLAS Internal $\sqrt{s} = 13\text{TeV}, 139\text{ fb}^{-1}$ FCNC tqH $H \rightarrow \tau\tau$ $t_h \tau_{\text{had}} \tau_{\text{had}} - 2j \text{ SS}($

SM Higgs

 $Z \rightarrow \tau\tau$ $t\bar{t}$ only τ_{sub} real

data

Diboson

Rare

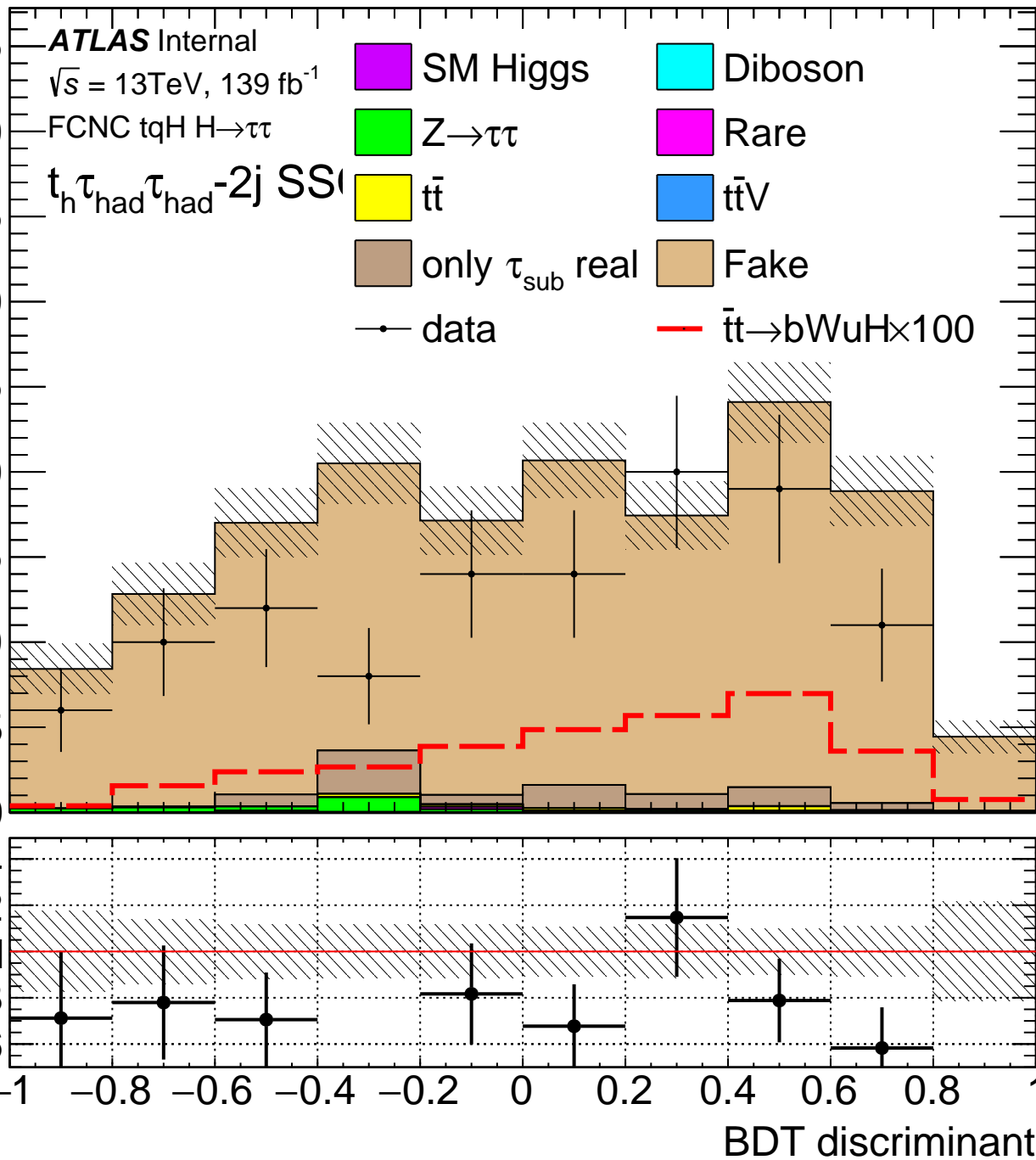
 $t\bar{t}V$

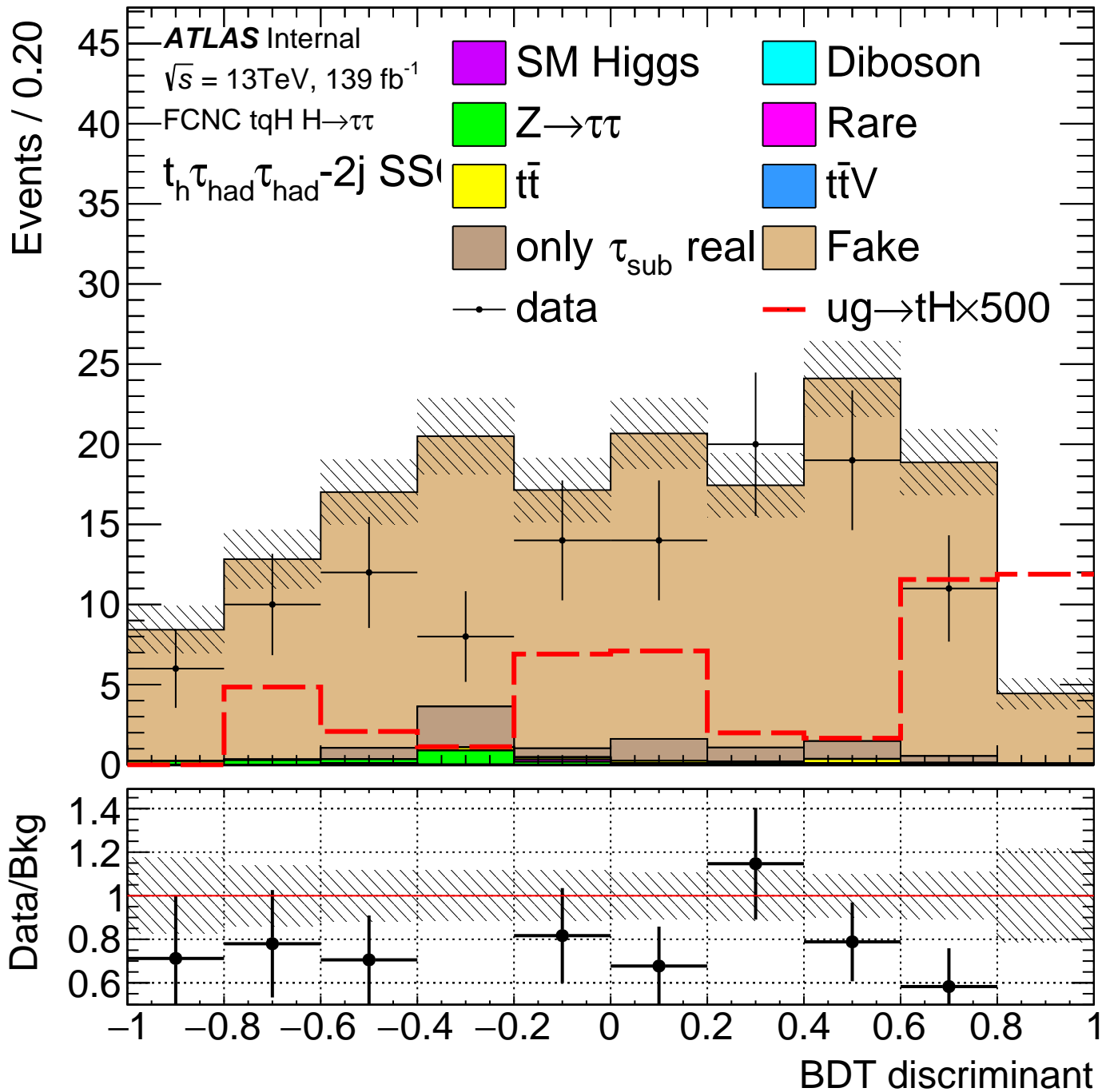
Fake

 $t\bar{t} \rightarrow bWuH \times 100$

Data/Bkg

BDT discriminant





Events / 0.20

ATLAS Internal $\sqrt{s} = 13\text{TeV}, 139\text{ fb}^{-1}$ FCNC tqH $H \rightarrow \tau\tau$ $t_h \tau_{\text{had}} \tau_{\text{had}} - 2j \text{ SS}($

SM Higgs

 $Z \rightarrow \tau\tau$ $t\bar{t}$ only τ_{sub} real

data

Diboson

Rare

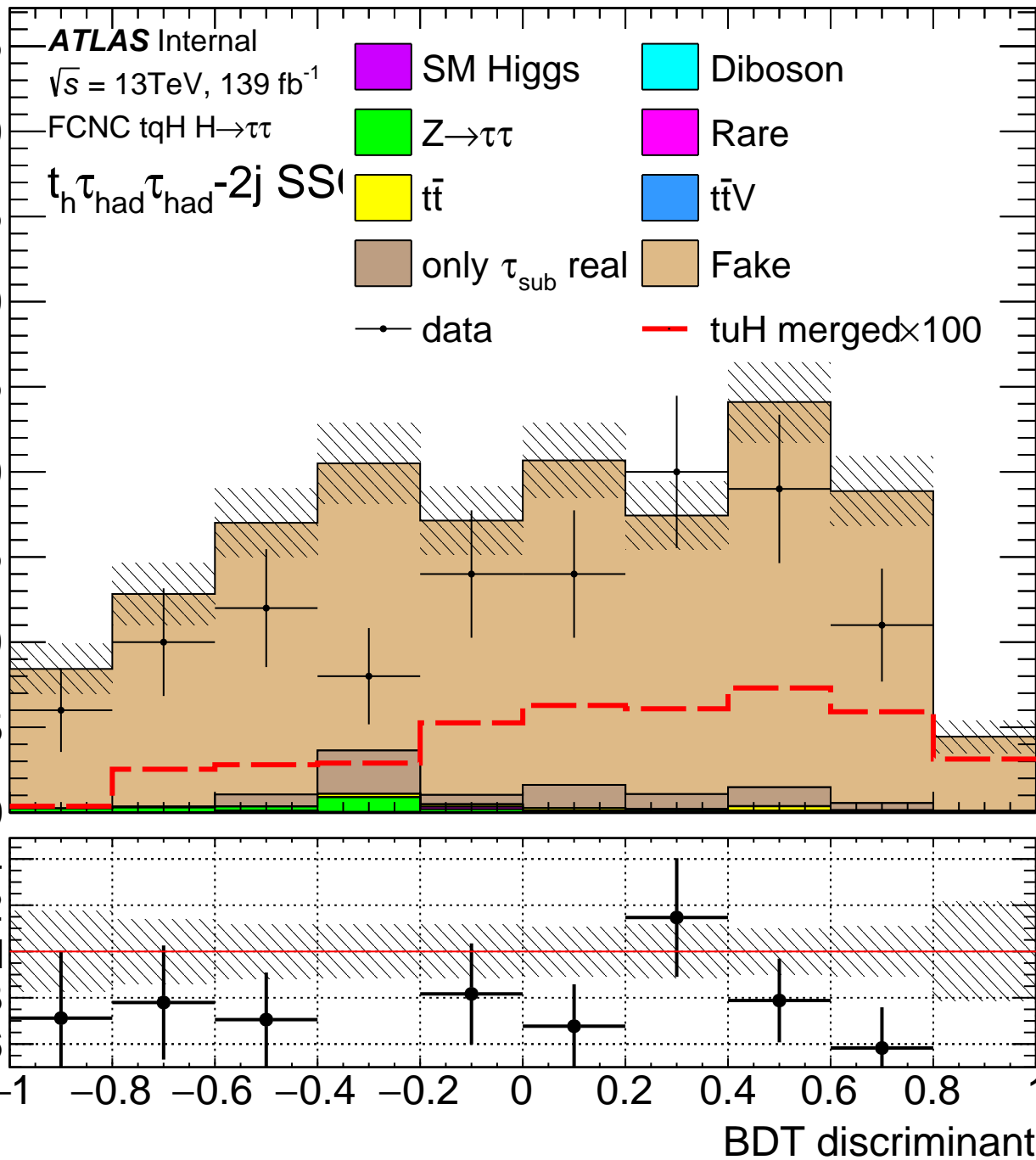
 $t\bar{t}V$

Fake

tuH merged $\times 100$

Data/Bkg

BDT discriminant



Events / 0.20

ATLAS Internal $\sqrt{s} = 13\text{TeV}, 139\text{ fb}^{-1}$ FCNC tqH $H \rightarrow \tau\tau$ $t_h \tau_{\text{had}} \tau_{\text{had}} - 2j \text{ SS}($

SM Higgs

 $Z \rightarrow \tau\tau$ $t\bar{t}$ only τ_{sub} real

data

 $cg \rightarrow tH \times 3000$ $ug \rightarrow tH \times 500$

Diboson

Rare

 $t\bar{t}V$

Fake

 $t\bar{t} \rightarrow bWcH \times 100$ $t\bar{t} \rightarrow bWuH \times 100$

Data/Bkg

BDT discriminant

