

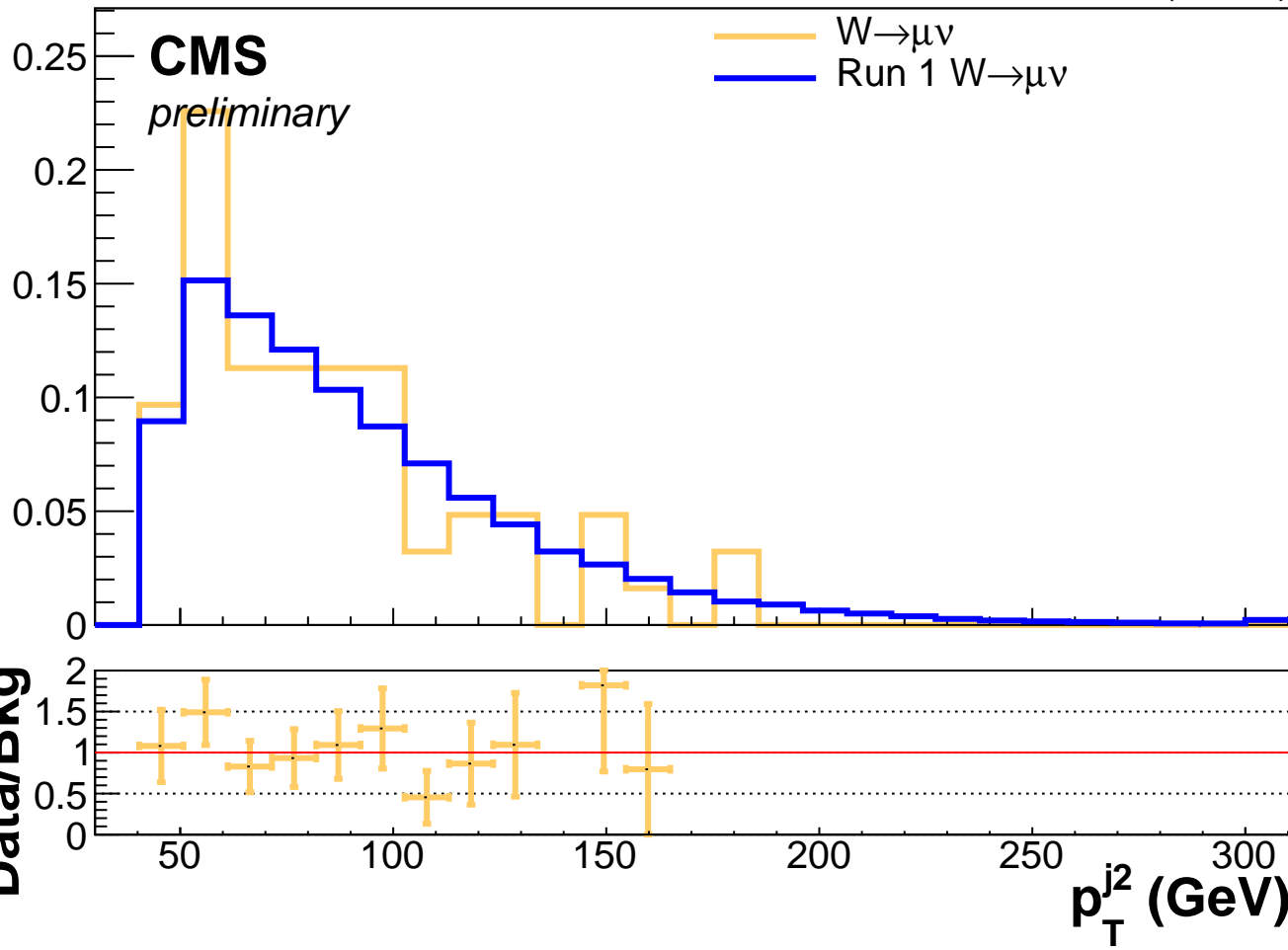
19.2 fb⁻¹ (8 TeV)

CMS

preliminary

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

Data/Bkg



19.2 fb⁻¹ (8 TeV)

CMS

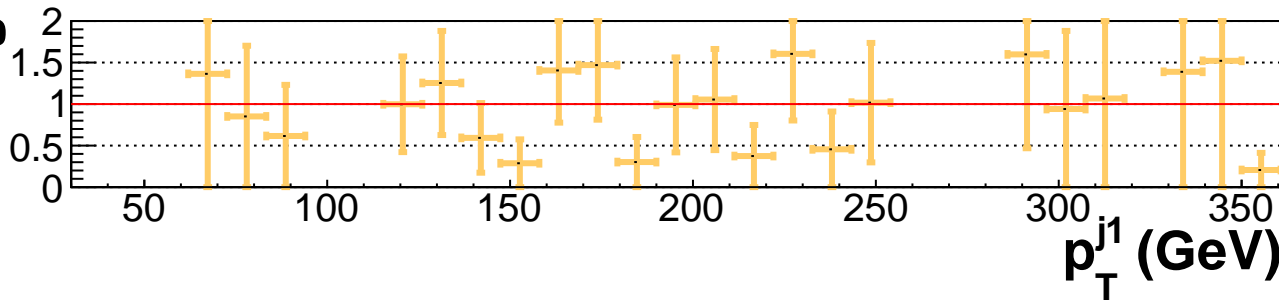
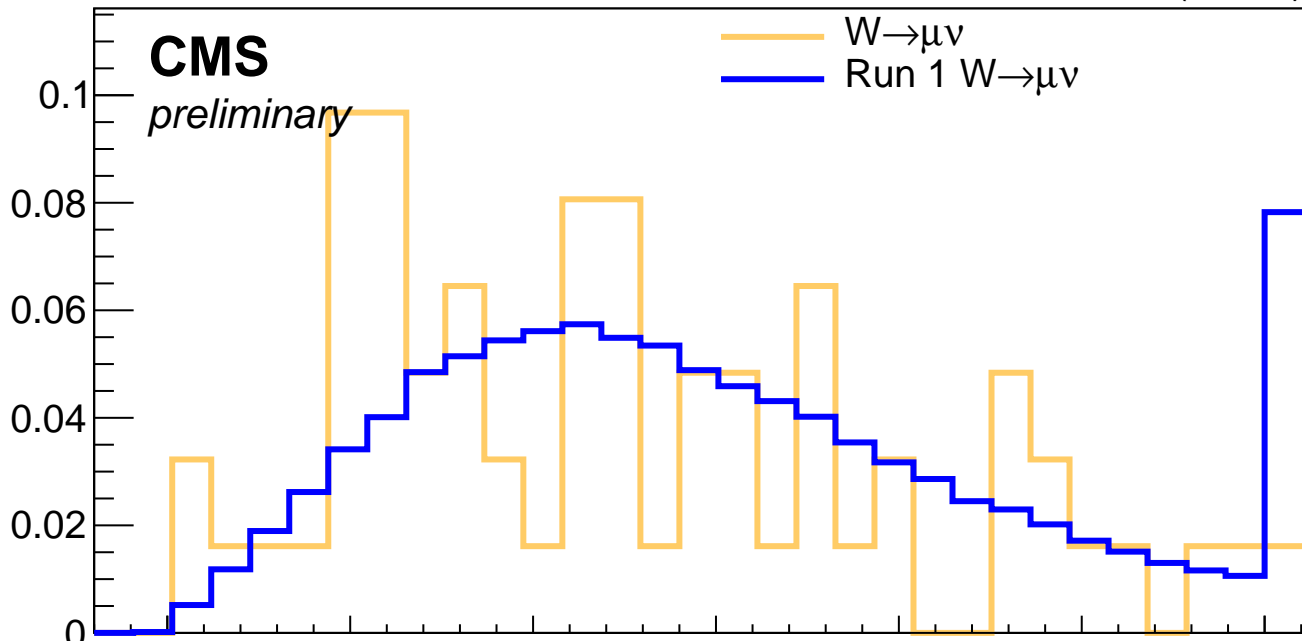
preliminary

W→μν

Run 1 W→μν

Data/Bkg

p_T^{j1} (GeV)



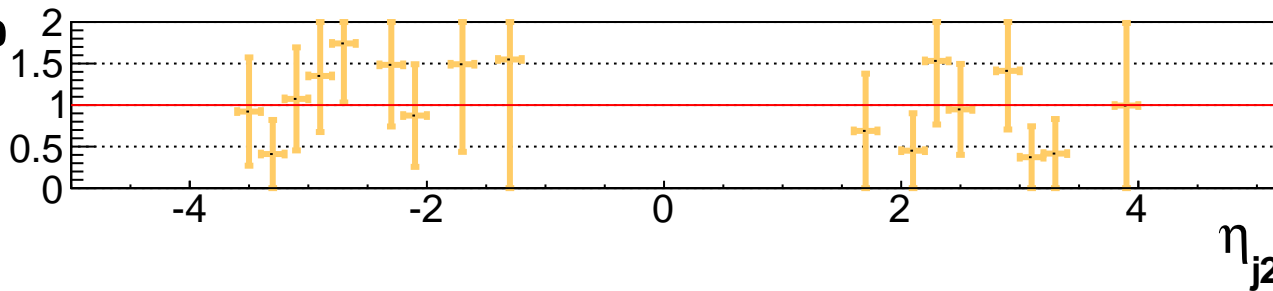
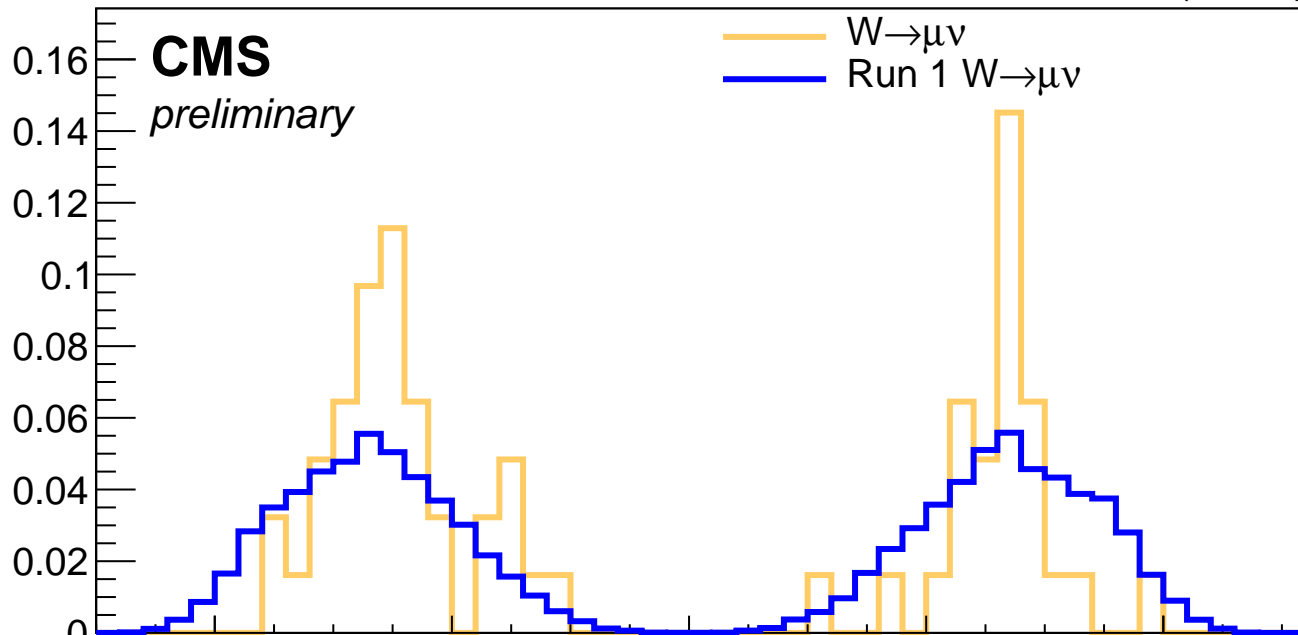
19.2 fb⁻¹ (8 TeV)

CMS
preliminary

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

Data/Bkg

η_{j2}



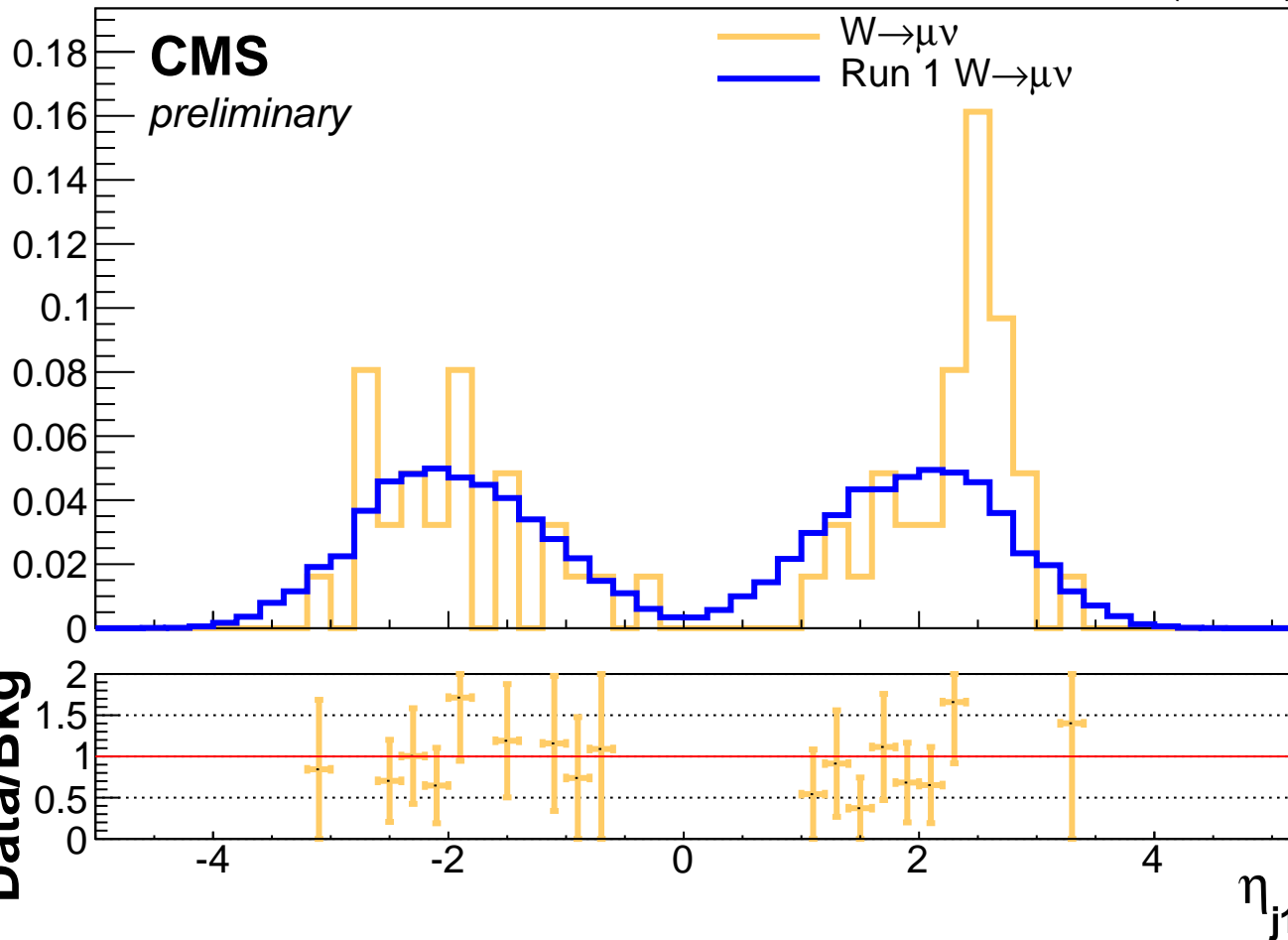
19.2 fb⁻¹ (8 TeV)

CMS
preliminary

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

Data/Bkg

η_{j1}



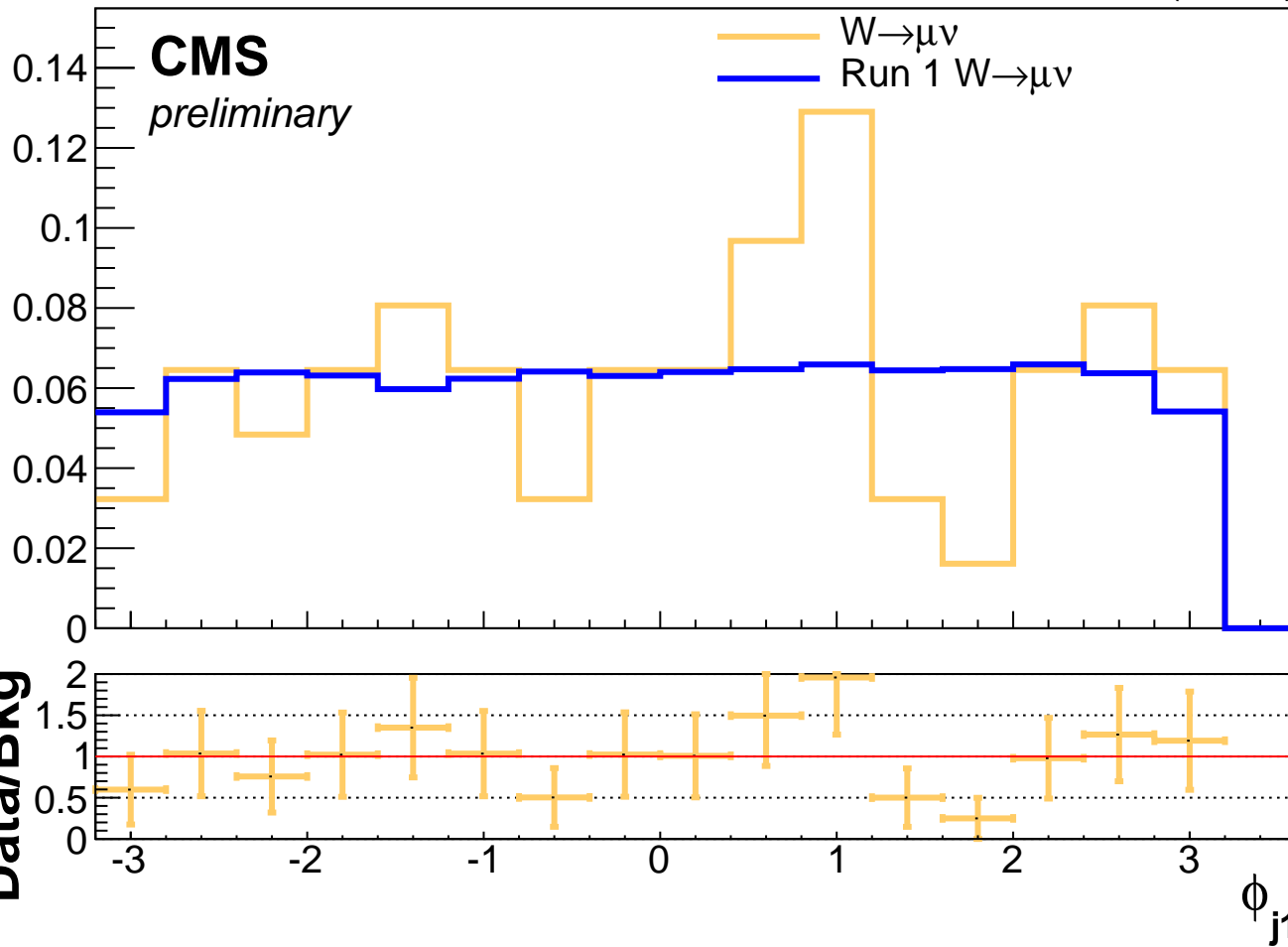
19.2 fb⁻¹ (8 TeV)

CMS
preliminary

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

Data/Bkg

ϕ_{j1}



19.2 fb⁻¹ (8 TeV)

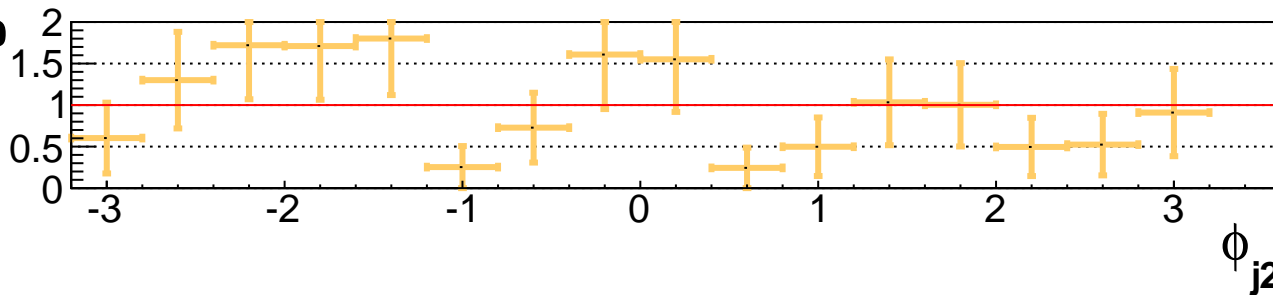
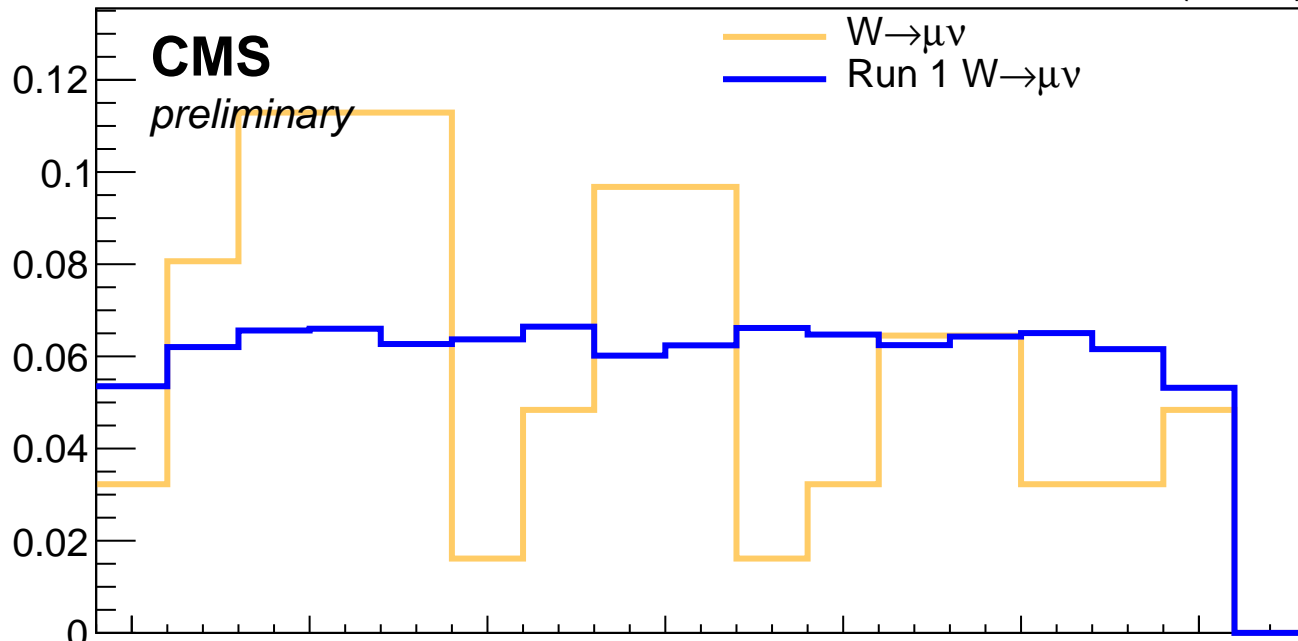
CMS

preliminary

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

Data/Bkg

ϕ_{j2}



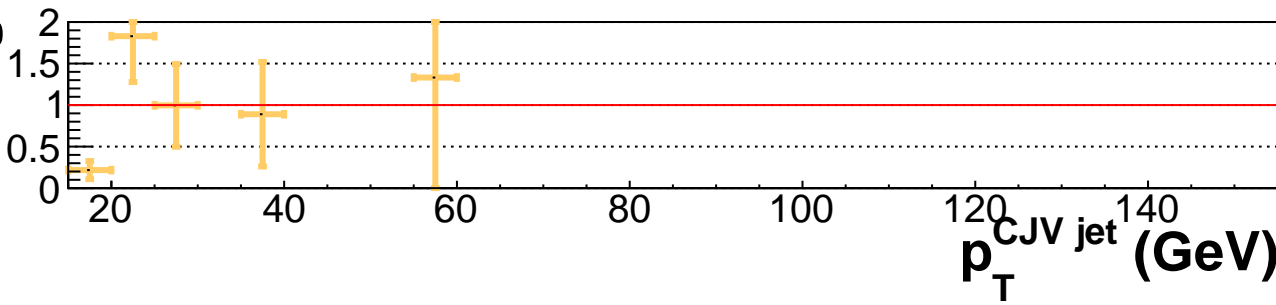
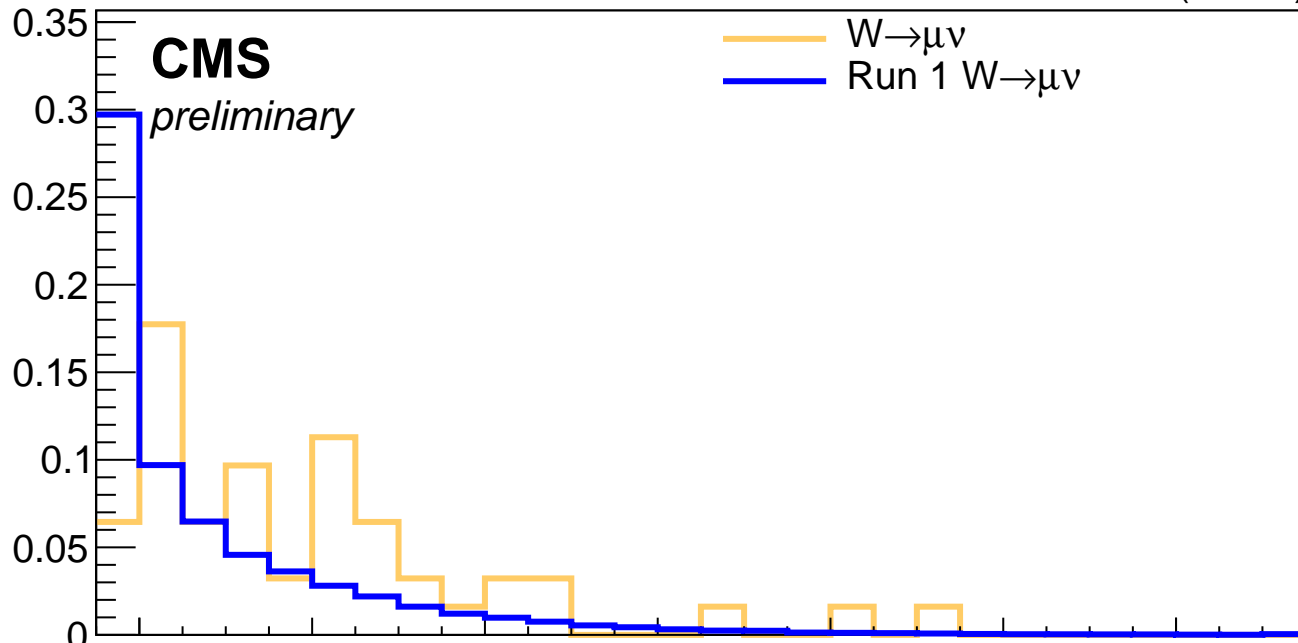
19.2 fb⁻¹ (8 TeV)

CMS

preliminary

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

Data/Bkg



19.2 fb⁻¹ (8 TeV)

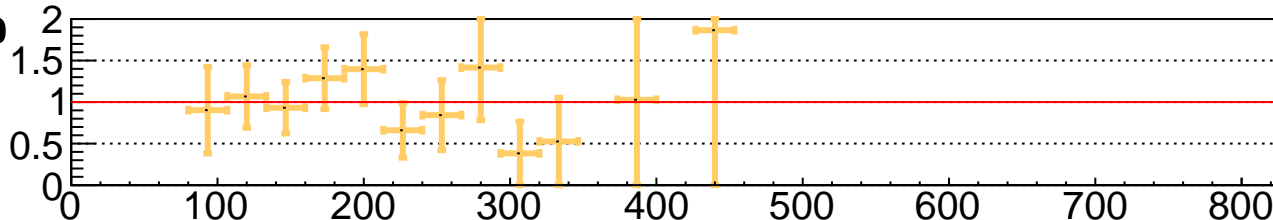
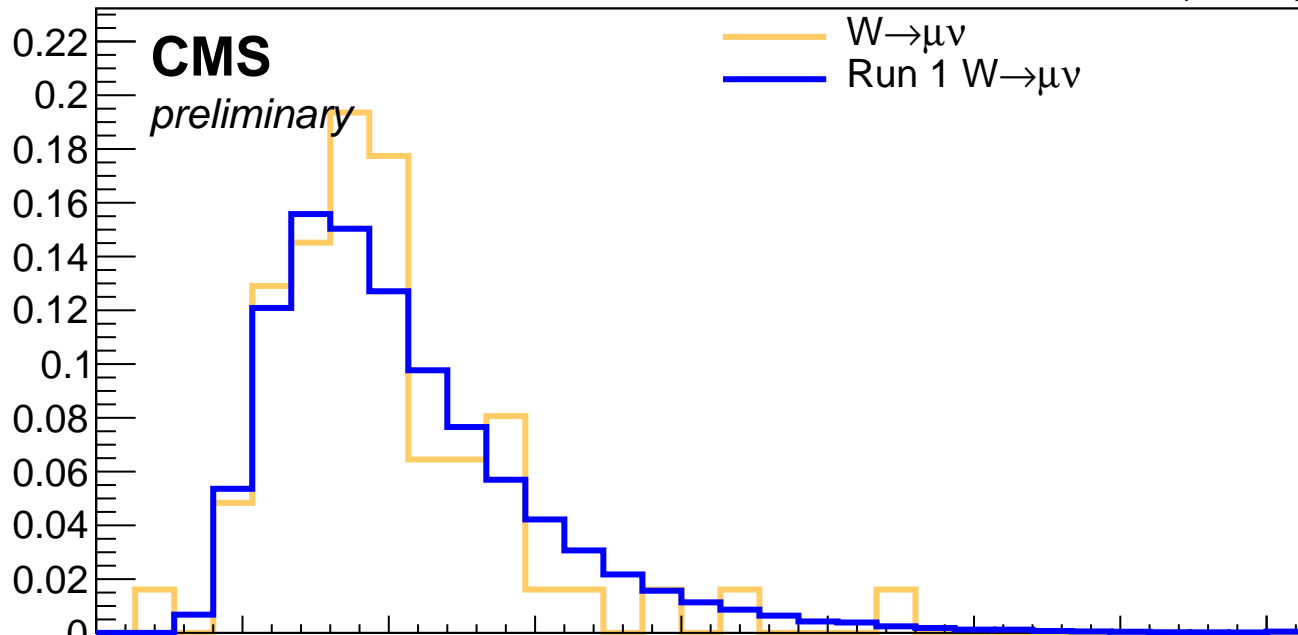
CMS

preliminary

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

Data/Bkg

Missing transverse energy (GeV)



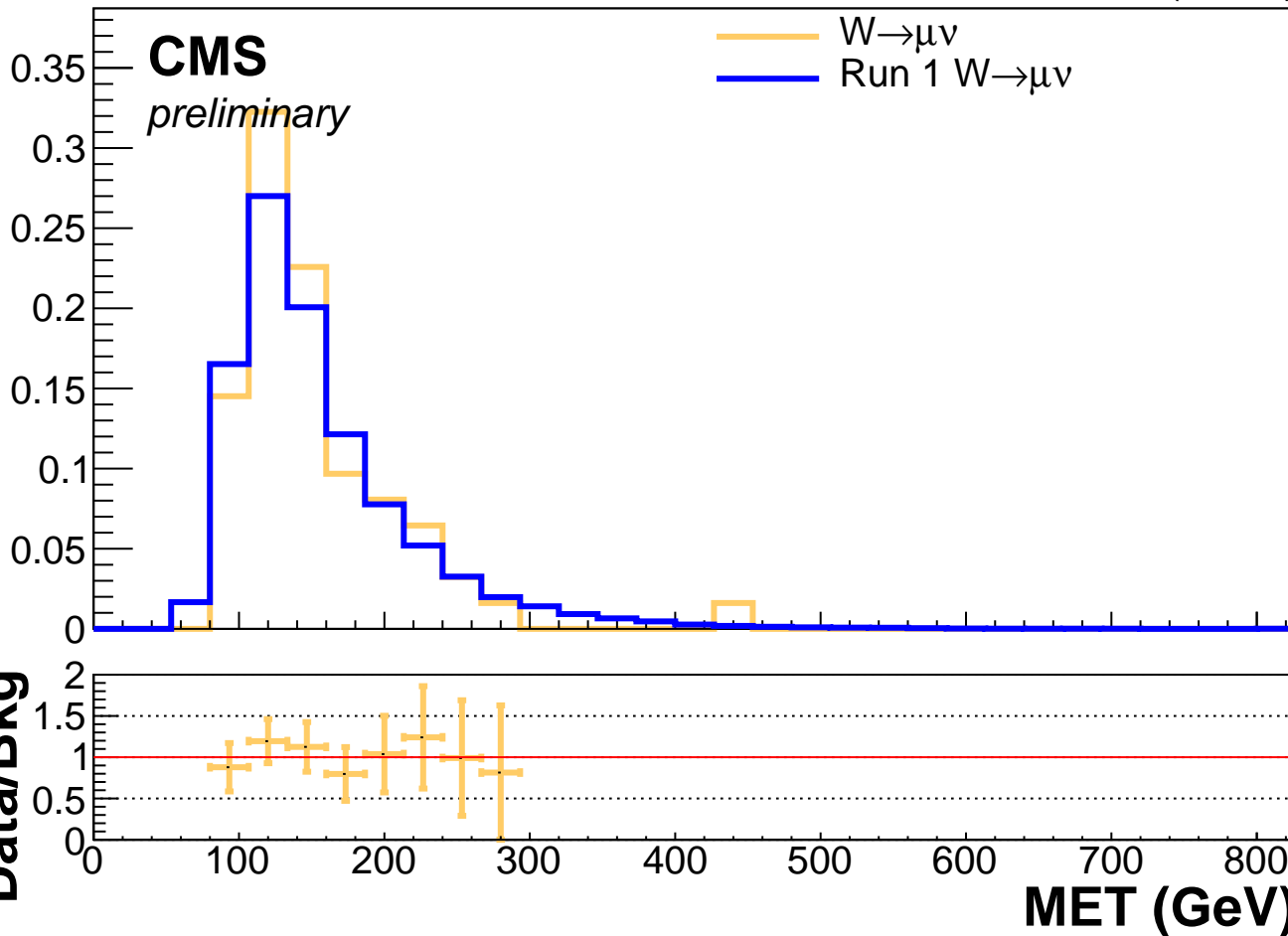
19.2 fb⁻¹ (8 TeV)

CMS
preliminary

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

Data/Bkg

MET (GeV)



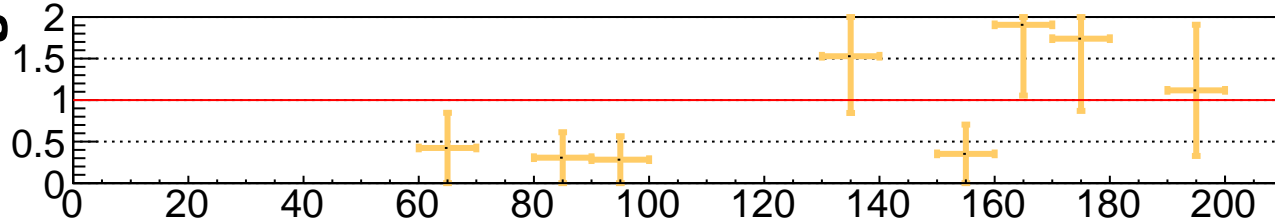
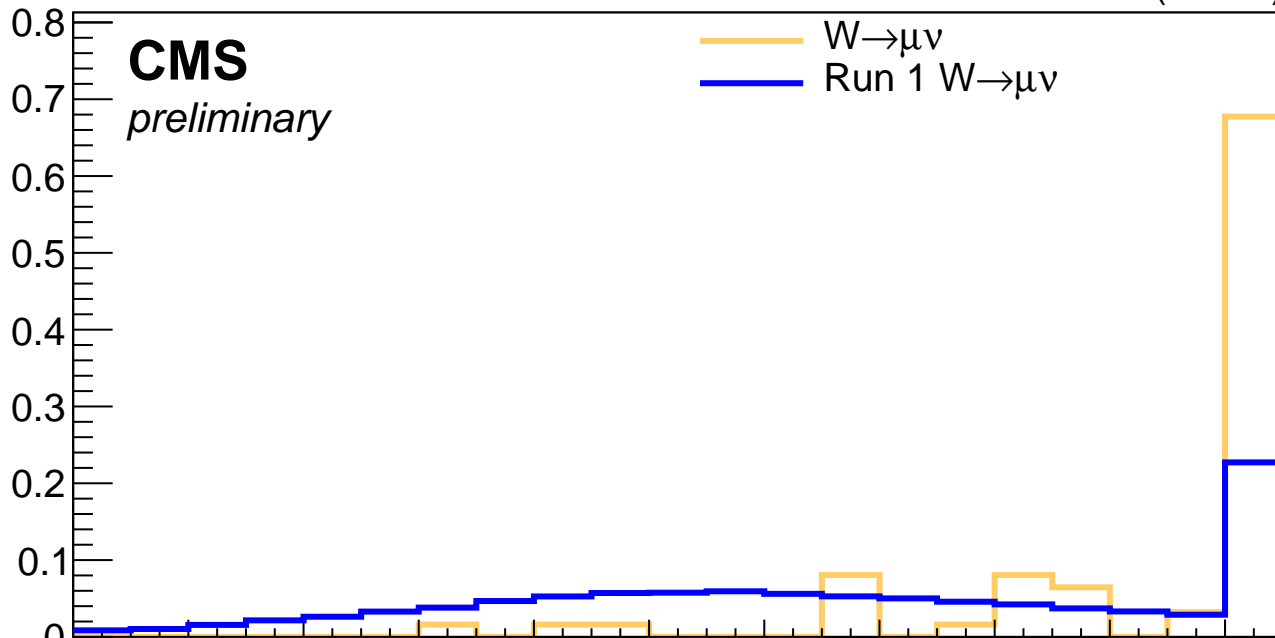
19.2 fb⁻¹ (8 TeV)

CMS
preliminary

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

Data/Bkg

L1MET (GeV)



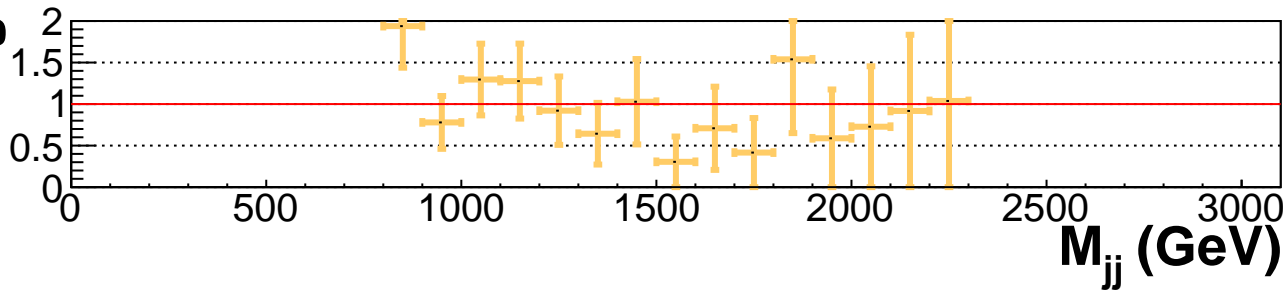
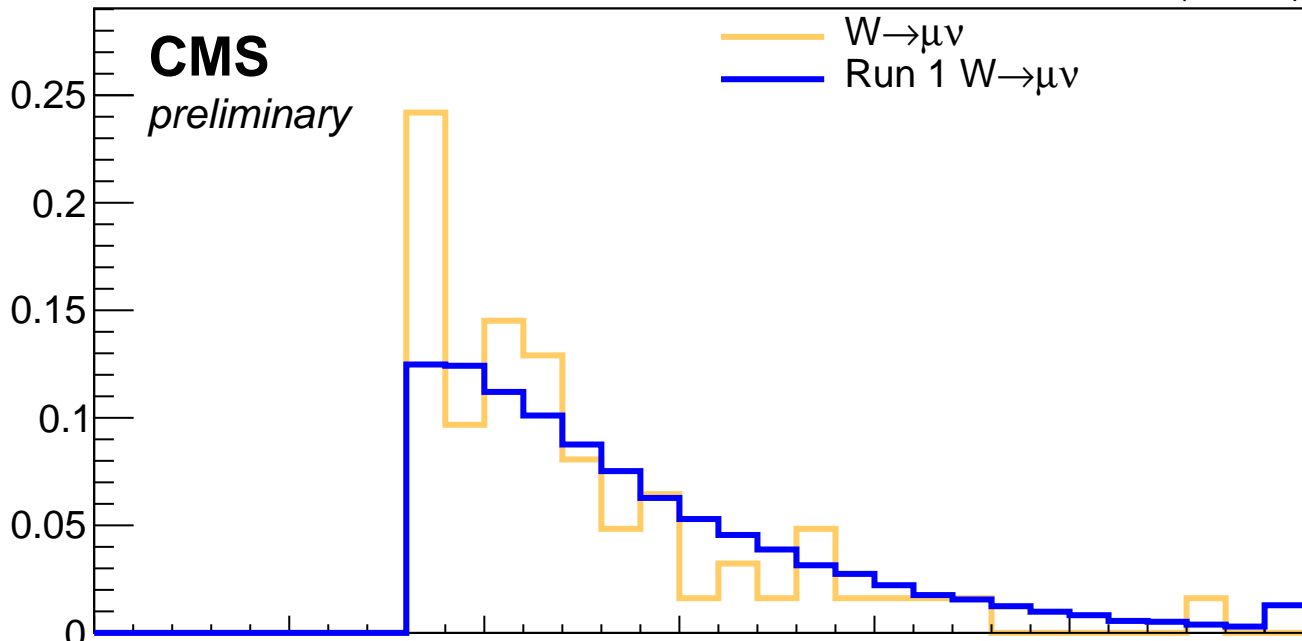
19.2 fb⁻¹ (8 TeV)

CMS
preliminary

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

Data/Bkg

M_{jj} (GeV)

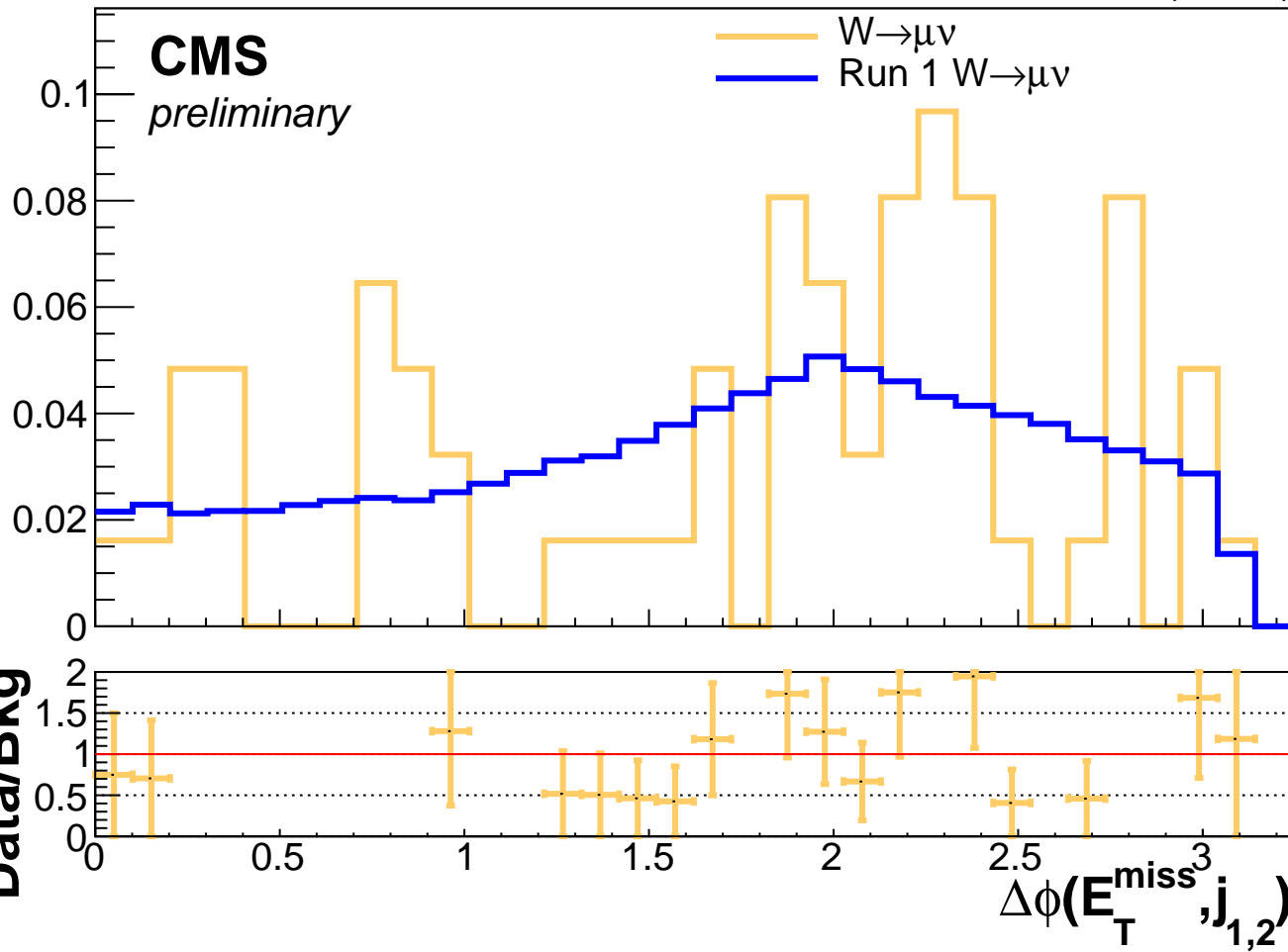


19.2 fb⁻¹ (8 TeV)

CMS
preliminary

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

Data/Bkg



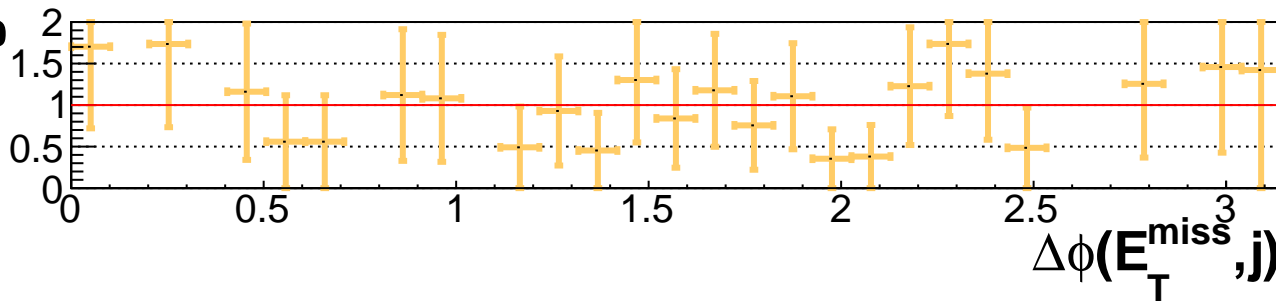
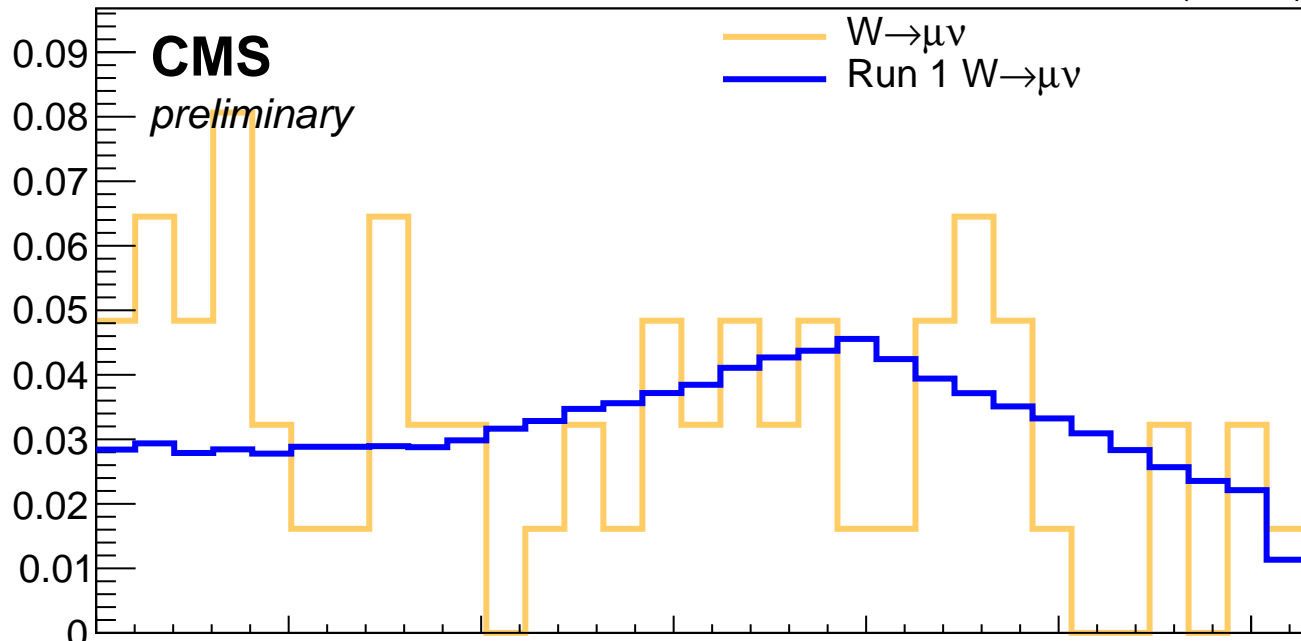
19.2 fb⁻¹ (8 TeV)

CMS

preliminary

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

Data/Bkg



19.2 fb⁻¹ (8 TeV)

CMS

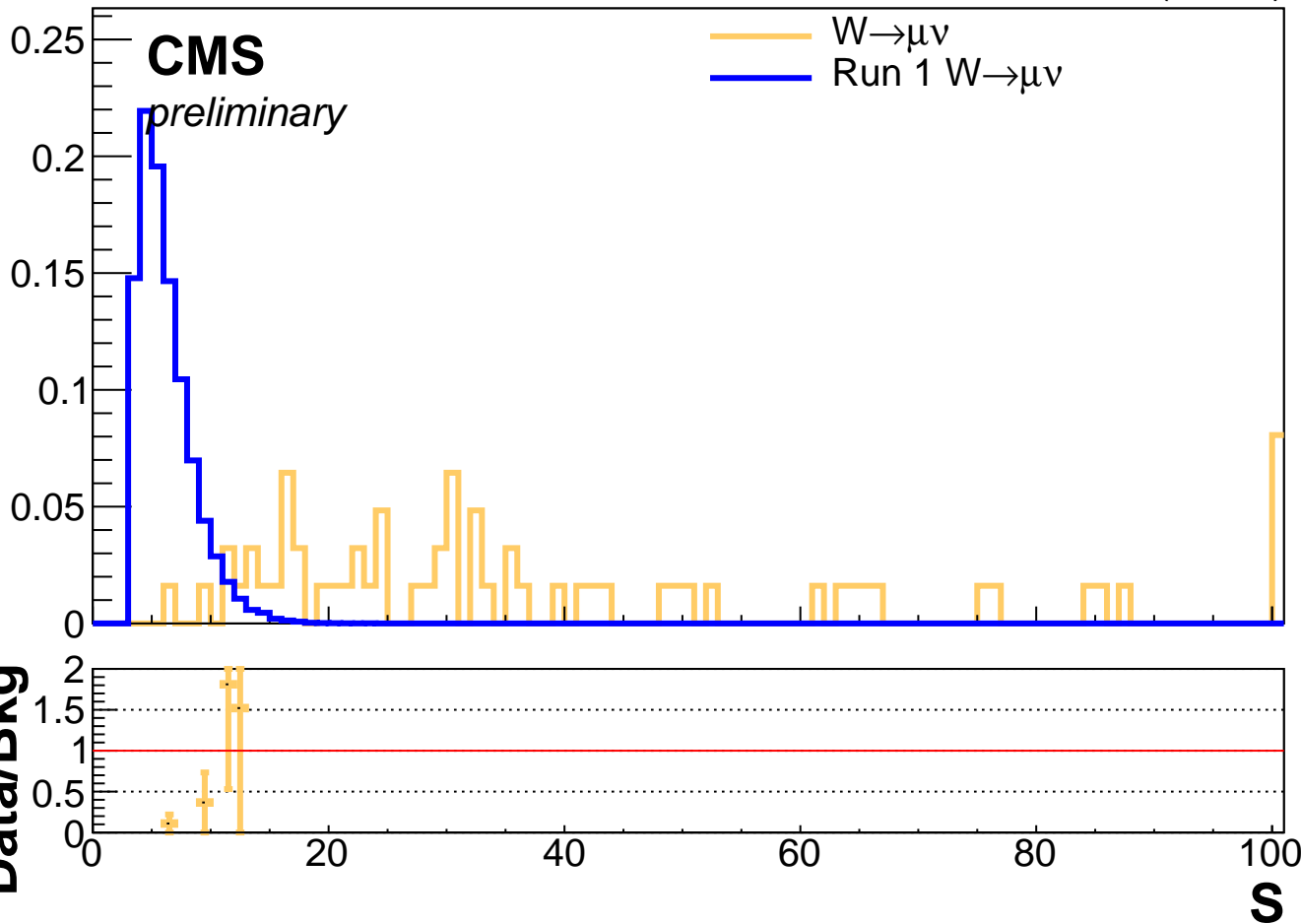
preliminary

— $W \rightarrow \mu \nu$

— Run 1 $W \rightarrow \mu \nu$

Data/Bkg

S



19.2 fb⁻¹ (8 TeV)

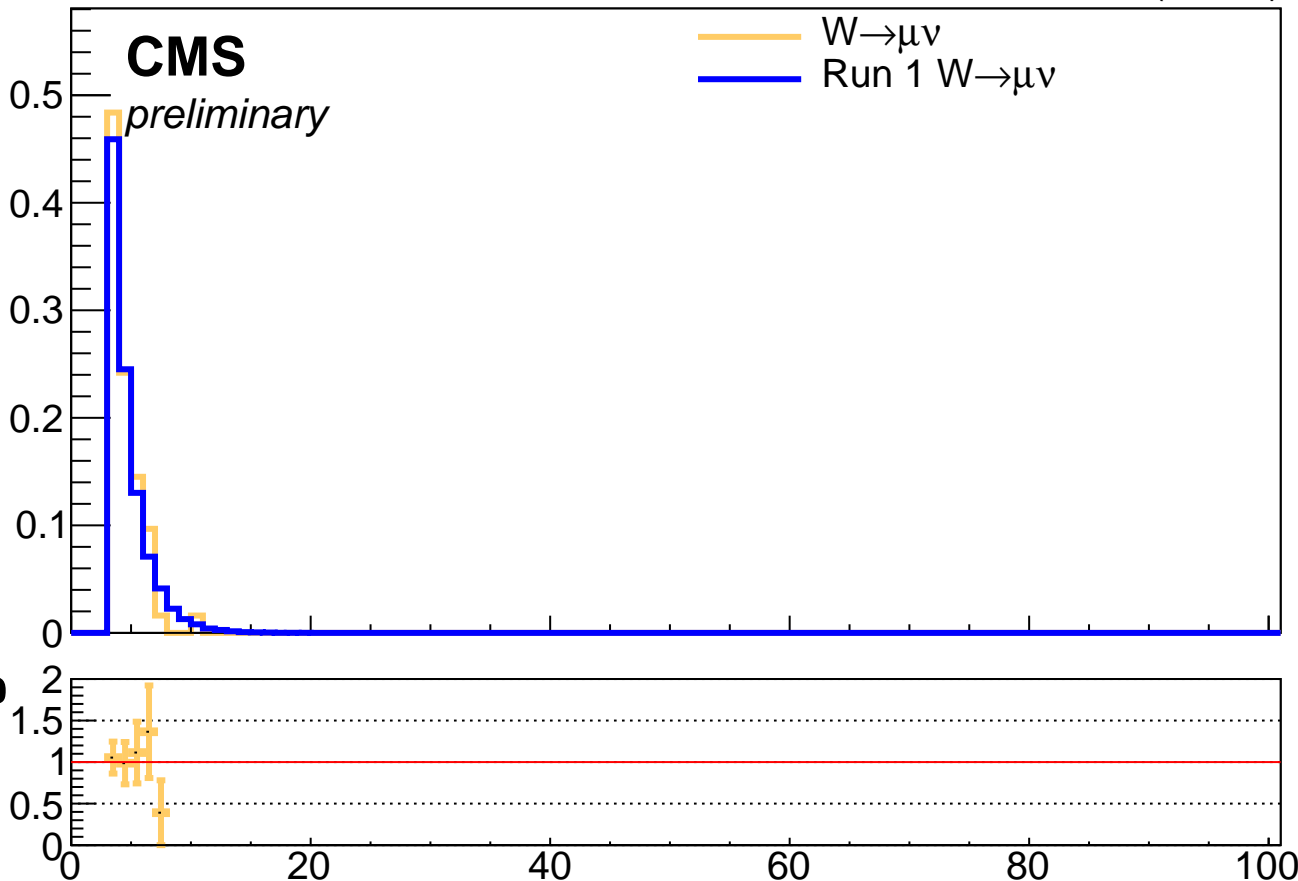
CMS

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

preliminary

Data/Bkg

Run 1 S



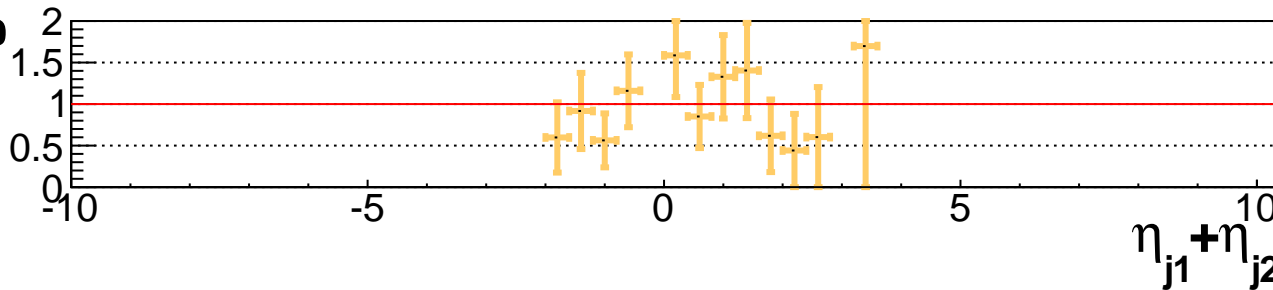
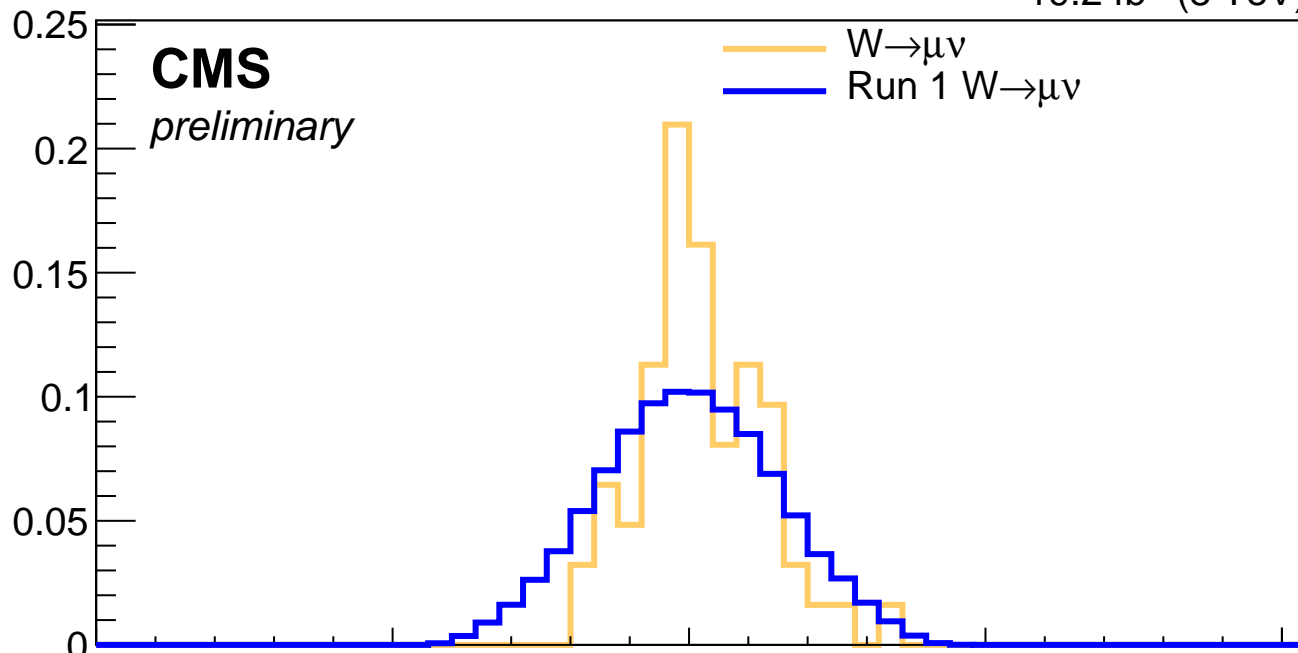
19.2 fb⁻¹ (8 TeV)

CMS
preliminary

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

Data/Bkg

$\eta_{j1} + \eta_{j2}$



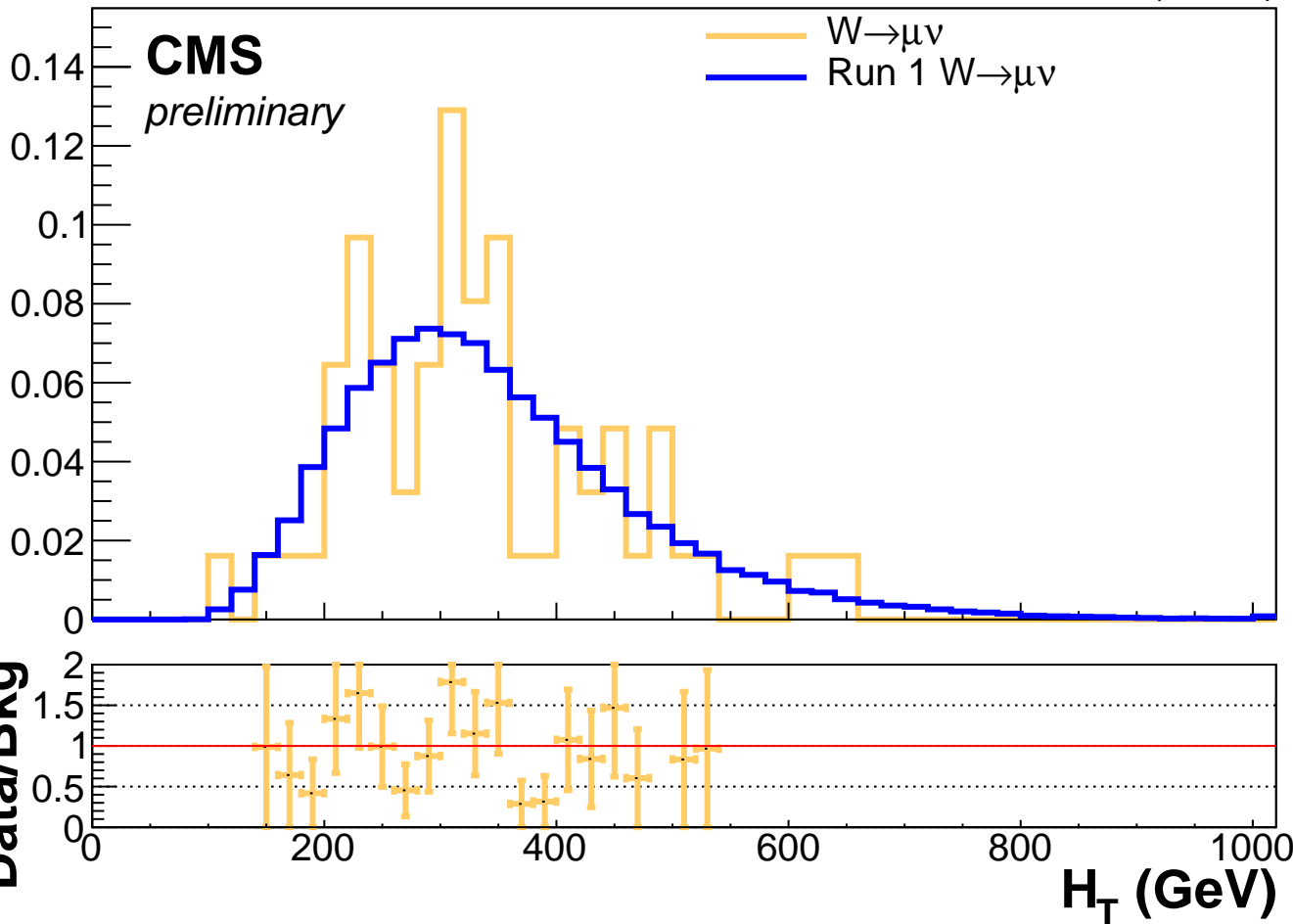
19.2 fb⁻¹ (8 TeV)

CMS
preliminary

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

Data/Bkg

H_T (GeV)



19.2 fb⁻¹ (8 TeV)

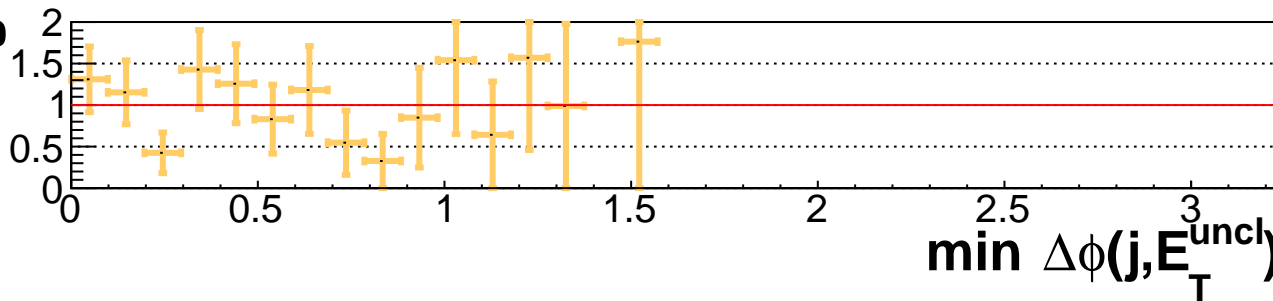
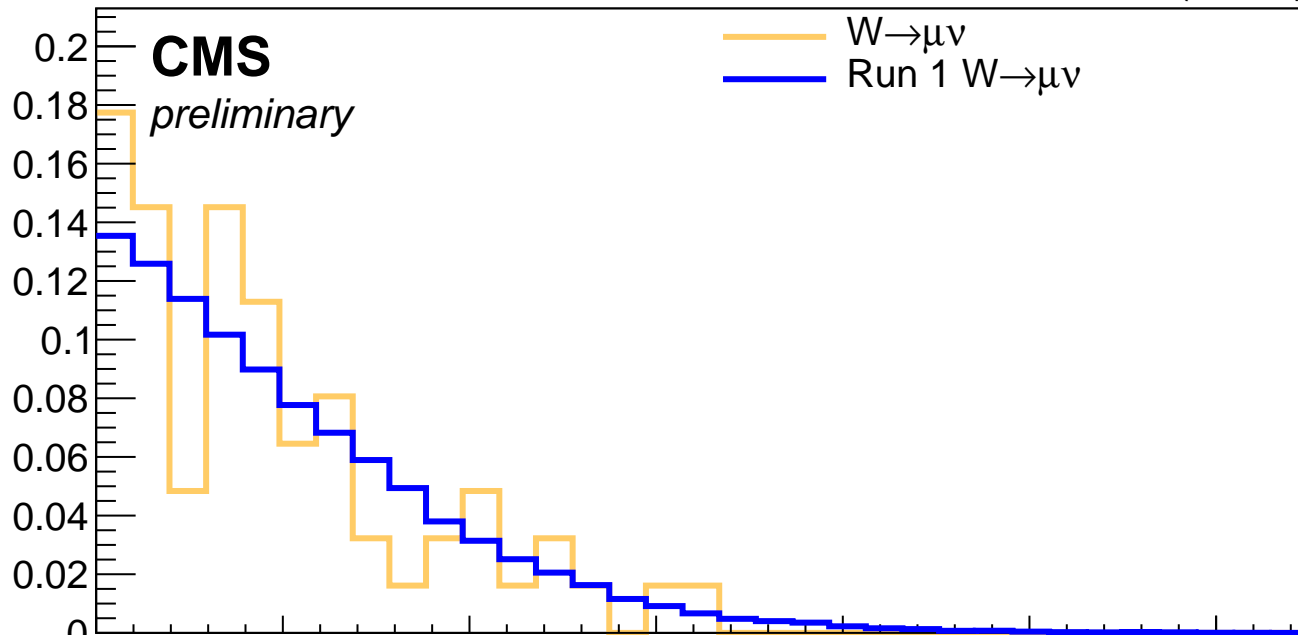
CMS

preliminary

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

Data/Bkg

min $\Delta\phi(j, E_T^{3\text{uncl}})$



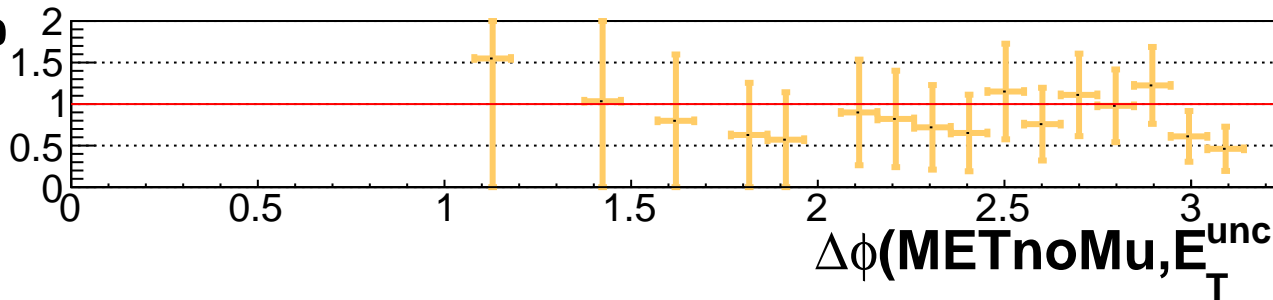
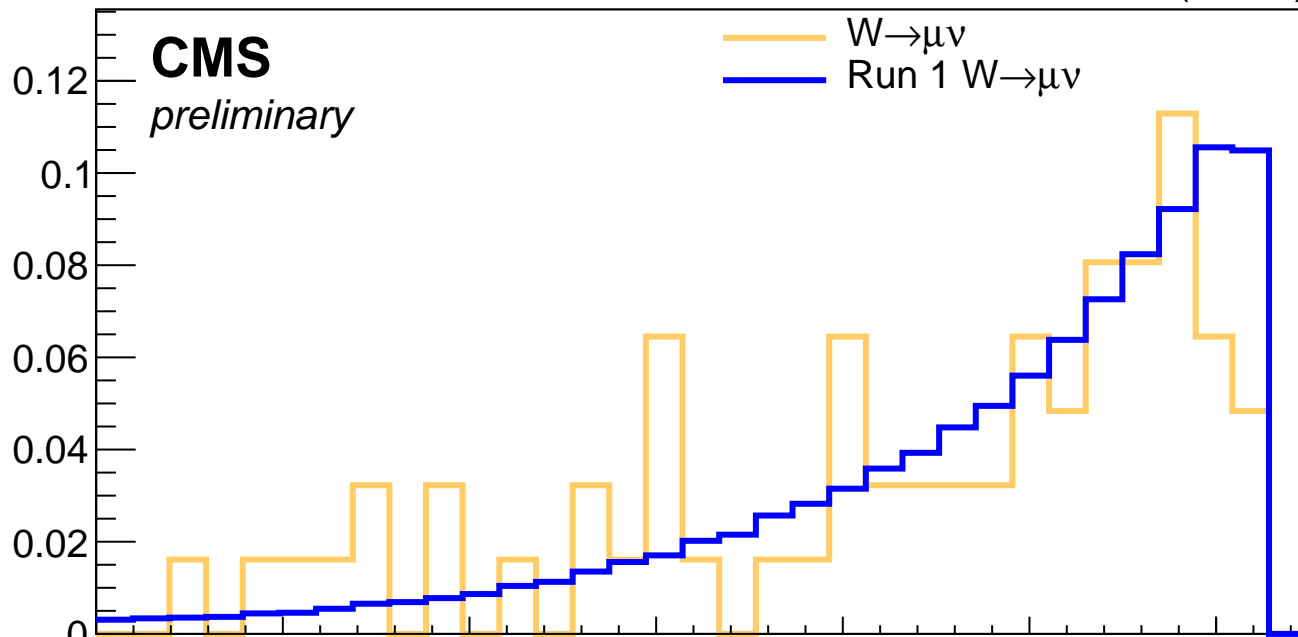
19.2 fb⁻¹ (8 TeV)

CMS
preliminary

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

Data/Bkg

$\Delta\phi(\text{METnoMu}, E_{\text{T}}^{\text{uncl}})$



19.2 fb⁻¹ (8 TeV)

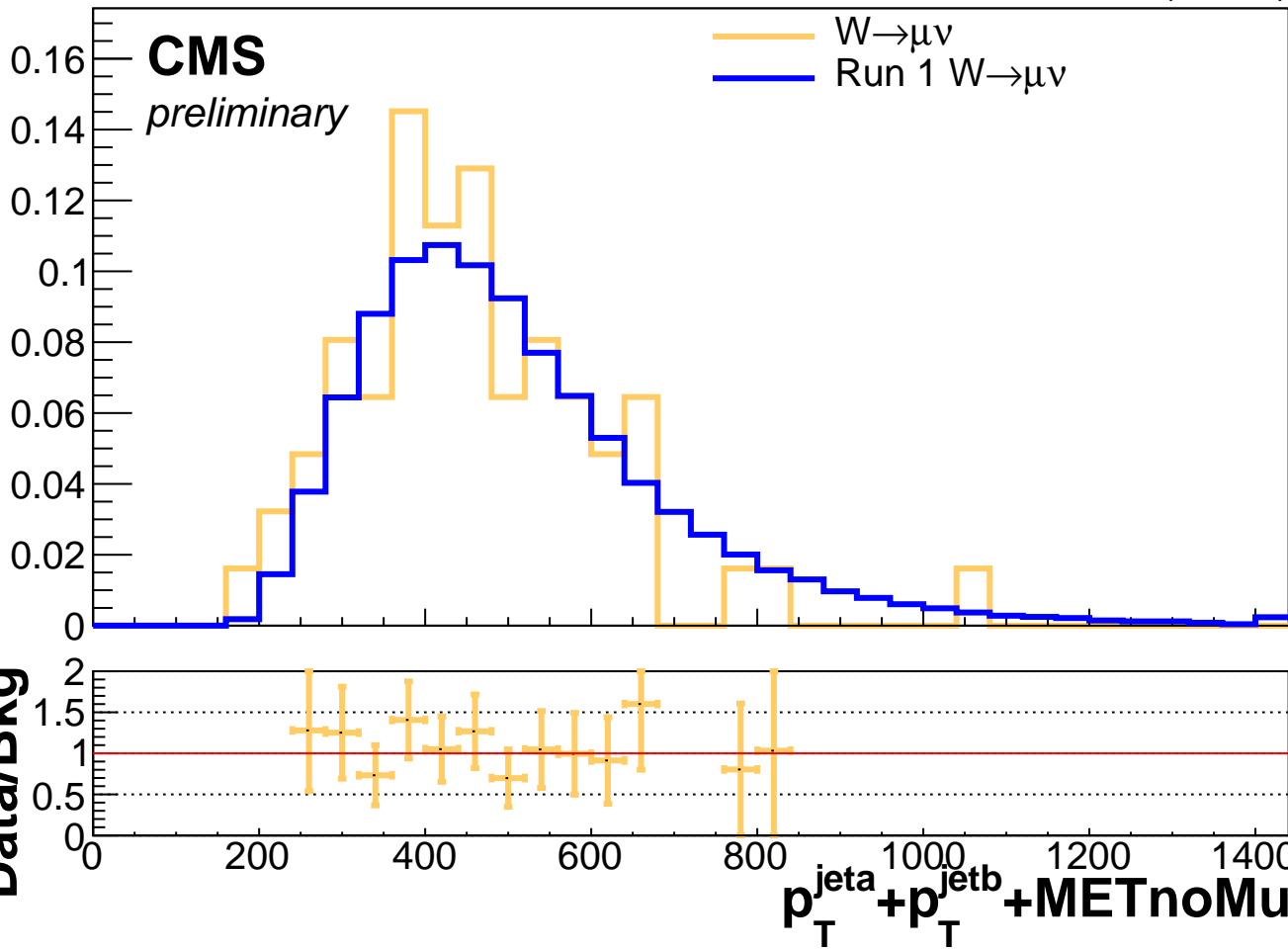
CMS

preliminary

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

Data/Bkg

$p_T^{\text{jeta}} + p_T^{\text{jetb}} + \text{MET}_{\text{noMu}}$



19.2 fb⁻¹ (8 TeV)

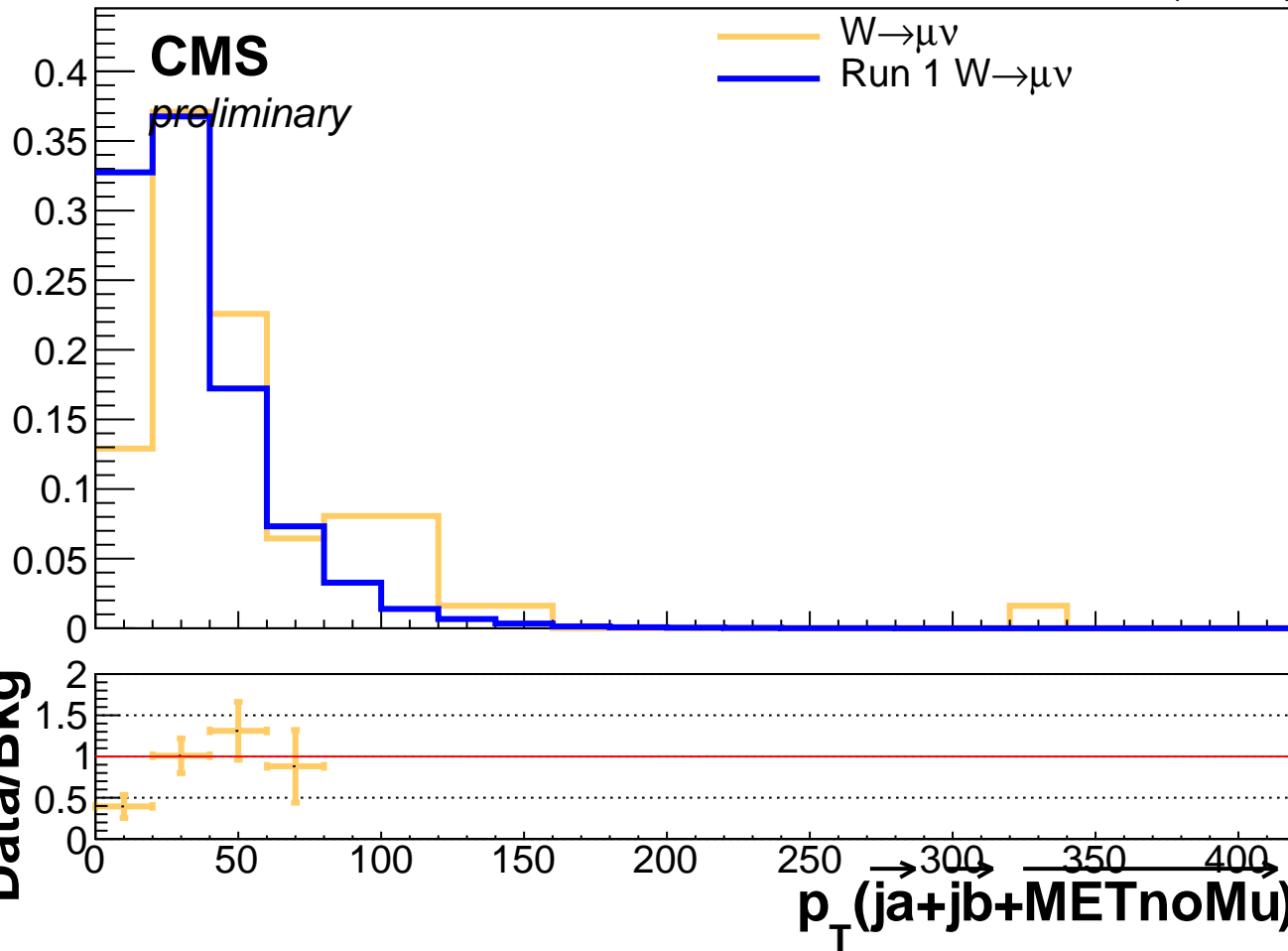
CMS

preliminary

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

Data/Bkg

$p_T(ja+jb+METnoMu)$



19.2 fb⁻¹ (8 TeV)

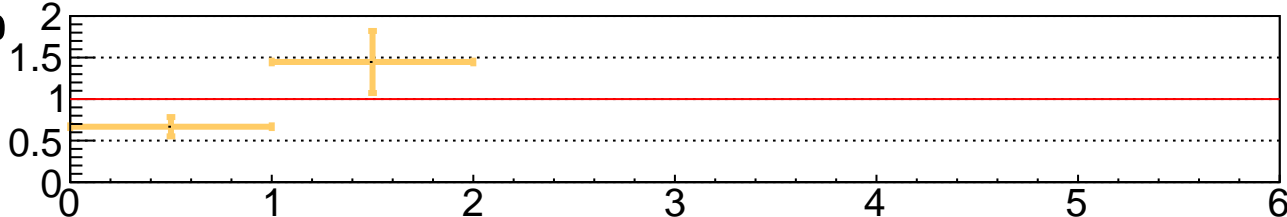
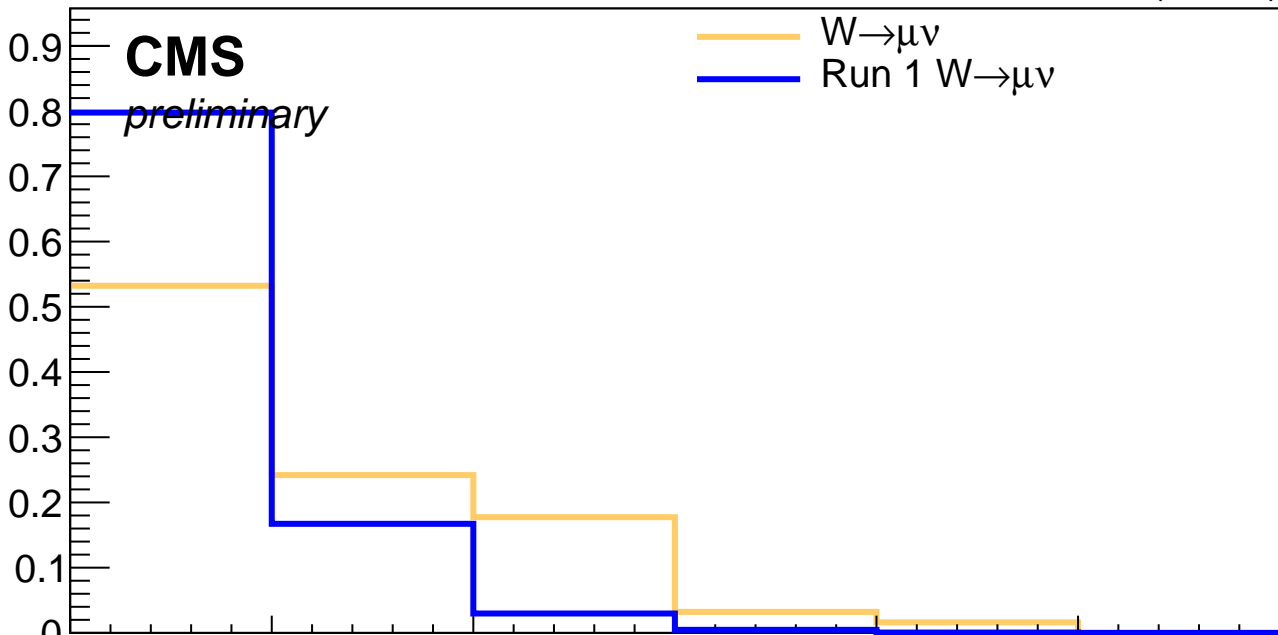
CMS

preliminary

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

Data/Bkg

CJV jets (30 GeV)

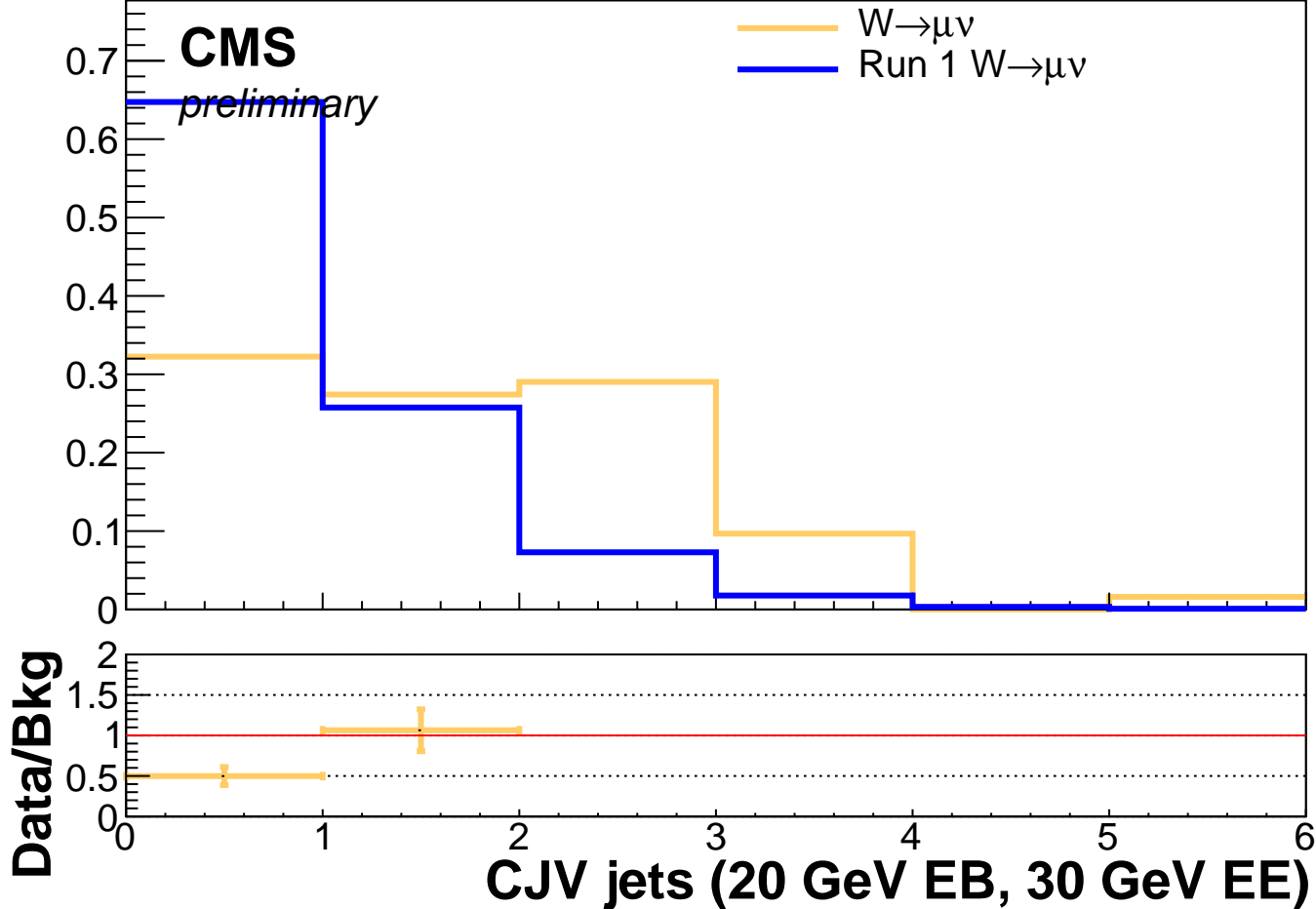


19.2 fb⁻¹ (8 TeV)

CMS

preliminary

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



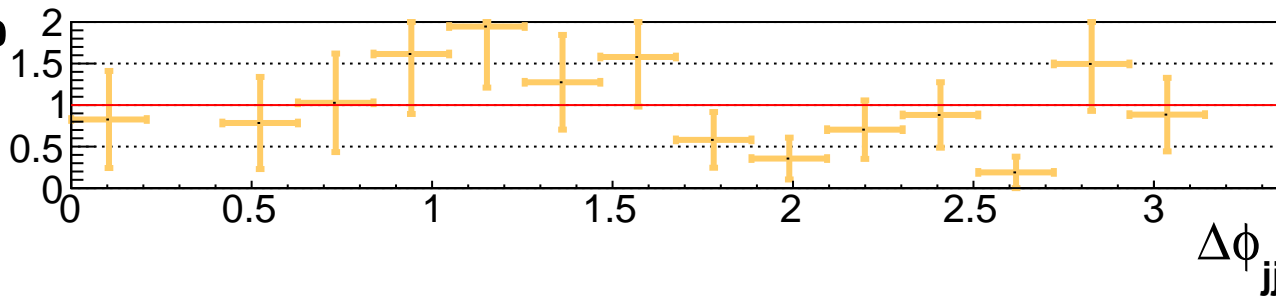
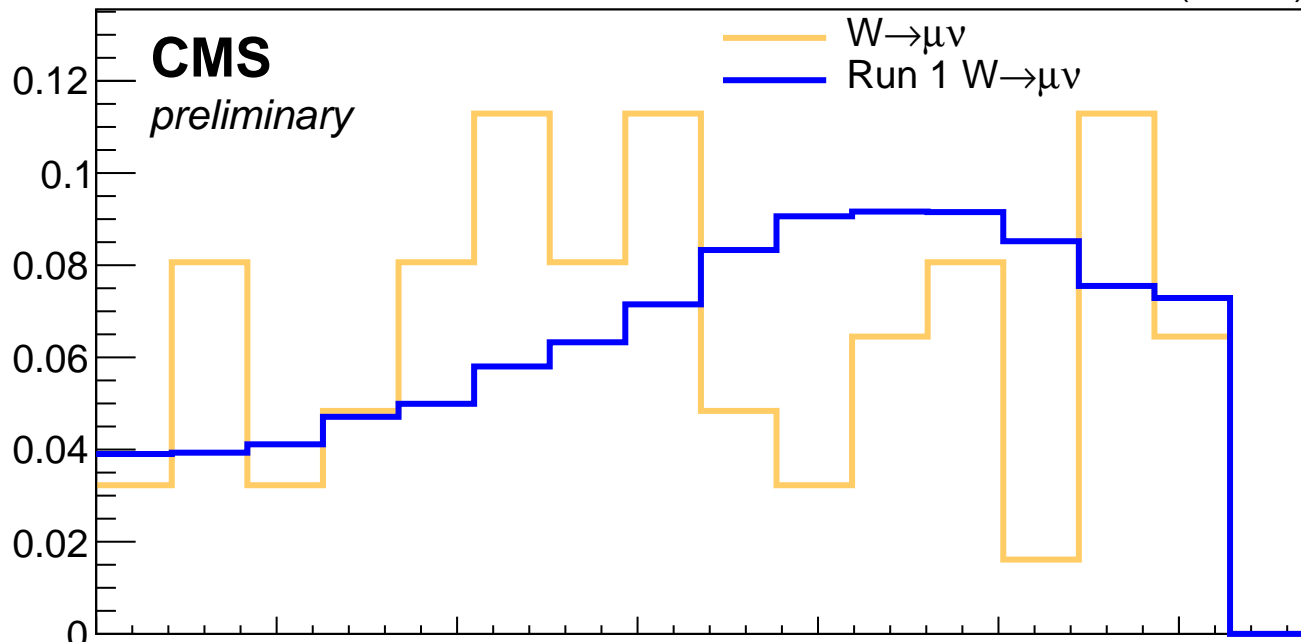
19.2 fb⁻¹ (8 TeV)

CMS
preliminary

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

Data/Bkg

$\Delta\phi_{jj}$



19.2 fb⁻¹ (8 TeV)

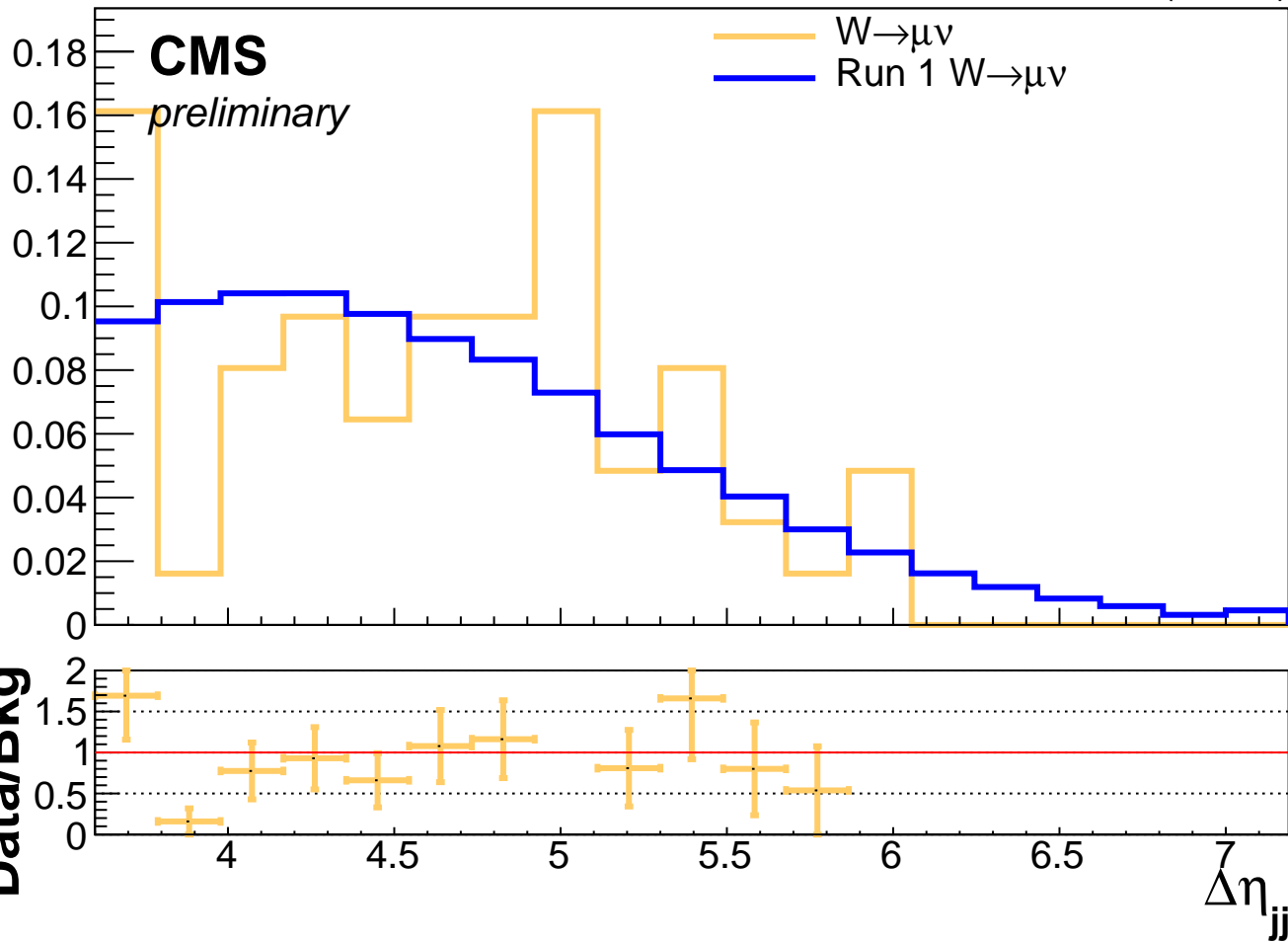
CMS

preliminary

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

Data/Bkg

$\Delta\eta_{jj}$



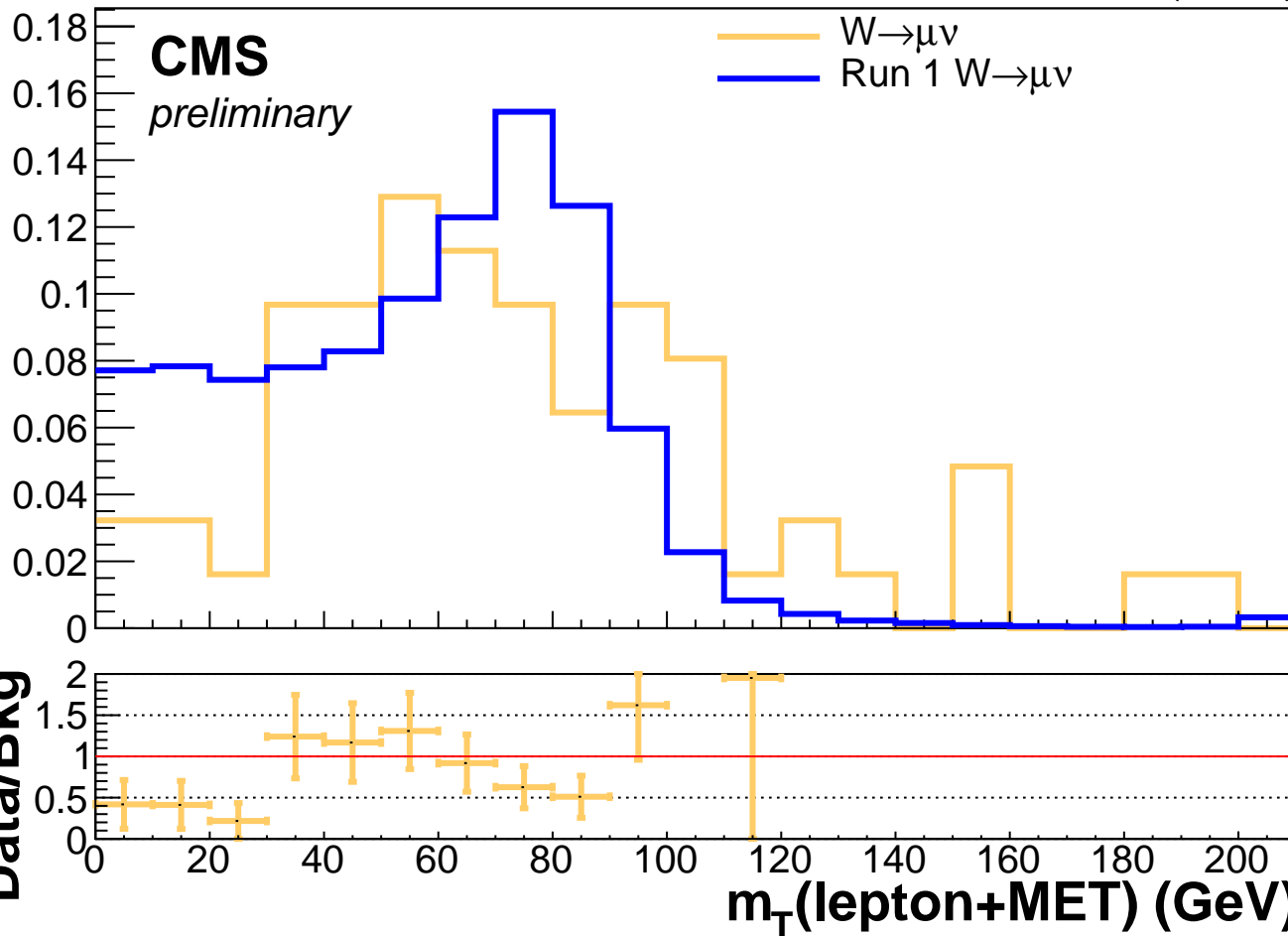
19.2 fb⁻¹ (8 TeV)

CMS
preliminary

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

Data/Bkg

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



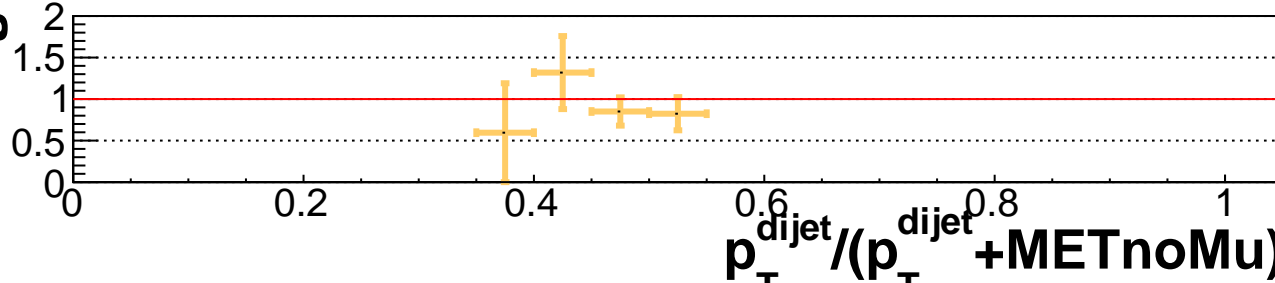
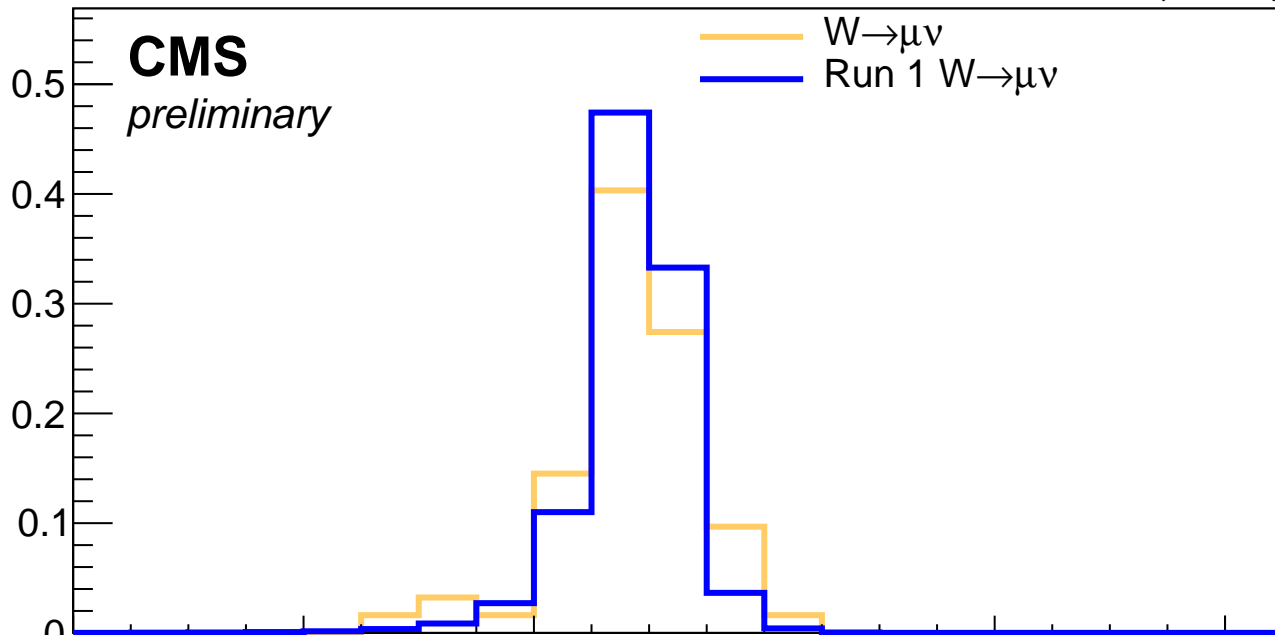
19.2 fb⁻¹ (8 TeV)

CMS
preliminary

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

Data/Bkg

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



19.2 fb⁻¹ (8 TeV)

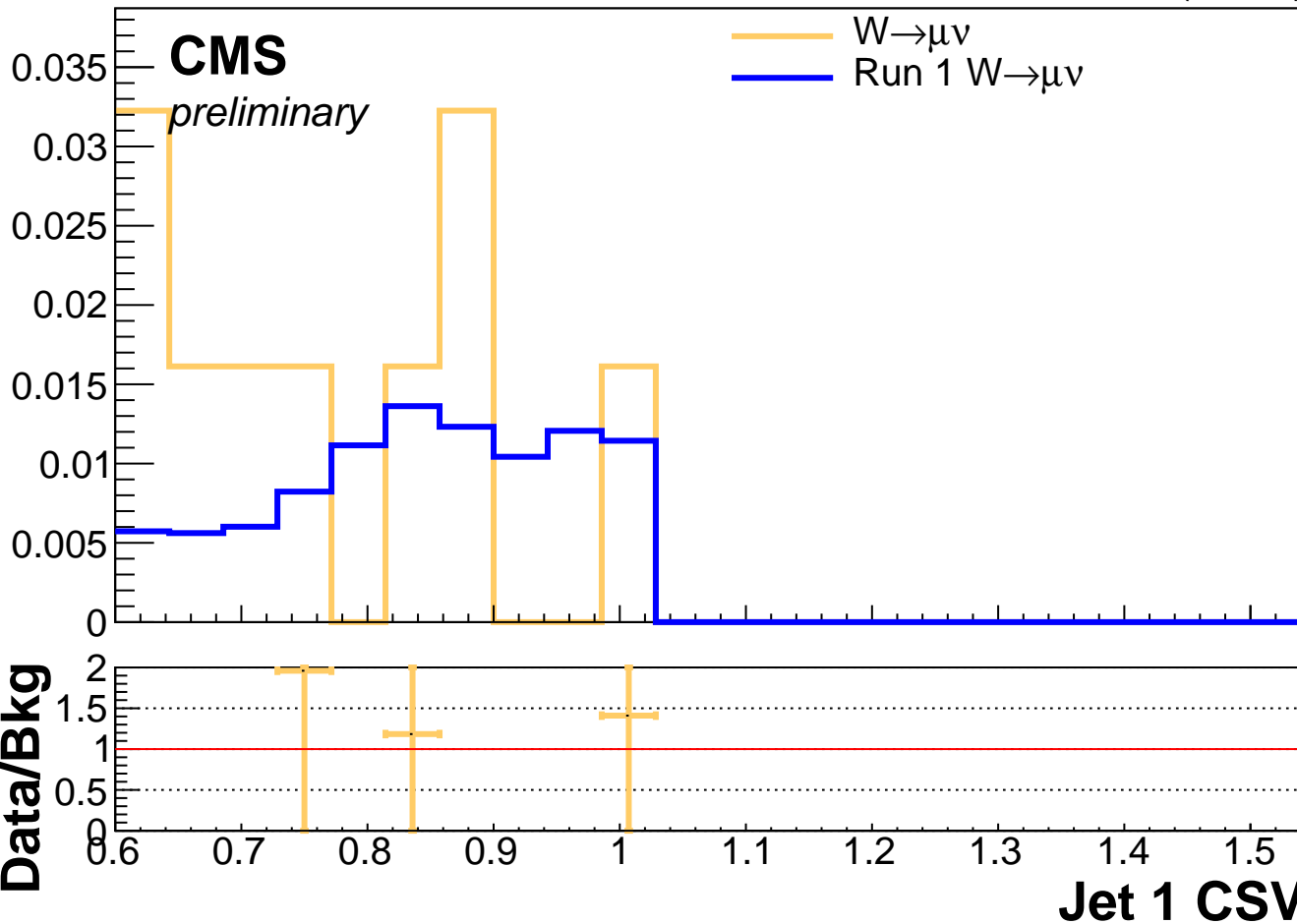
CMS

preliminary

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

Data/Bkg

Jet 1 CSV



19.2 fb⁻¹ (8 TeV)

CMS

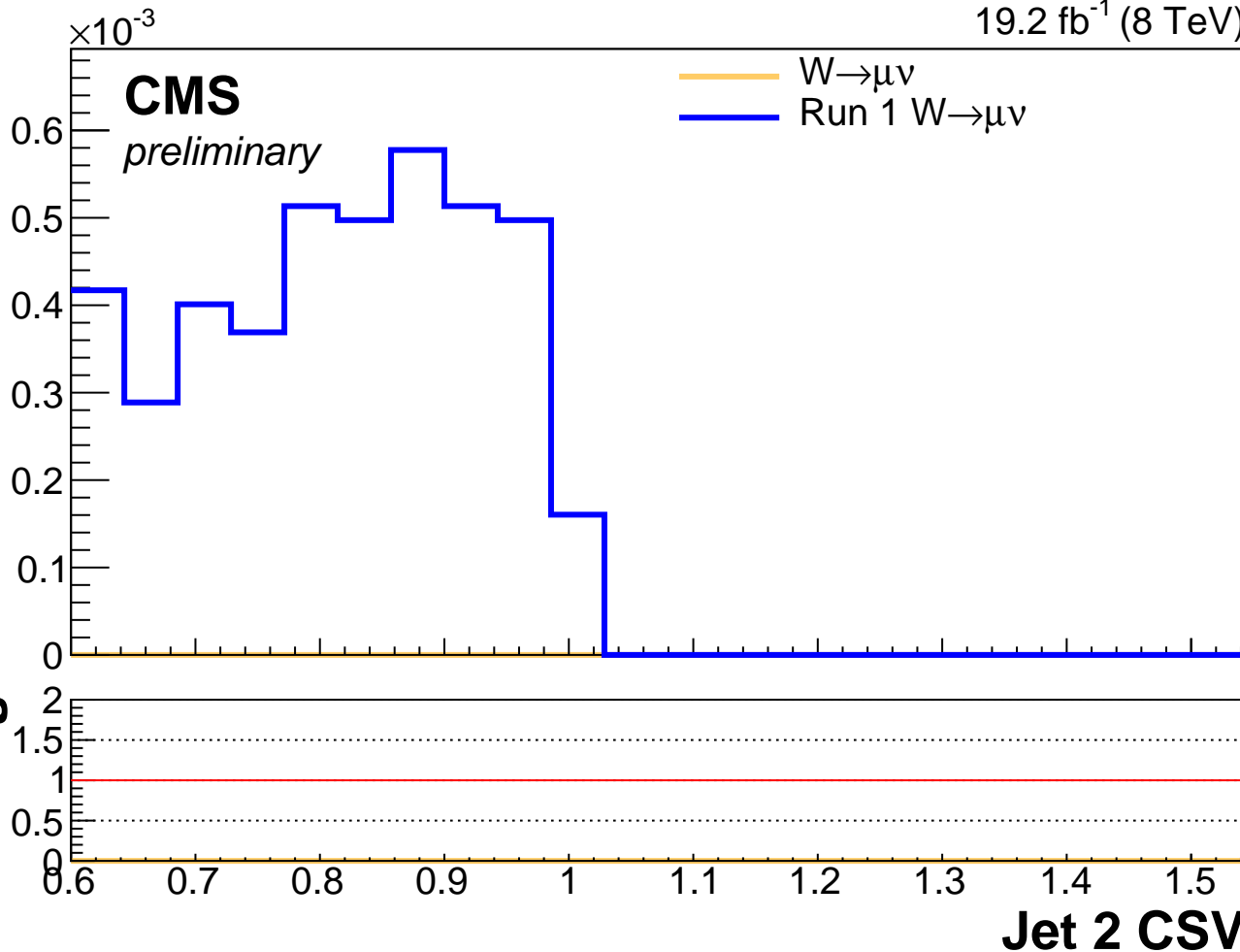
preliminary

W→μν

Run 1 W→μν

Data/Bkg

Jet 2 CSV



19.2 fb⁻¹ (8 TeV)

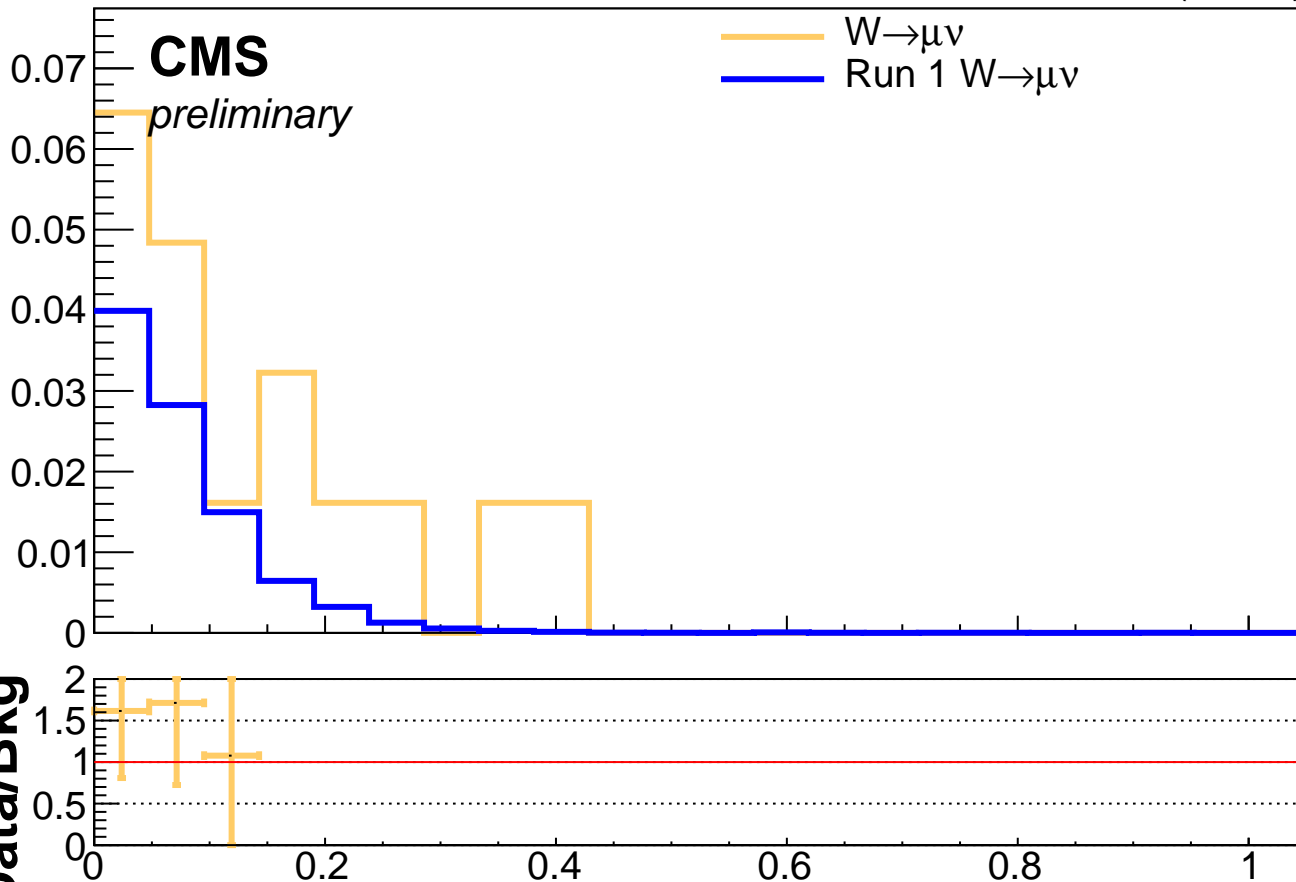
CMS

preliminary

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

Data/Bkg

Jet 3 CSV



19.2 fb⁻¹ (8 TeV)

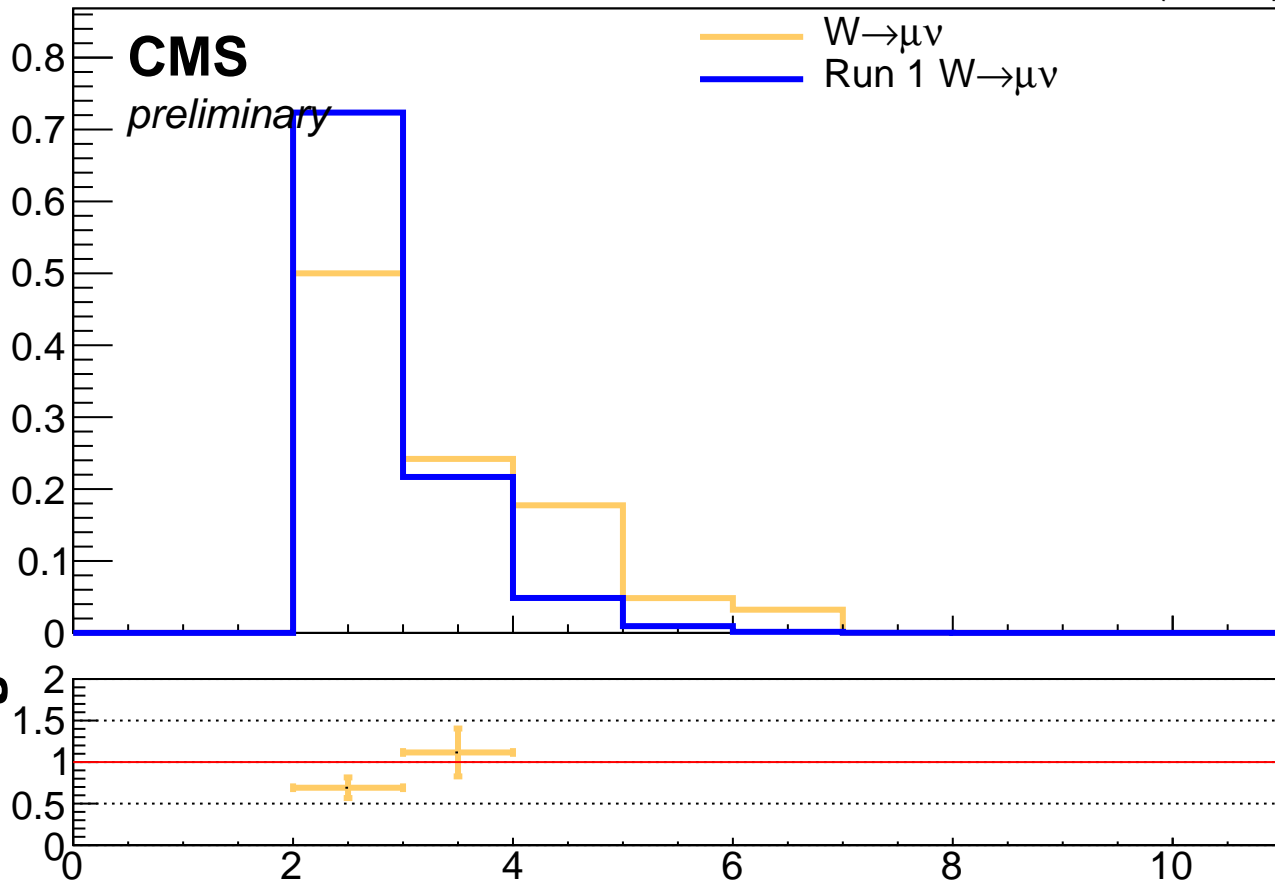
CMS

preliminary

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

Data/Bkg

N jets pt>30 GeV



19.2 fb⁻¹ (8 TeV)

CMS

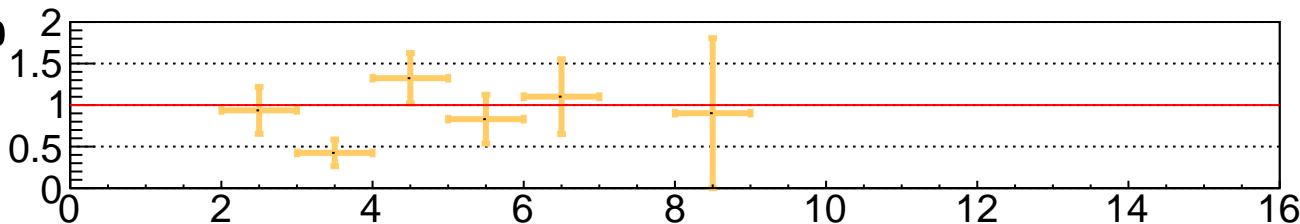
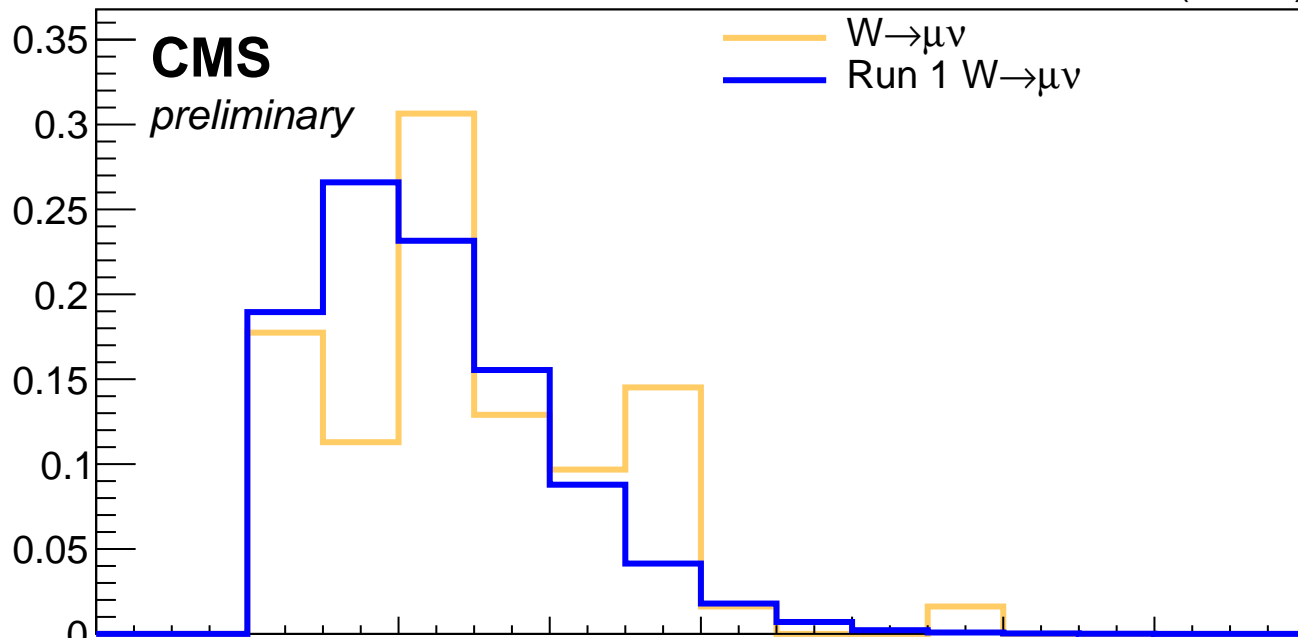
preliminary

W→μν

Run 1 W→μν

Data/Bkg

N jets pt>15 GeV



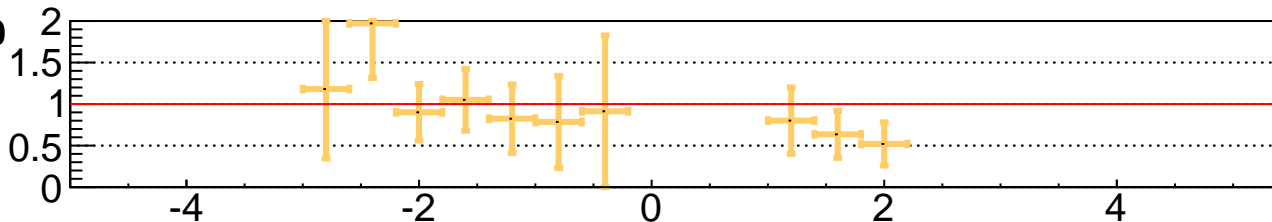
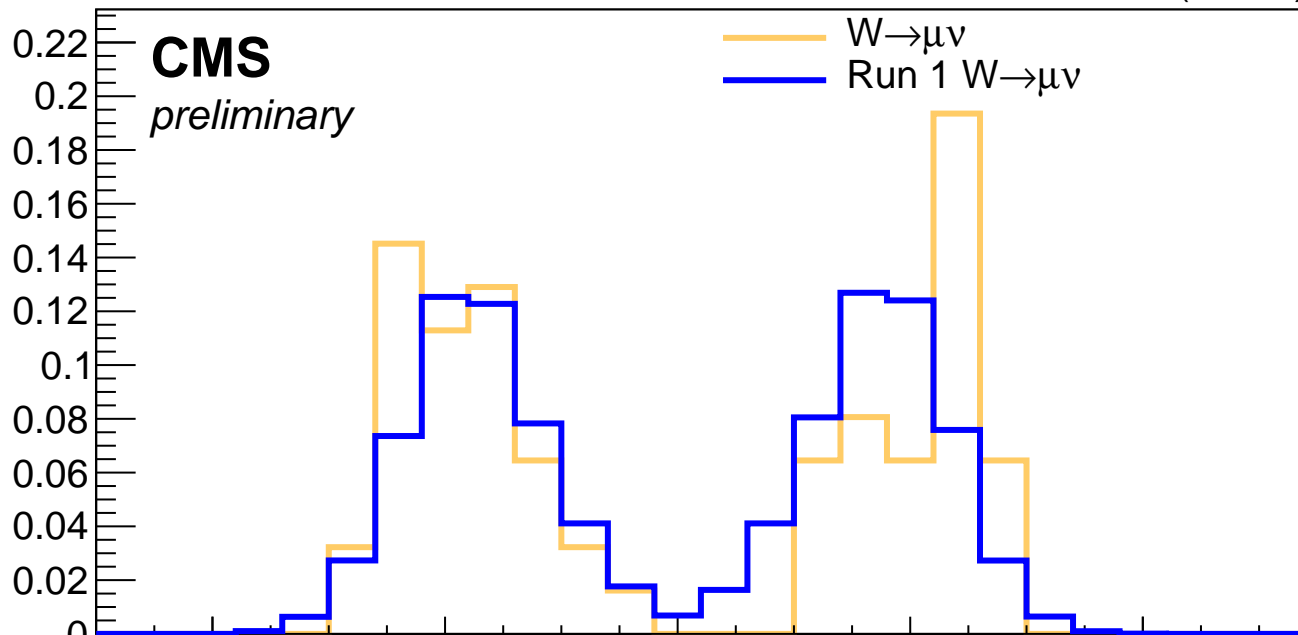
19.2 fb⁻¹ (8 TeV)

CMS
preliminary

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

Data/Bkg

Central tag jet η



19.2 fb⁻¹ (8 TeV)

CMS
preliminary

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

Data/Bkg

Forward tag jet η

