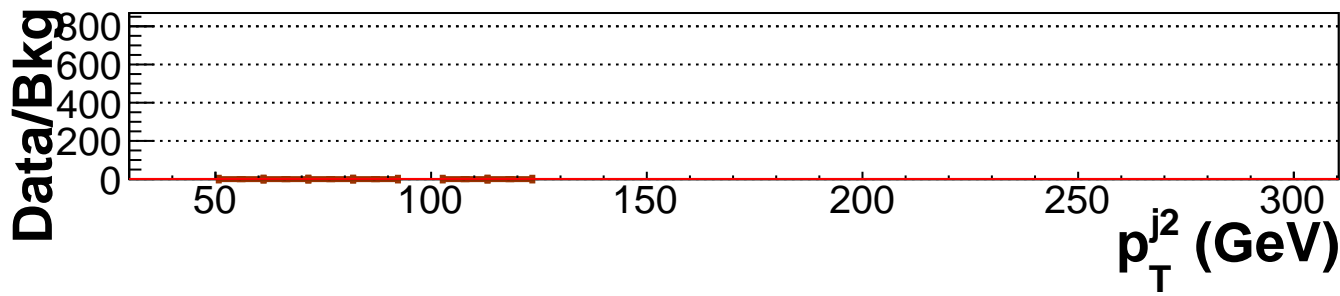


19.2 fb⁻¹ (8 TeV)

CMS

preliminary

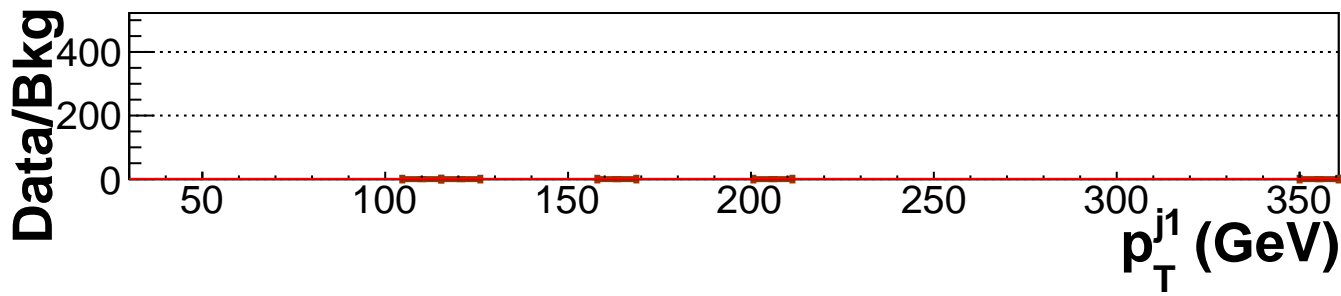
— $W \rightarrow \tau \nu$
— Run 1 $W \rightarrow \tau \nu$



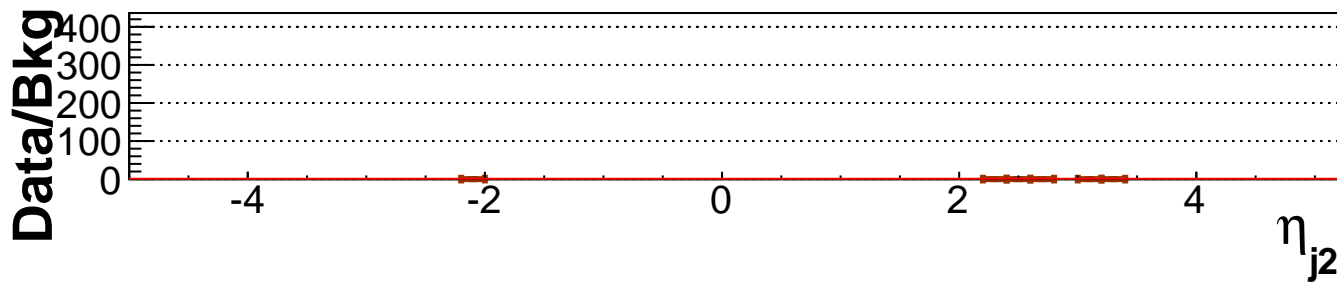
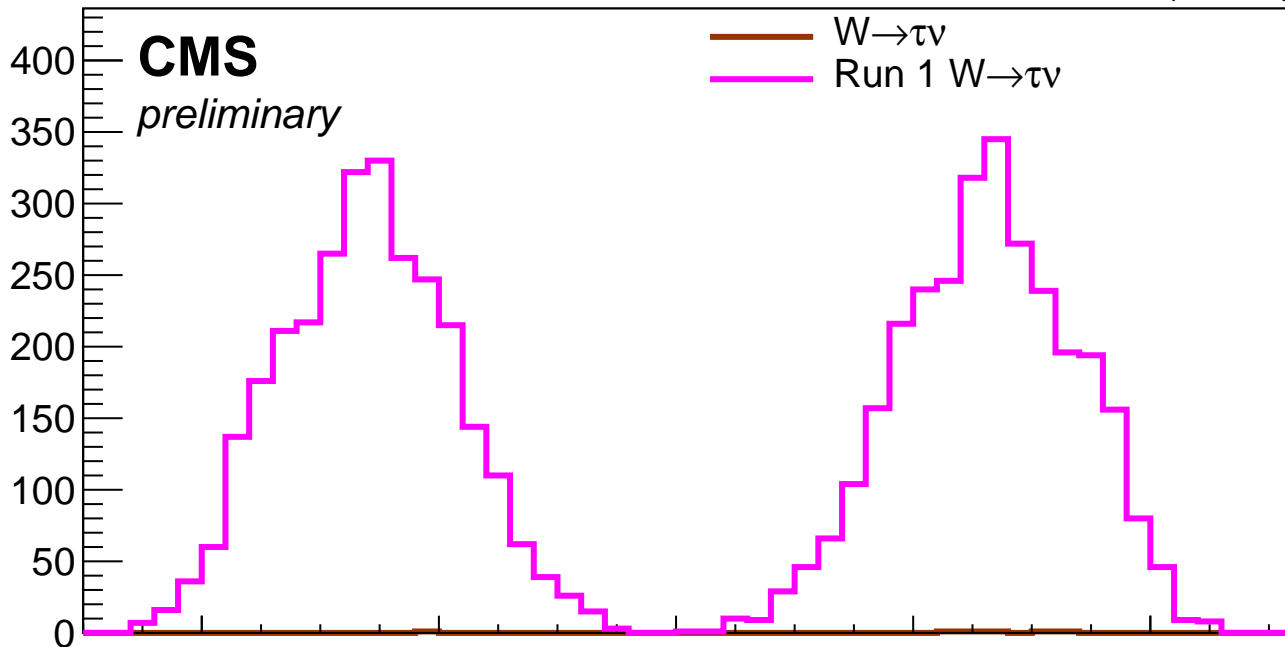
19.2 fb⁻¹ (8 TeV)

CMS
preliminary

— $W \rightarrow \tau \nu$
— Run 1 $W \rightarrow \tau \nu$



19.2 fb⁻¹ (8 TeV)

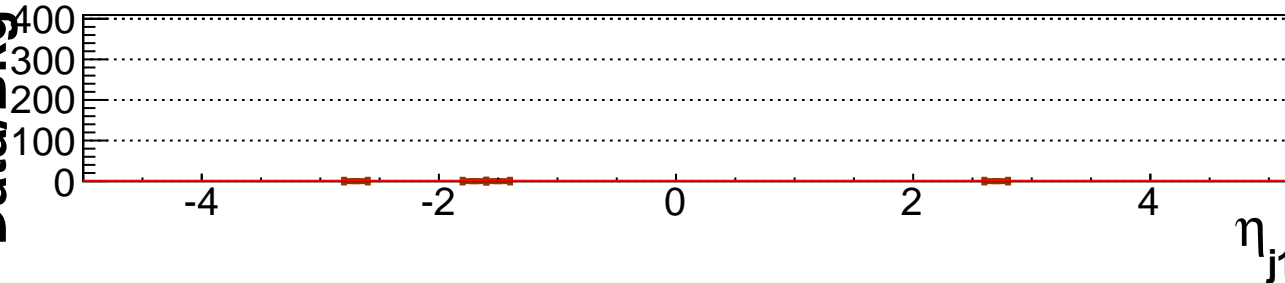
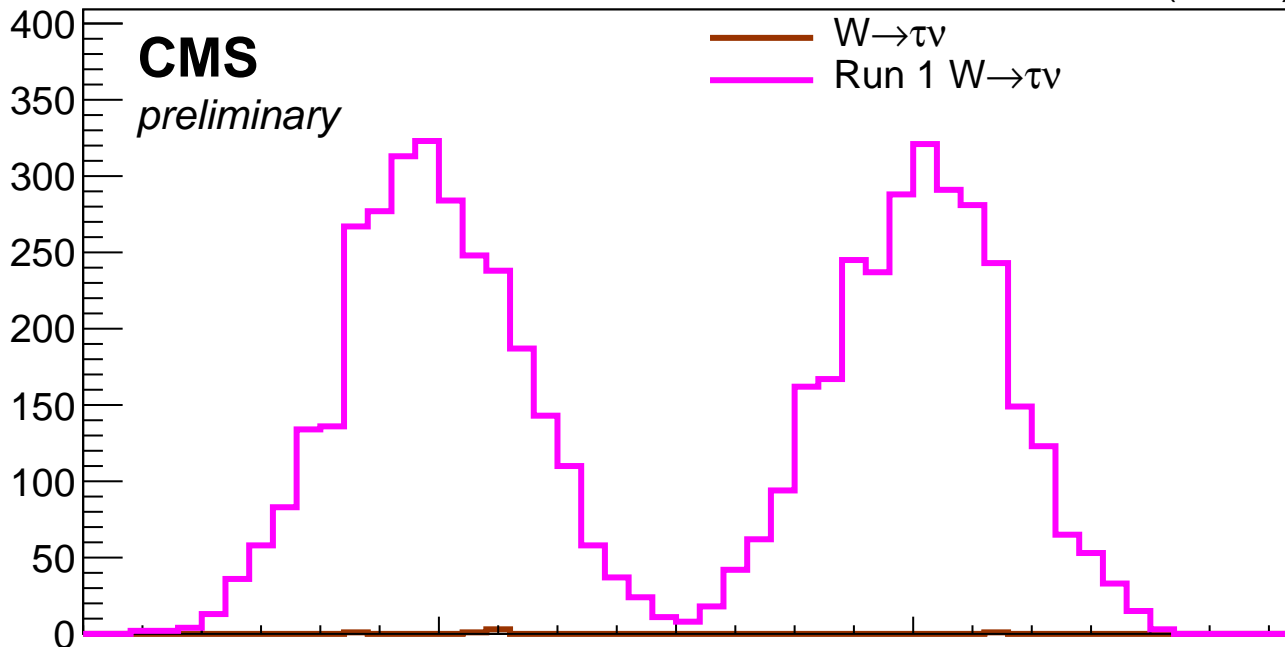


19.2 fb⁻¹ (8 TeV)

CMS
preliminary

— $W \rightarrow \tau \nu$
— Run 1 $W \rightarrow \tau \nu$

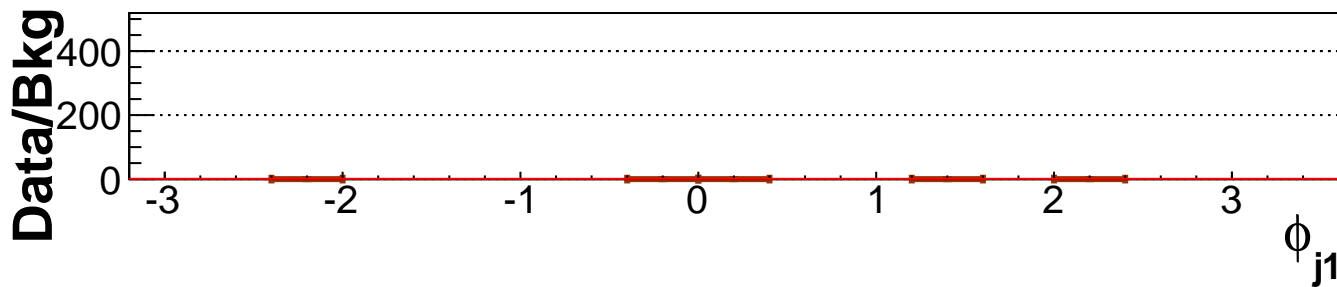
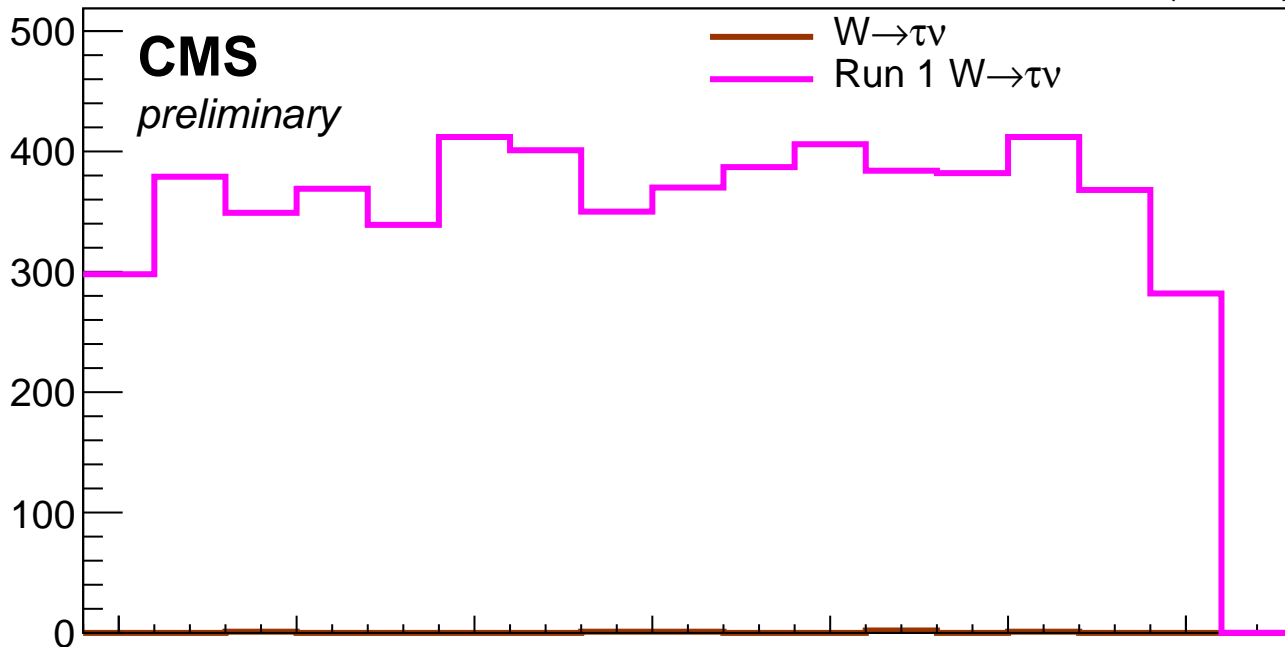
Data/Bkg



19.2 fb⁻¹ (8 TeV)

CMS
preliminary

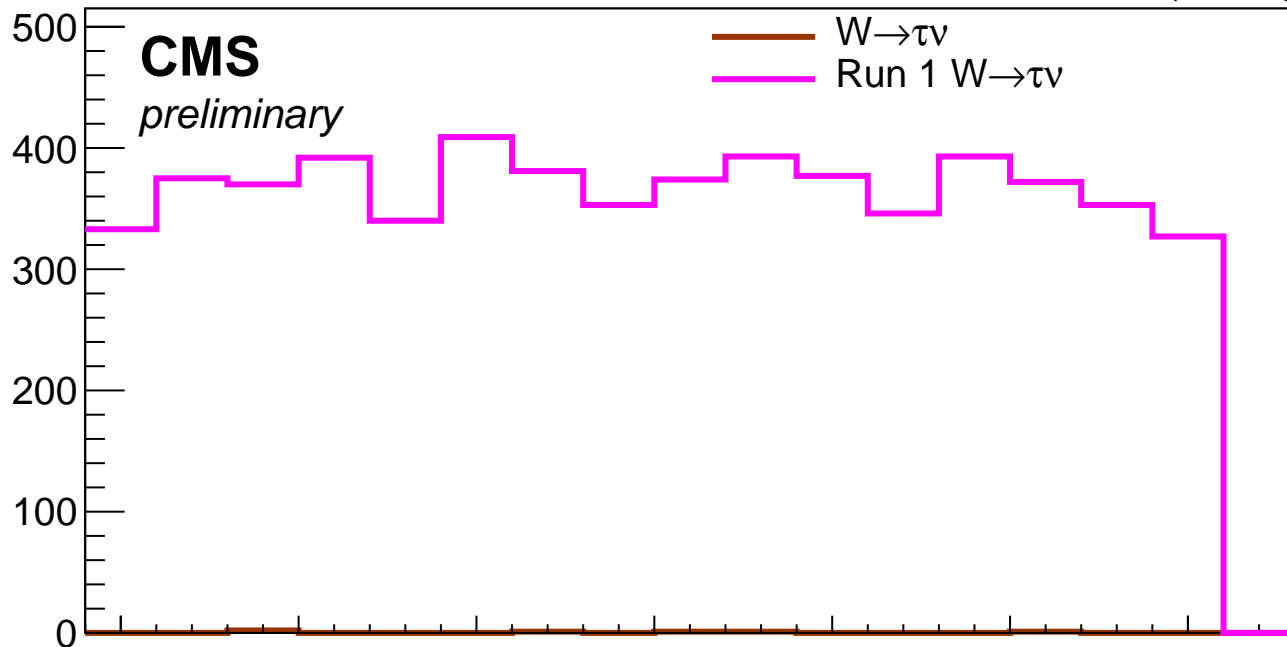
— $W \rightarrow \tau \nu$
— Run 1 $W \rightarrow \tau \nu$



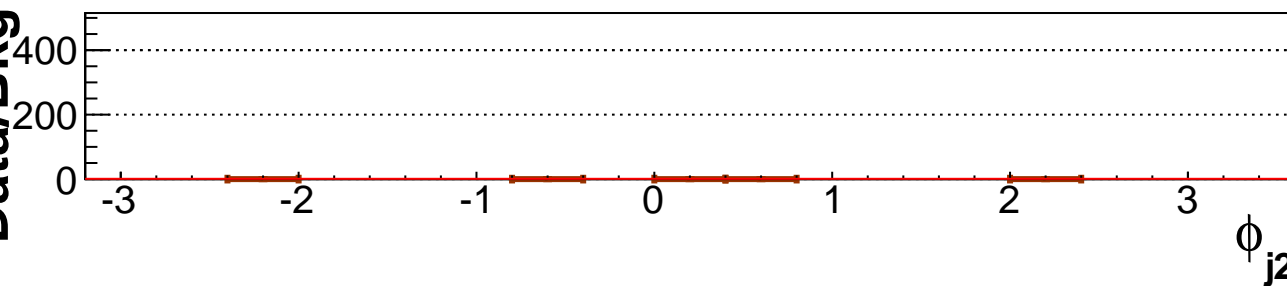
19.2 fb⁻¹ (8 TeV)

CMS
preliminary

— $W \rightarrow \tau \nu$
— Run 1 $W \rightarrow \tau \nu$



Data/Bkg

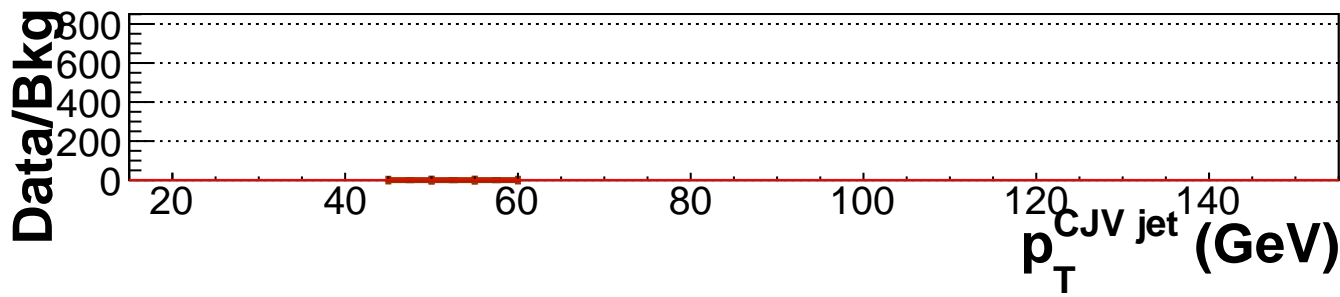


19.2 fb⁻¹ (8 TeV)

CMS

preliminary

— $W \rightarrow \tau \nu$
— Run 1 $W \rightarrow \tau \nu$



19.2 fb⁻¹ (8 TeV)

CMS

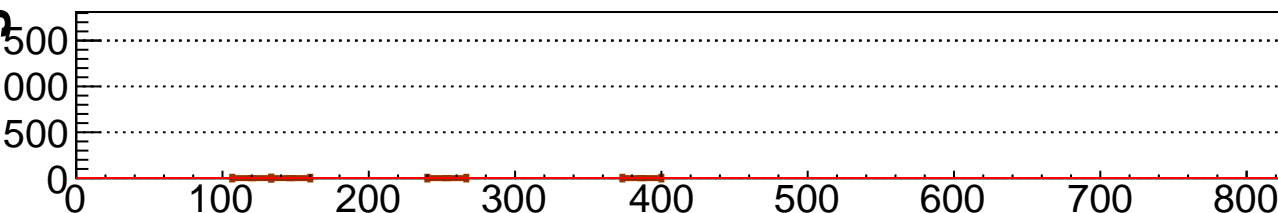
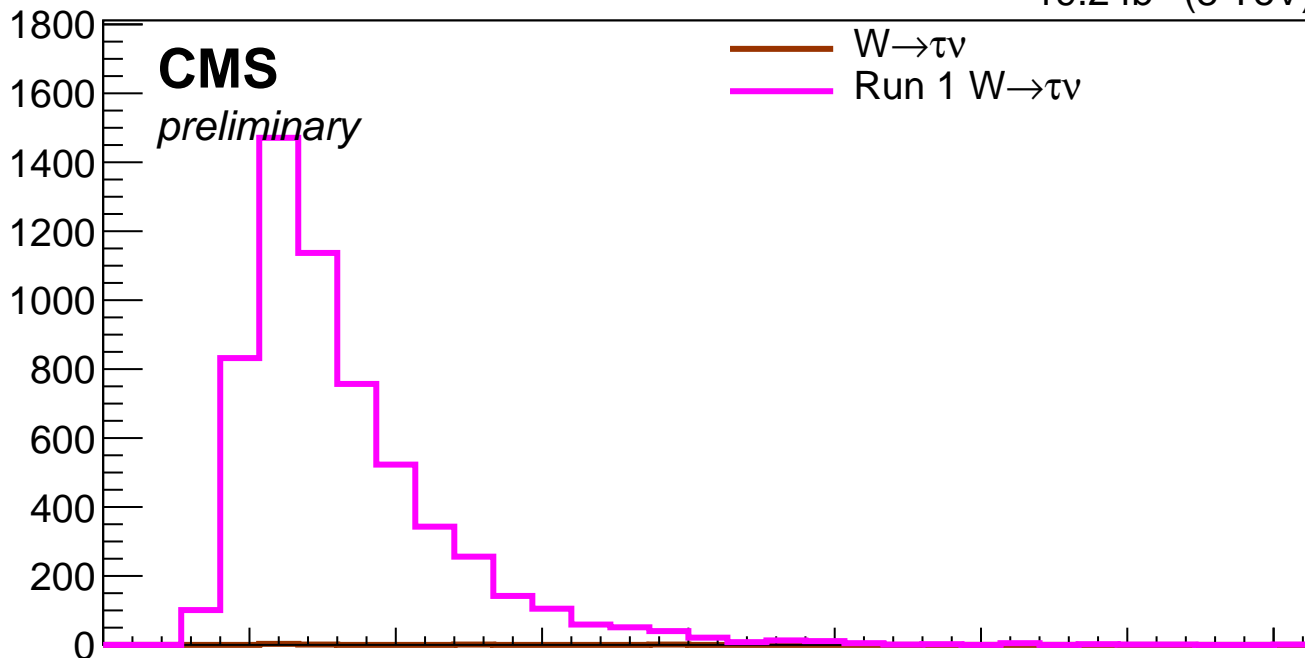
preliminary

— $W \rightarrow \tau \nu$

— Run 1 $W \rightarrow \tau \nu$

Data/Bkg

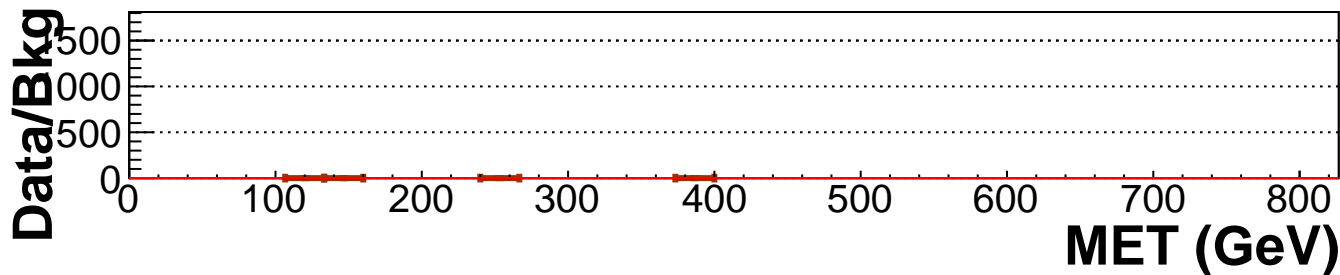
Missing transverse energy (GeV)



19.2 fb⁻¹ (8 TeV)

CMS
preliminary

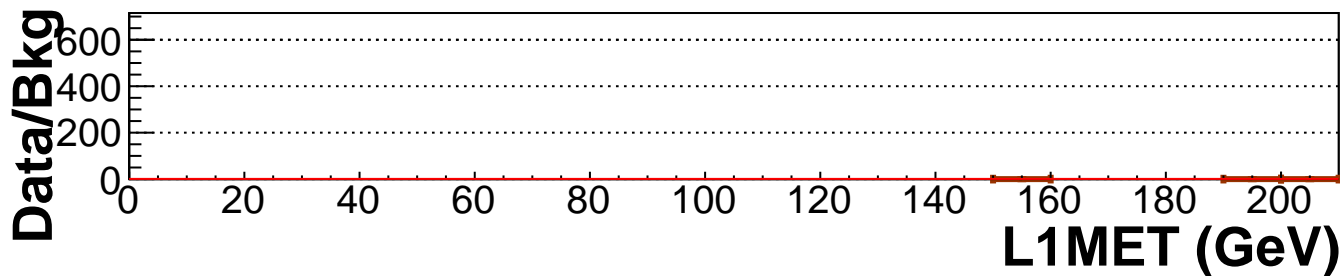
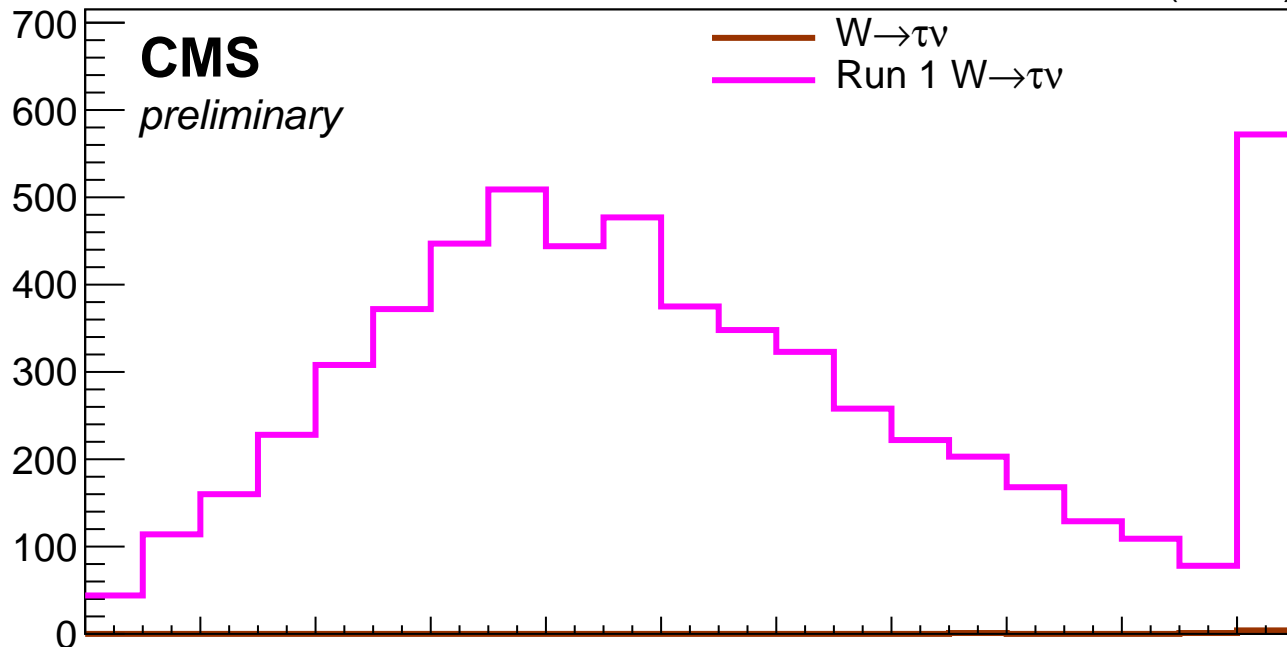
— $W \rightarrow \tau \nu$
— Run 1 $W \rightarrow \tau \nu$



19.2 fb⁻¹ (8 TeV)

CMS
preliminary

— $W \rightarrow \tau \nu$
— Run 1 $W \rightarrow \tau \nu$



19.2 fb⁻¹ (8 TeV)

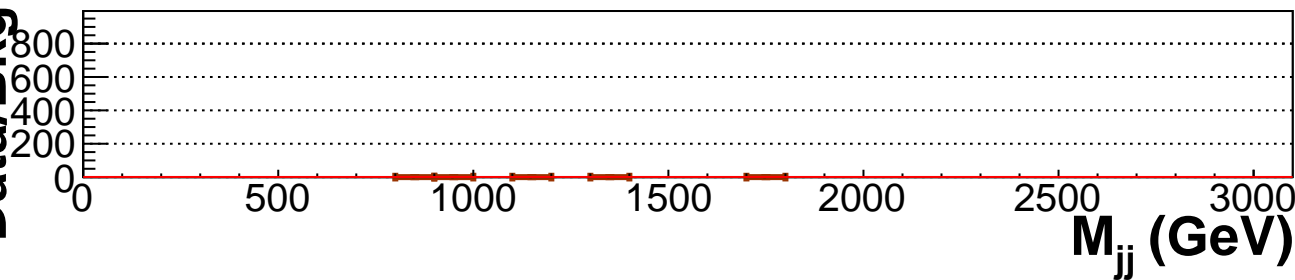
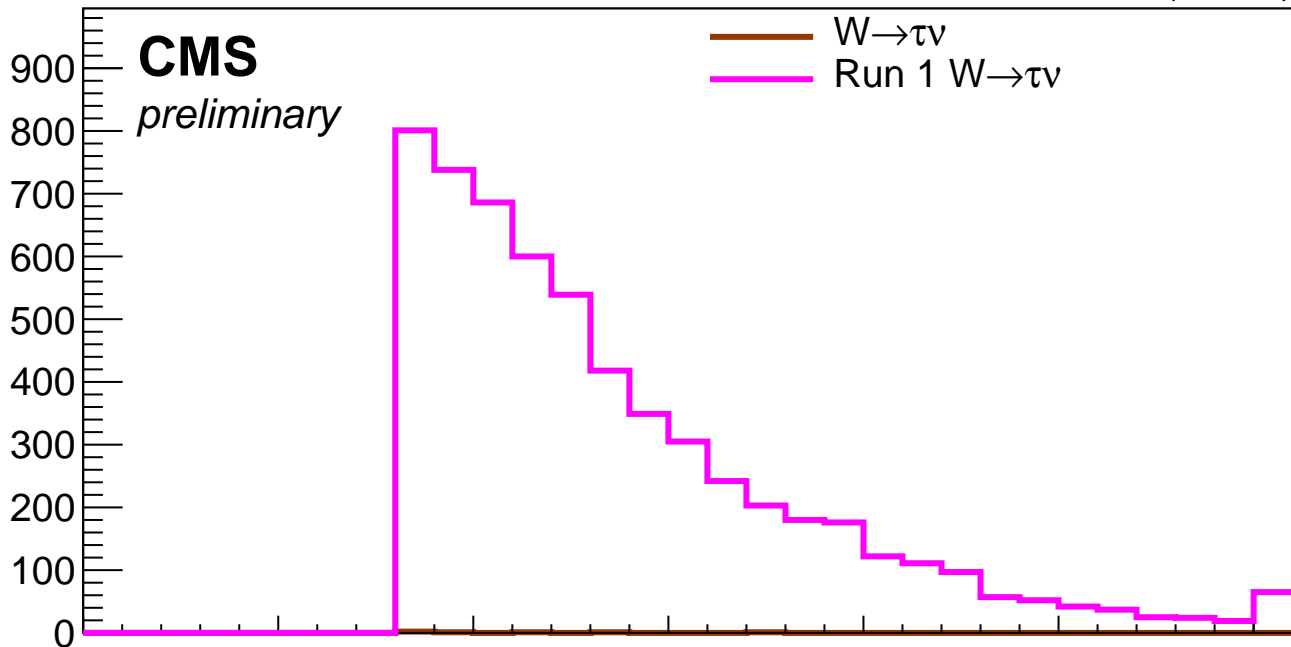
CMS

preliminary

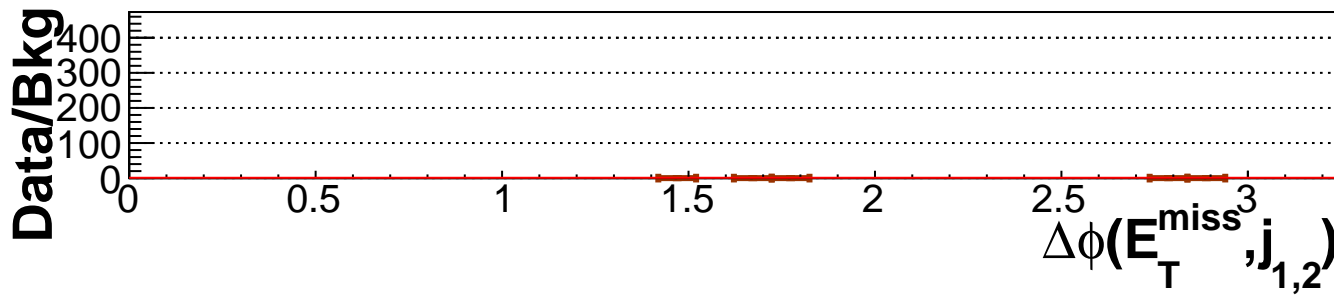
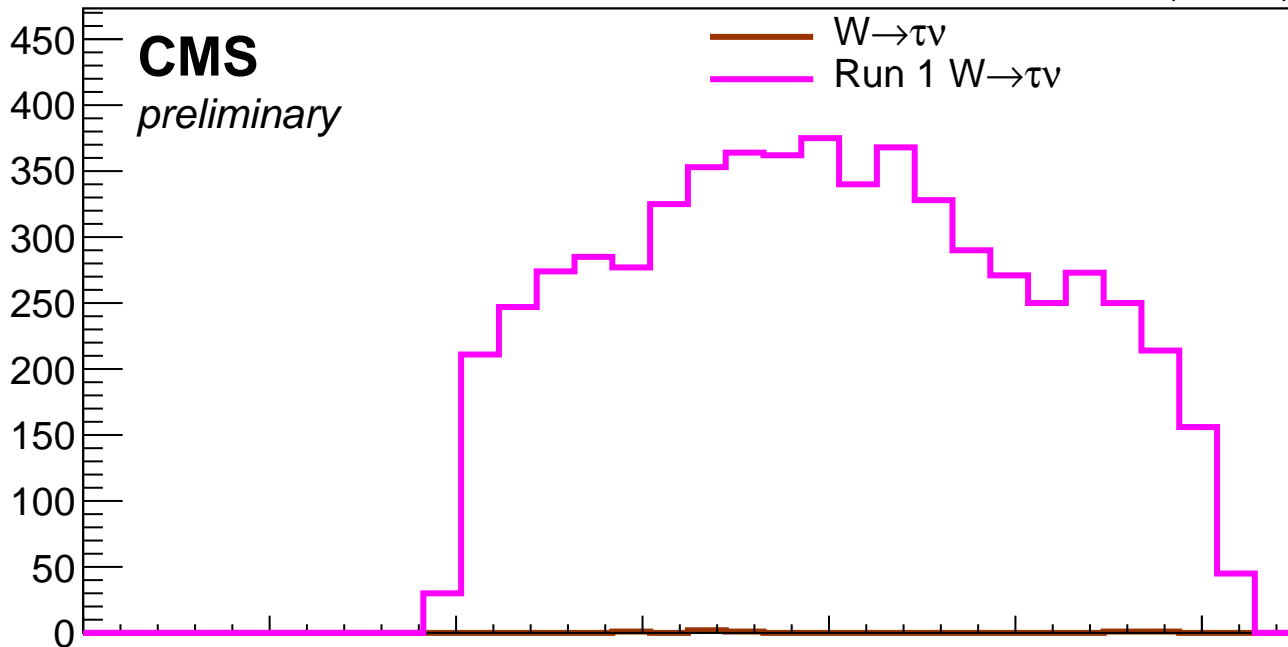
— $W \rightarrow \tau \nu$

— Run 1 $W \rightarrow \tau \nu$

Data/Bkg



19.2 fb⁻¹ (8 TeV)



19.2 fb⁻¹ (8 TeV)

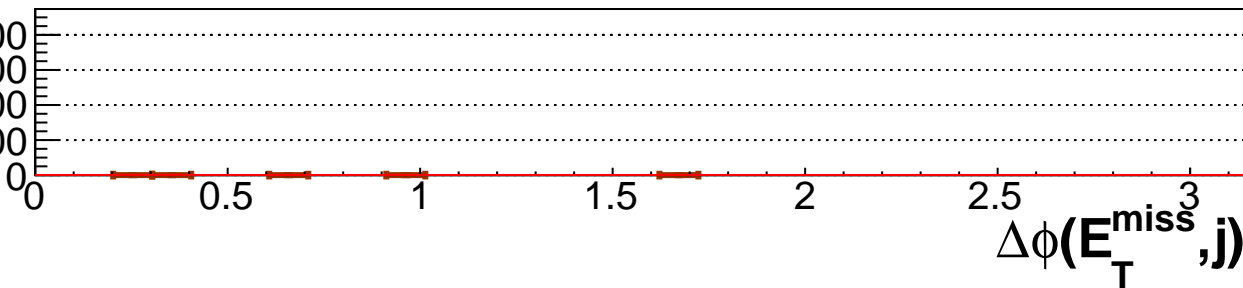
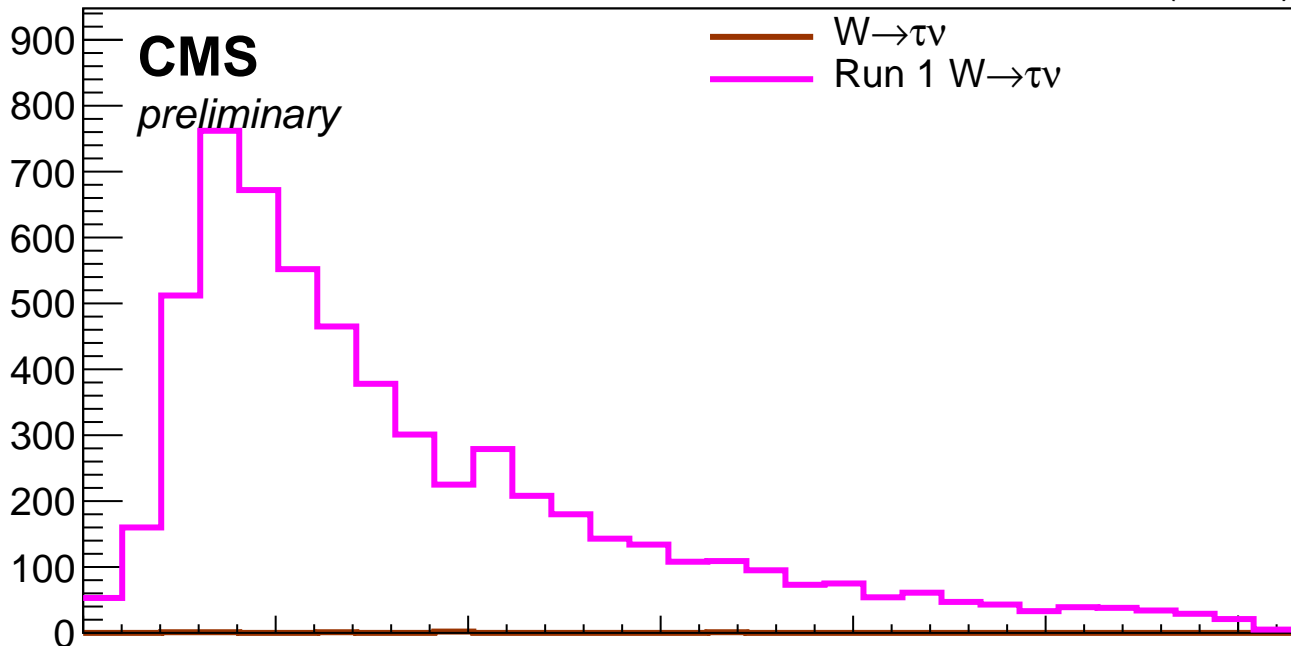
CMS

preliminary

— $W \rightarrow \tau \nu$
— Run 1 $W \rightarrow \tau \nu$

Data/Bkg

$\Delta\phi(\mathbf{E}_T^{\text{miss}}, \mathbf{j})$



19.2 fb⁻¹ (8 TeV)

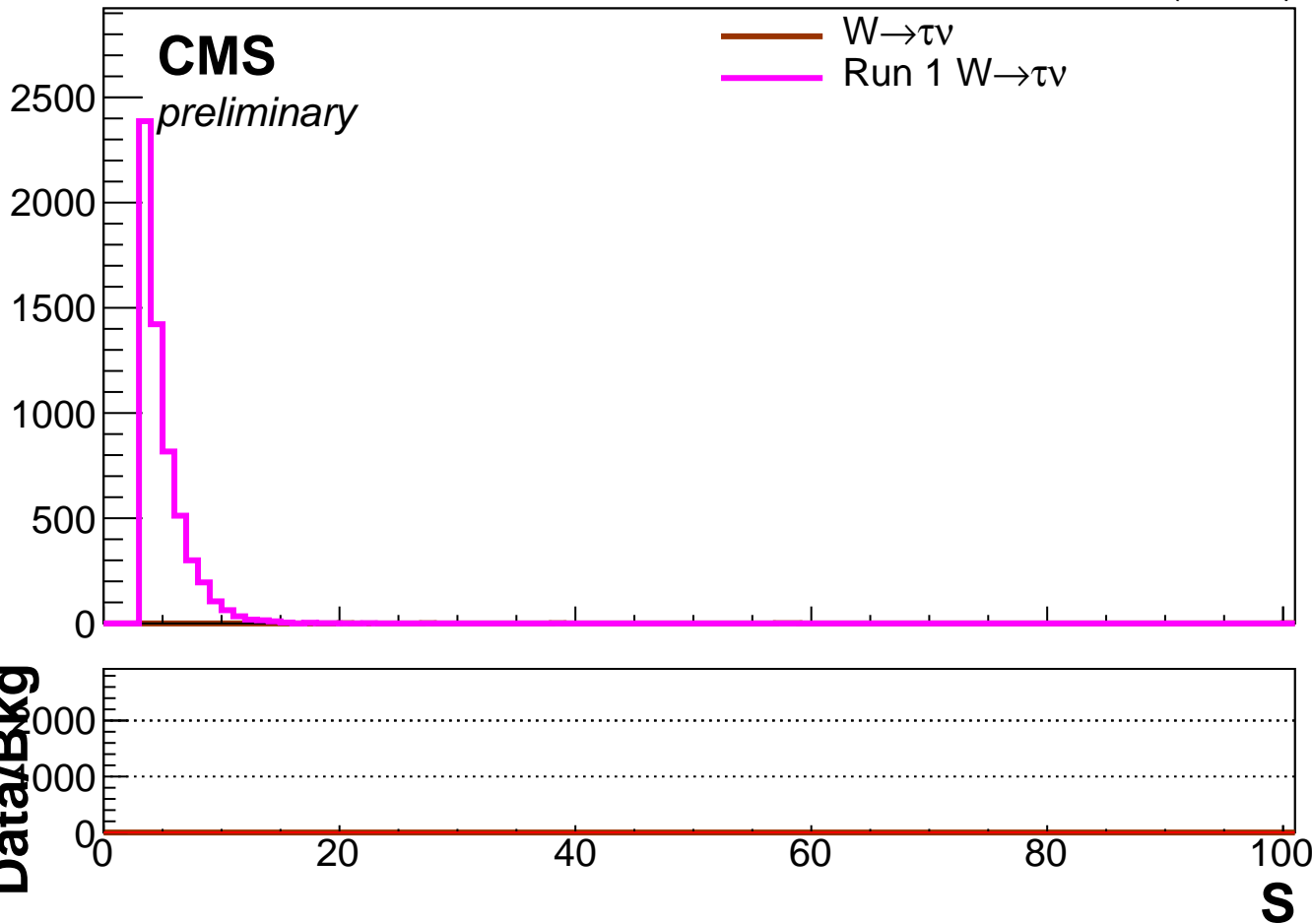
CMS

preliminary

— $W \rightarrow \tau \nu$
— Run 1 $W \rightarrow \tau \nu$

Data/Bkg

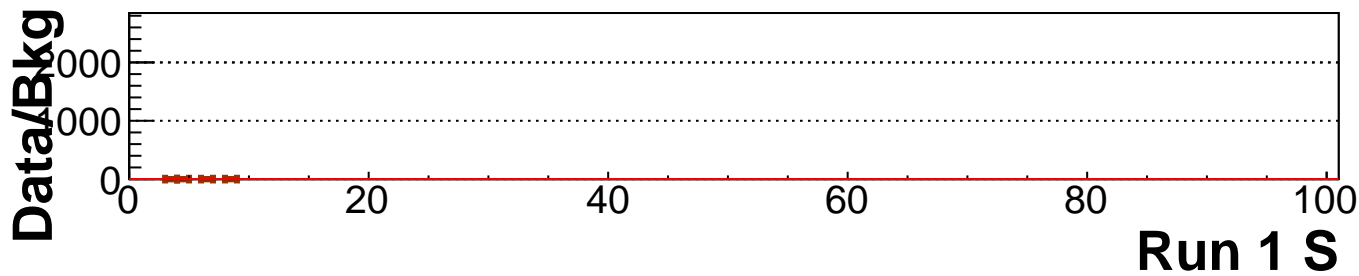
S



19.2 fb⁻¹ (8 TeV)

CMS
preliminary

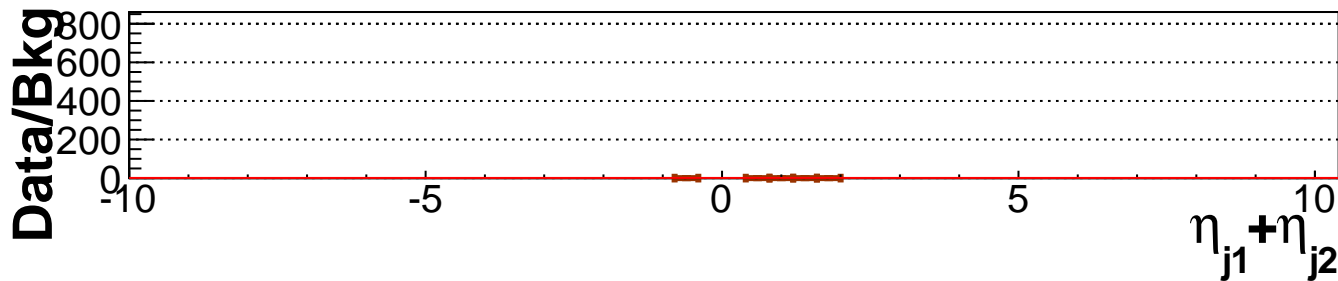
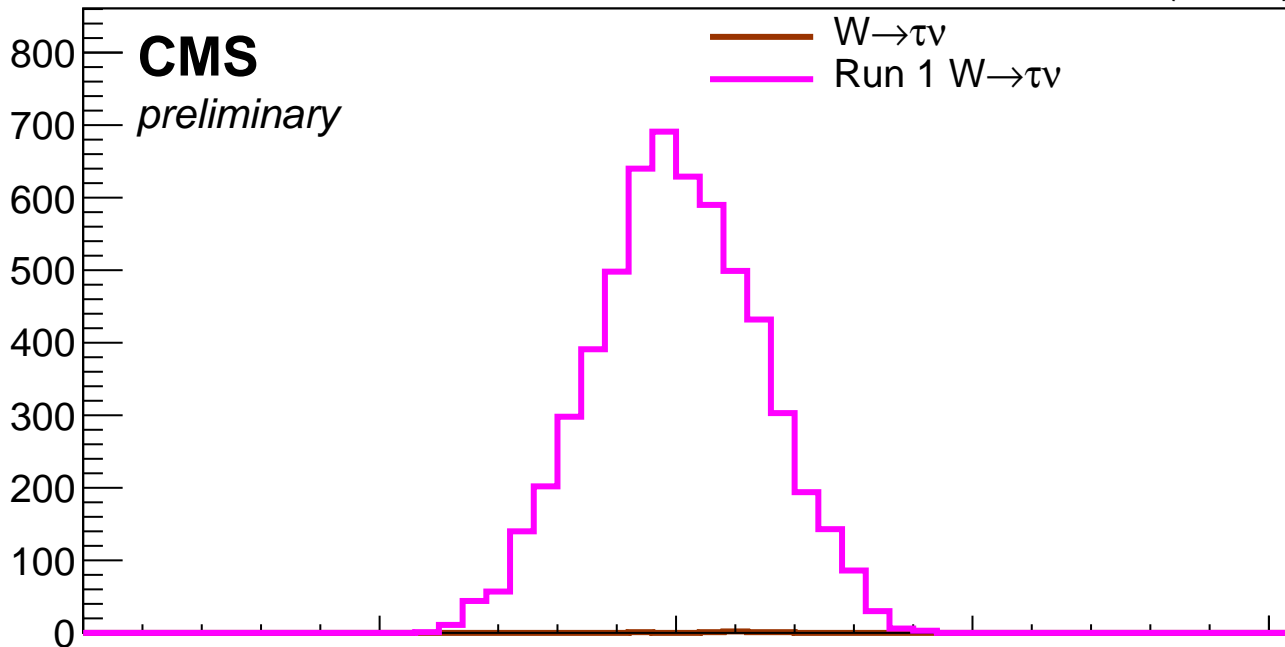
— $W \rightarrow \tau \nu$
— Run 1 $W \rightarrow \tau \nu$



19.2 fb⁻¹ (8 TeV)

CMS
preliminary

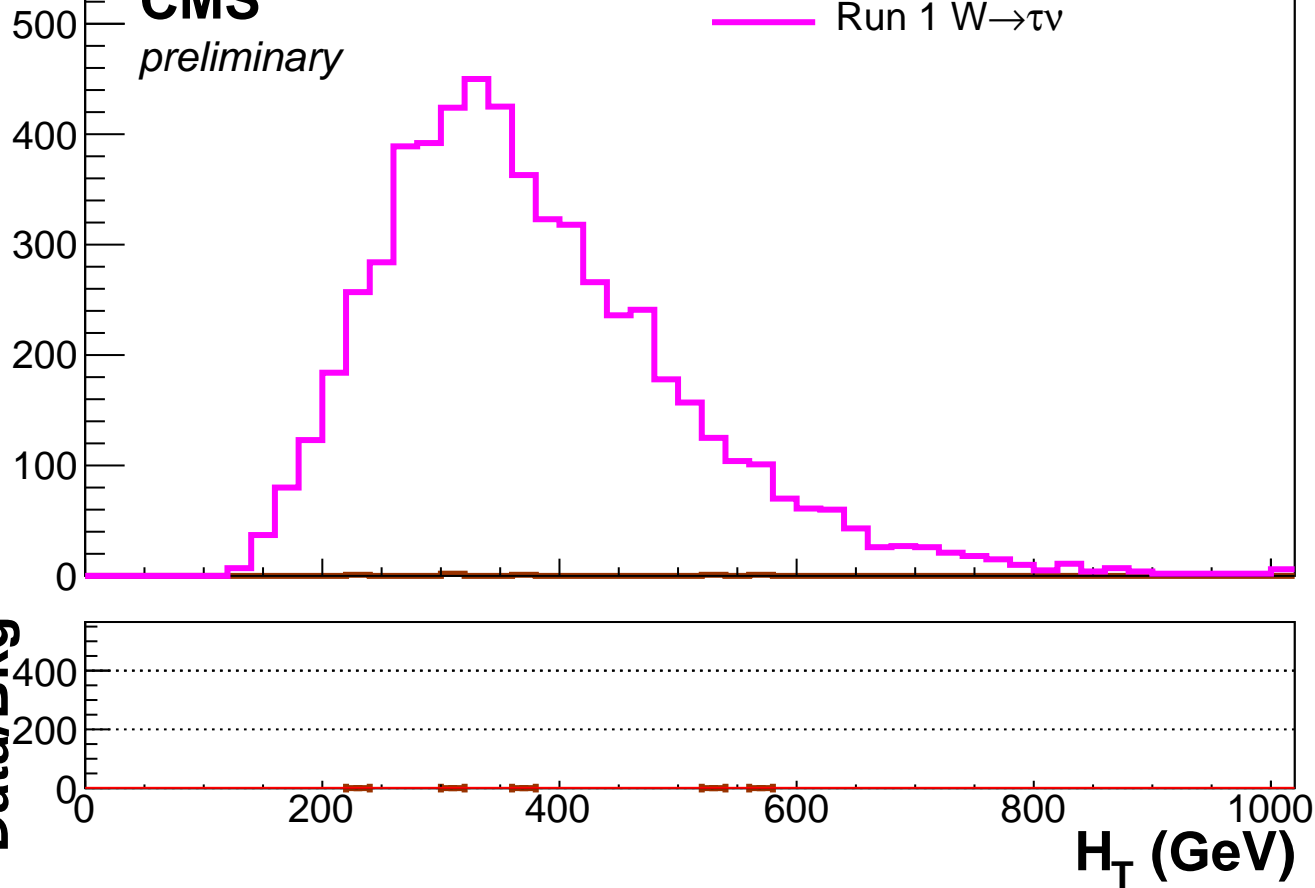
— $W \rightarrow \tau \nu$
— Run 1 $W \rightarrow \tau \nu$



19.2 fb⁻¹ (8 TeV)

CMS
preliminary

— $W \rightarrow \tau \nu$
— Run 1 $W \rightarrow \tau \nu$

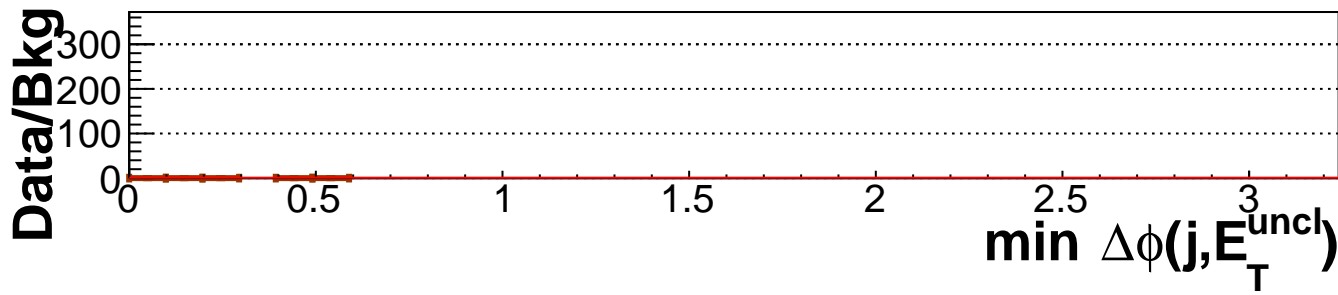


19.2 fb⁻¹ (8 TeV)

CMS

preliminary

— $W \rightarrow \tau \nu$
— Run 1 $W \rightarrow \tau \nu$



19.2 fb⁻¹ (8 TeV)

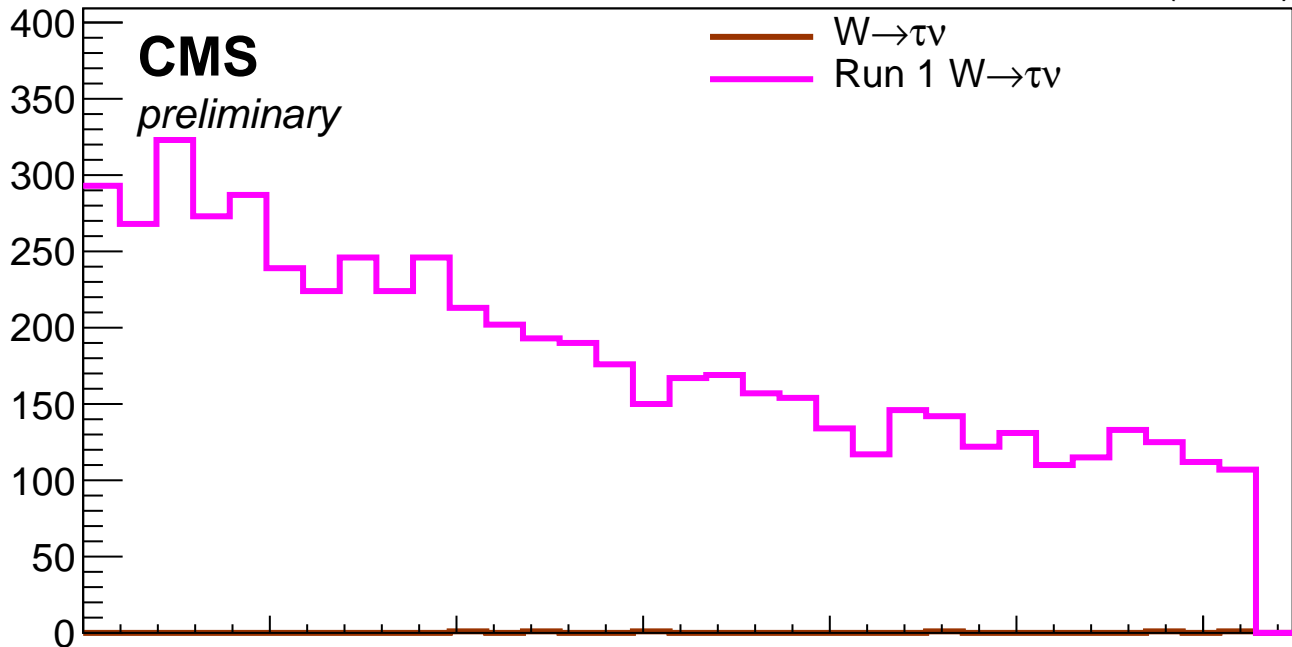
CMS

preliminary

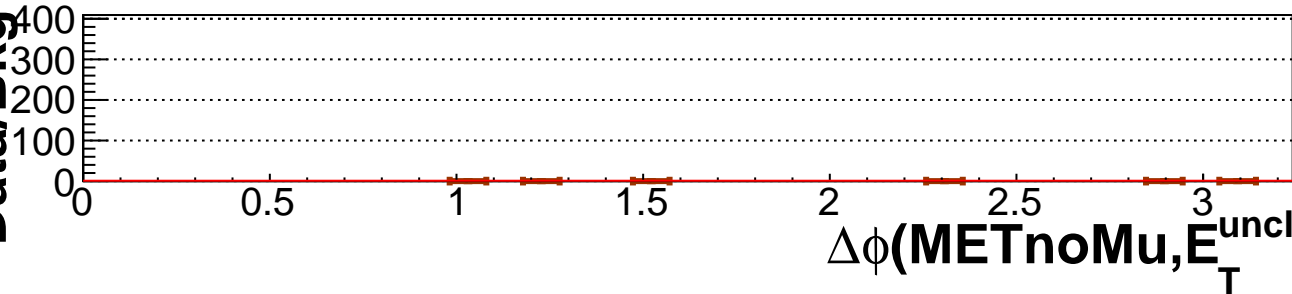
— $W \rightarrow \tau \nu$

— Run 1 $W \rightarrow \tau \nu$

Data/Bkg



$\Delta\phi(\text{MET no Mu}, E_T^{\text{uncl}})$



19.2 fb⁻¹ (8 TeV)

CMS

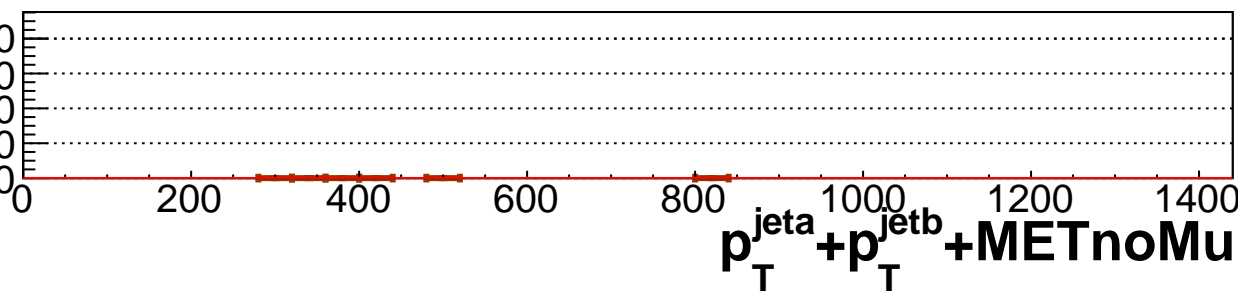
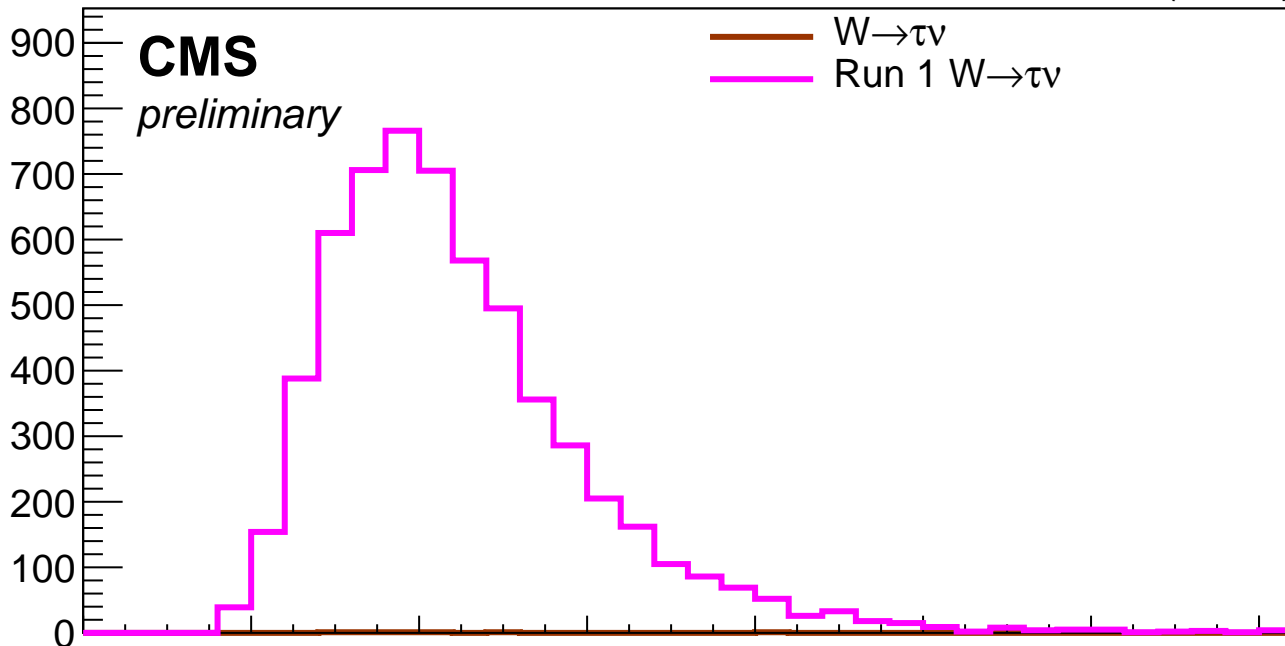
preliminary

W→τν

Run 1 W→τν

Data/Bkg

p_T^{jet a} + p_T^{jet b} + MET_{noMu}

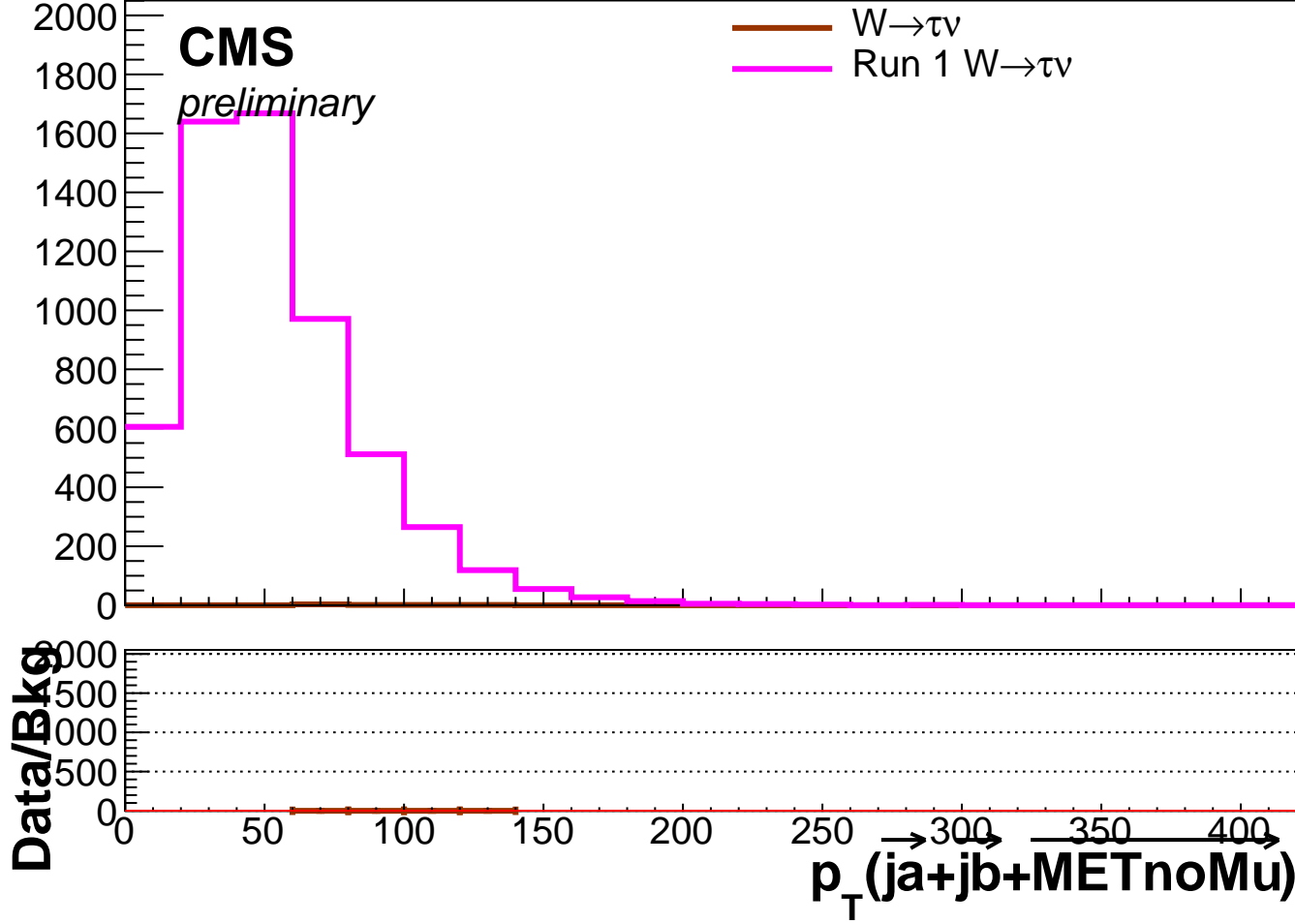


19.2 fb⁻¹ (8 TeV)

CMS

preliminary

— $W \rightarrow \tau \nu$
— Run 1 $W \rightarrow \tau \nu$



19.2 fb⁻¹ (8 TeV)

CMS

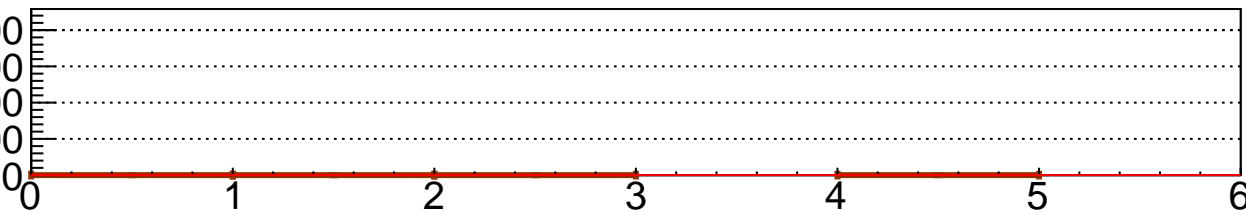
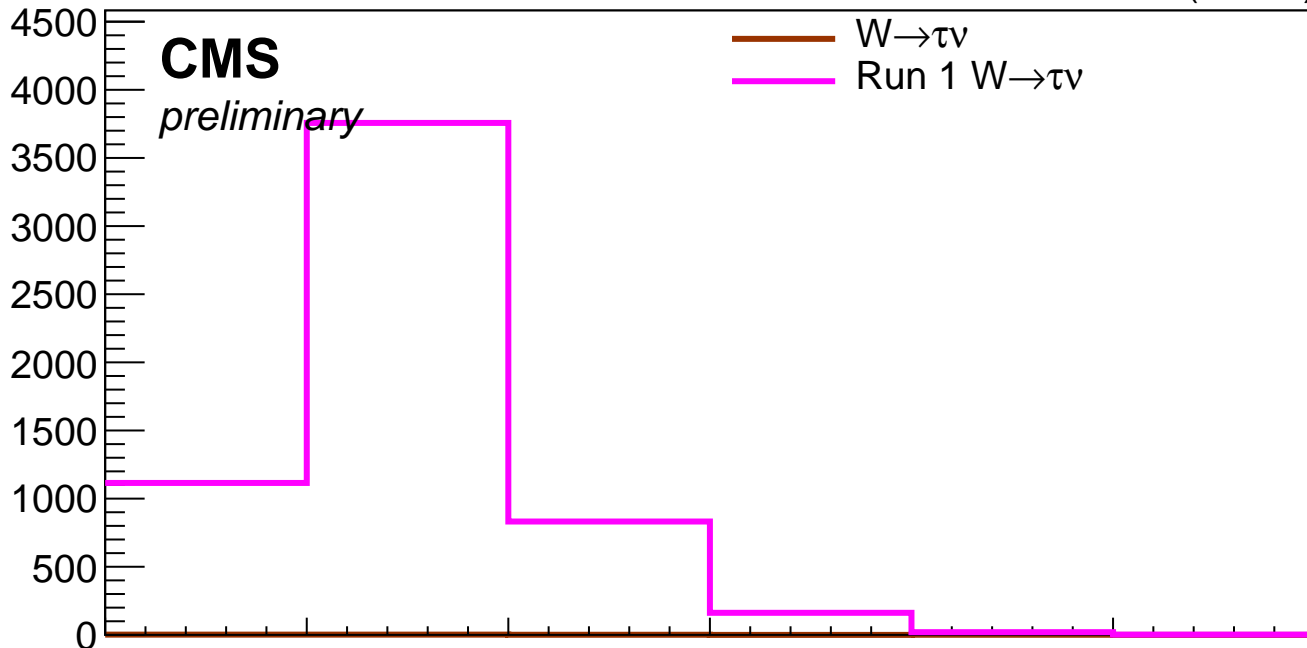
preliminary

W→τν

Run 1 W→τν

Data/Bkg

CJV jets (30 GeV)



19.2 fb⁻¹ (8 TeV)

CMS

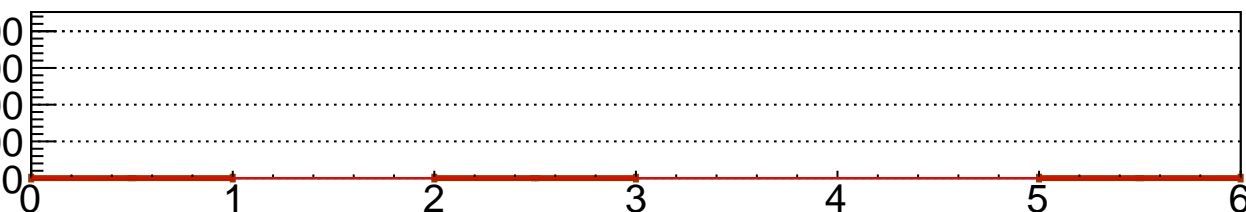
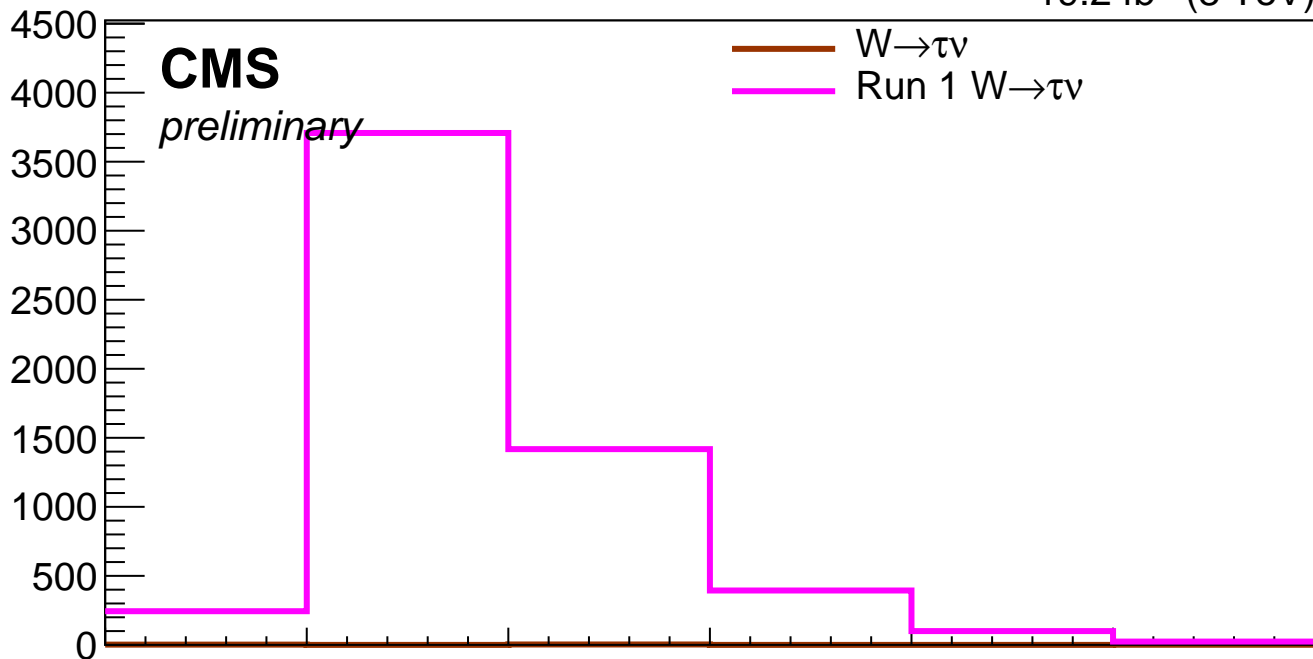
preliminary

W→τν

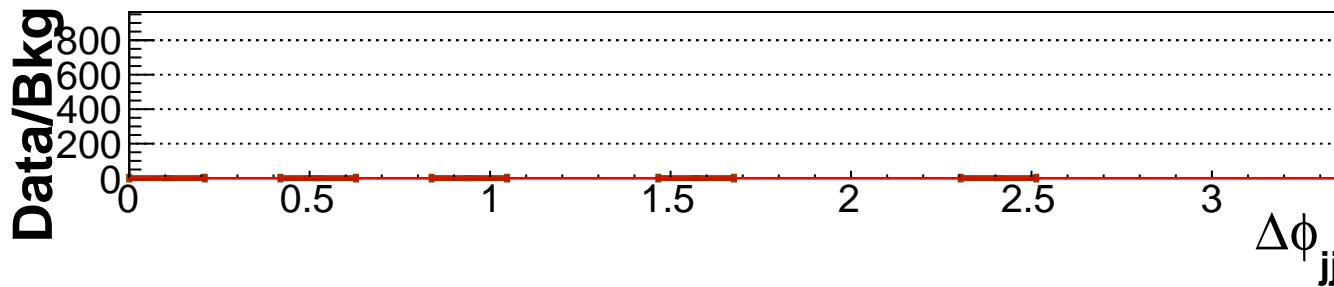
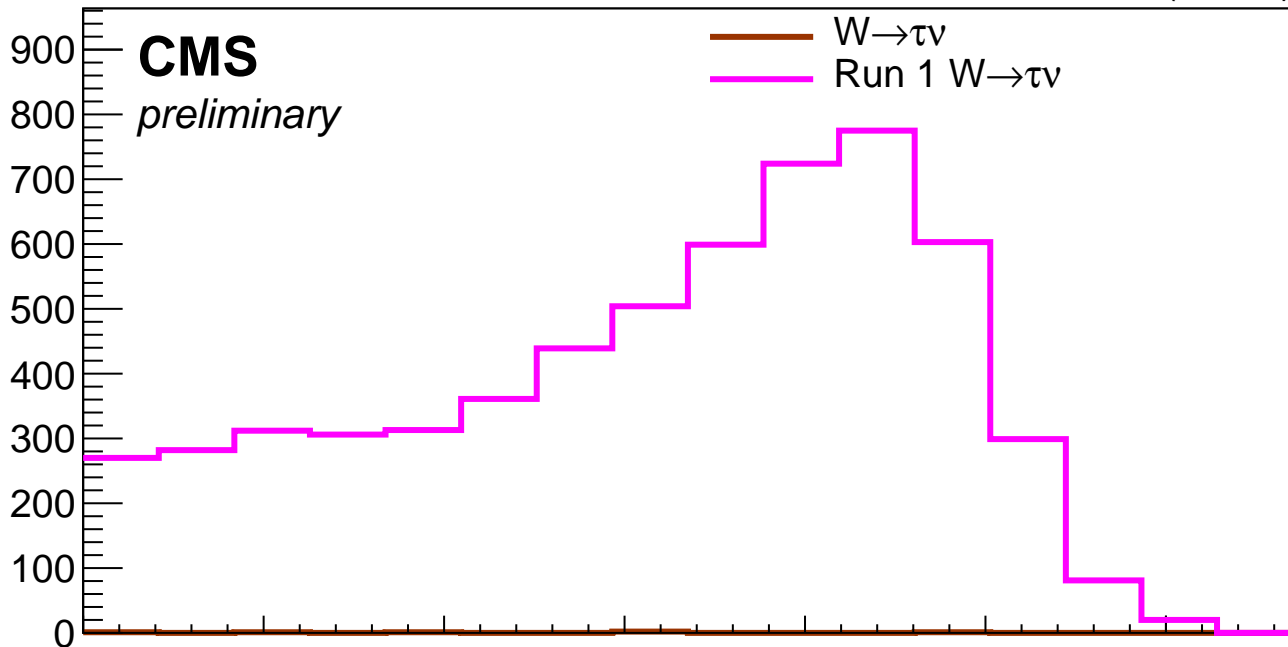
Run 1 W→τν

Data/Bkg

CJV jets (20 GeV EB, 30 GeV EE)



19.2 fb⁻¹ (8 TeV)



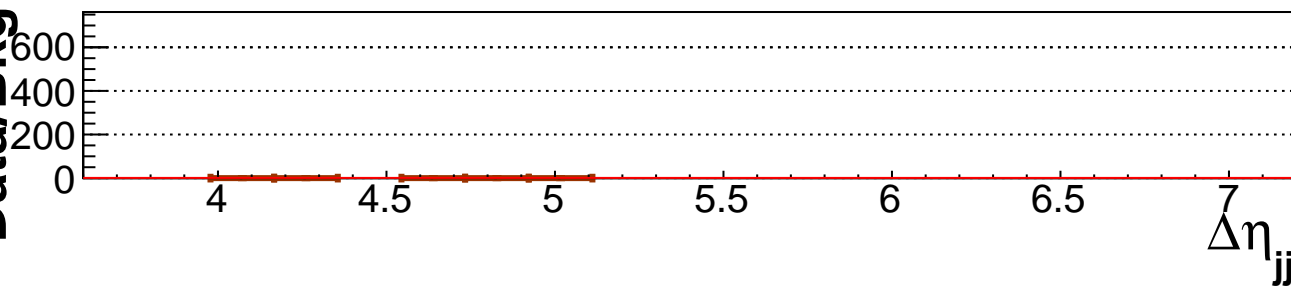
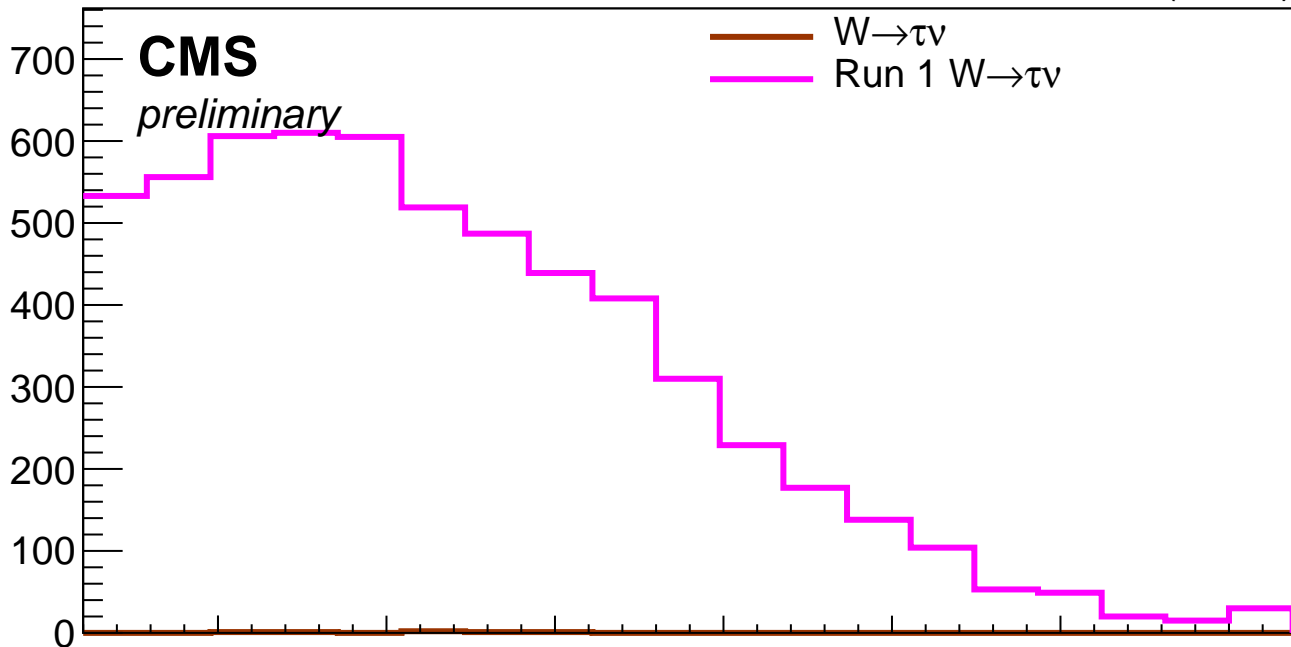
19.2 fb⁻¹ (8 TeV)

CMS

preliminary

— $W \rightarrow \tau \nu$
— Run 1 $W \rightarrow \tau \nu$

Data/Bkg



19.2 fb⁻¹ (8 TeV)

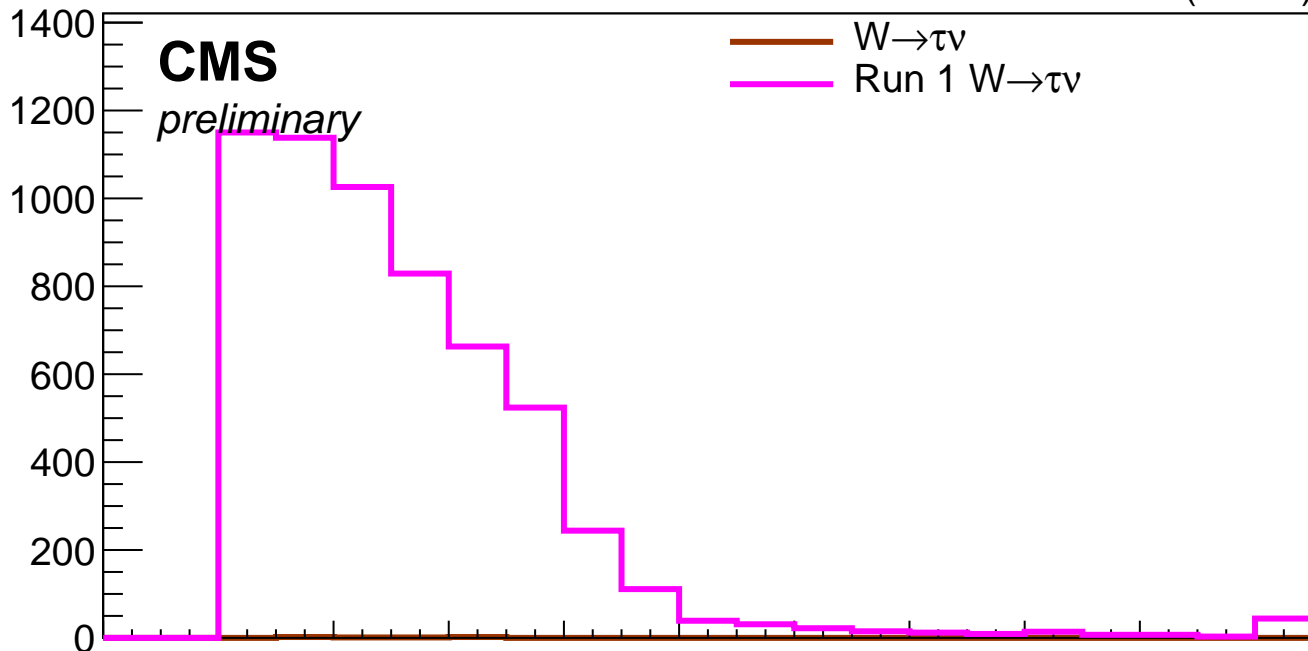
CMS

preliminary

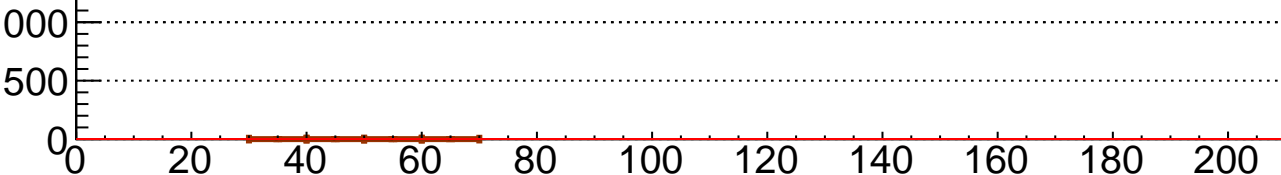
— $W \rightarrow \tau \nu$

— Run 1 $W \rightarrow \tau \nu$

Data/Bkg



$m_T(\text{lepton} + \text{MET})$ (GeV)



19.2 fb⁻¹ (8 TeV)

CMS
preliminary

— $W \rightarrow \tau \nu$
— Run 1 $W \rightarrow \tau \nu$

Data/Bkg

2500
2000
1500
1000
500
0

0

0.2

0.4

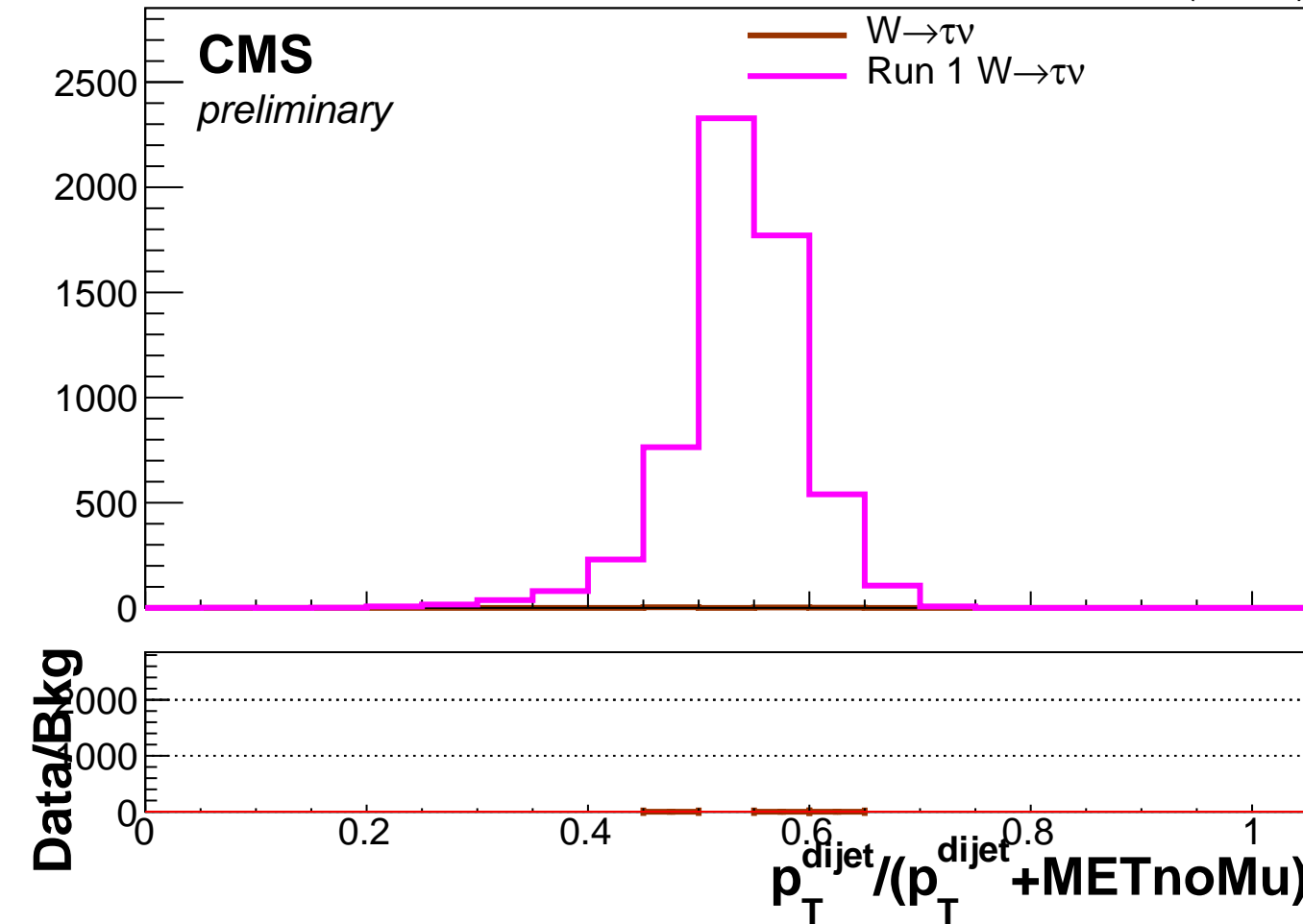
0.6

$p_T^{\text{dijet}} / (p_T^{\text{dijet}} + \text{MET}_{\text{noMu}})$

0.8

1

1000
1000
0



19.2 fb⁻¹ (8 TeV)

CMS

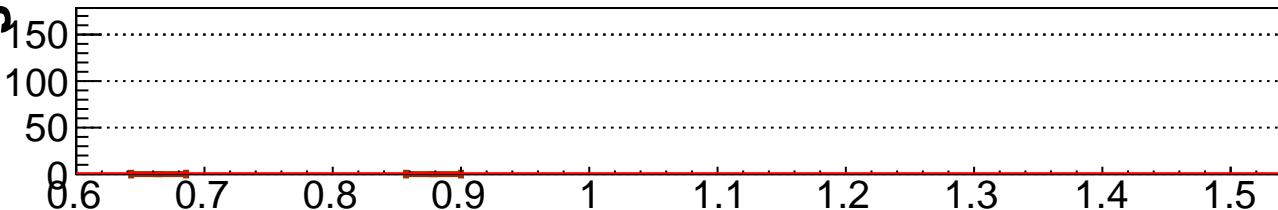
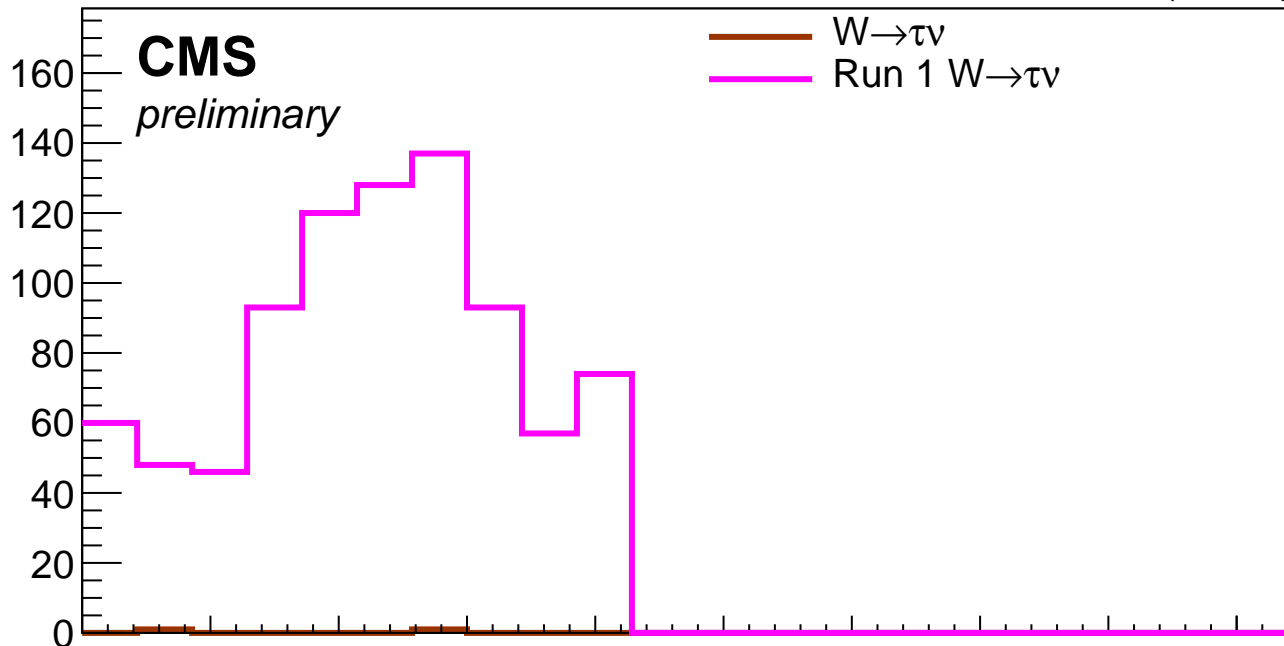
preliminary

— $W \rightarrow \tau \nu$

— Run 1 $W \rightarrow \tau \nu$

Data/Bkg

Jet 1 CSV

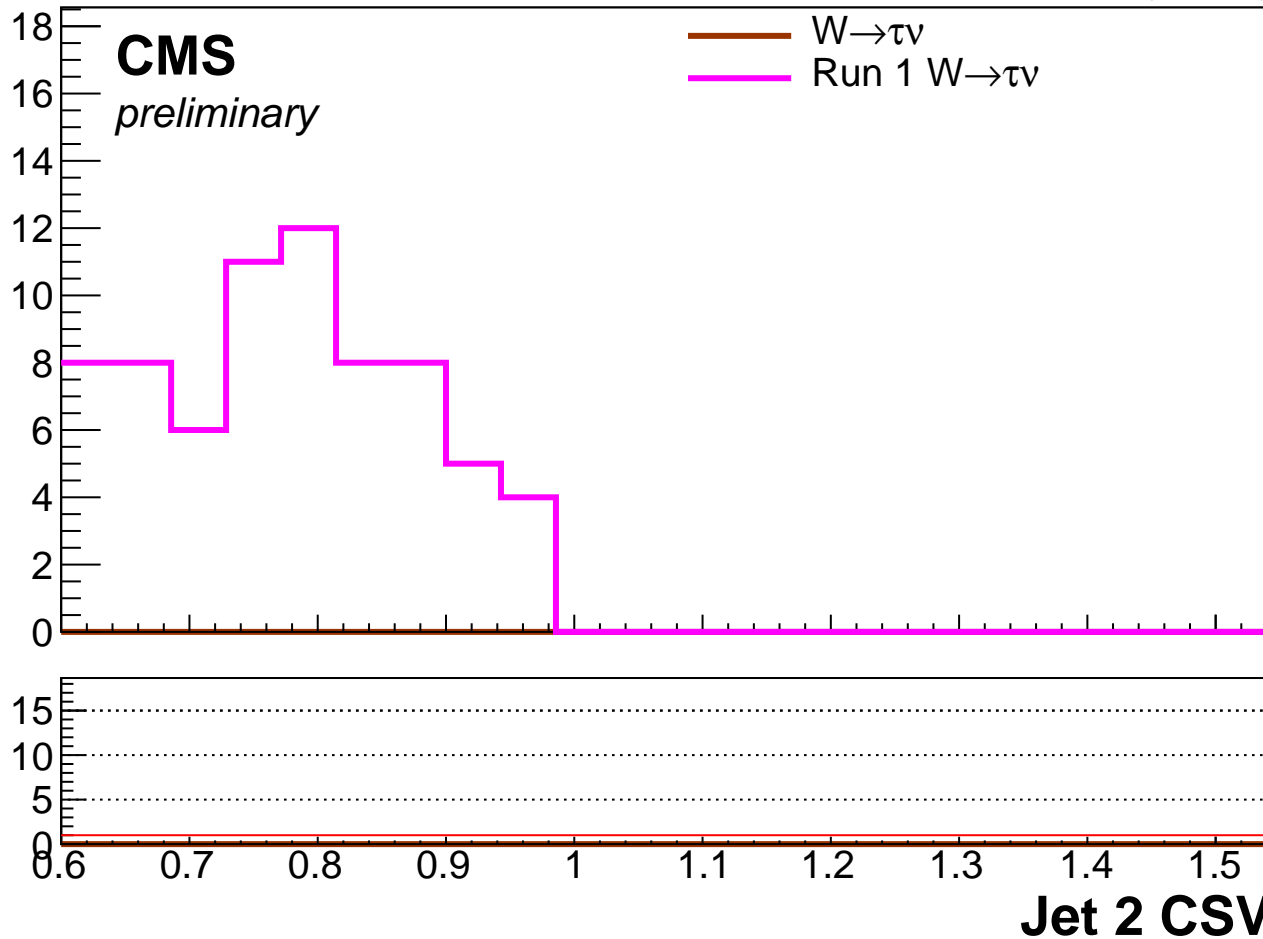


19.2 fb⁻¹ (8 TeV)

CMS
preliminary

— $W \rightarrow \tau \nu$
— Run 1 $W \rightarrow \tau \nu$

Data/Bkg



19.2 fb⁻¹ (8 TeV)

CMS

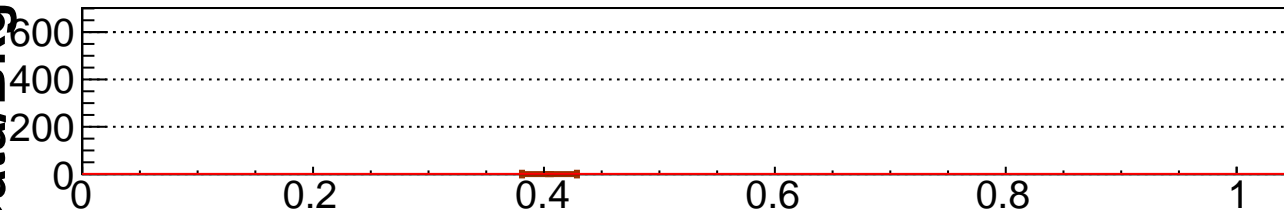
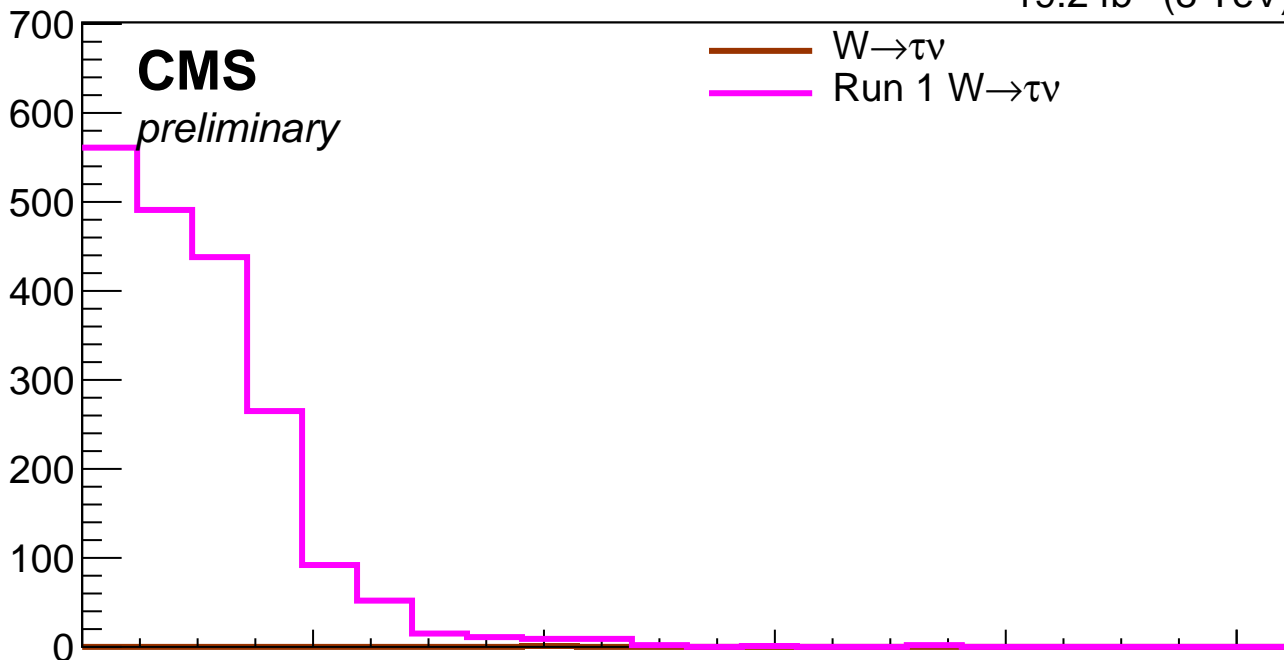
preliminary

— $W \rightarrow \tau \nu$

— Run 1 $W \rightarrow \tau \nu$

Data/Bkg

Jet 3 CSV



19.2 fb⁻¹ (8 TeV)

CMS

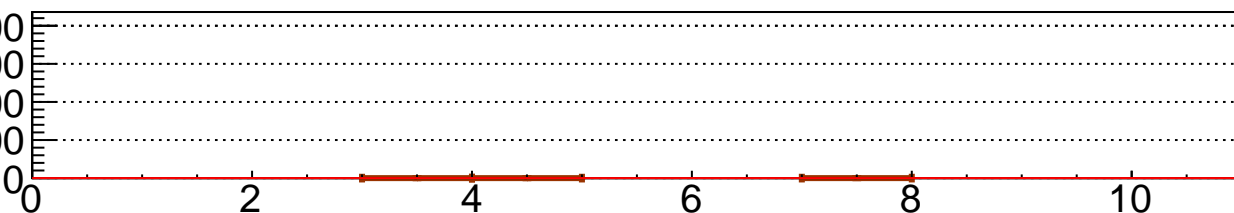
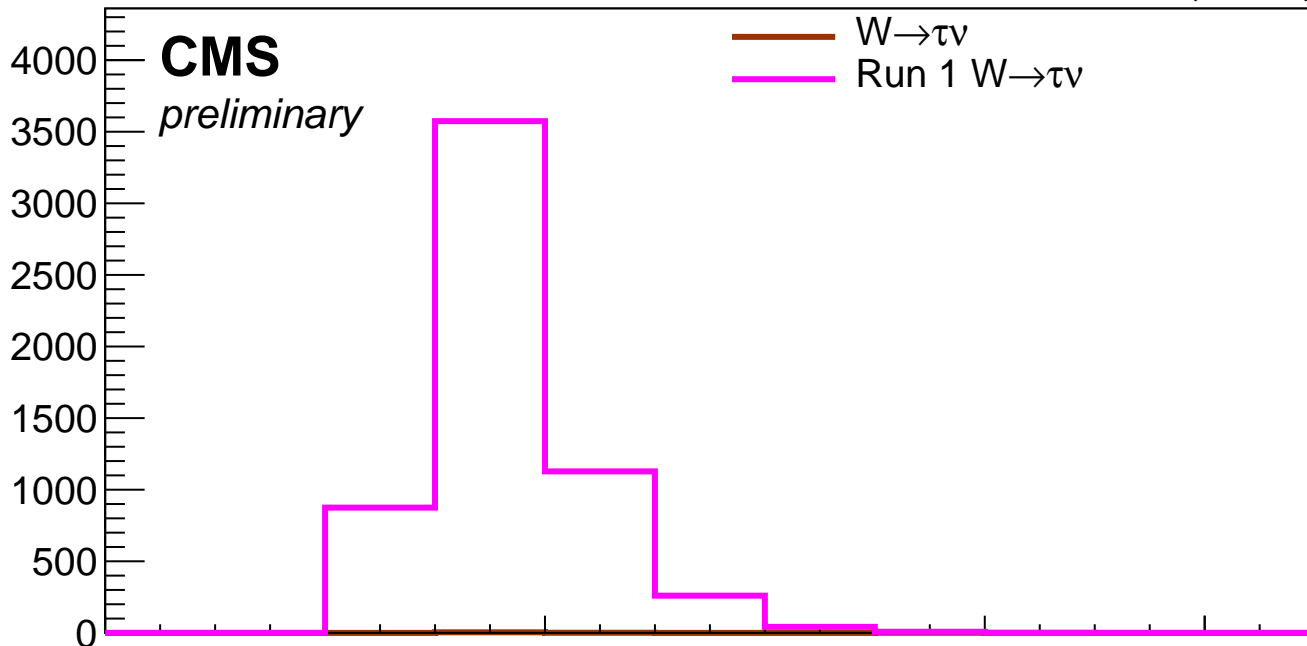
preliminary

W→τν

Run 1 W→τν

Data/Bkg

N jets pt>30 GeV

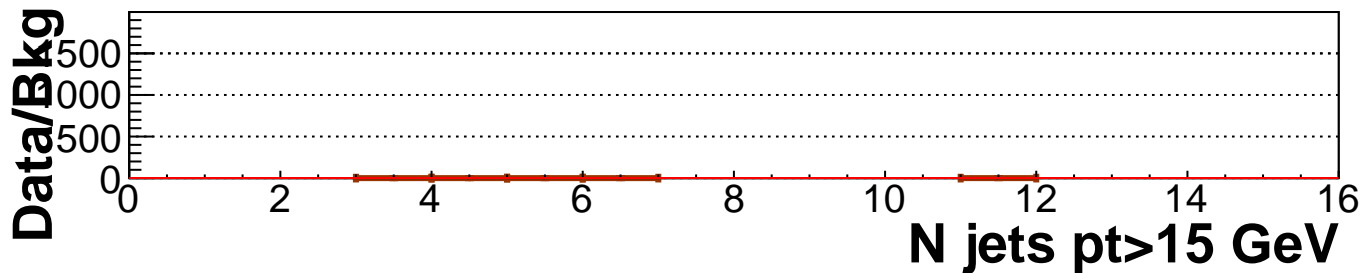
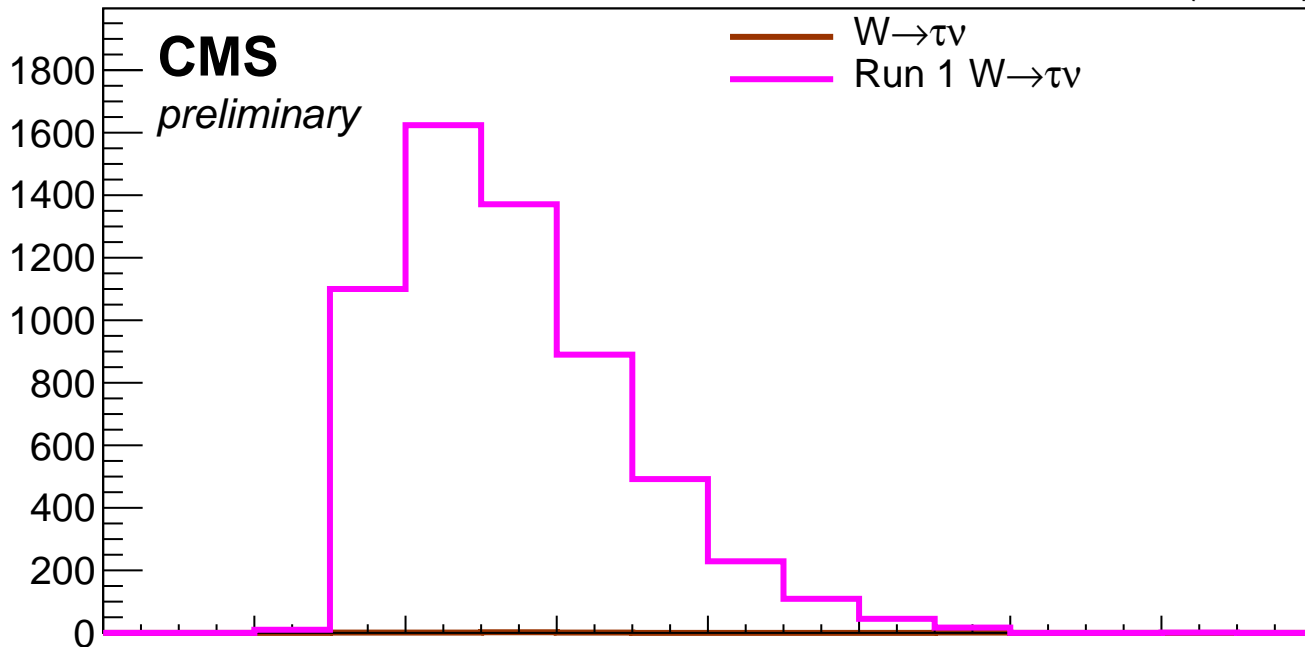


19.2 fb⁻¹ (8 TeV)

CMS

preliminary

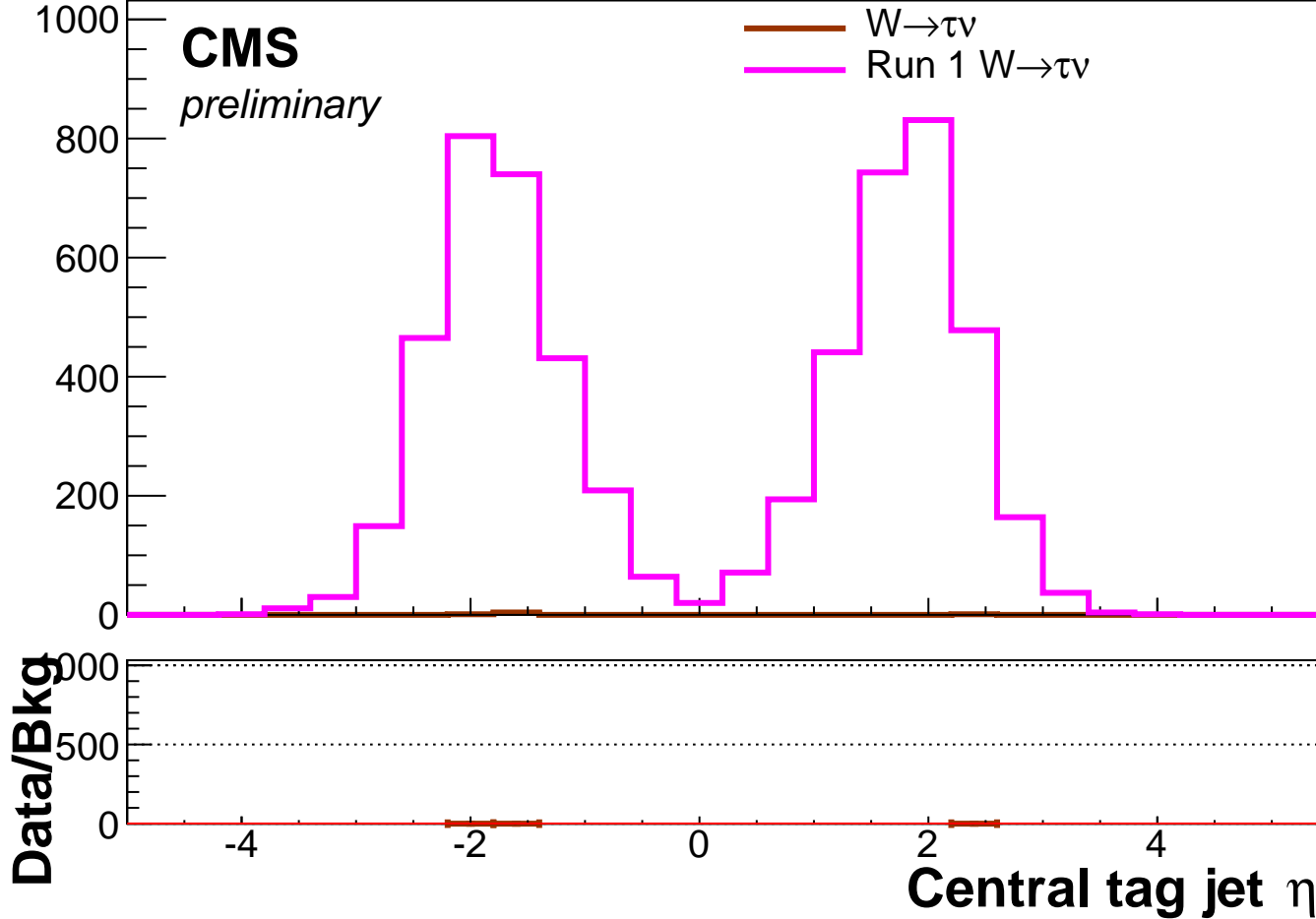
— $W \rightarrow \tau \nu$
— Run 1 $W \rightarrow \tau \nu$



19.2 fb⁻¹ (8 TeV)

CMS
preliminary

— $W \rightarrow \tau \nu$
— Run 1 $W \rightarrow \tau \nu$



19.2 fb⁻¹ (8 TeV)

CMS

preliminary

— $W \rightarrow \tau \nu$
— Run 1 $W \rightarrow \tau \nu$

Data/Bkg

Forward tag jet η

