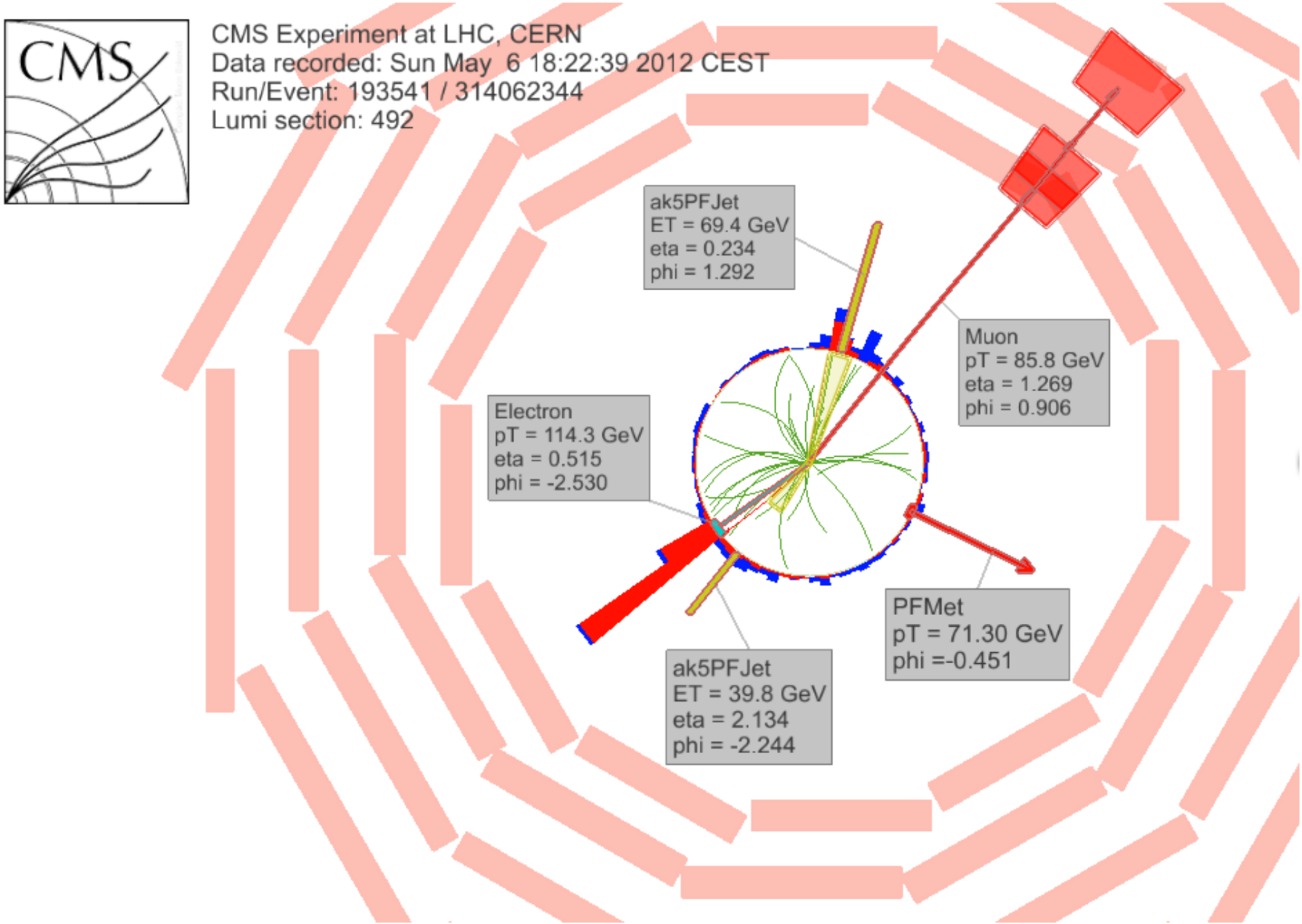
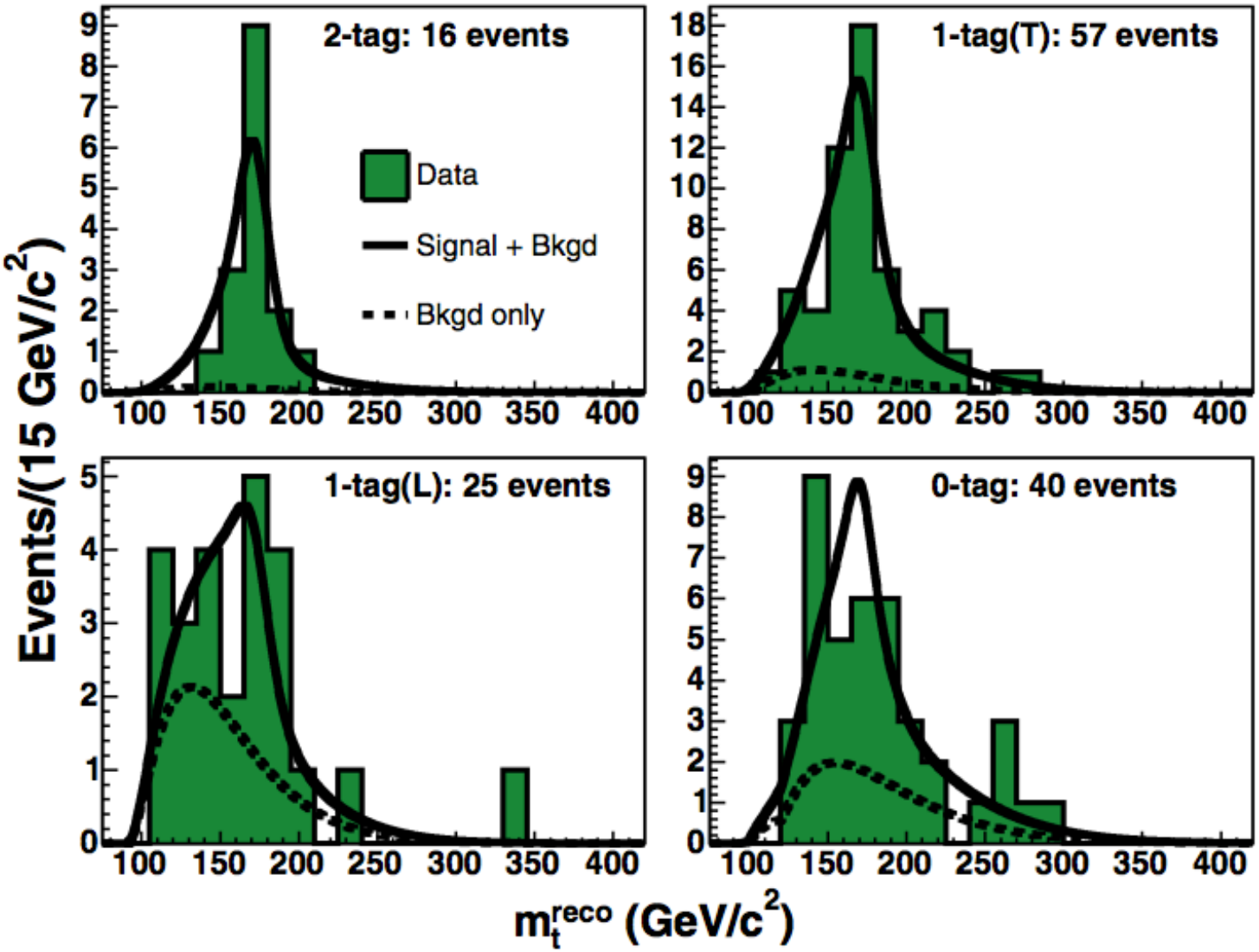
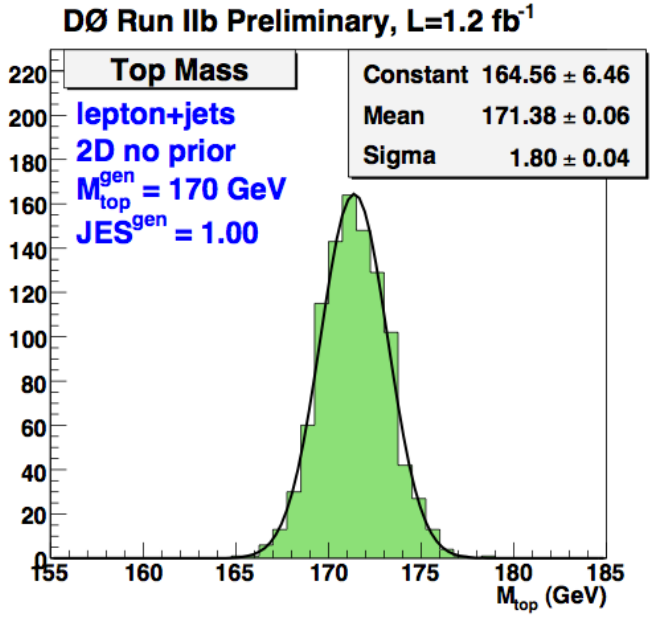
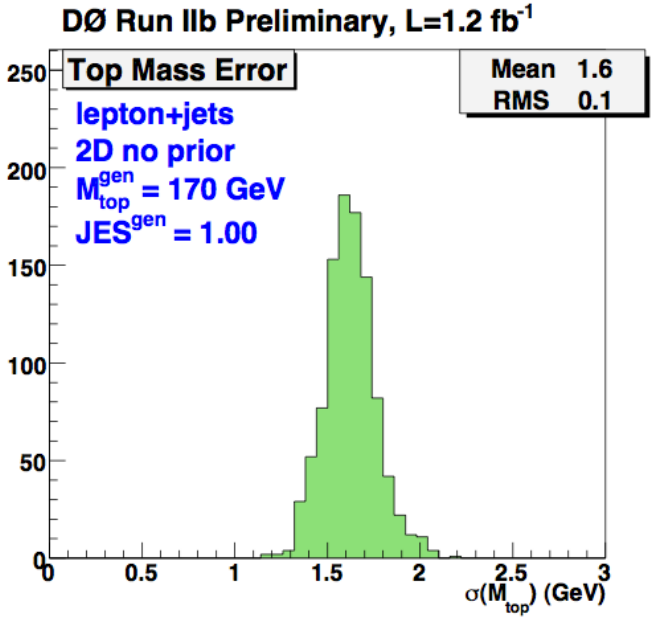
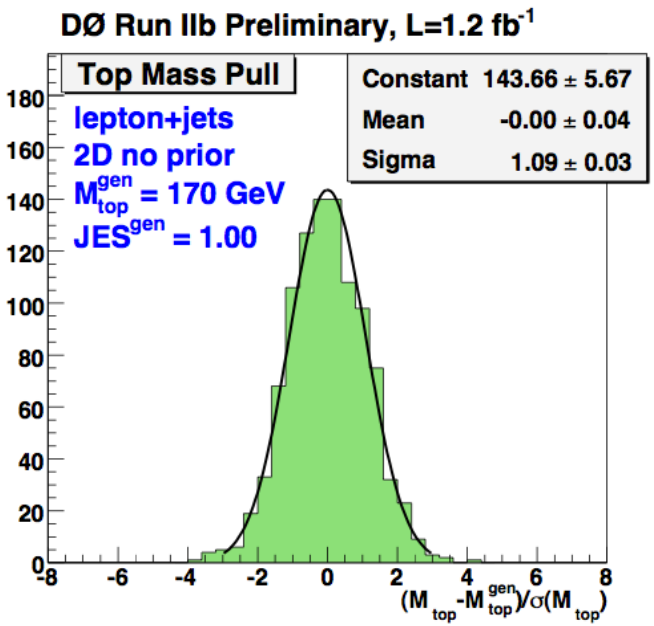
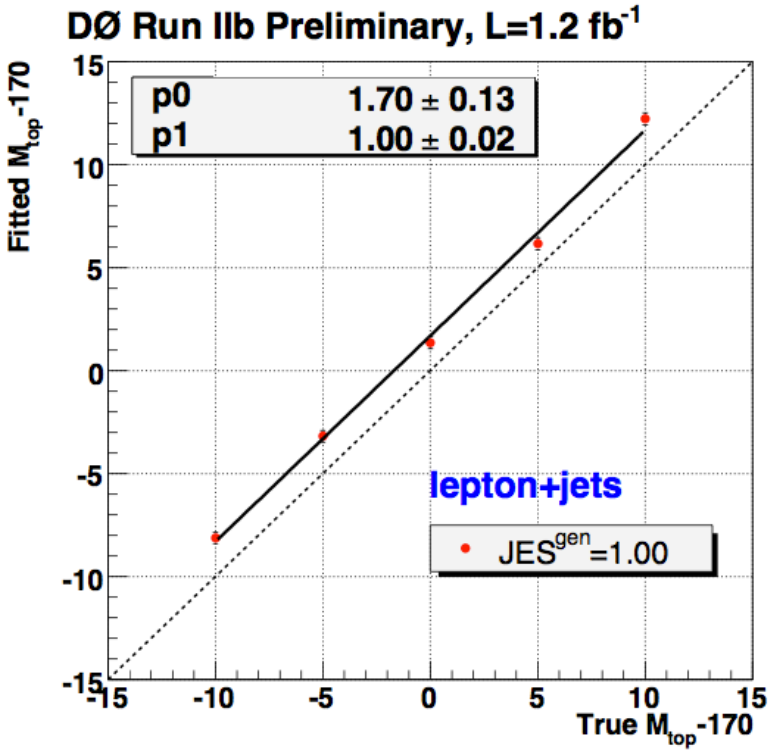

CMS
CMS Experiment at LHC, CERN
Data recorded: Sun May 6 18:22:39 2012 CEST
Run/Event: 193541 / 314062344
Lumi section: 492
ak5PFJet
ET = 69.4 GeV
eta = 0.234
phi = 1.292
Muon
pT = 85.8 GeV
eta = 1.269
phi = 0.906
Electron
pT = 114.3 GeV
eta = 0.515
phi = -2.530
PFMet
pT = 71.30 GeV
phi =-0.451
ak5PFJet
ET = 39.8 GeV
eta = 2.134
phi = -2.244

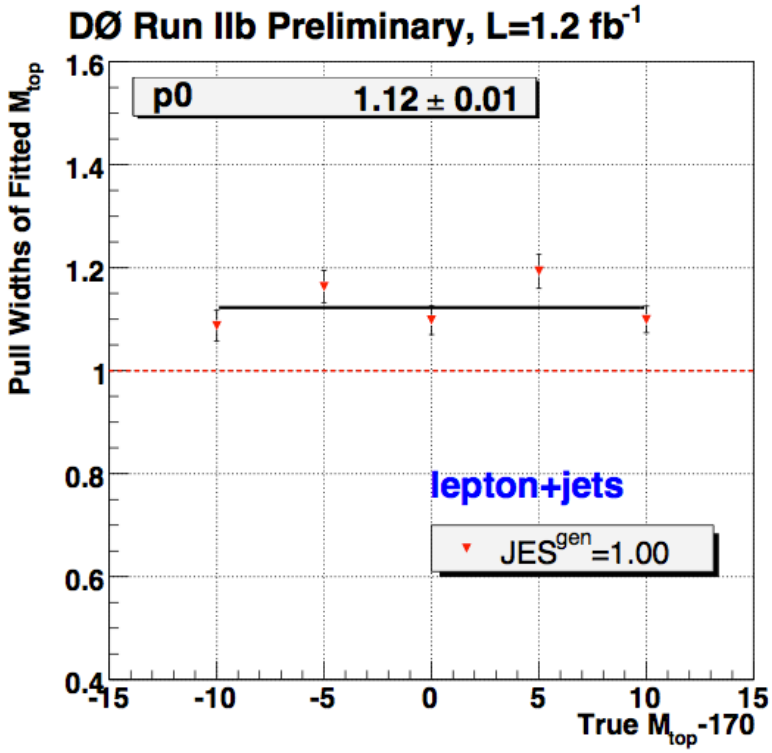

2-tag: 16 events
1-tag(T): 57 events
1-tag(L): 25 events
0-tag: 40 events
Data
Signal + Bkgd
Bkgd only
Events/(15 GeV/c²)
m_t^reco (GeV/c²)

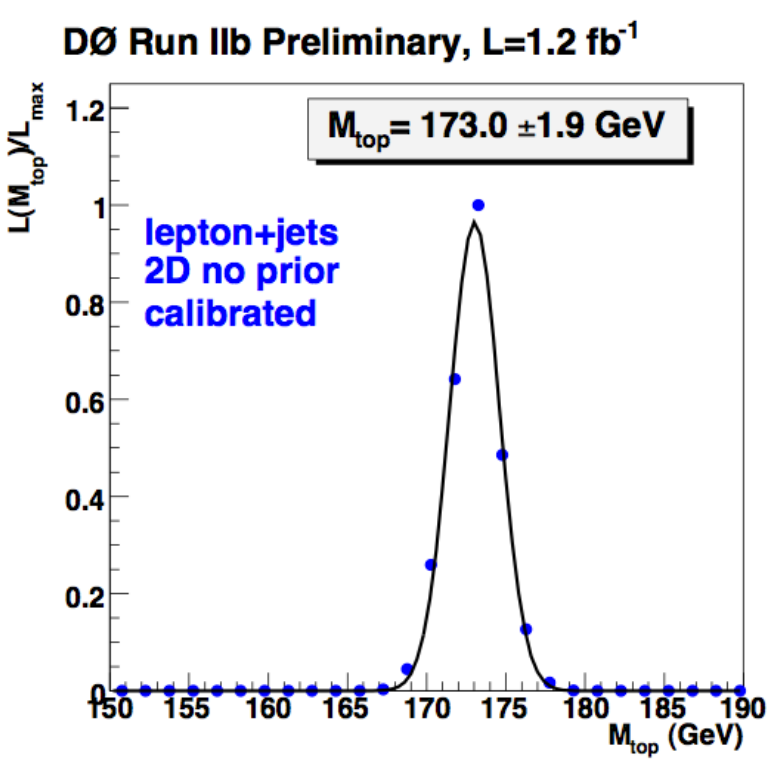

DØ Run IIb Preliminary, L=1.2 fb-1
Top Mass
lepton+jets
2D no prior
Mtopgen = 170 GeV
JESgen = 1.00
Constant 164.56 ± 6.46
Mean 171.38 ± 0.06
Sigma 1.80 ± 0.04
Mtop (GeV)

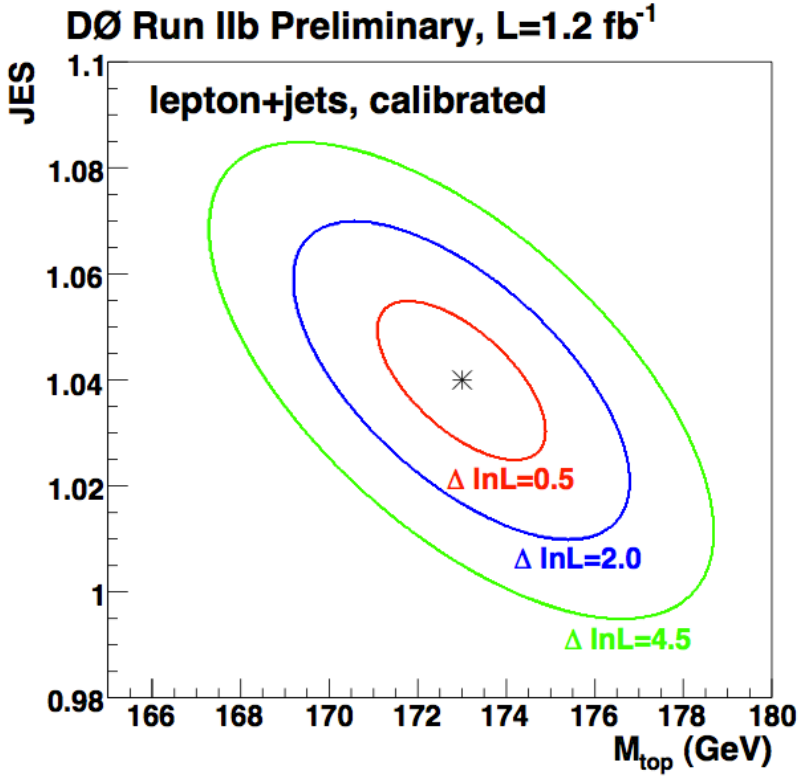

DØ Run IIb Preliminary, L=1.2 fb-1
Top Mass Error
lepton+jets
2D no prior
Mtopgen = 170 GeV
JESgen = 1.00
Mean 1.6
RMS 0.1
σ(Mtop) (GeV)


DØ Run IIb Preliminary, L=1.2 fb-1
Top Mass Pull
lepton+jets
2D no prior
Mtopgen = 170 GeV
JESgen = 1.00
Constant 143.66 ± 5.67
Mean -0.00 ± 0.04
Sigma 1.09 ± 0.03
(Mtop-Mtopgen)/σ(Mtop)

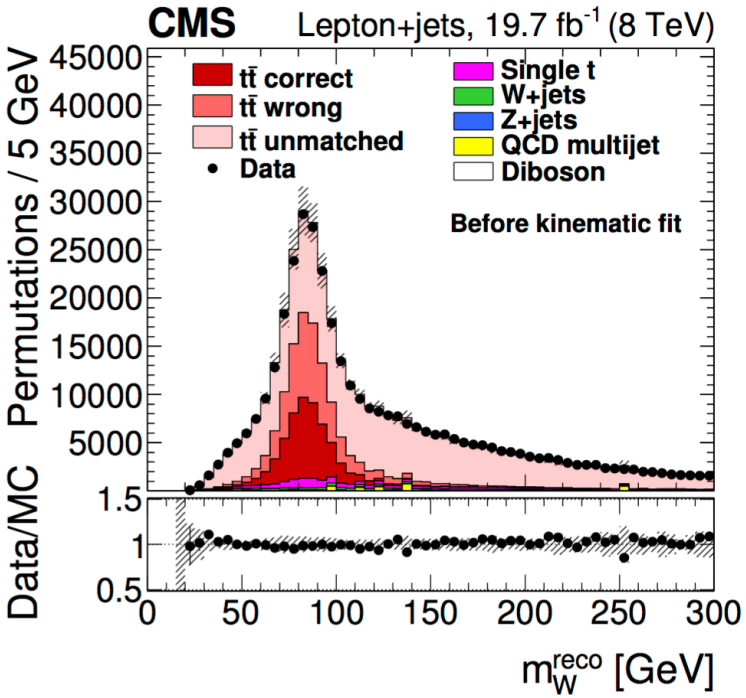

DØ Run IIb Preliminary, L=1.2 fb-1
p0 1.70 ± 0.13
p1 1.00 ± 0.02
lepton+jets
JESgen=1.00
Fitted Mtop-170
True Mtop-170

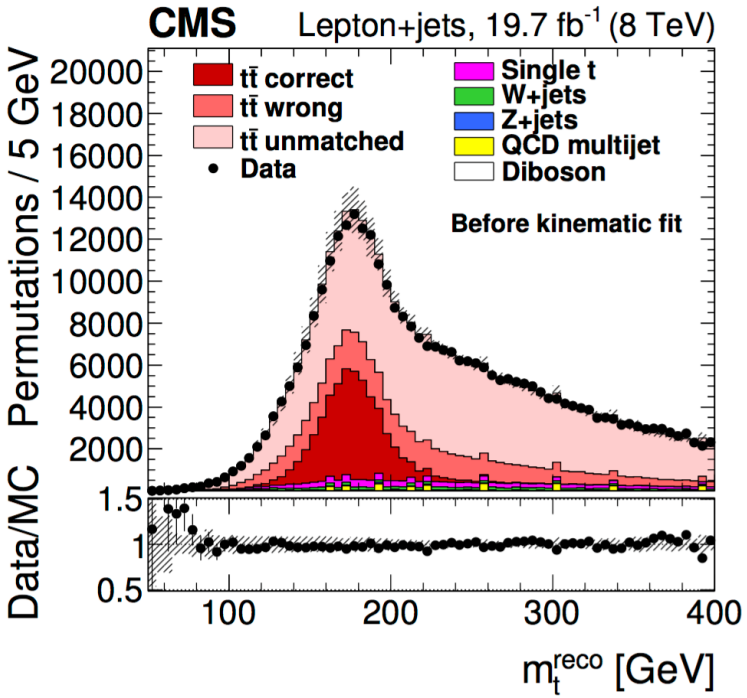

DØ Run IIb Preliminary, L=1.2 fb-1
p0 1.12 ± 0.01
lepton+jets
JESgen=1.00
Pull Widths of Fitted Mtop
True Mtop-170

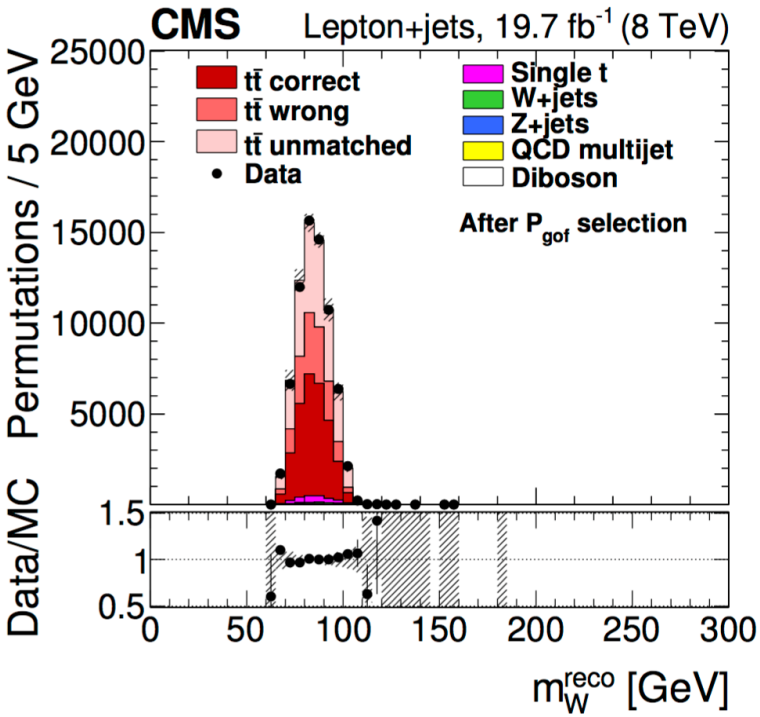


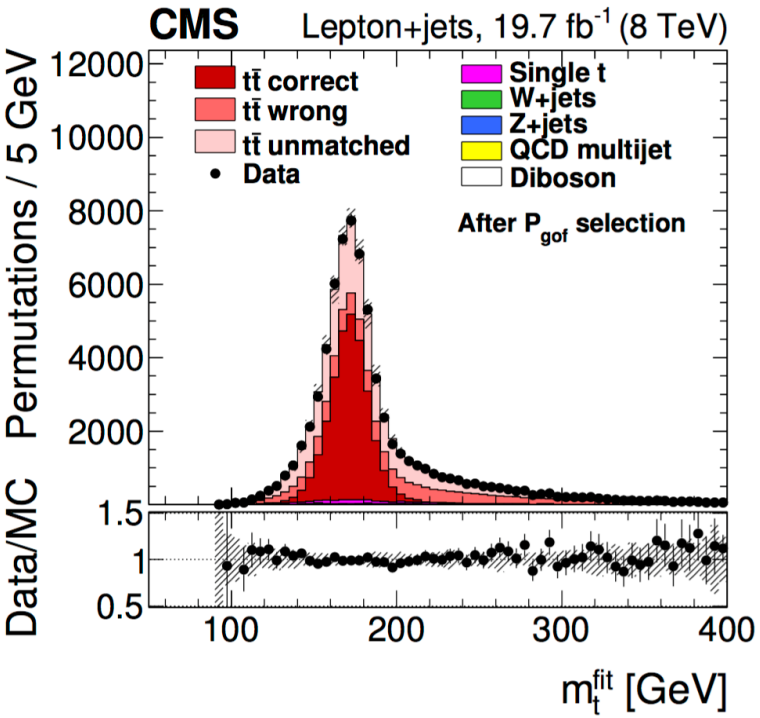


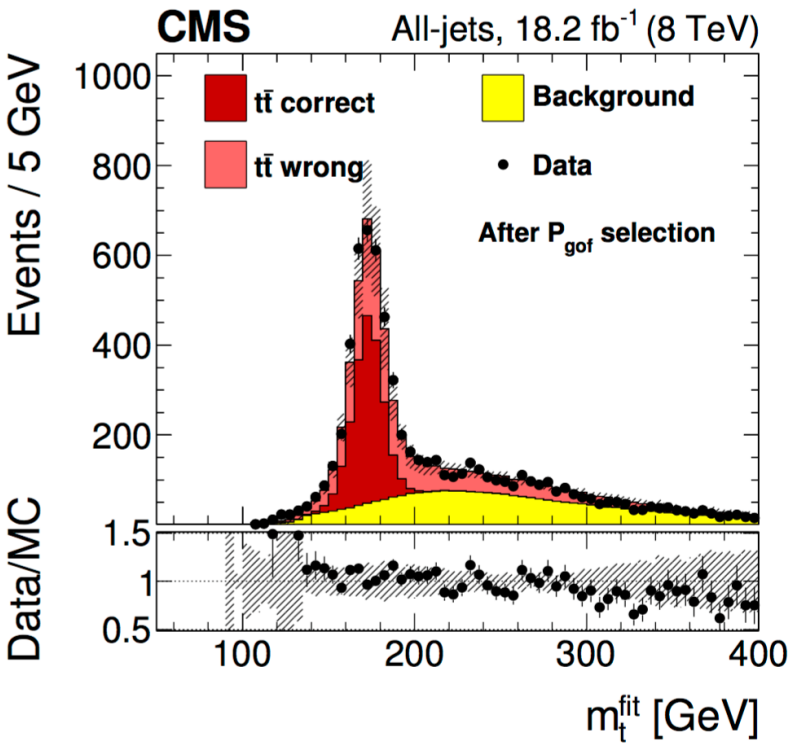
Source	Uncertainty on top mass (GeV/c^2)
Signal modeling	± 0.40
Background modeling	± 0.08
W heavy flavor factor	± 0.07
b fragmentation function	± 0.10
PDF uncertainty	± 0.24
Residual JES uncertainty	± 0.03
Relative b/light Jet Energy Scale	± 0.82
b-tagging efficiency	± 0.16
Trigger efficiency	± 0.09
Jet energy resolution	± 0.30
Multijet background	± 0.20
MC calibration	± 0.14
Total	± 1.0

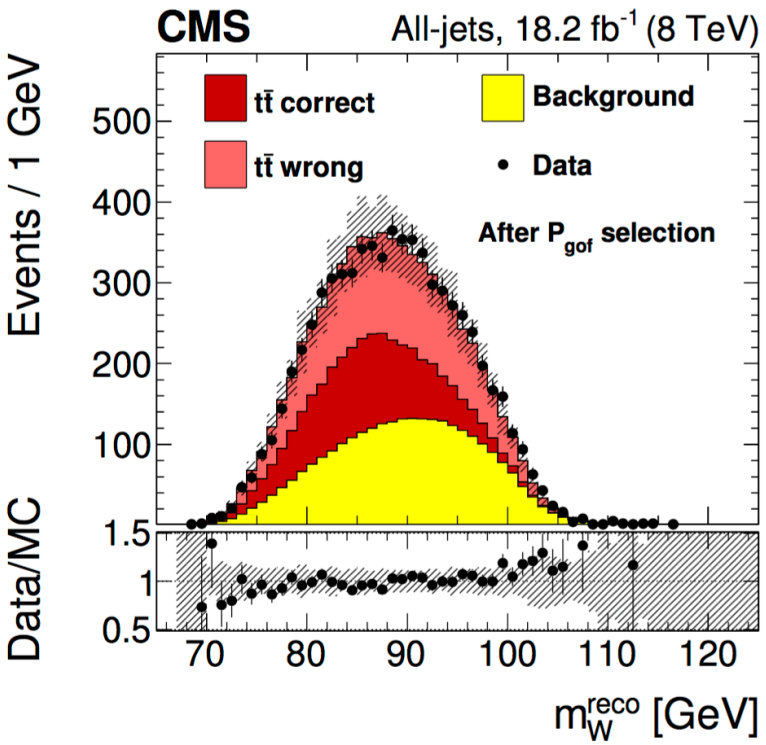

CMS
Lepton+jets, 19.7 fb^{-1} (8 TeV)
tt̄ correct
tt̄ wrong
tt̄ unmatched
Data
Single t
W+jets
Z+jets
QCD multijet
Diboson
Before kinematic fit
Permutations / 5 GeV
Data/MC
m_W^{reco} [GeV]

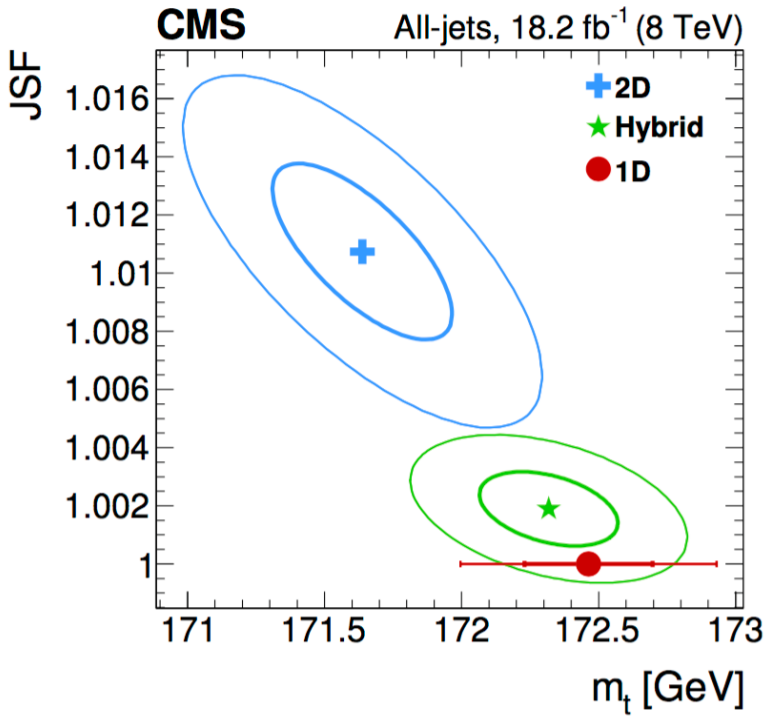

CMS
Lepton+jets, 19.7 fb^{-1} (8 TeV)
tt̄ correct
tt̄ wrong
tt̄ unmatched
Data
Single t
W+jets
Z+jets
QCD multijet
Diboson
Before kinematic fit
Permutations / 5 GeV
Data/MC
m_t^{reco} [GeV]

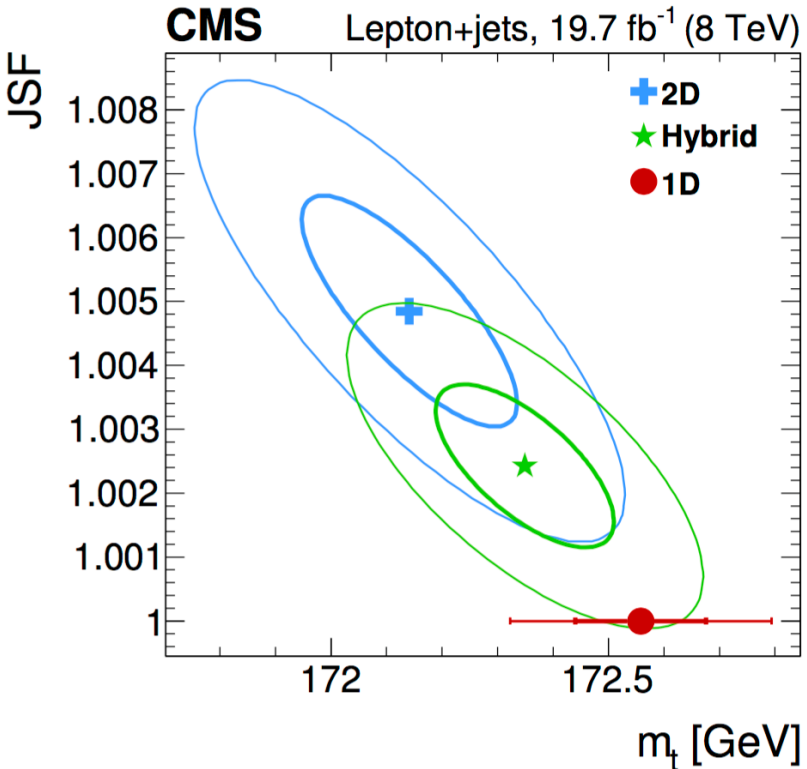

CMS
Lepton+jets, 19.7 fb^{-1} (8 TeV)
tt̄ correct
tt̄ wrong
tt̄ unmatched
Data
Single t
W+jets
Z+jets
QCD multijet
Diboson
After P_{gof} selection
Permutations / 5 GeV
Data/MC
m_W^{reco} [GeV]

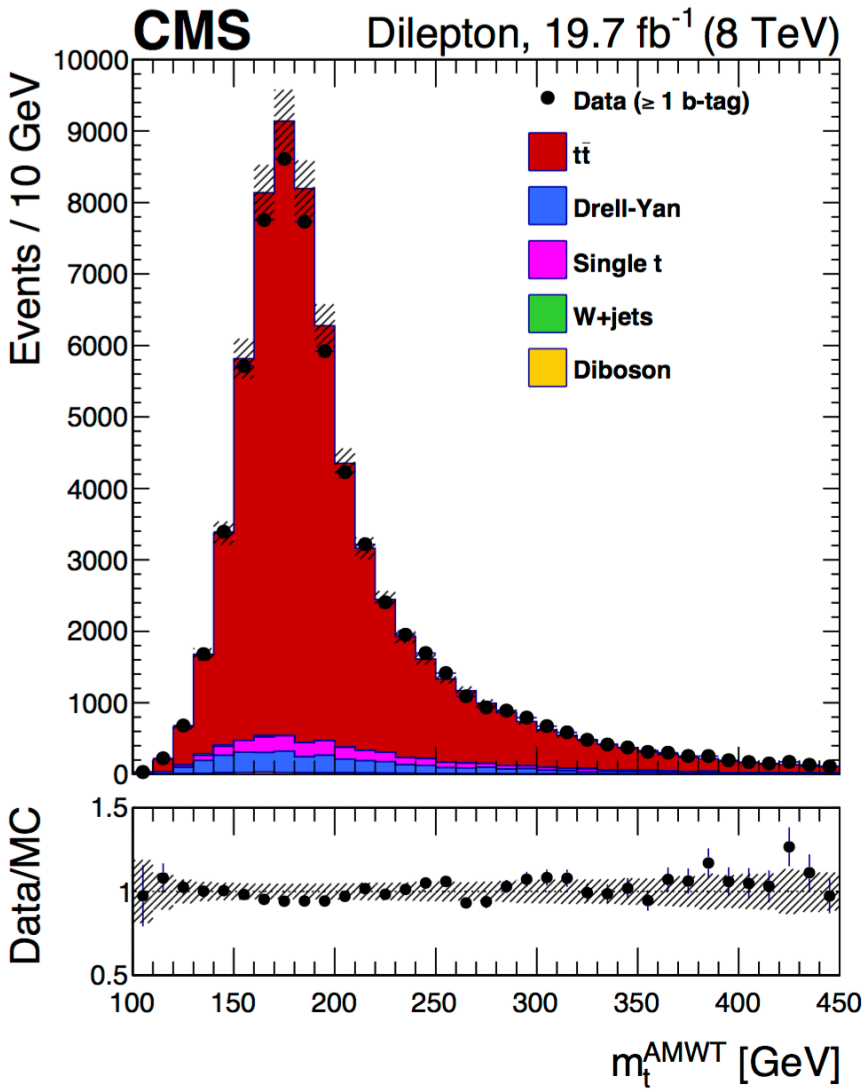

CMS
Lepton+jets, 19.7 fb^{-1} (8 TeV)
tt̄ correct
tt̄ wrong
tt̄ unmatched
Data
Single t
W+jets
Z+jets
QCD multijet
Diboson
After P_{gof} selection
Permutations / 5 GeV
Data/MC
m_t^{fit} [GeV]

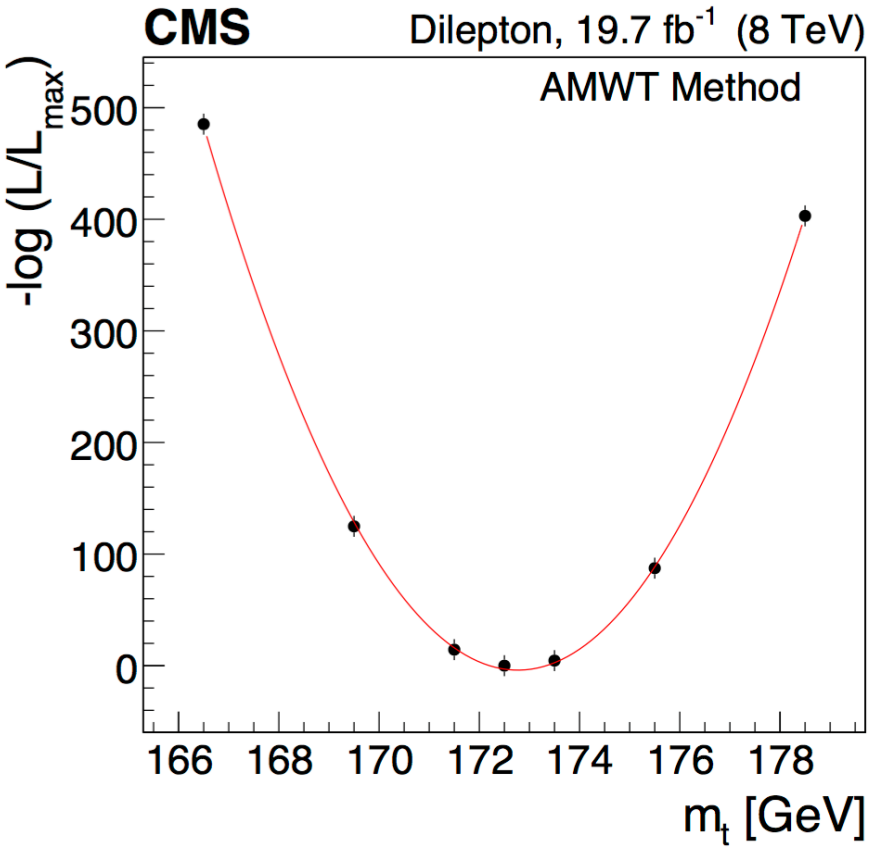

CMS
All-jets, 18.2 fb^{-1} (8 TeV)
Events / 5 GeV
tt̄ correct
tt̄ wrong
Background
Data
After P_{gof} selection
Data/MC
m_t^{fit} [GeV]

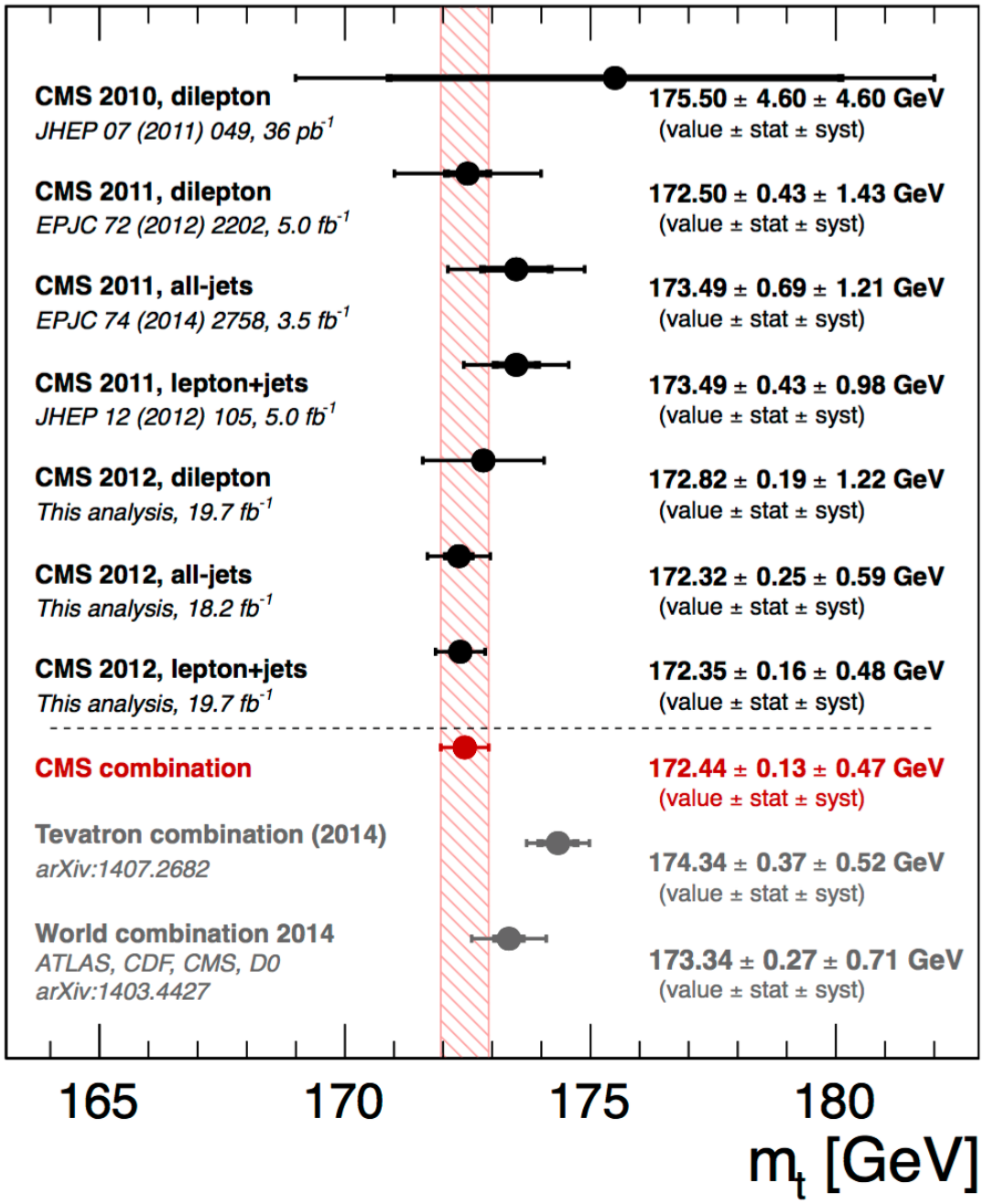

CMS
All-jets, 18.2 fb^{-1} (8 TeV)
Events / 1 GeV
tt̄ correct
tt̄ wrong
Background
Data
After P_{gof} selection
Data/MC
m_W^{reco} [GeV]


CMS
All-jets, 18.2 fb^{-1} (8 TeV)
JSF
2D
Hybrid
1D
m_t [GeV]

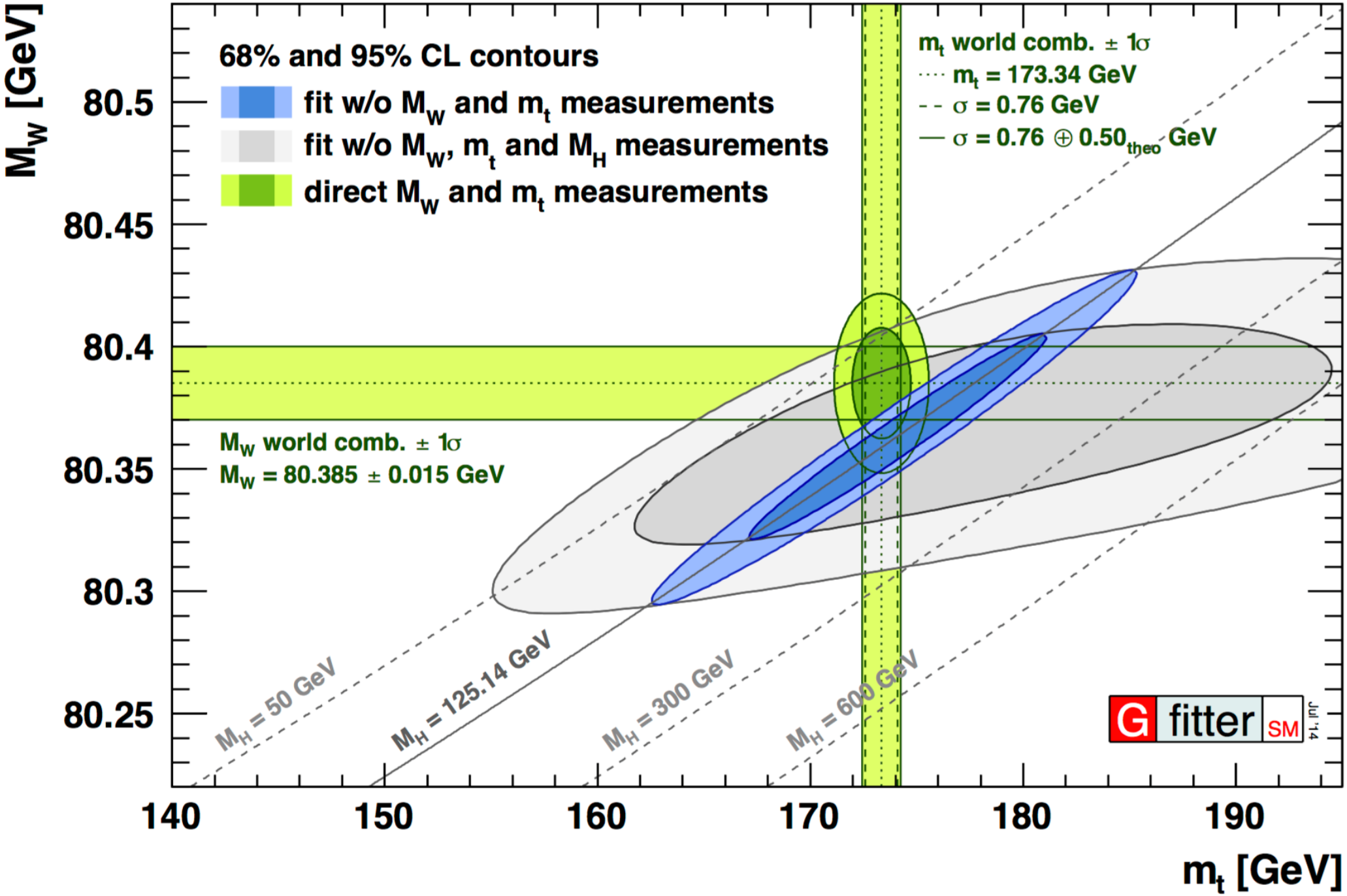

CMS
Lepton+jets, 19.7 fb^{-1} (8 TeV)
JSF
2D
Hybrid
1D
m_t [GeV]


CMS
Dilepton, 19.7 fb^{-1} (8 TeV)
Data (≥ 1 b-tag)
tt̄
Drell-Yan
Single t
W+jets
Diboson
Events / 10 GeV
Data/MC
m_t^{AMWT} [GeV]


CMS
Dilepton, 19.7 fb^{-1} (8 TeV)
AMWT Method
-log (L/L$_{max}$)
m_t [GeV]



Combined m_t result	δm_t(GeV)
Experimental uncertainties	
Method calibration	0.03
Jet energy corrections	
– JEC: Intercalibration	0.01
– JEC: In situ calibration	0.12
– JEC: Uncorrelated non-pileup	0.10
Lepton energy scale	0.01
E_T^{miss} scale	0.03
Jet energy resolution	0.03
b tagging	0.05
Pileup	0.06
Backgrounds	0.04
Trigger	<0.01
Modeling of hadronization	
JEC: Flavor	0.33
b jet modeling	0.14
Modeling of perturbative QCD	
PDF	0.04
Ren. and fact. scales	0.10
ME-PS matching threshold	0.08
ME generator	0.11
Top quark p_T	0.02
Modeling of soft QCD	
Underlying event	0.11
Color reconnection modeling	0.10
Total systematic	0.47
Statistical	0.13
Total Uncertainty	0.48


68% and 95% CL contours
fit w/o M_W and m_t measurements
fit w/o M_W, m_t and M_H measurements
direct M_W and m_t measurements
m_t world comb. ± 1σ
m_t = 173.34 GeV
σ = 0.76 GeV
σ = 0.76 ⊕ 0.50$_{theo}$ GeV
M_W world comb. ± 1σ
M_W = 80.385 ± 0.015 GeV
M_H = 50 GeV
M_H = 125.14 GeV
M_H = 300 GeV
M_H = 600 GeV
G fitter SM
Jul '14
M_W [GeV]
80.5
80.45
80.4
80.35
80.3
80.25
140
150
160
170
180
190
m_t [GeV]