

19.2 fb⁻¹ (8 TeV)

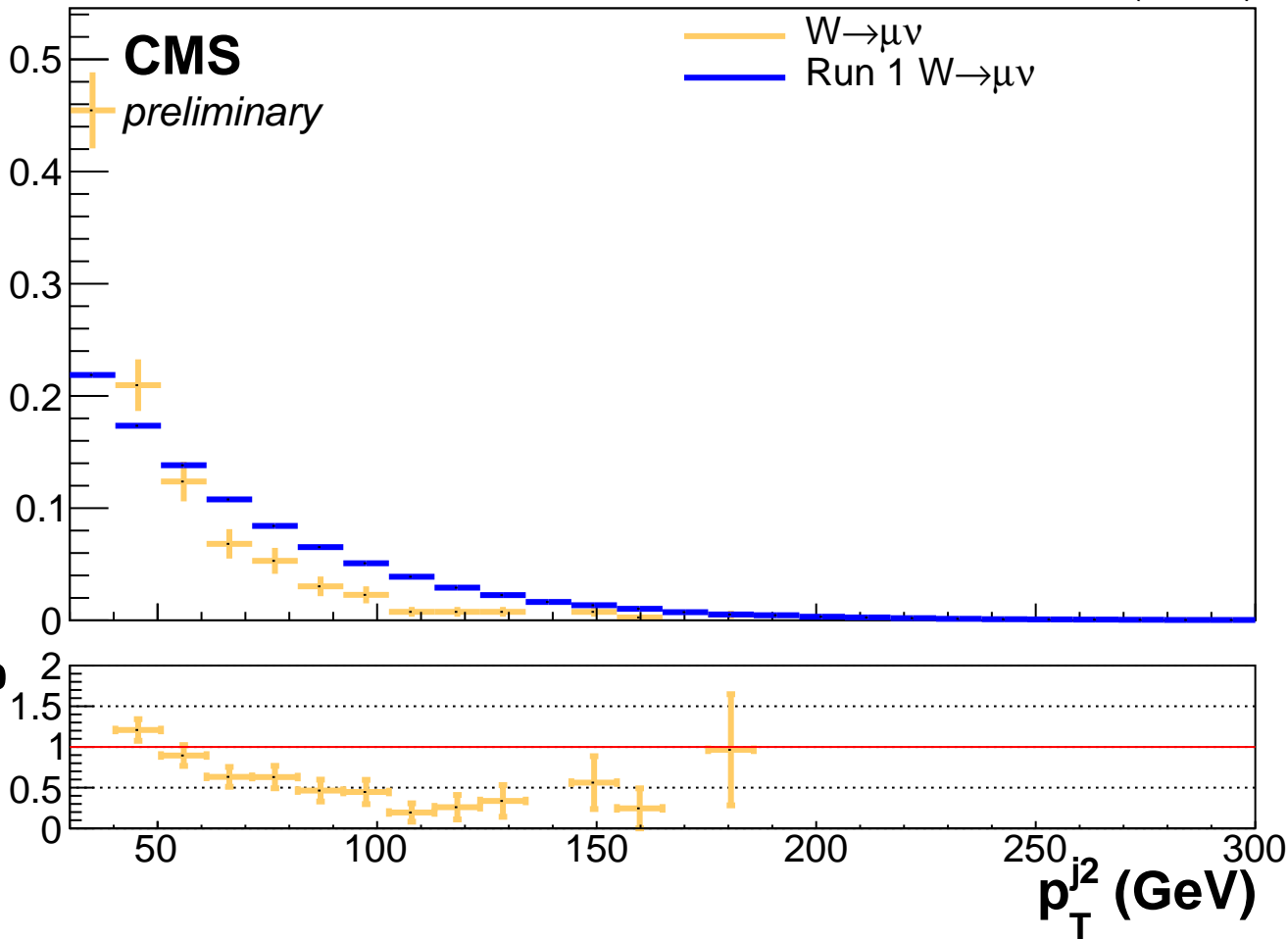
CMS

preliminary

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

Data/Bkg

p_T^{j2} (GeV)

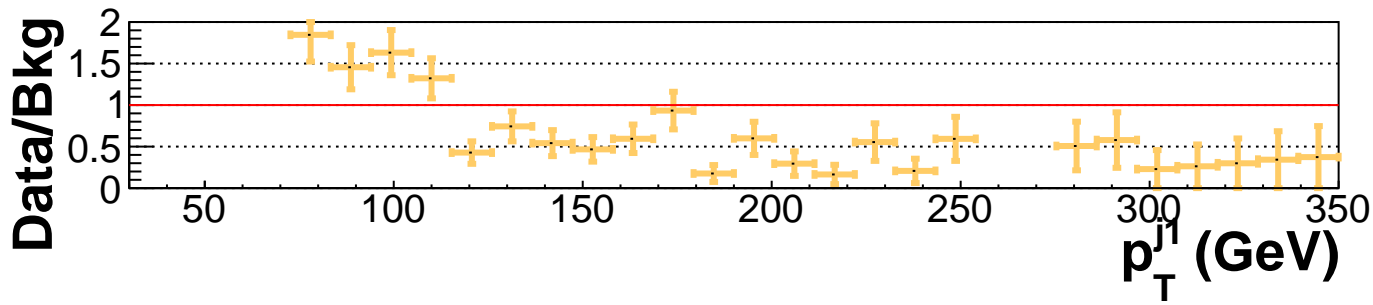


19.2 fb⁻¹ (8 TeV)

CMS

preliminary

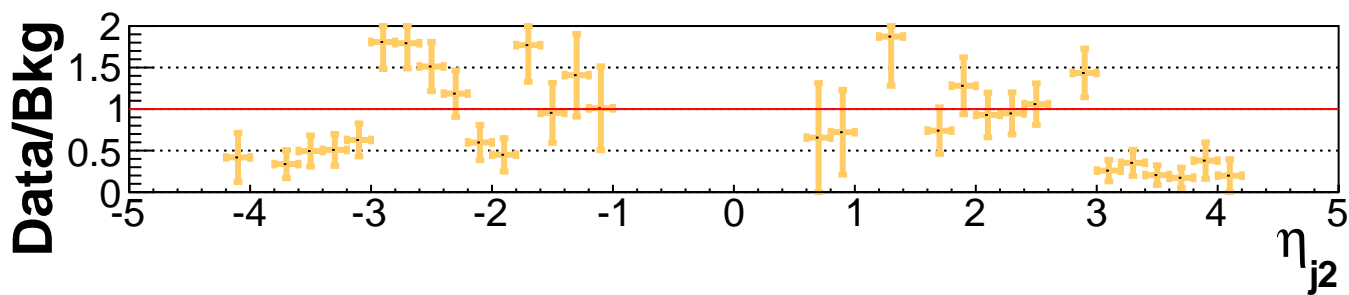
W→μν
Run 1 W→μν



19.2 fb⁻¹ (8 TeV)

CMS
preliminary

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



19.2 fb⁻¹ (8 TeV)

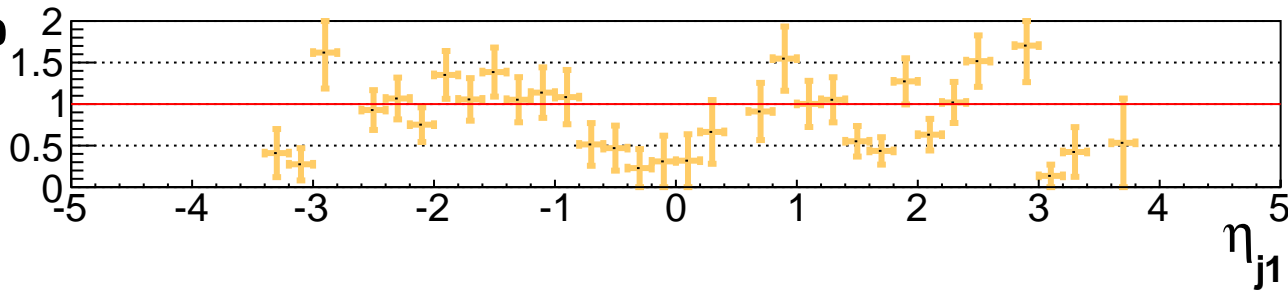
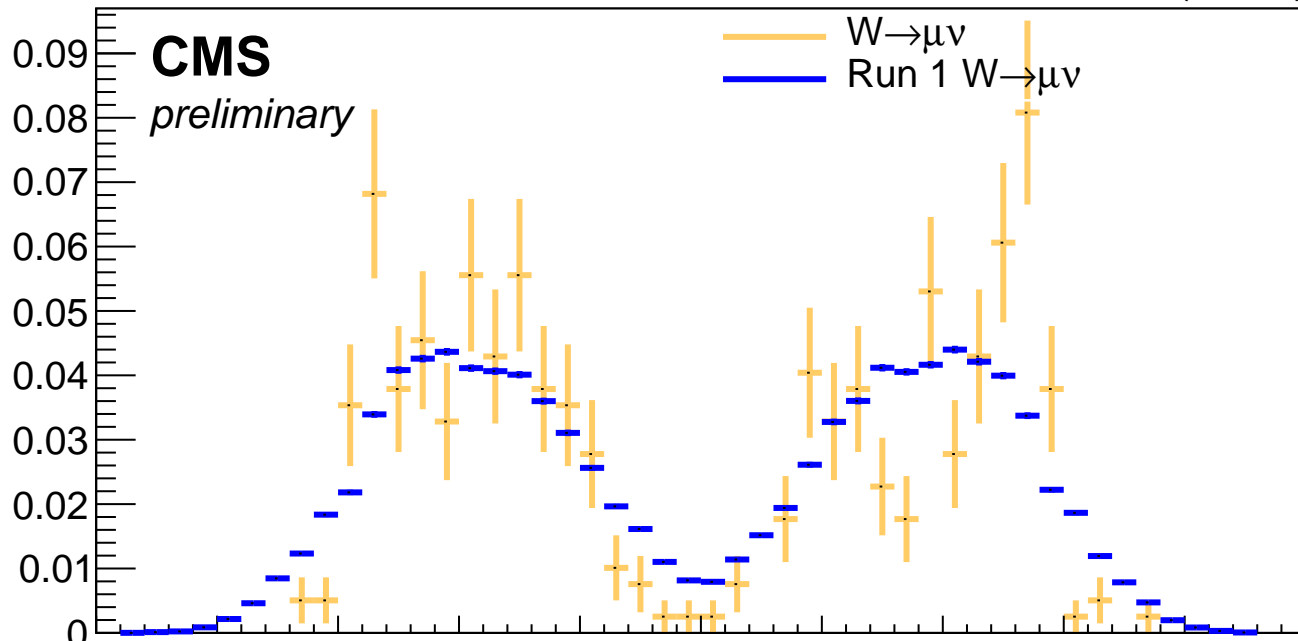
CMS

preliminary

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

Data/Bkg

η_{j1}



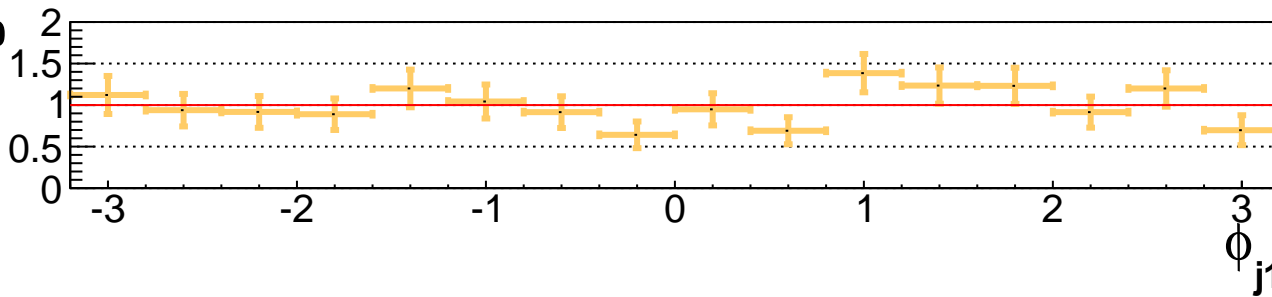
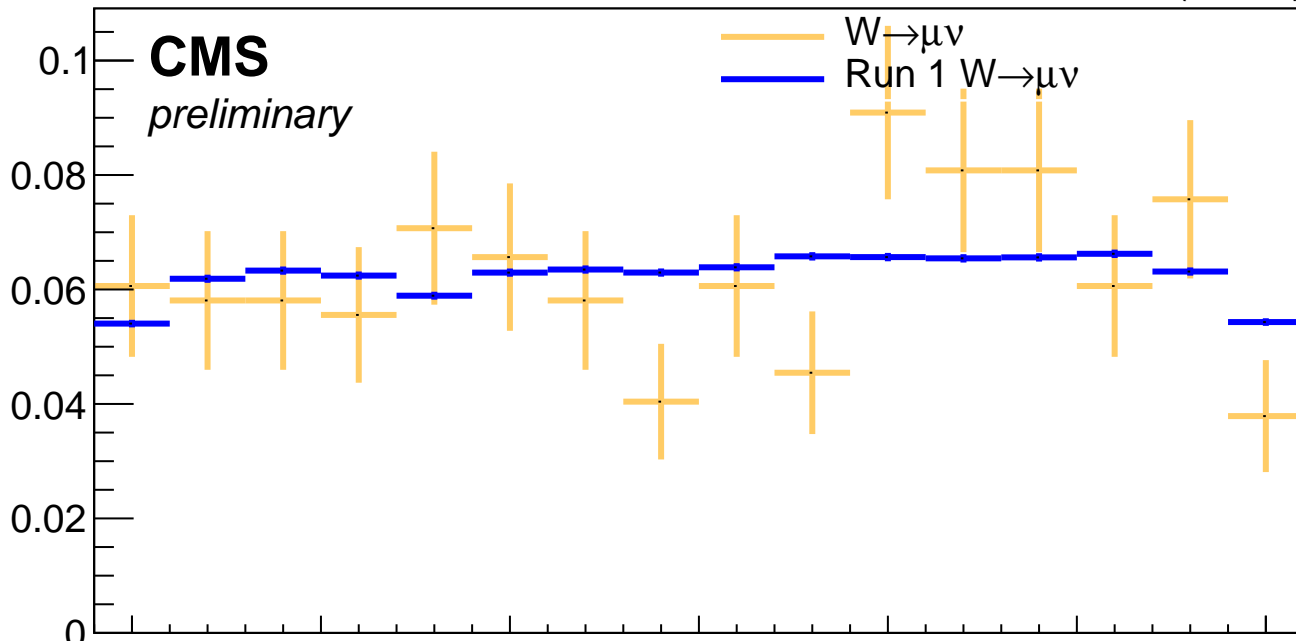
19.2 fb⁻¹ (8 TeV)

CMS
preliminary

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

Data/Bkg

ϕ_{j1}



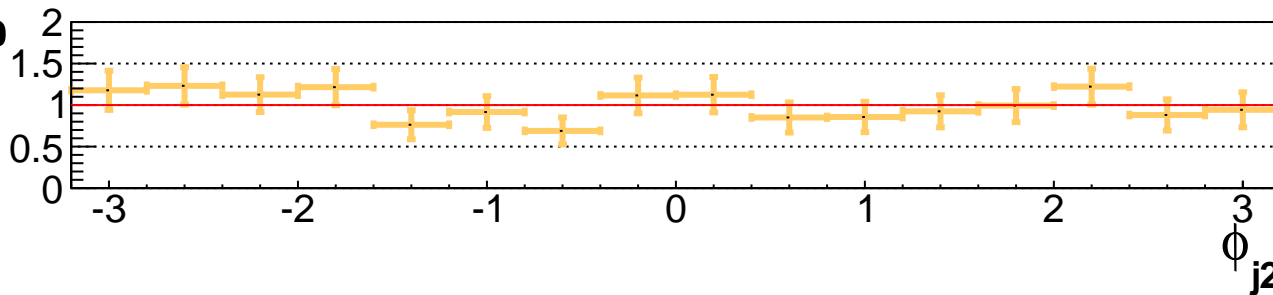
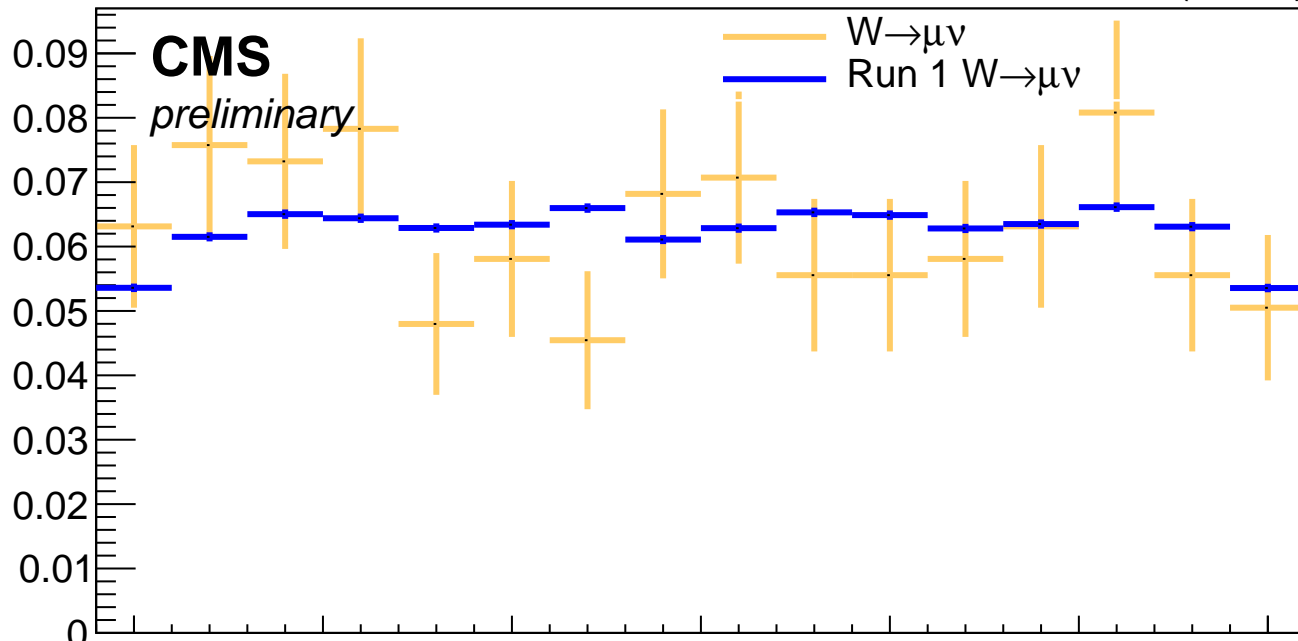
19.2 fb⁻¹ (8 TeV)

CMS
preliminary

W→μν
Run 1 W→μν

Data/Bkg

ϕ_{j2}



19.2 fb⁻¹ (8 TeV)

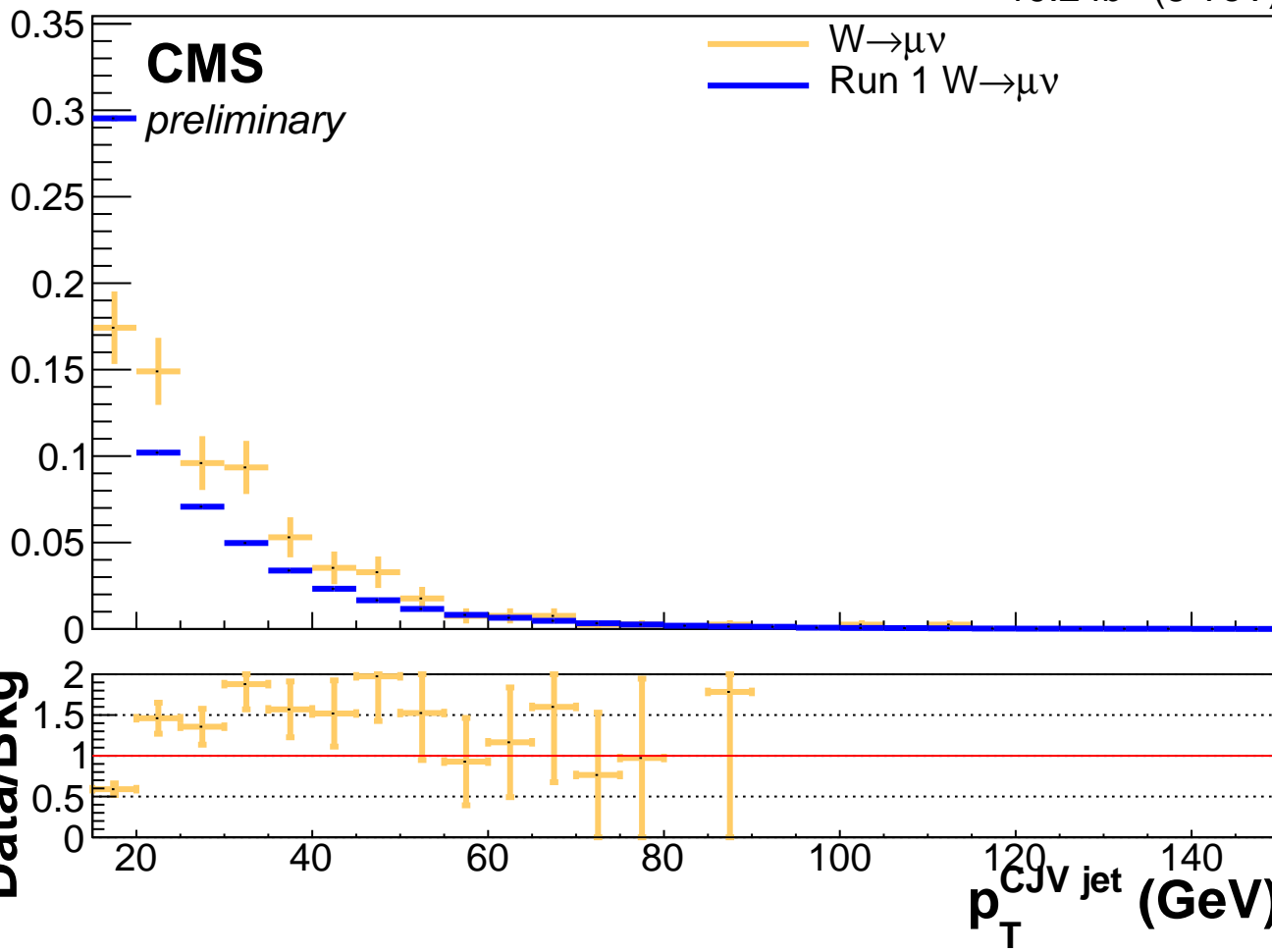
CMS

preliminary

W→μν
Run 1 W→μν

Data/Bkg

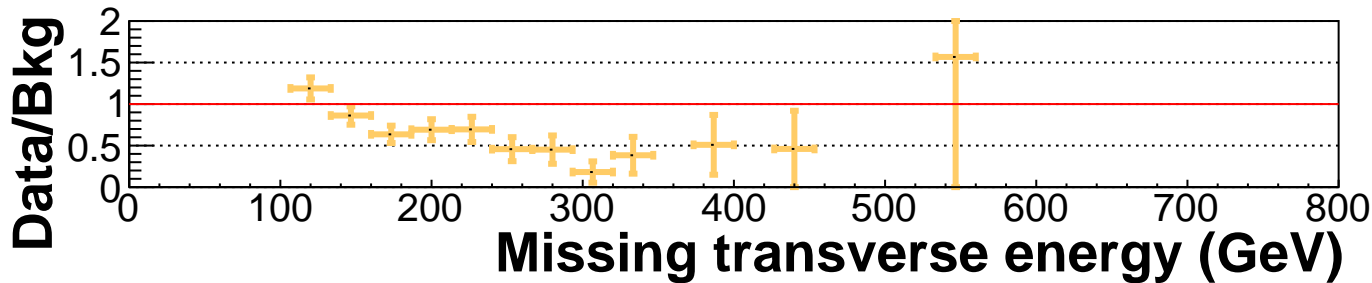
p_T^{CJν jet} (GeV)



19.2 fb⁻¹ (8 TeV)

CMS
preliminary

W→μν
Run 1 W→μν



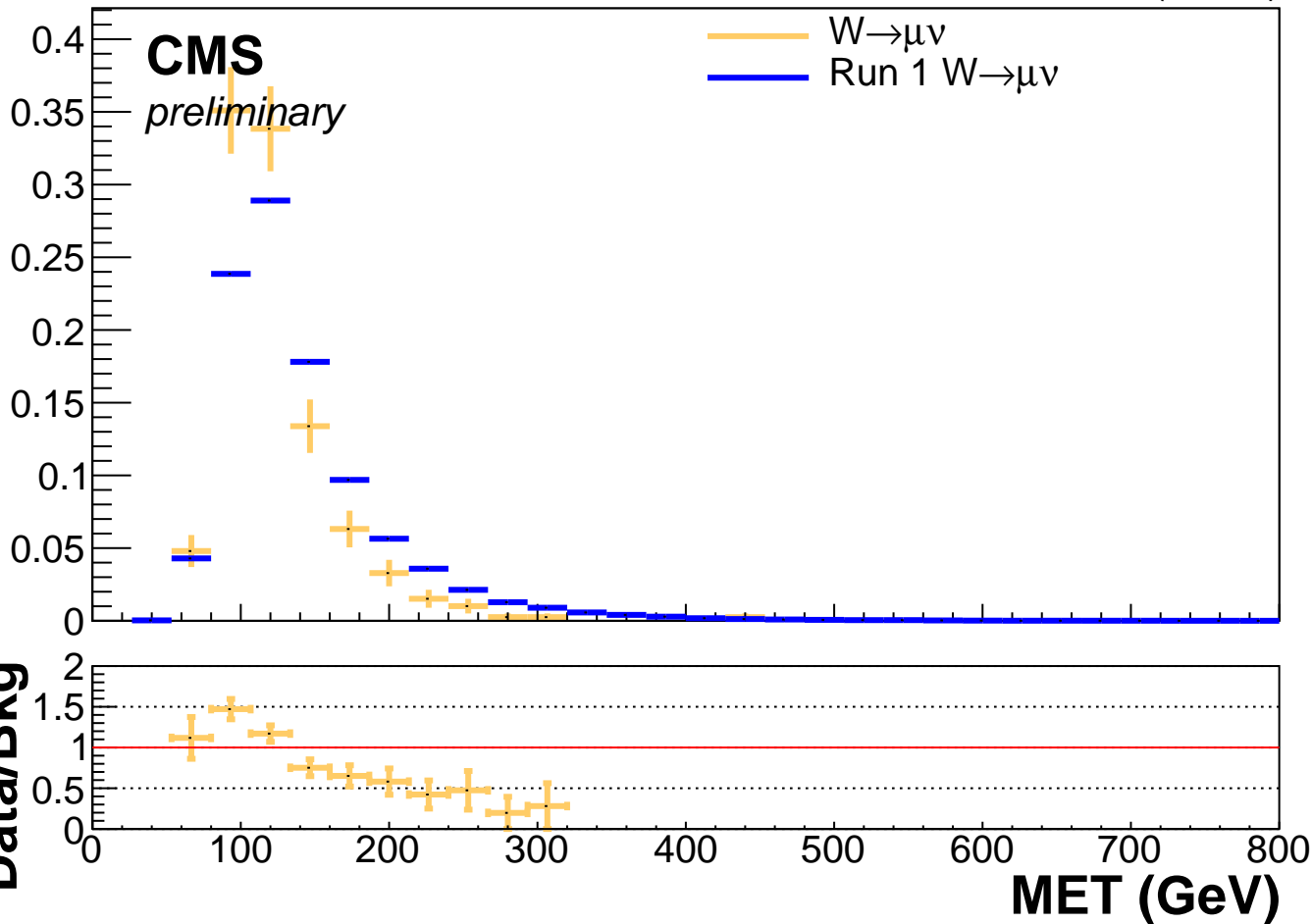
19.2 fb⁻¹ (8 TeV)

CMS
preliminary

W→μν
Run 1 W→μν

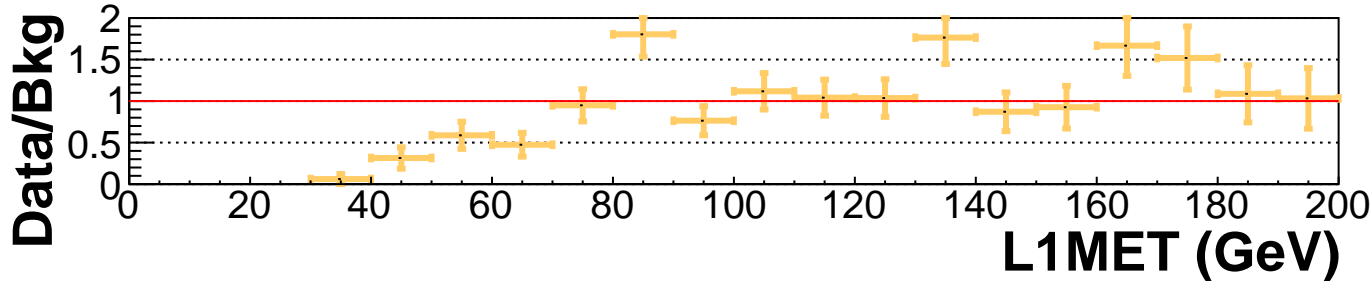
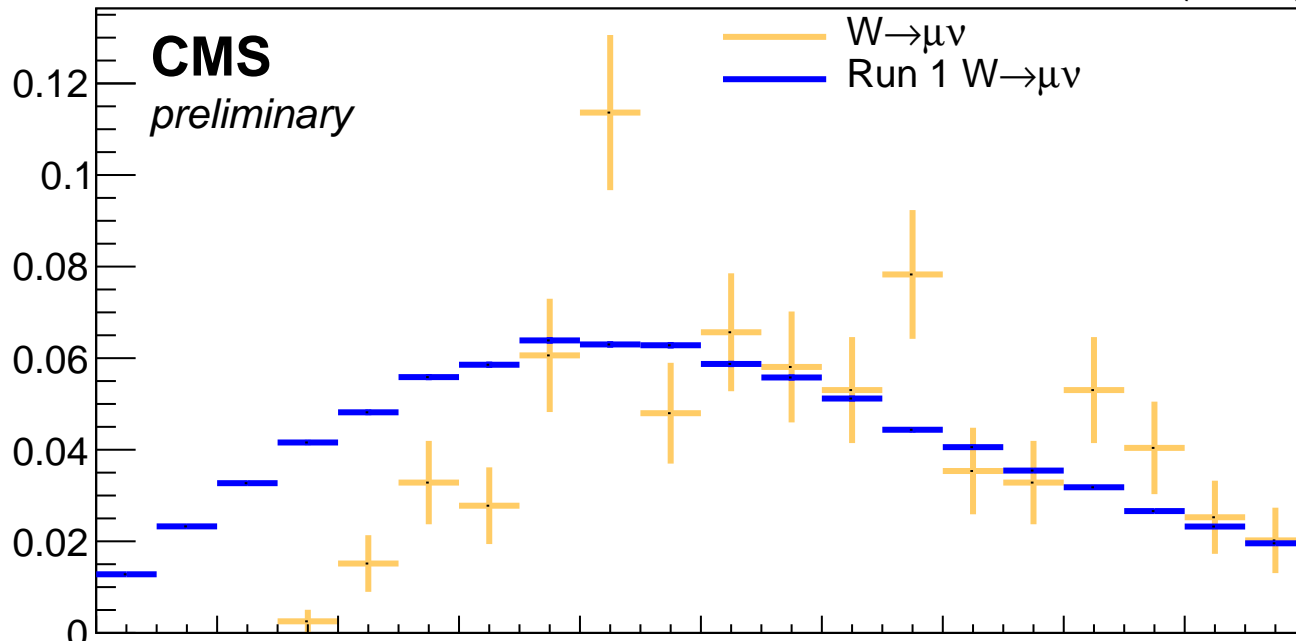
Data/Bkg

MET (GeV)



19.2 fb⁻¹ (8 TeV)

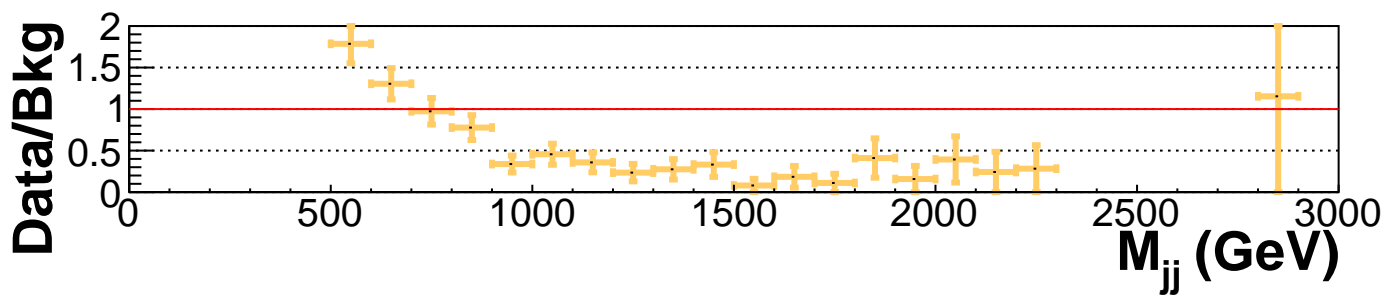
CMS
preliminary



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

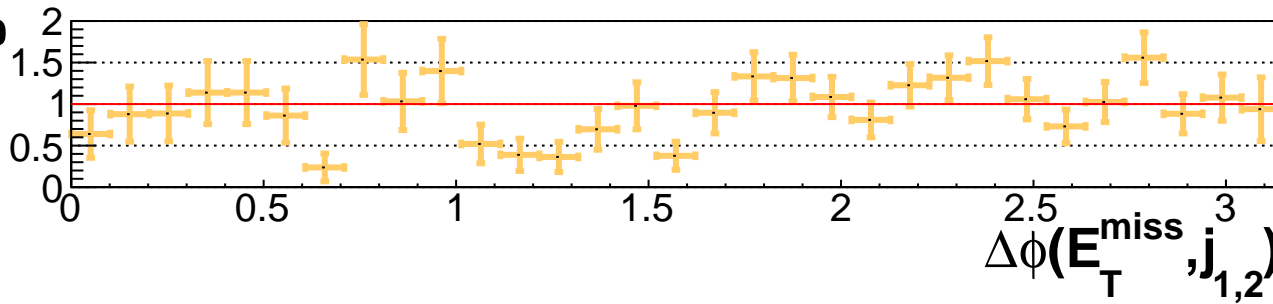
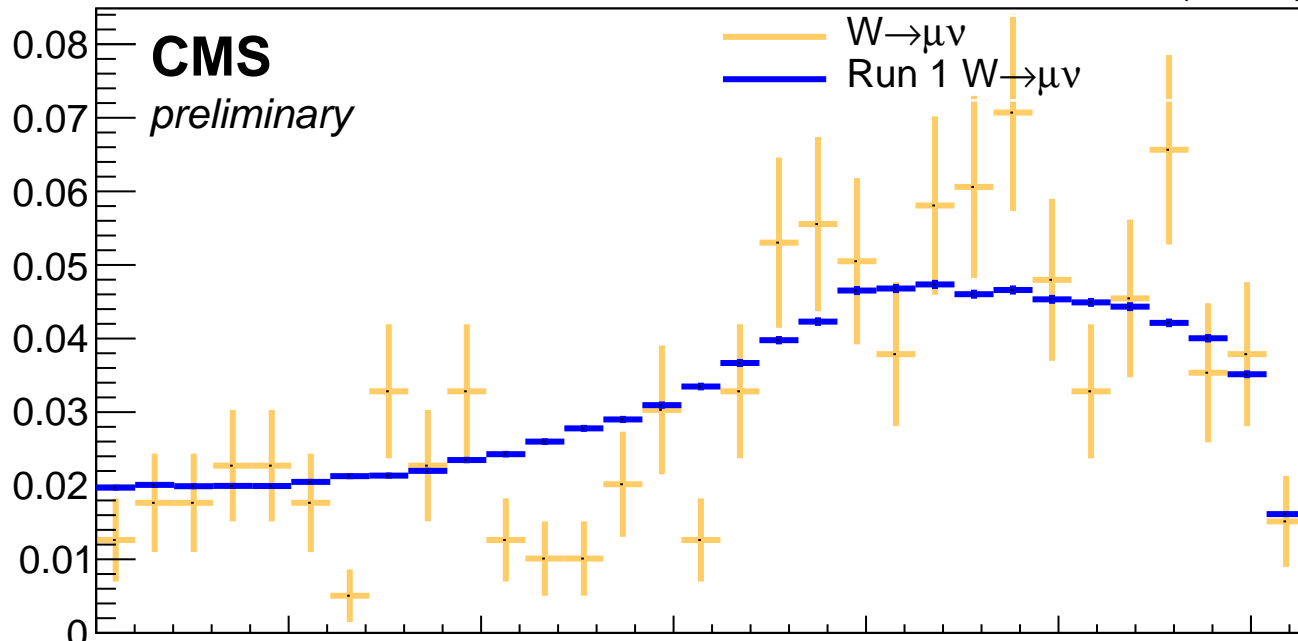
preliminary

W→μν

Run 1 W→μν

Data/Bkg

$\Delta\phi(\mathbf{E}_T^{\text{miss}}, \mathbf{j}_{1,2})$

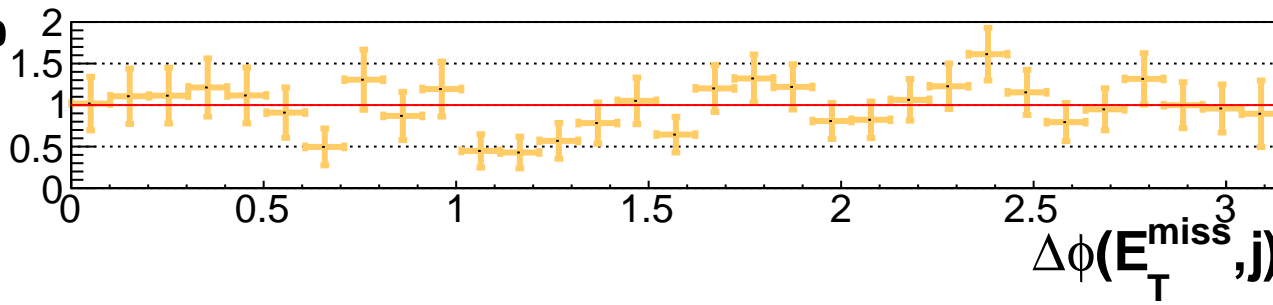
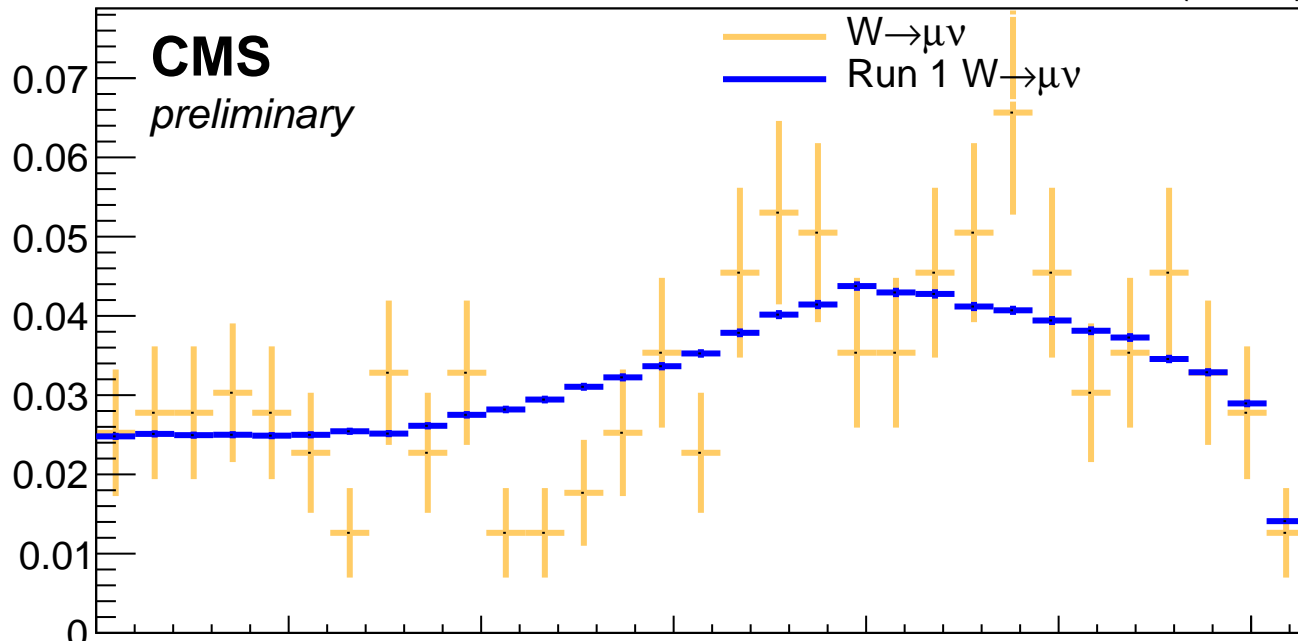


19.2 fb⁻¹ (8 TeV)

CMS
preliminary

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

Data/Bkg

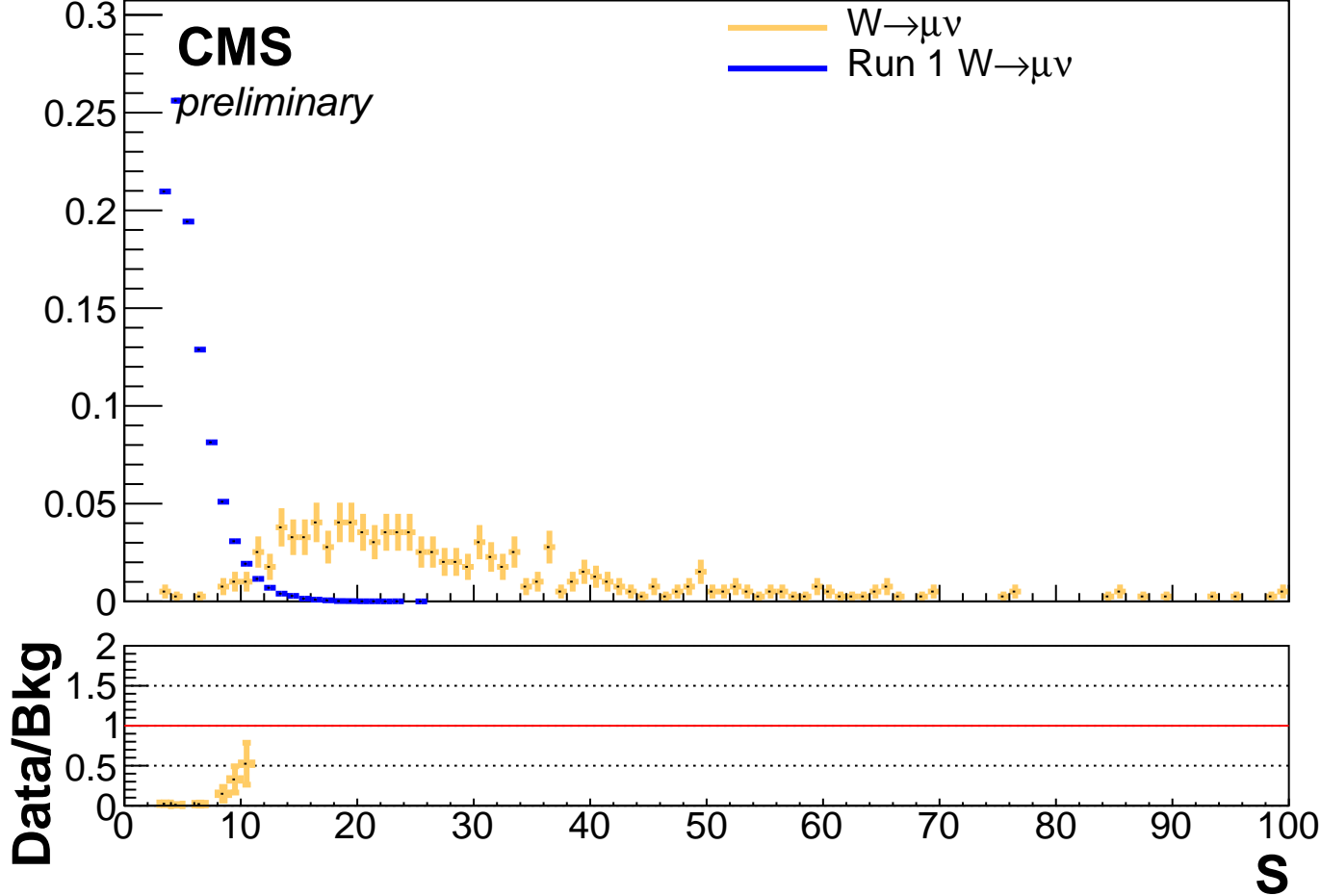


19.2 fb⁻¹ (8 TeV)

CMS

preliminary

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



19.2 fb⁻¹ (8 TeV)

CMS

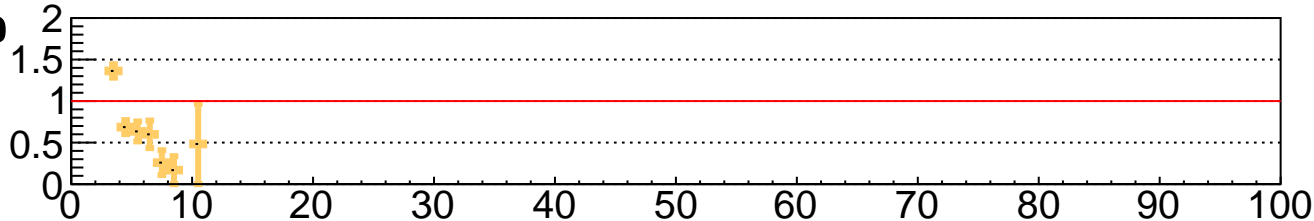
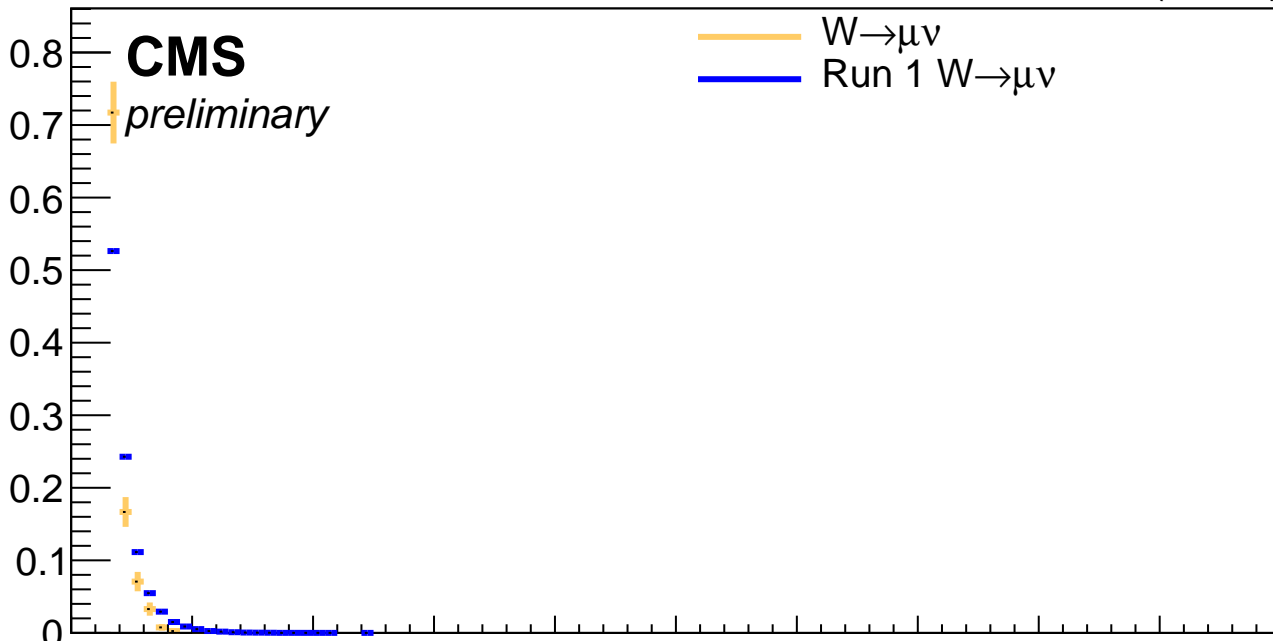
preliminary

W→μν

Run 1 W→μν

Data/Bkg

Run 1 S



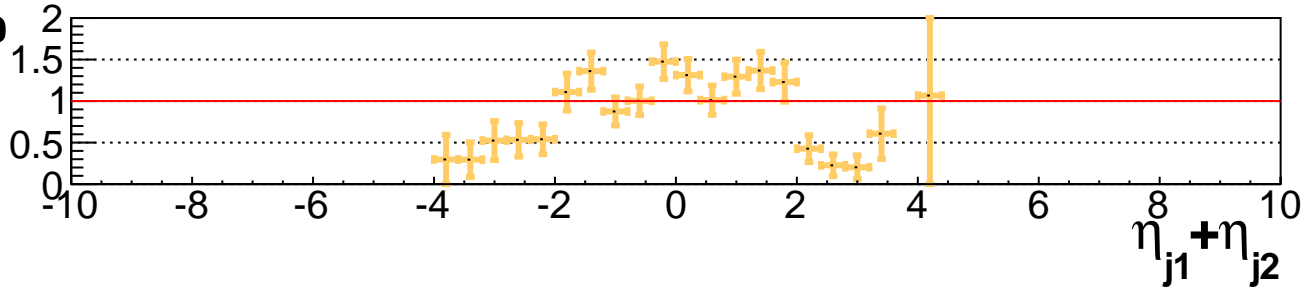
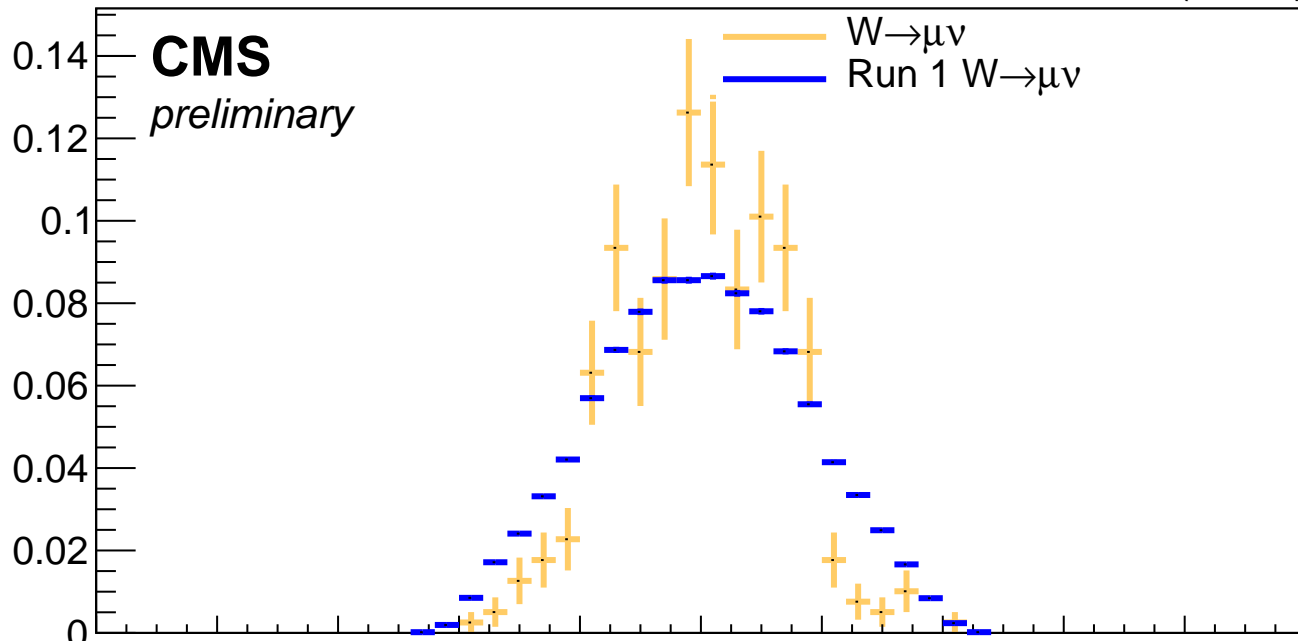
19.2 fb⁻¹ (8 TeV)

CMS
preliminary

W→μν
Run 1 W→μν

Data/Bkg

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



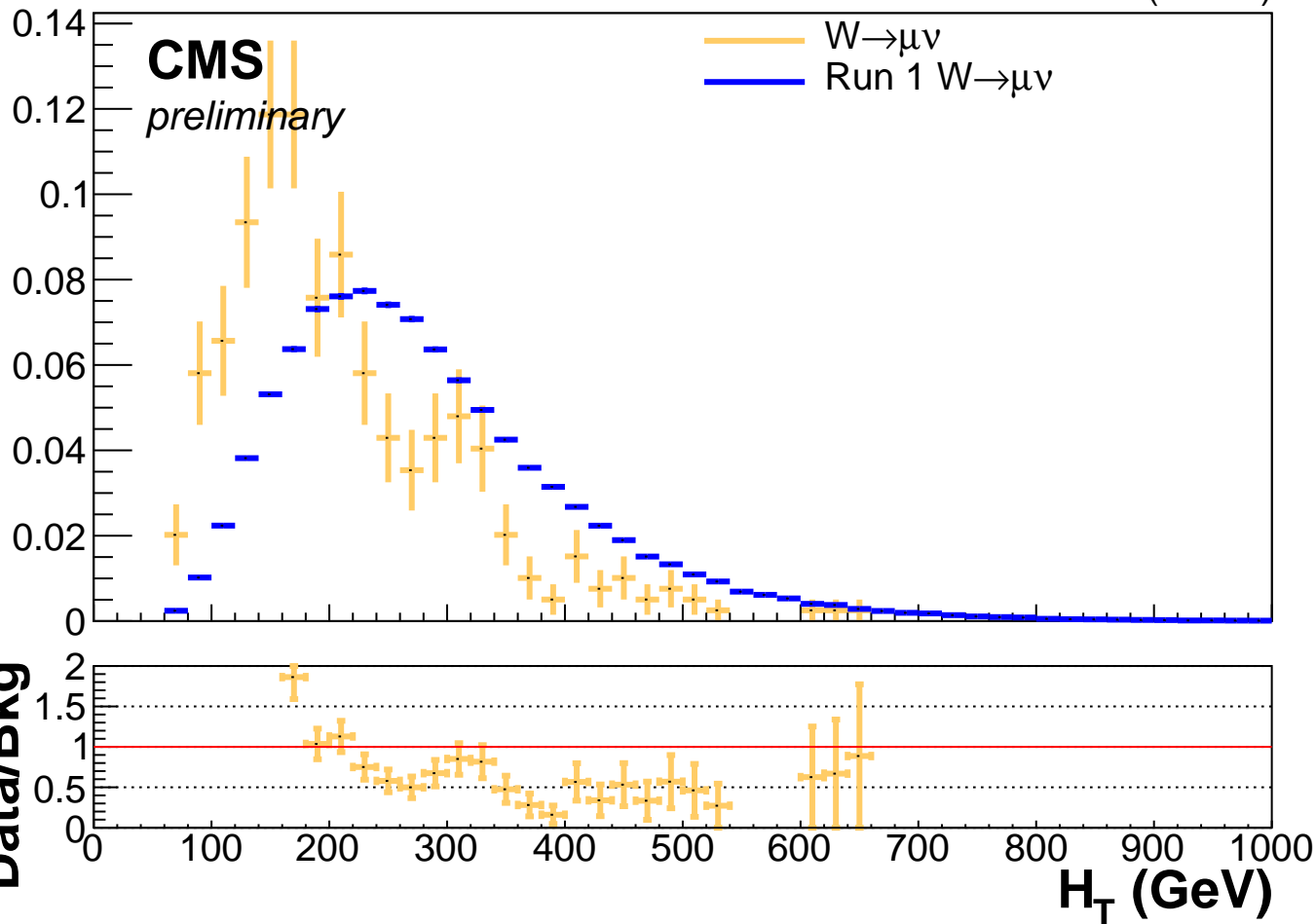
19.2 fb⁻¹ (8 TeV)

CMS
preliminary

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

Data/Bkg

H_T (GeV)



19.2 fb⁻¹ (8 TeV)

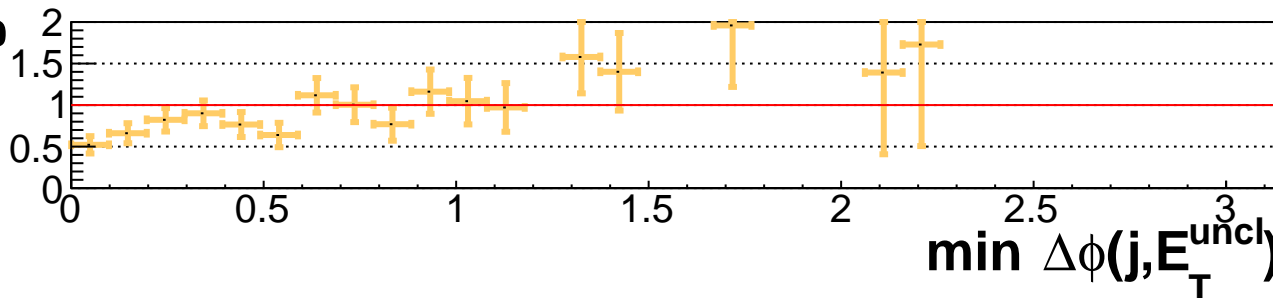
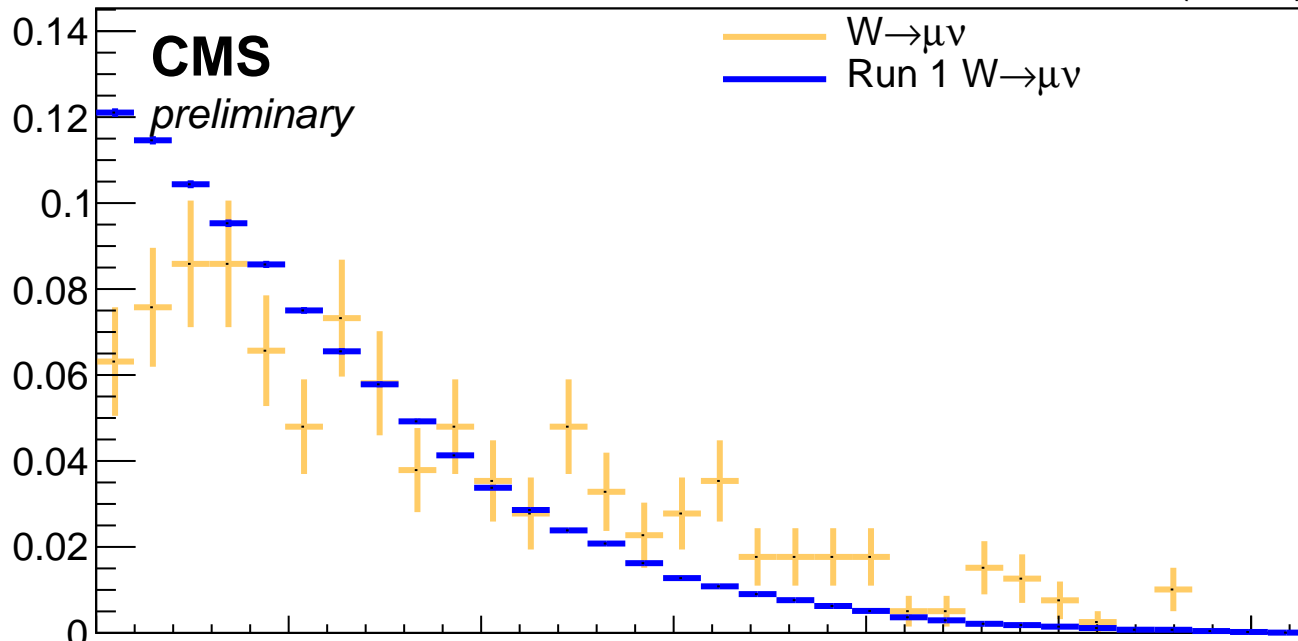
CMS

preliminary

W → μν
Run 1 W → μν

Data/Bkg

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



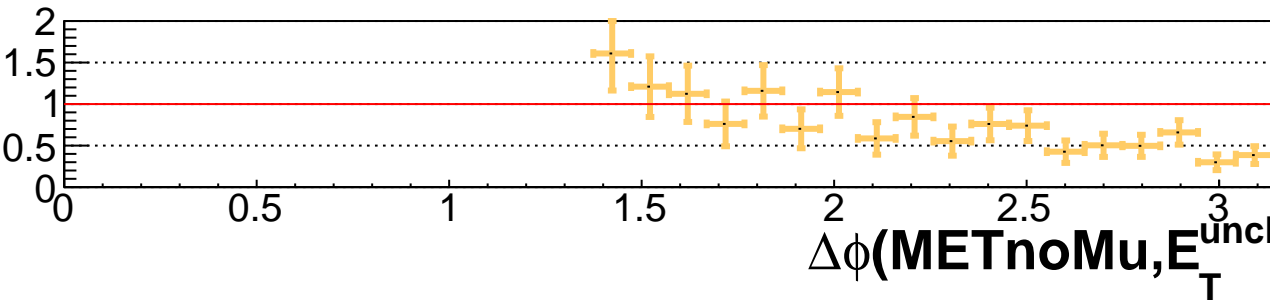
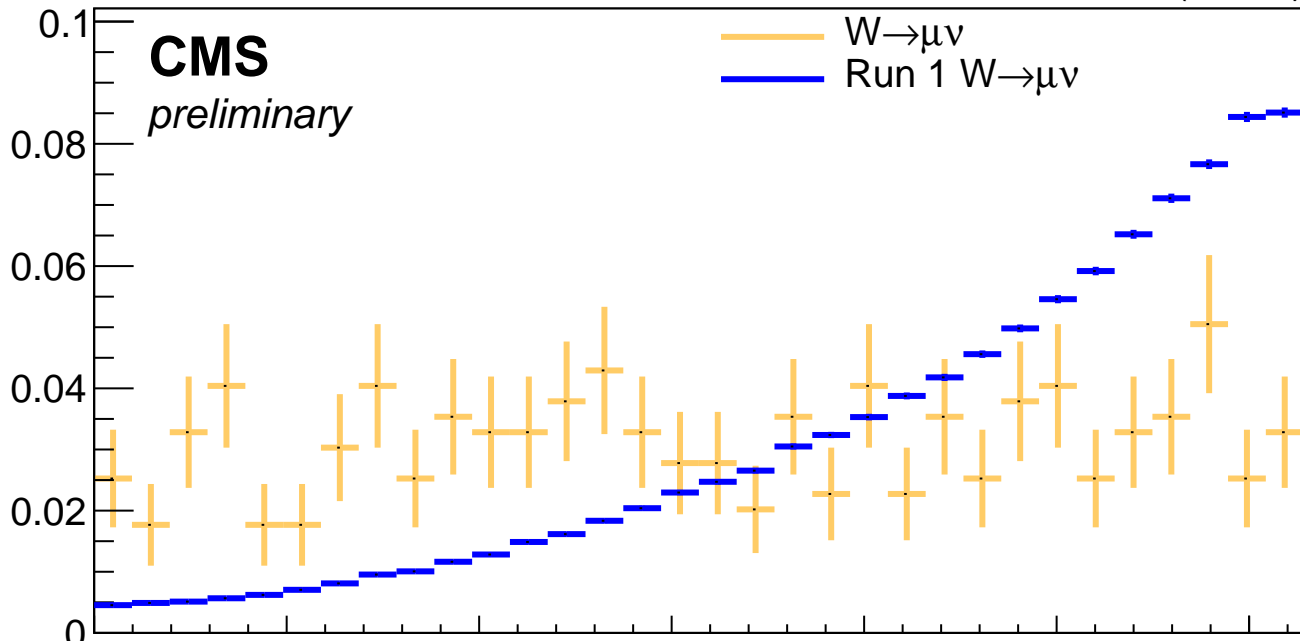
19.2 fb⁻¹ (8 TeV)

CMS
preliminary

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

Data/Bkg

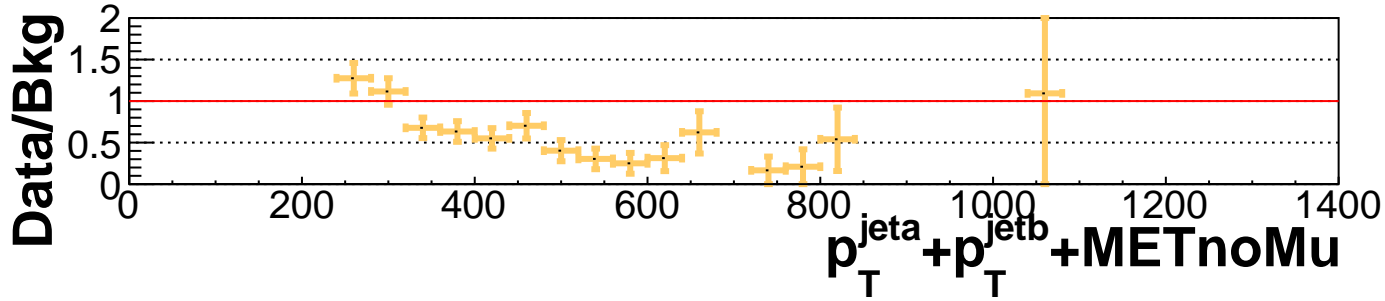
$\Delta\phi(\text{MET no Mu}, E_{\text{T}}^{\text{unc1}})$



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

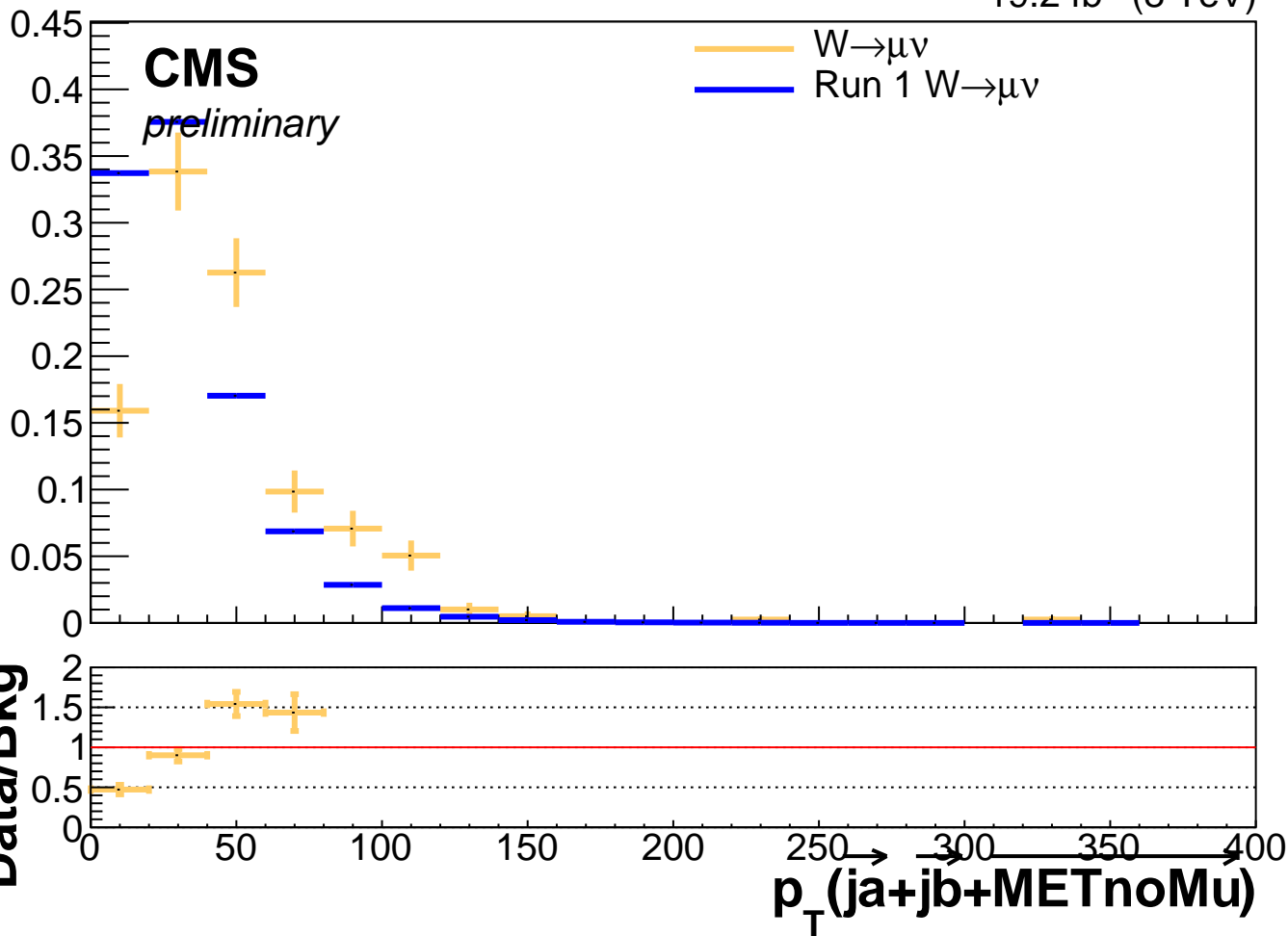
preliminary

W→μν

Run 1 W→μν

Data/Bkg

p_T (ja+jb+METnoMu)



19.2 fb⁻¹ (8 TeV)

CMS

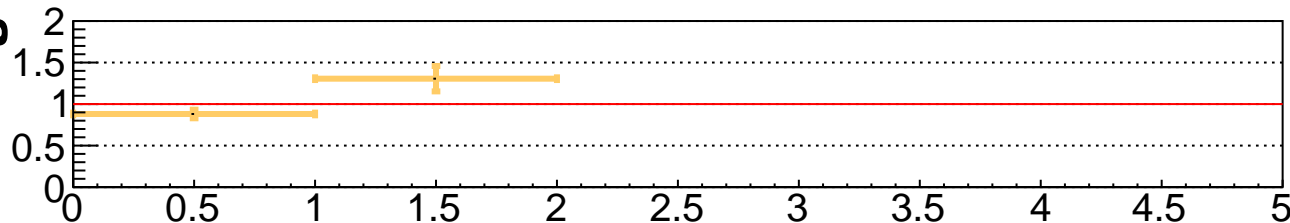
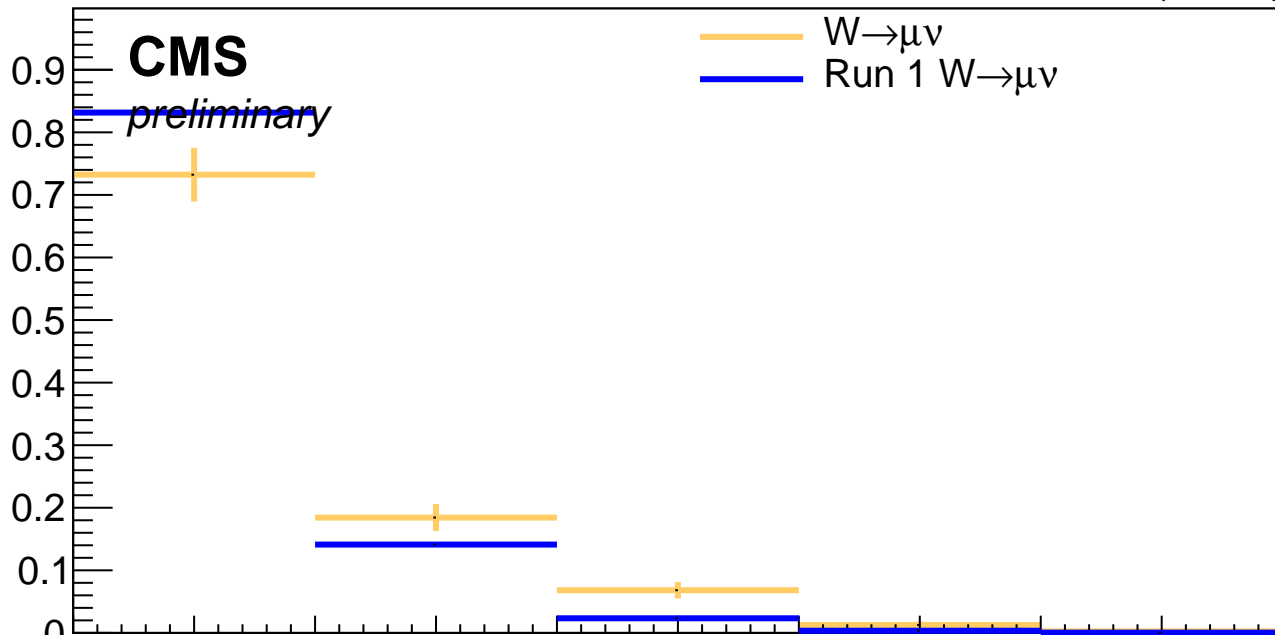
preliminary

W→μν

Run 1 W→μν

Data/Bkg

CJV jets (30 GeV)

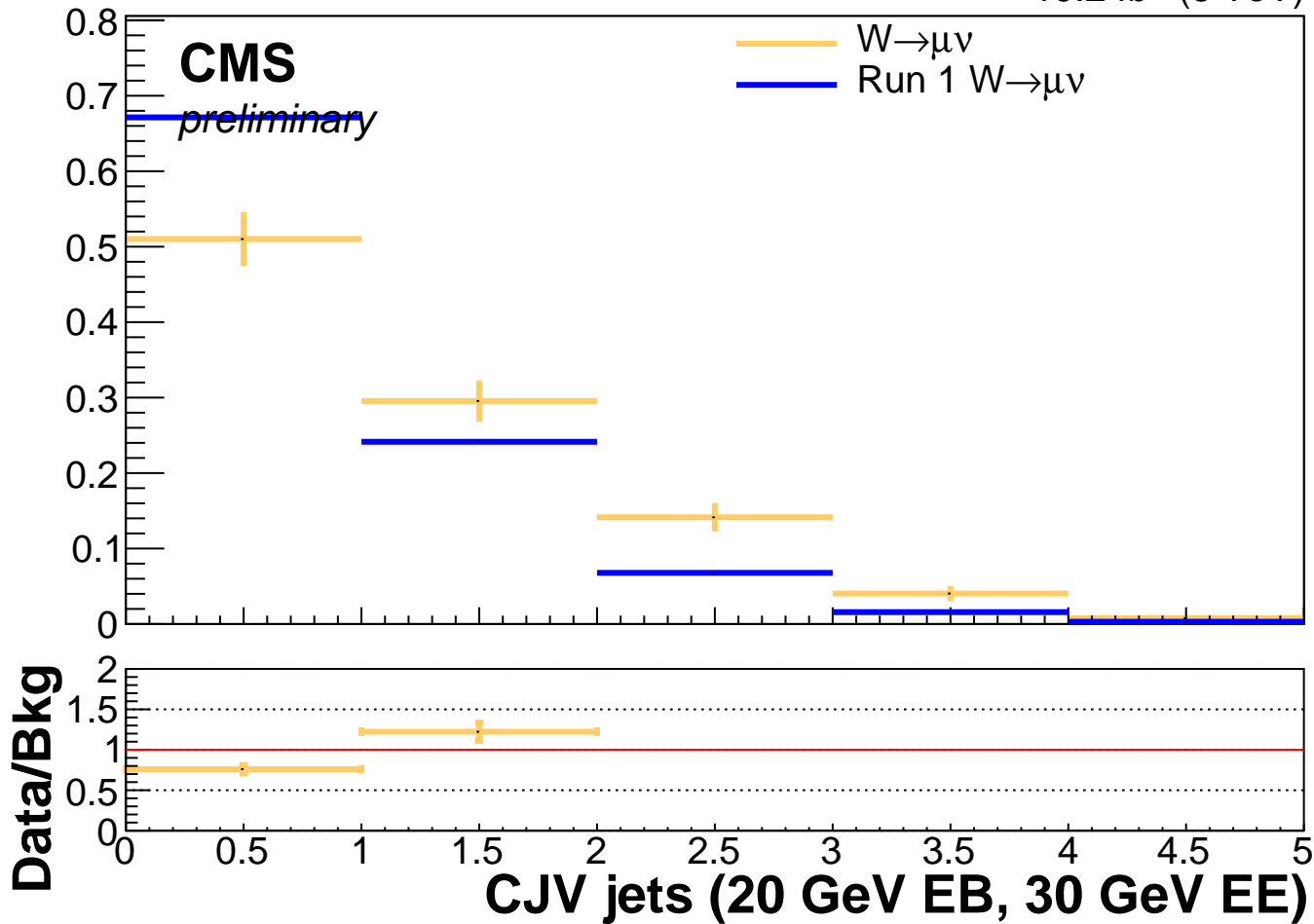


19.2 fb⁻¹ (8 TeV)

CMS

preliminary

W→μν
Run 1 W→μν



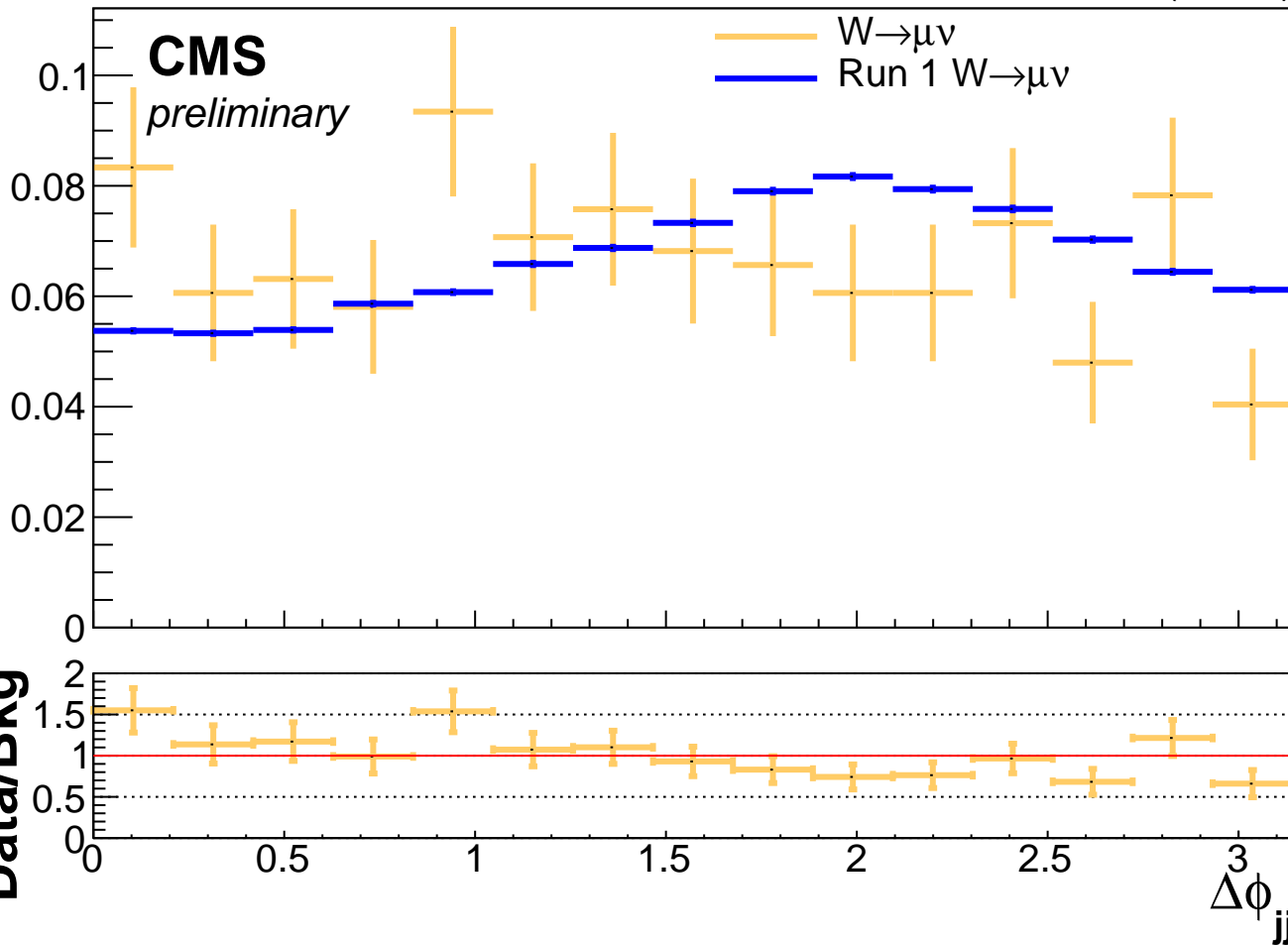
19.2 fb⁻¹ (8 TeV)

CMS
preliminary

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

Data/Bkg

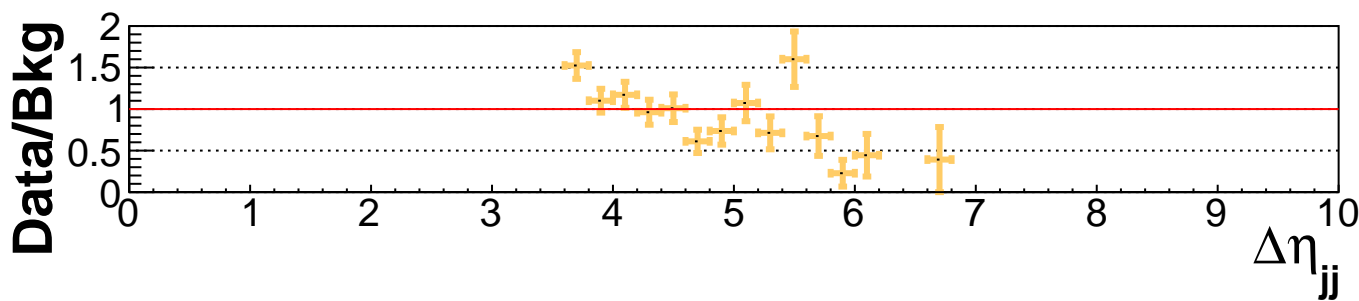
$\Delta\phi_{jj}$



19.2 fb⁻¹ (8 TeV)

CMS
preliminary

W→μν
Run 1 W→μν

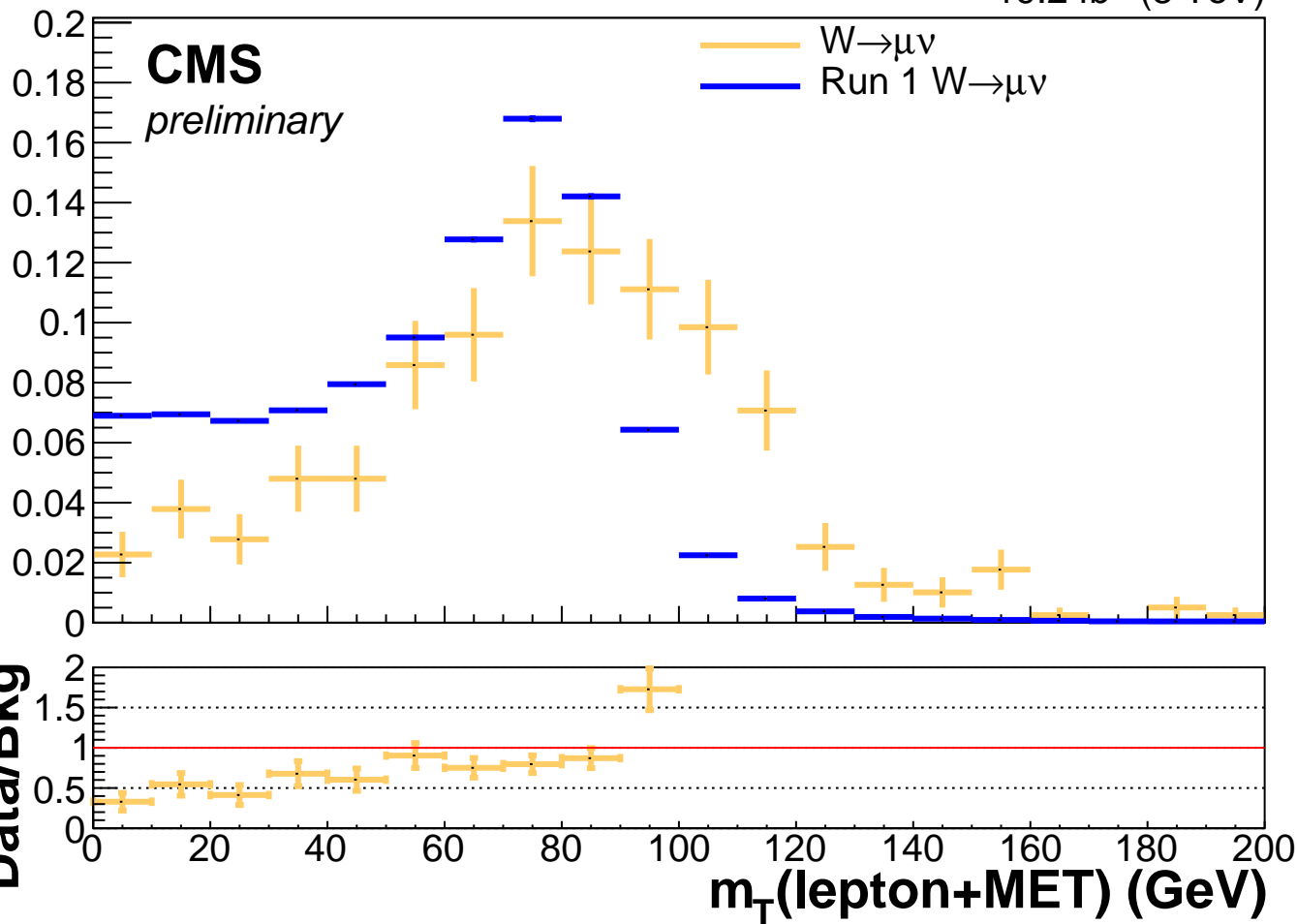


19.2 fb⁻¹ (8 TeV)

CMS
preliminary

W→μν
Run 1 W→μν

Data/Bkg



19.2 fb⁻¹ (8 TeV)

CMS

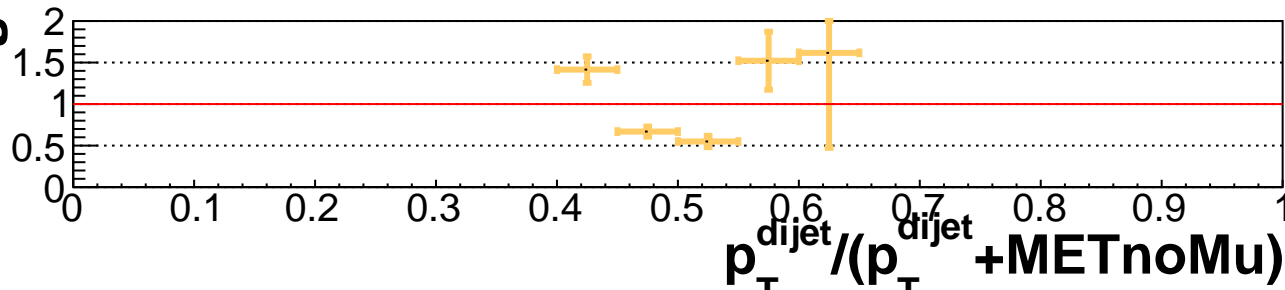
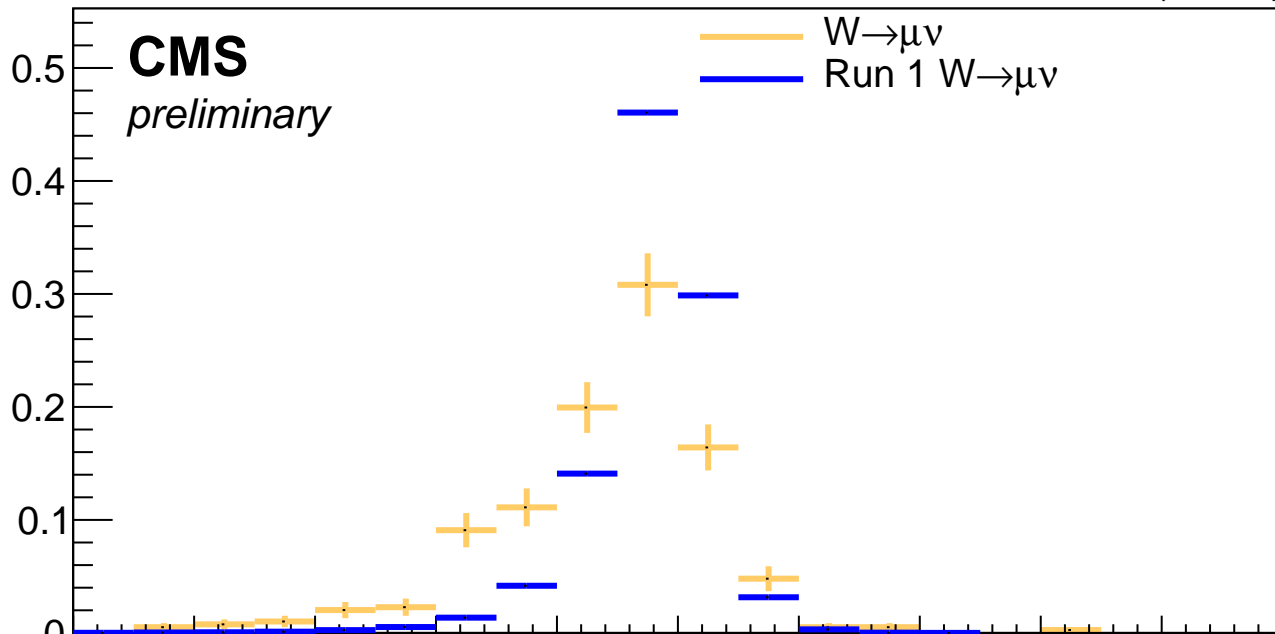
preliminary

W→μν

Run 1 W→μν

Data/Bkg

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



19.2 fb⁻¹ (8 TeV)

CMS

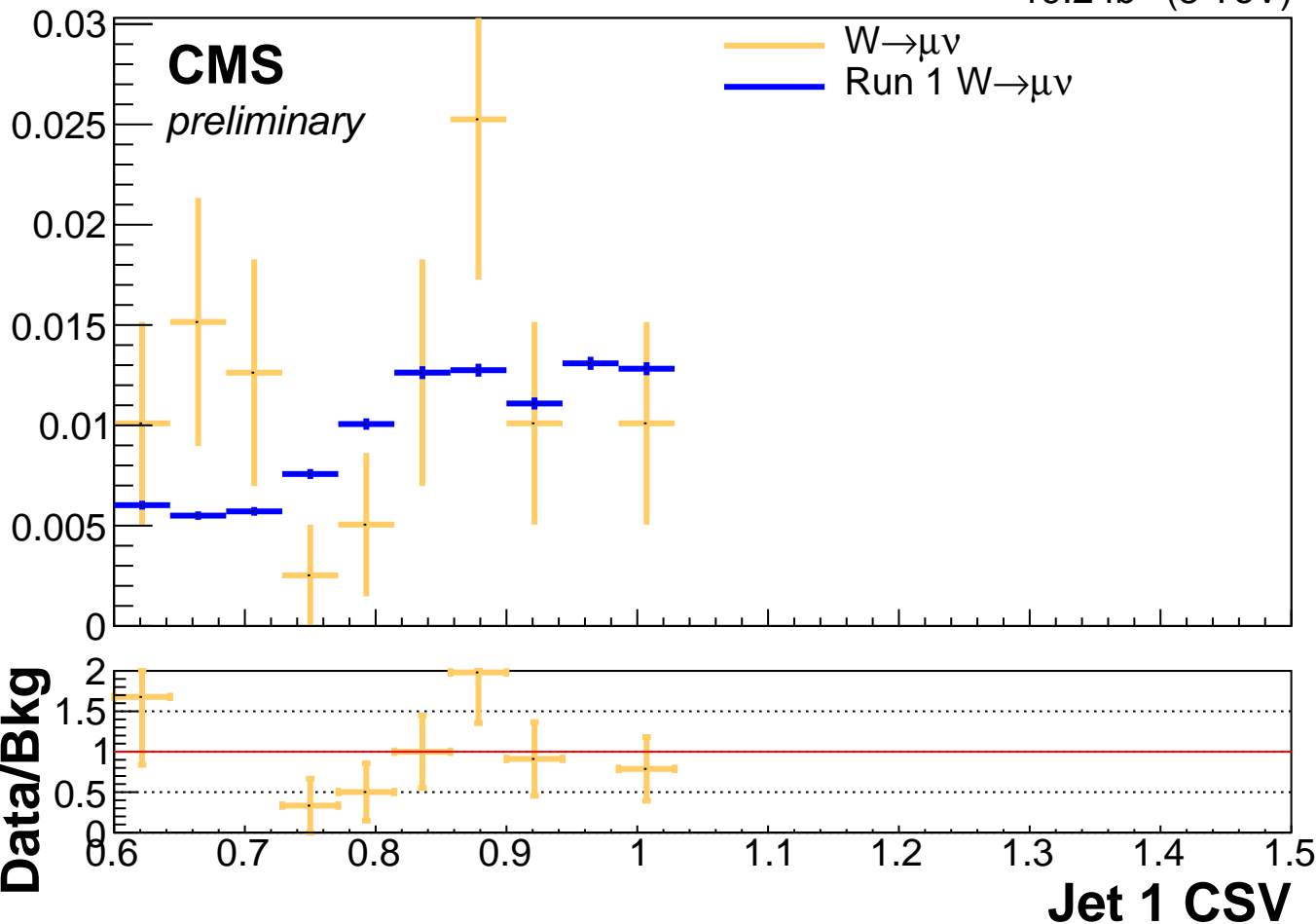
preliminary

— $W \rightarrow \mu\nu$

— Run 1 $W \rightarrow \mu\nu$

Data/Bkg

Jet 1 CSV



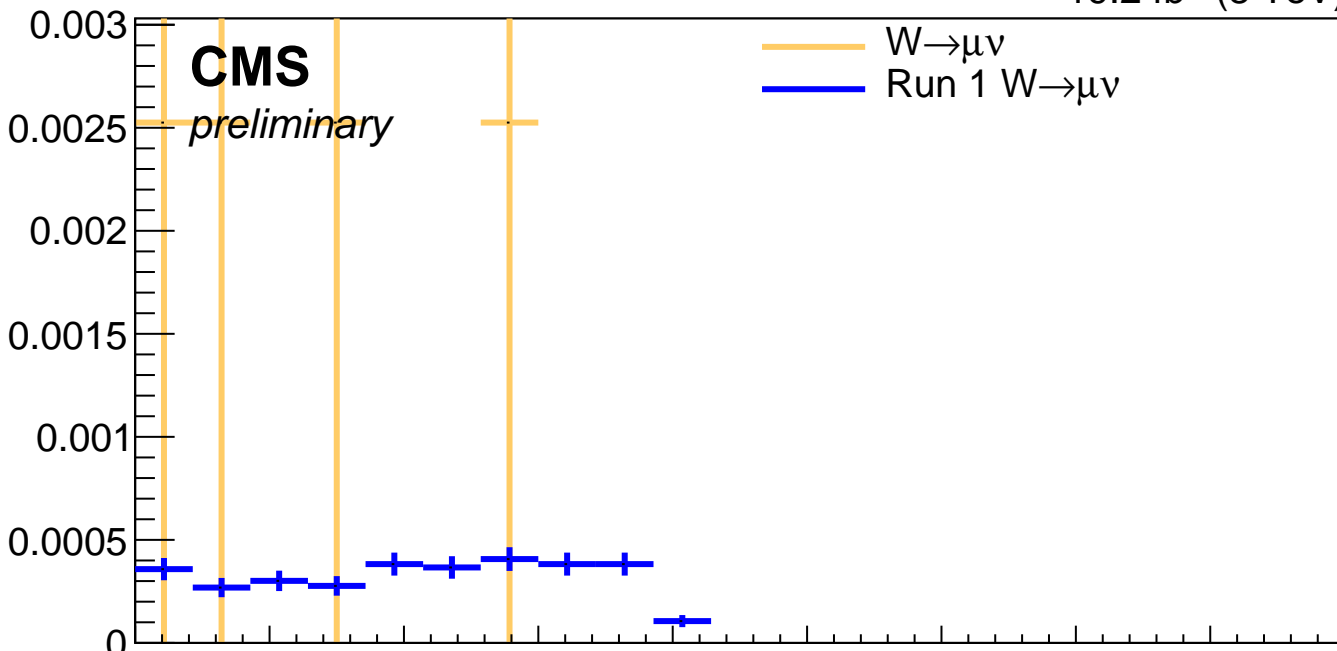
19.2 fb⁻¹ (8 TeV)

CMS

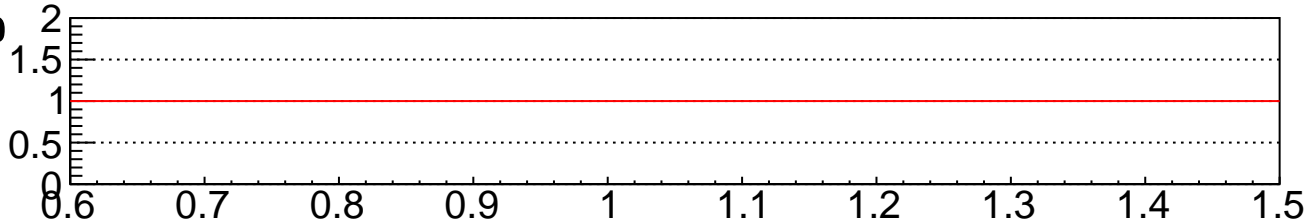
preliminary

W→μν

Run 1 W→μν



Data/Bkg

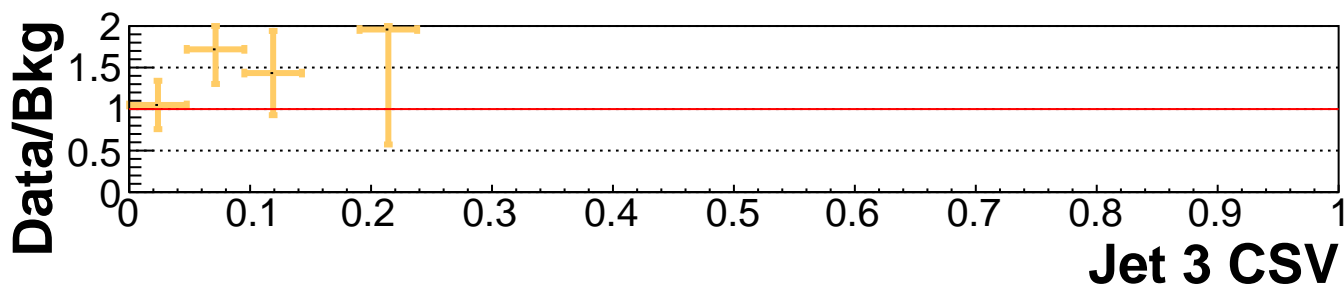


Jet 2 CSV

19.2 fb⁻¹ (8 TeV)

CMS
preliminary

W→μν
Run 1 W→μν



19.2 fb⁻¹ (8 TeV)

CMS

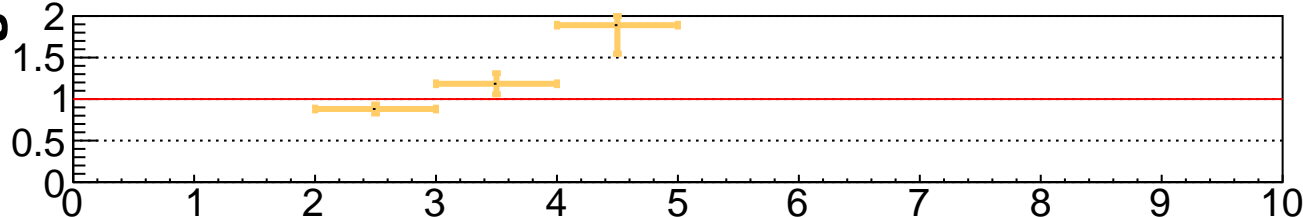
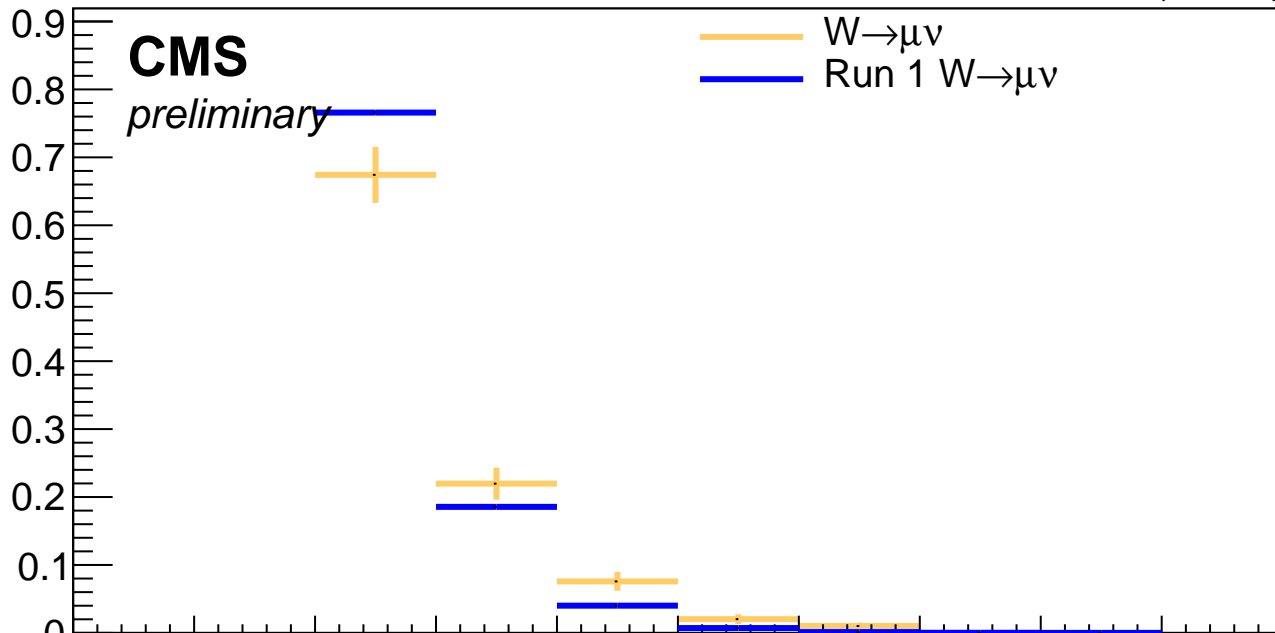
preliminary

W→μν

Run 1 W→μν

Data/Bkg

N jets pt>30 GeV



19.2 fb⁻¹ (8 TeV)

CMS

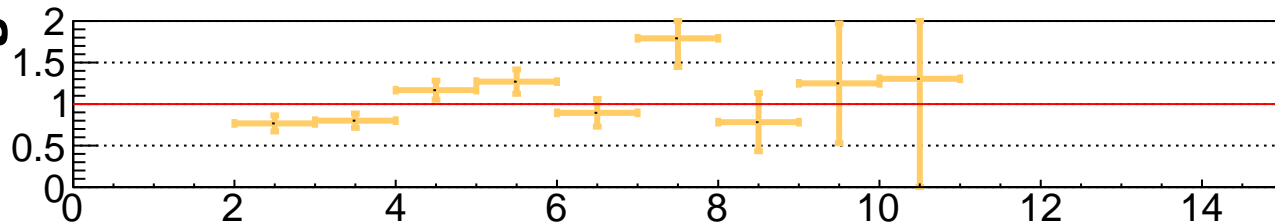
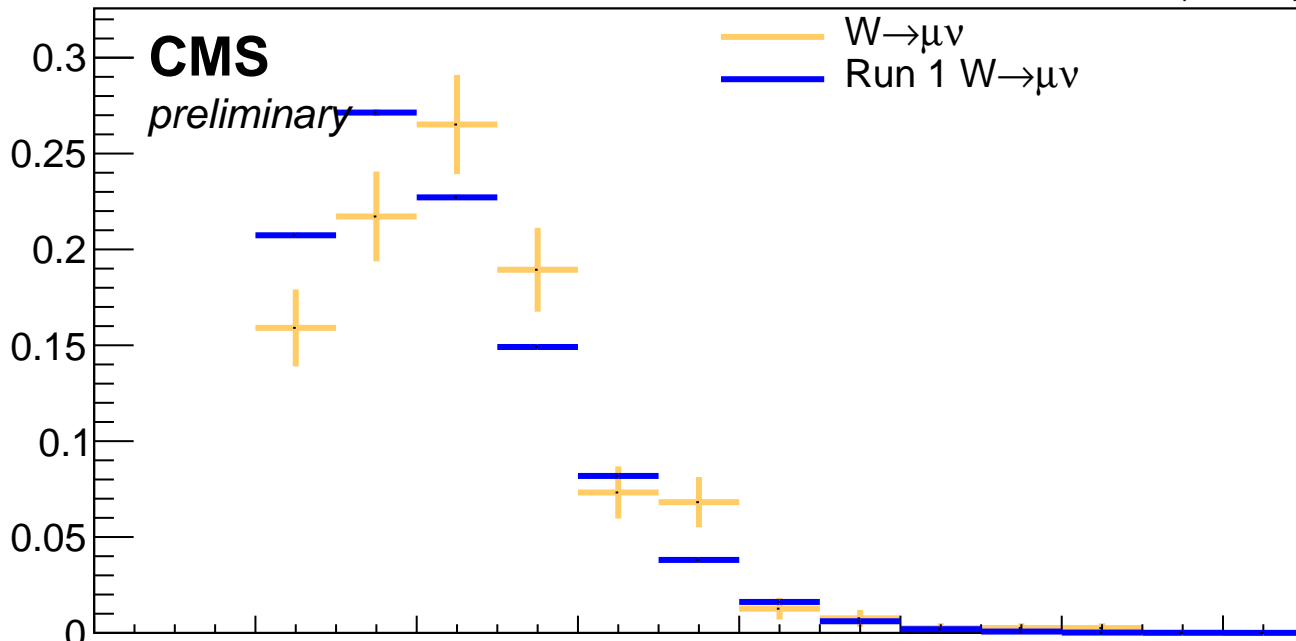
preliminary

W→μν

Run 1 W→μν

Data/Bkg

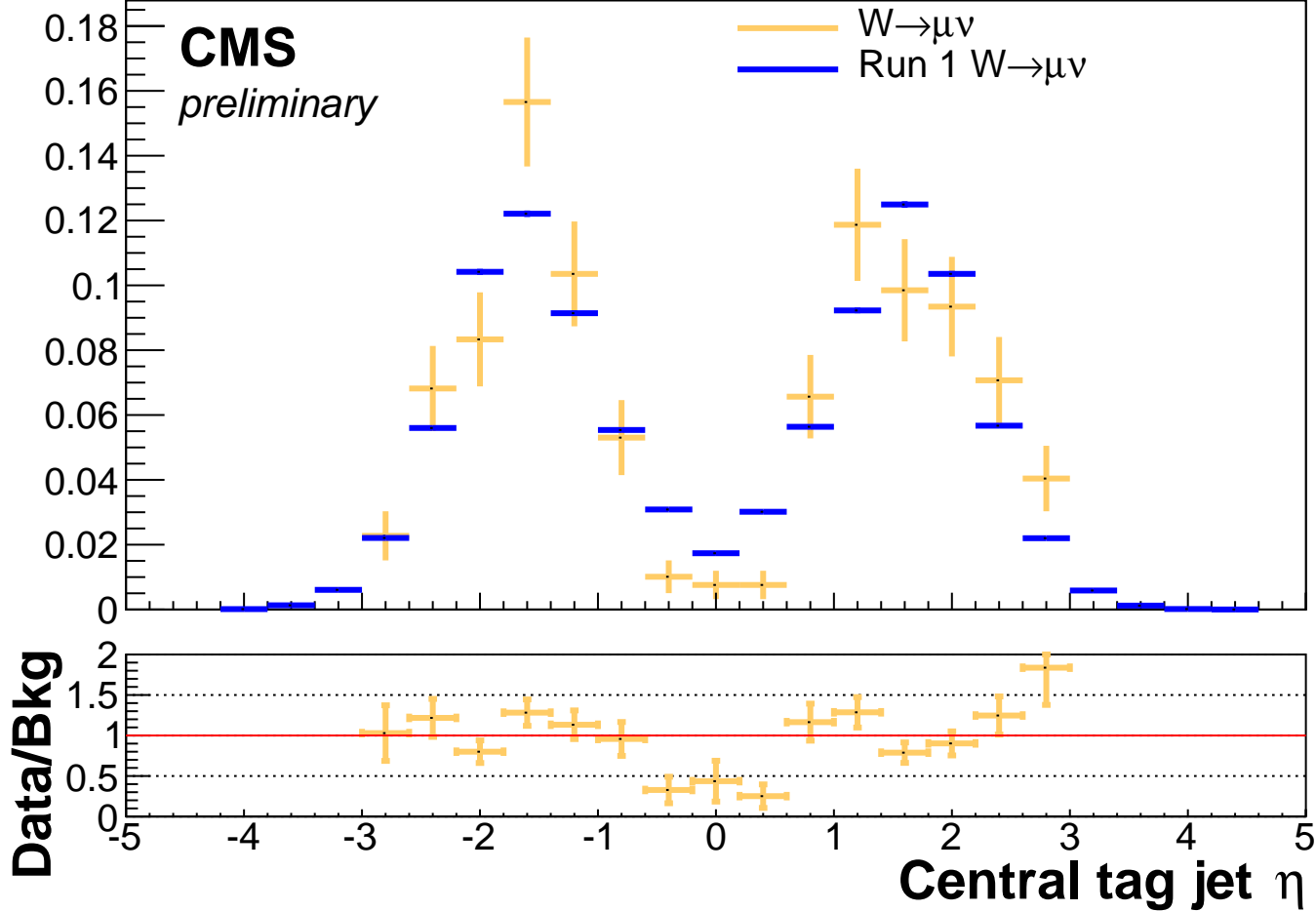
N jets pt>15 GeV



19.2 fb⁻¹ (8 TeV)

CMS
preliminary

W→μν
Run 1 W→μν



19.2 fb⁻¹ (8 TeV)

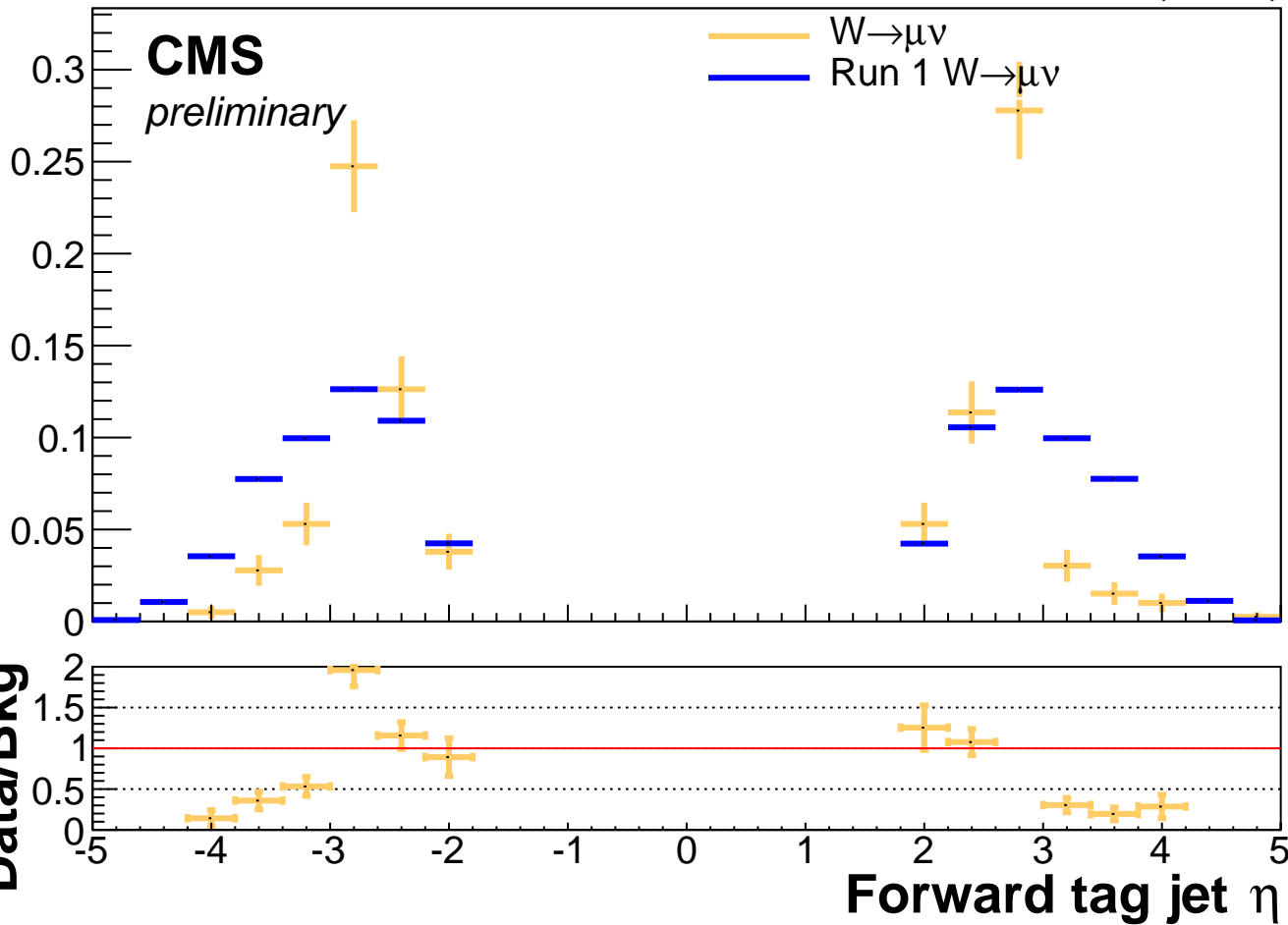
CMS

preliminary

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

Data/Bkg

Forward tag jet η



19.2 fb⁻¹ (8 TeV)

CMS

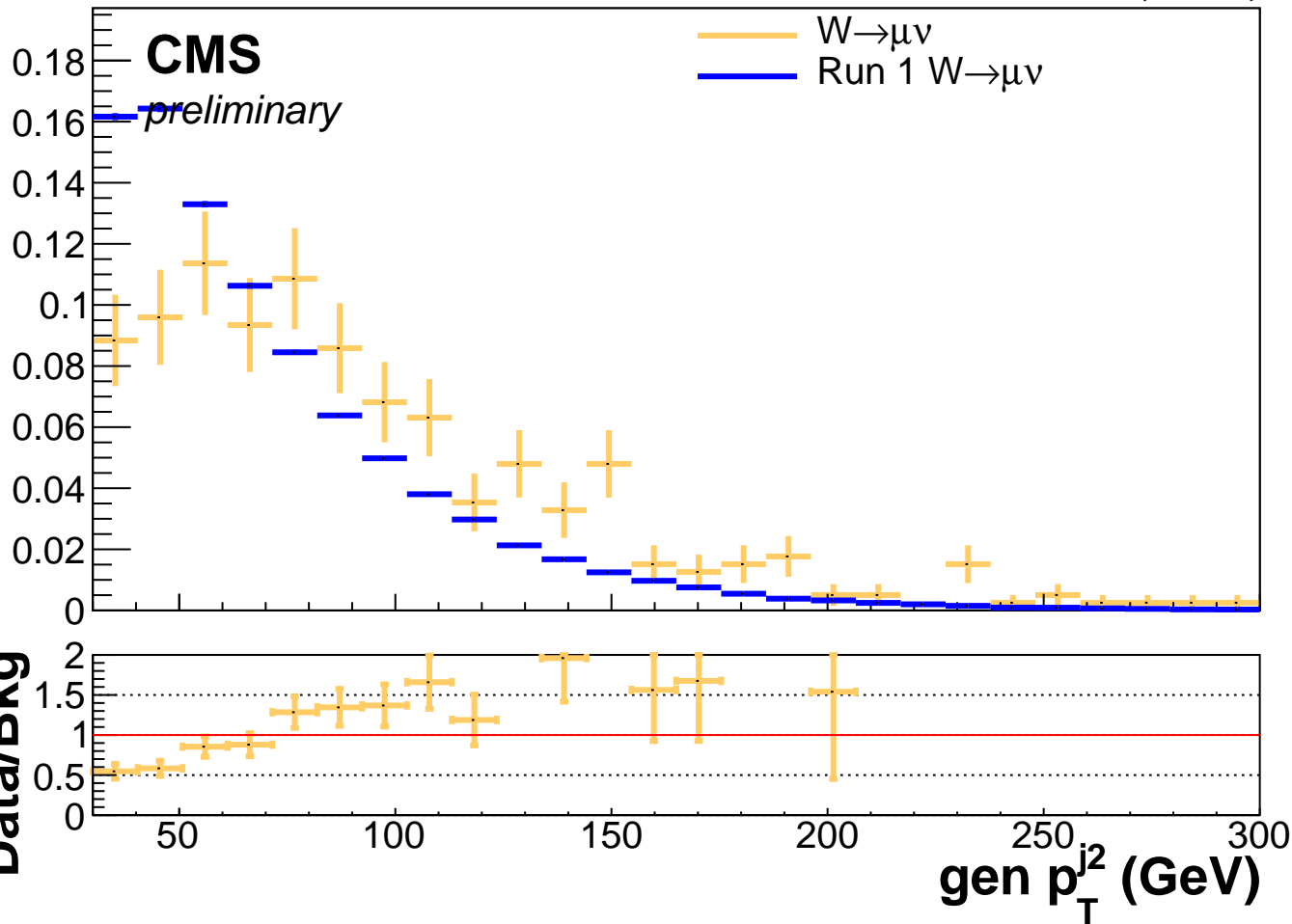
preliminary

W→μν

Run 1 W→μν

Data/Bkg

gen p_T^{j2} (GeV)



19.2 fb⁻¹ (8 TeV)

CMS

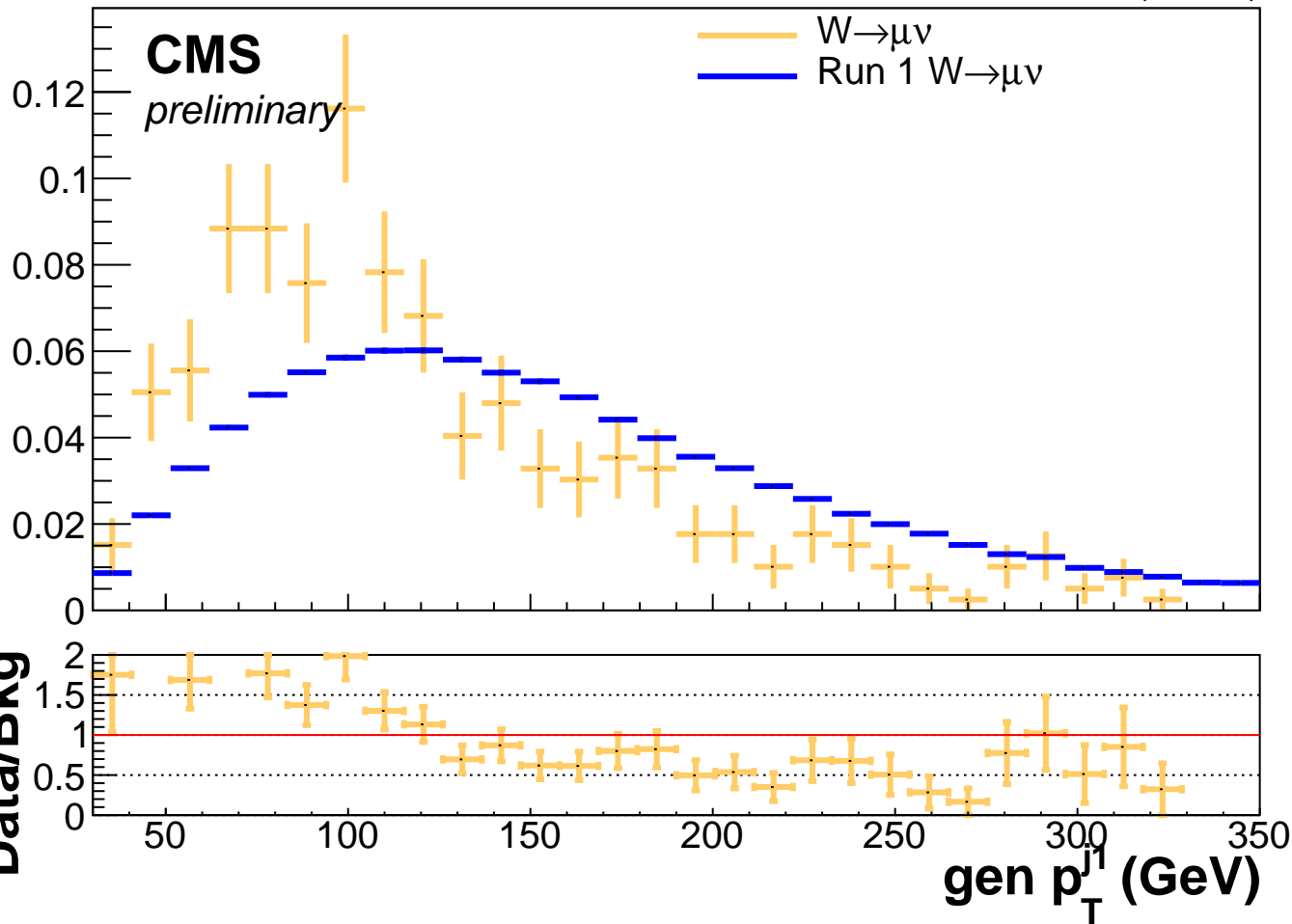
preliminary

W→μν

Run 1 W→μν

Data/Bkg

gen p_T^l (GeV)



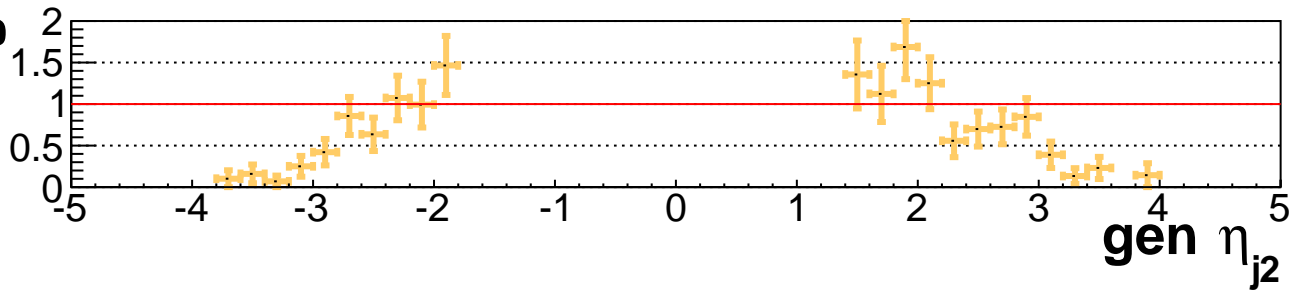
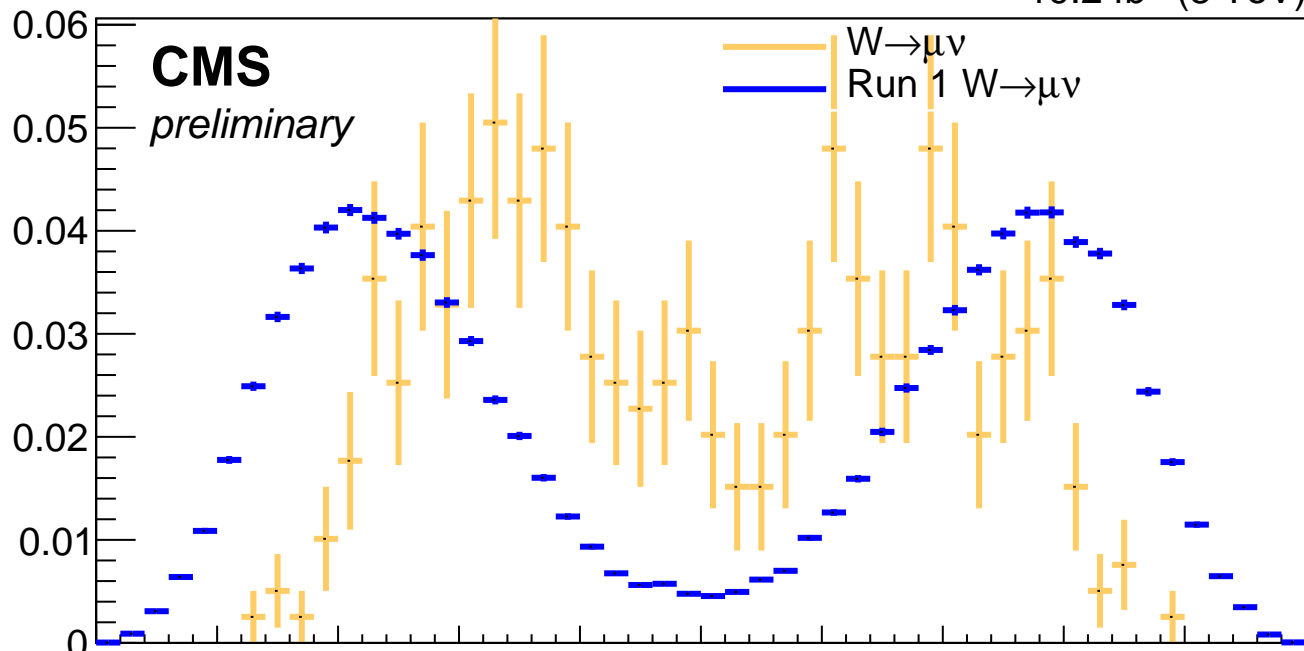
19.2 fb⁻¹ (8 TeV)

CMS
preliminary

W → μν
Run 1 W → μν

Data/Bkg

gen η_{j2}



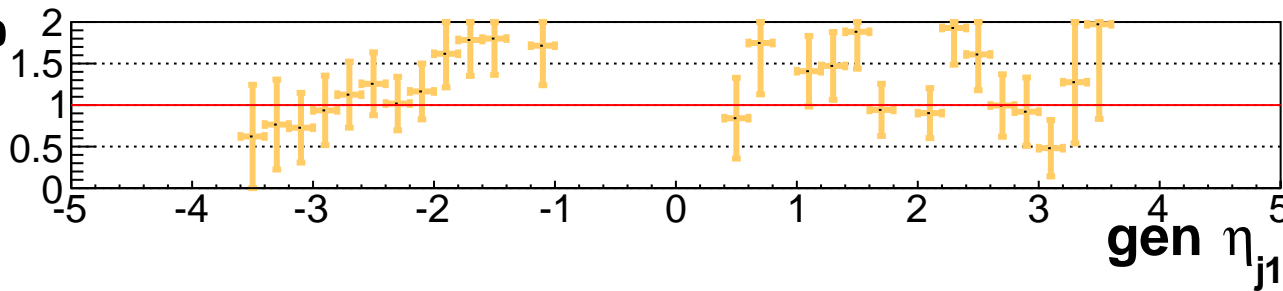
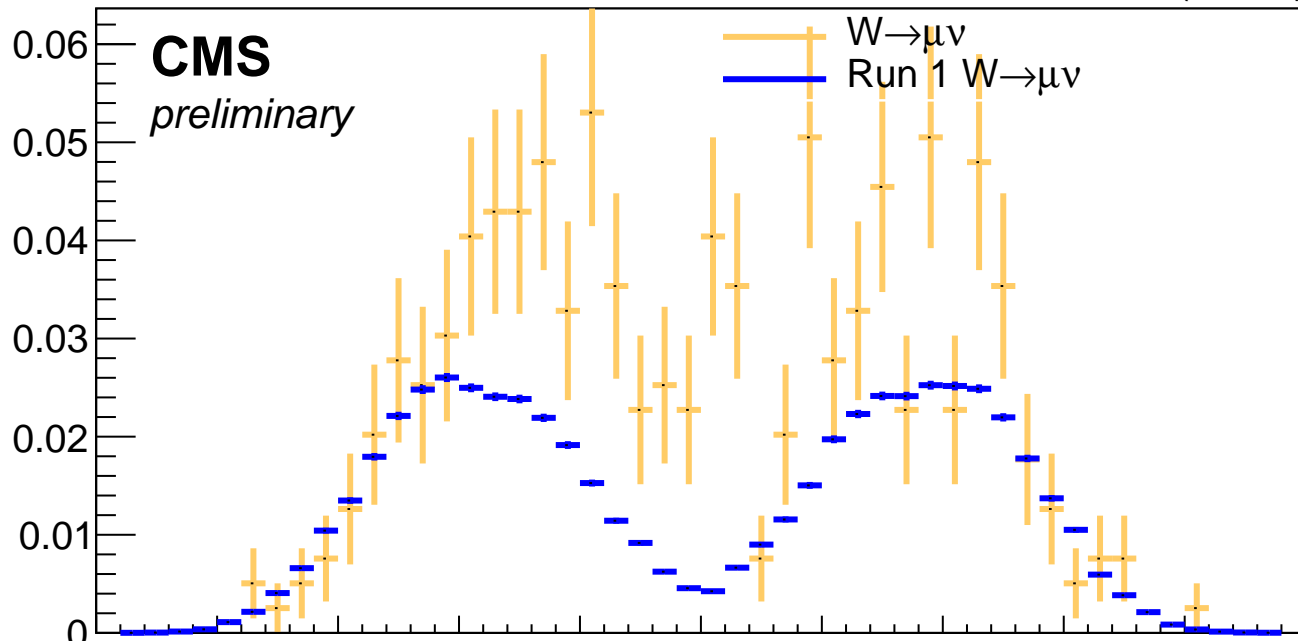
19.2 fb⁻¹ (8 TeV)

CMS
preliminary

W → μν
Run 1 W → μν

Data/Bkg

gen η_{j1}



19.2 fb⁻¹ (8 TeV)

CMS

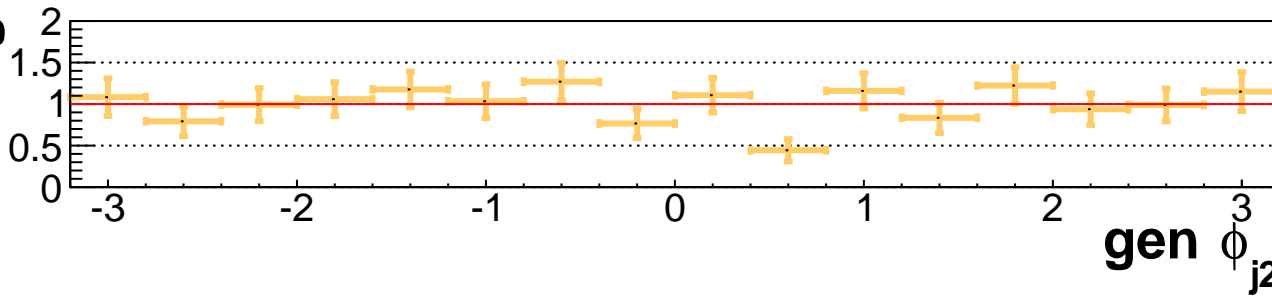
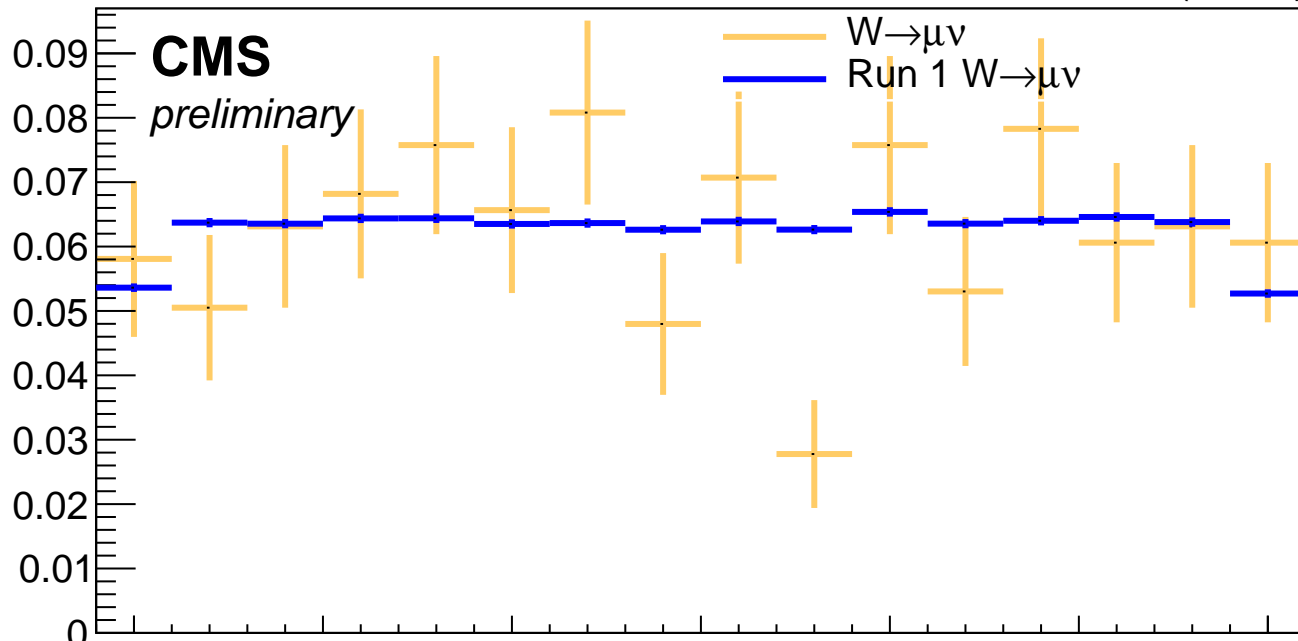
preliminary

W→μν

Run 1 W→μν

Data/Bkg

gen ϕ_{j2}



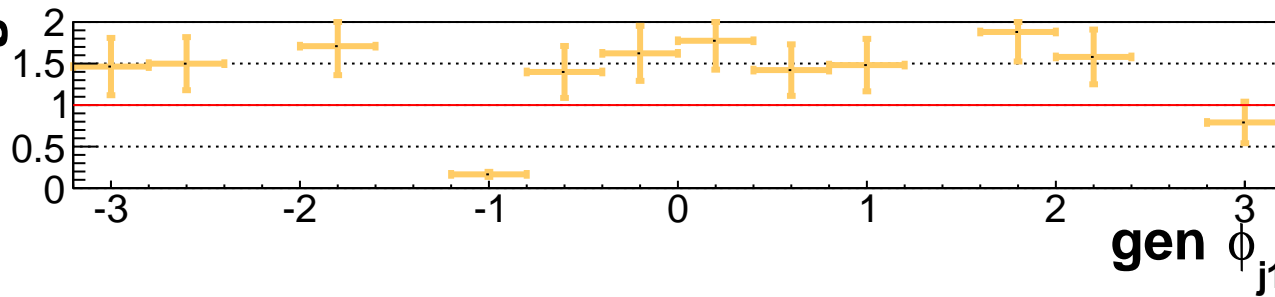
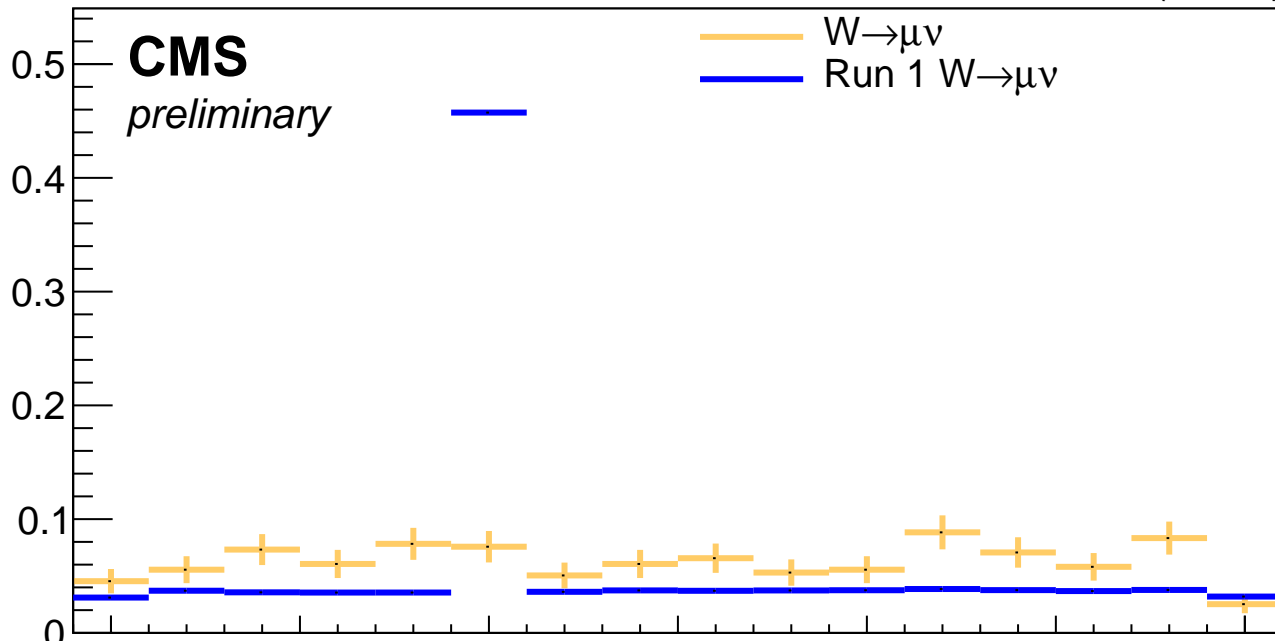
19.2 fb⁻¹ (8 TeV)

CMS
preliminary

W→μν
Run 1 W→μν

Data/Bkg

gen ϕ_{j1}



19.2 fb⁻¹ (8 TeV)

CMS

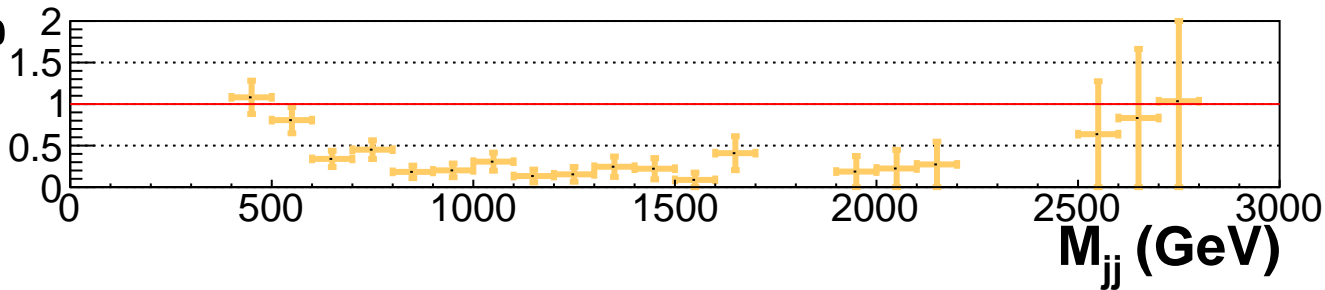
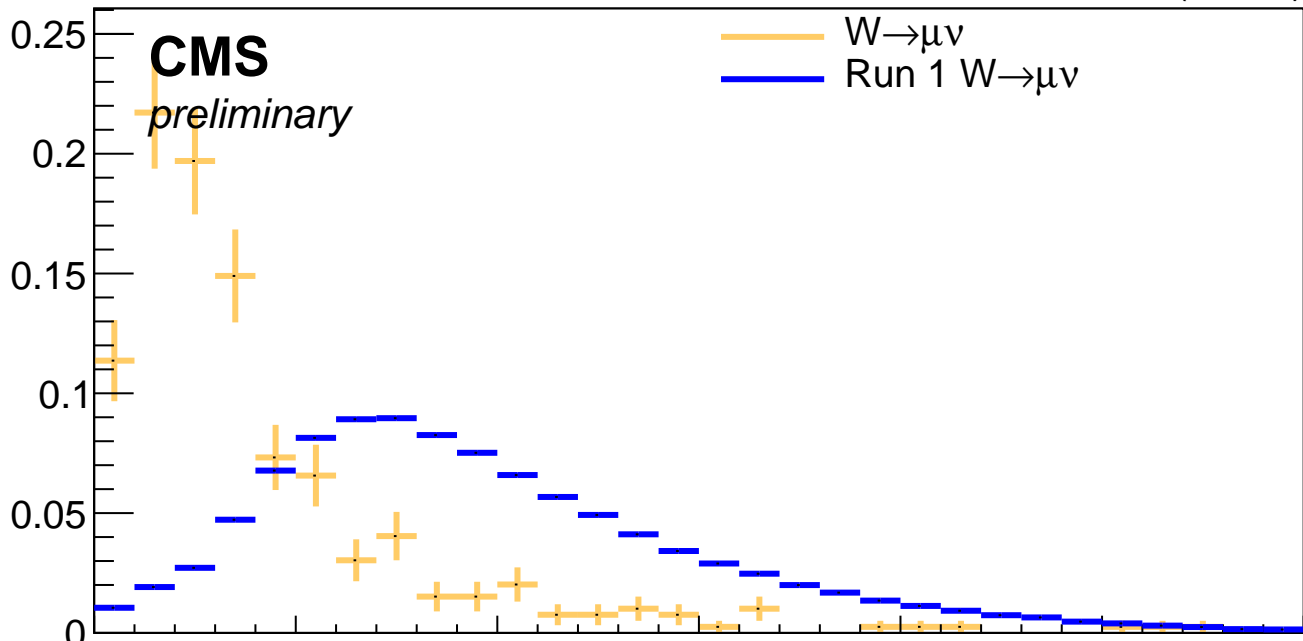
preliminary

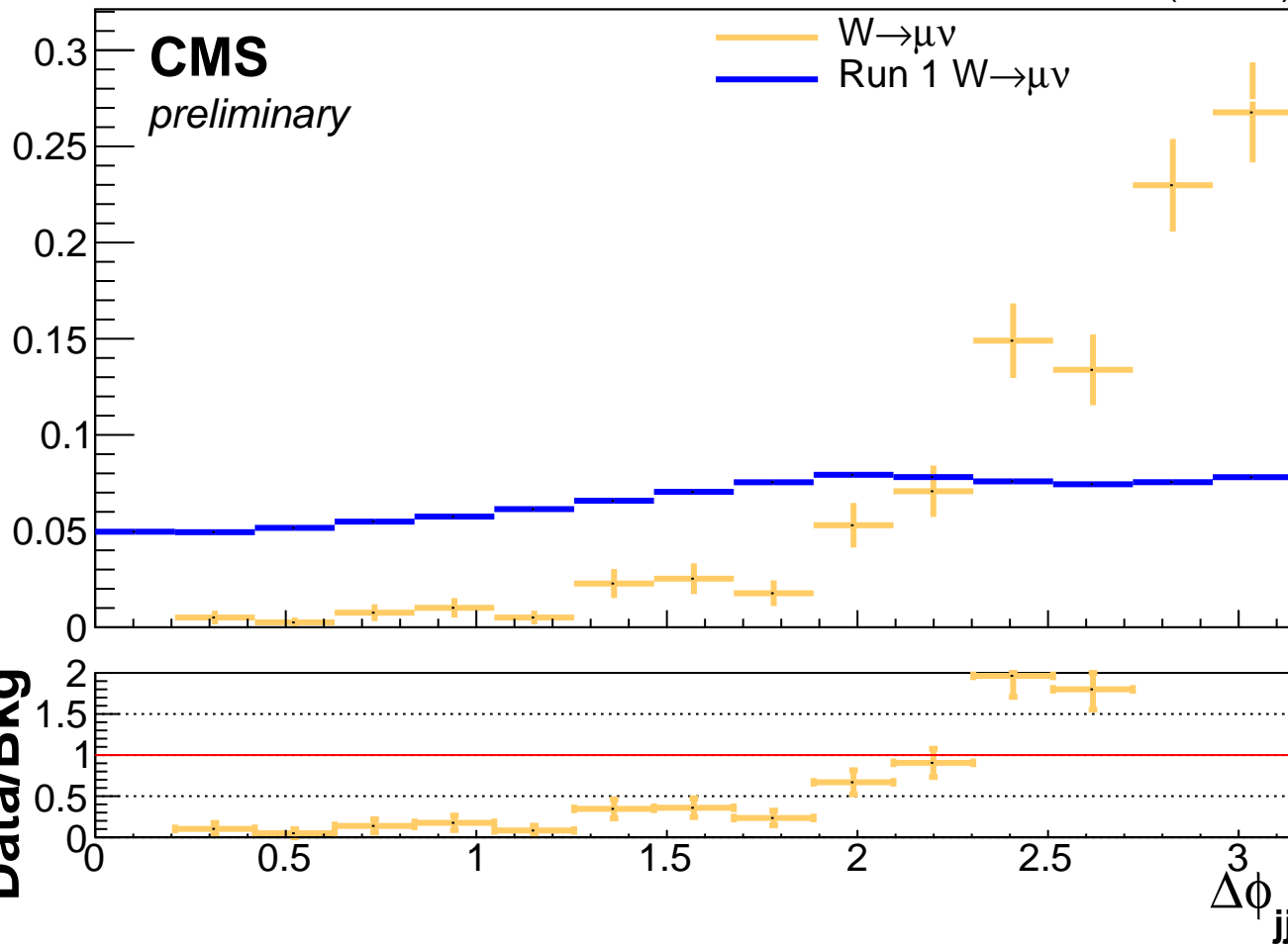
W→μν

Run 1 W→μν

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 $W \rightarrow \mu\nu$

