

FCNC channel : $pp \rightarrow t$
very first look

Caro

16/09/2014

based on ATLAS-CONF-2013-063

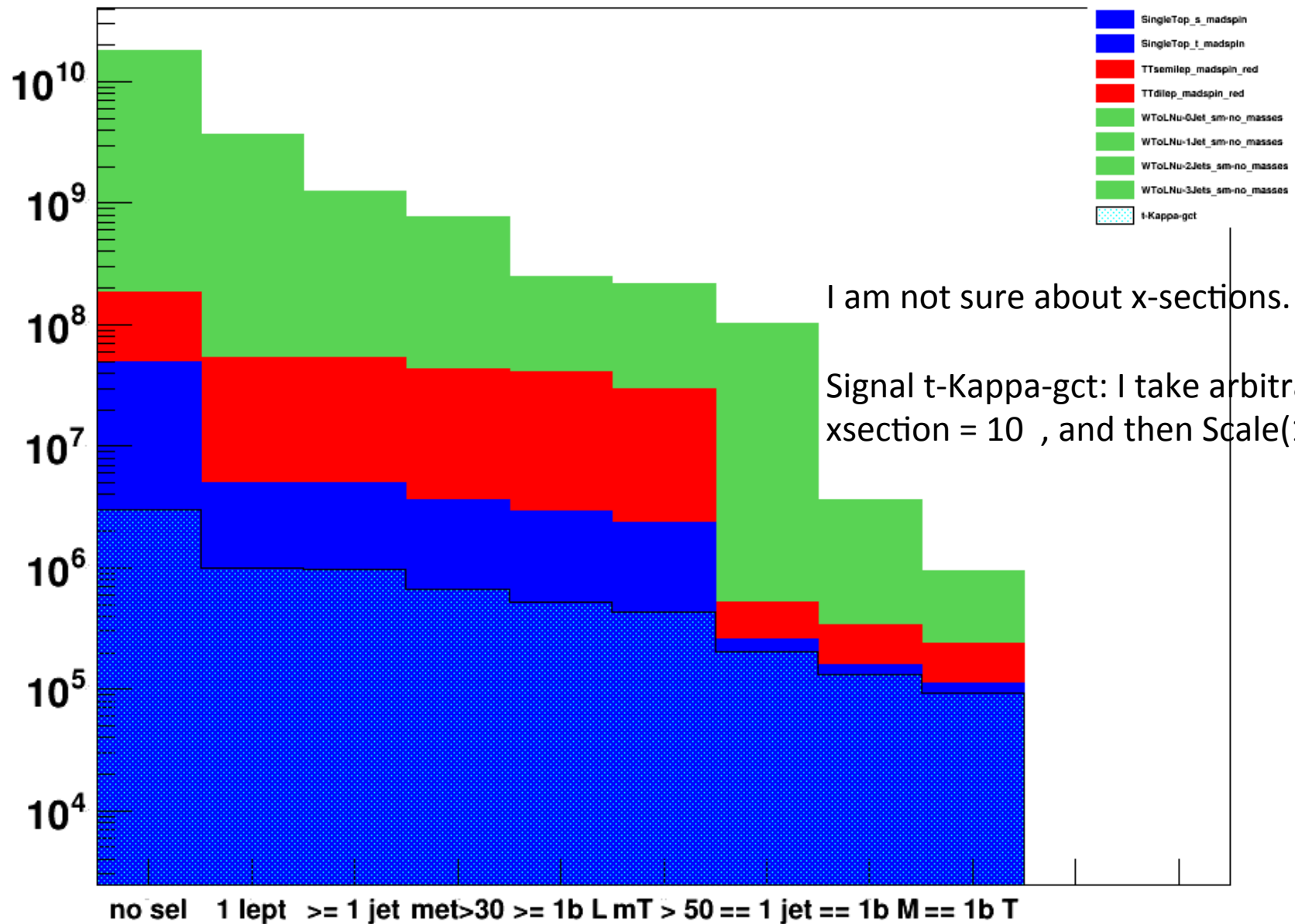
Selection:

- 1 e/ μ
- MET > 30
- = 1b (tight), no other jet
- MT(W) > 50

BG : single top, ttbar, w+jets, z+jets, multijets

13 variables in NN: pT(bjet), pT(W), $\Delta\phi(W, \nu)$ in top rest frame, q(l), $\eta(l)$, $\Delta\phi(l, b)$, $\eta(l\nu b)$

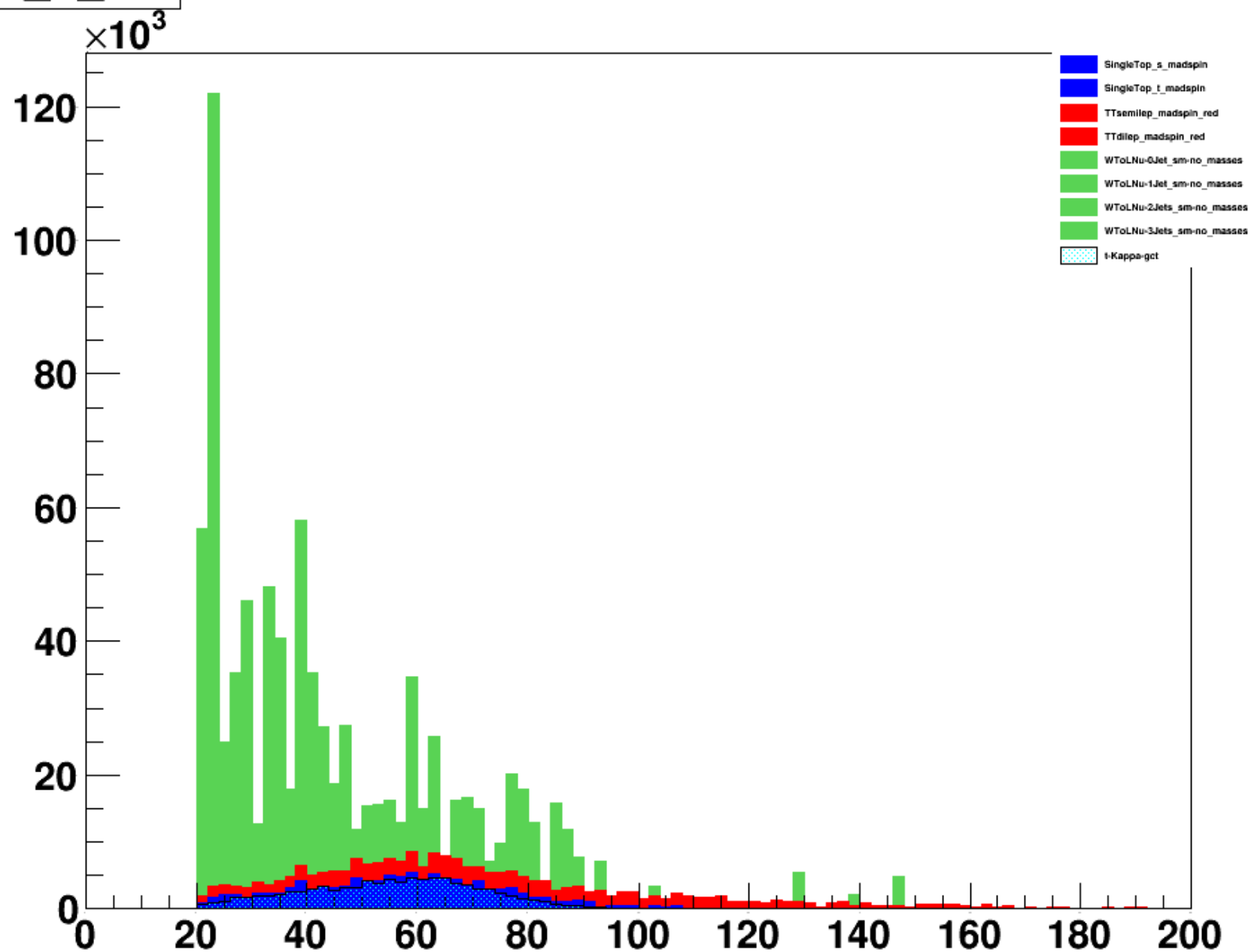
cutFlow



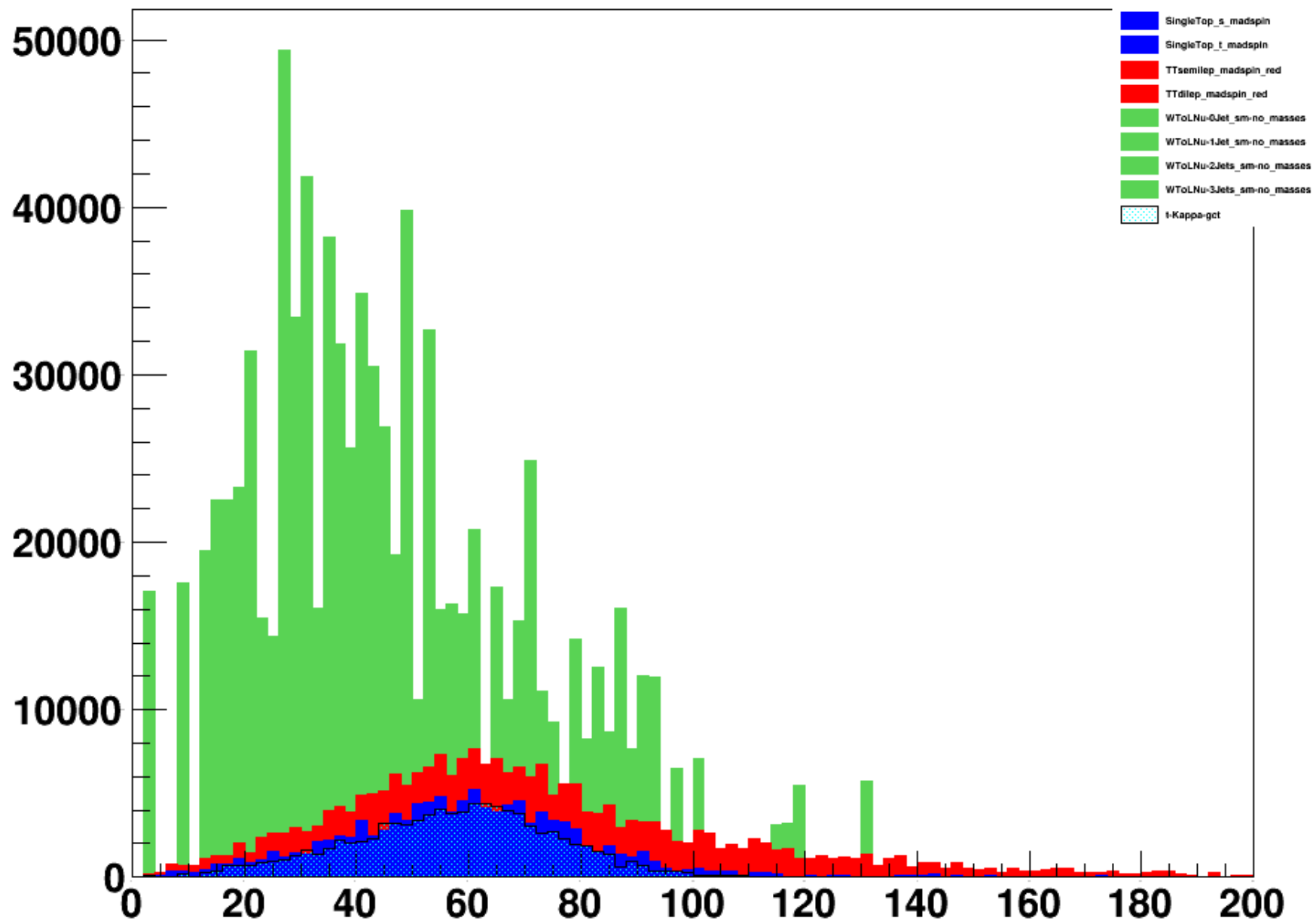
CutFlow (last bin)

• SingleTop_s_madspin	7,744.11 +/- 341.246
• SingleTop_t_madspin	105,629 +/- 2,488.32
• TTsemilep_madspin_red	5,456.42 +/- 787.566
• TTdilep_madspin_red	118,070 +/- 2545.18
• WToLNu-0Jet_sm-no_masses	219,211 +/- 60,798.1
• WToLNu-1Jet_sm-no_masses	478,677 +/- 45,640.1
• WToLNu-2Jets_sm-no_masses	13,698.8 +/- 4,566.27
• WToLNu-3Jets_sm-no_masses	0 +/- 0
• t-Kappa-gct	92.2855 +/- 1.66395

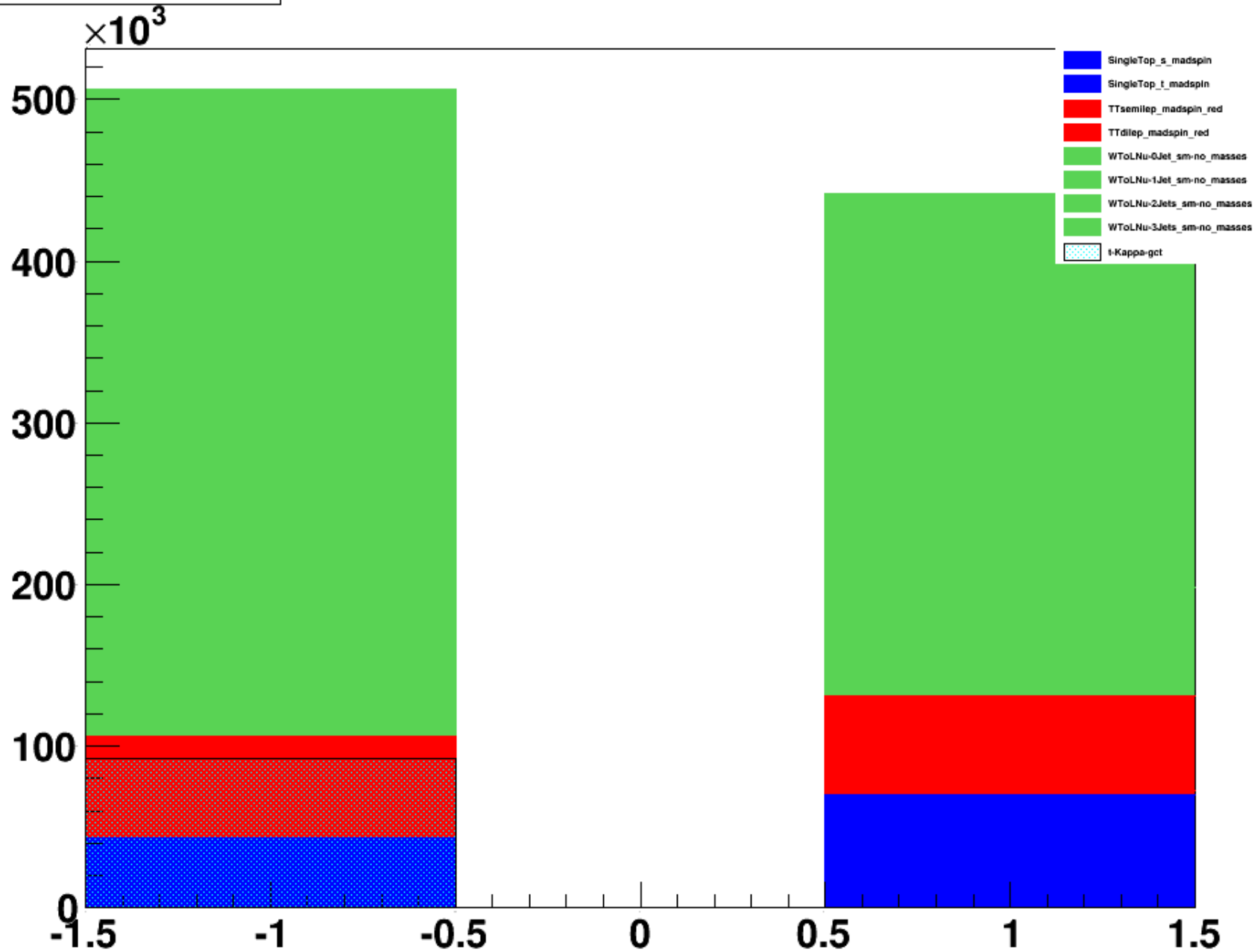
pt_b_nn



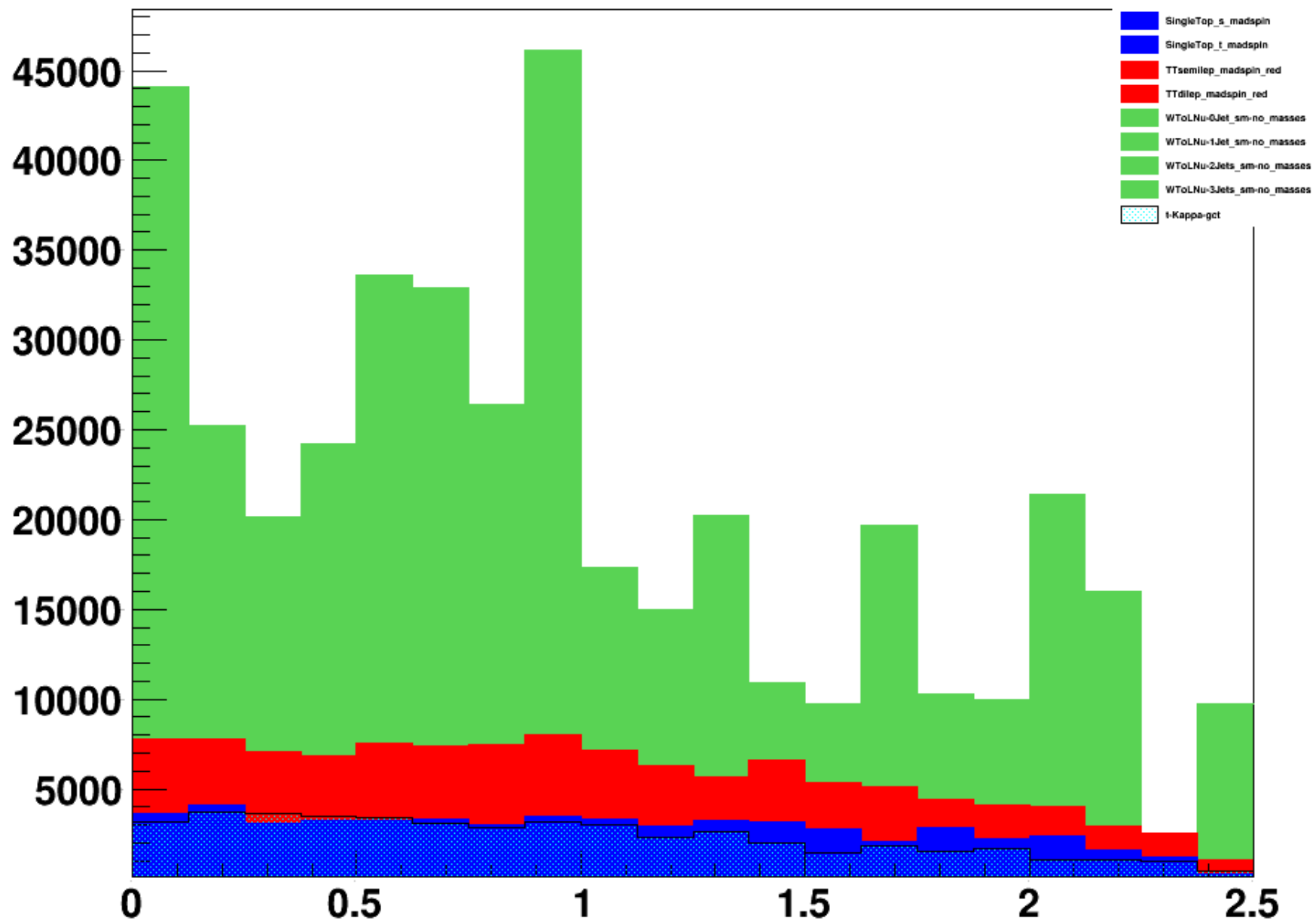
pt_W_nn



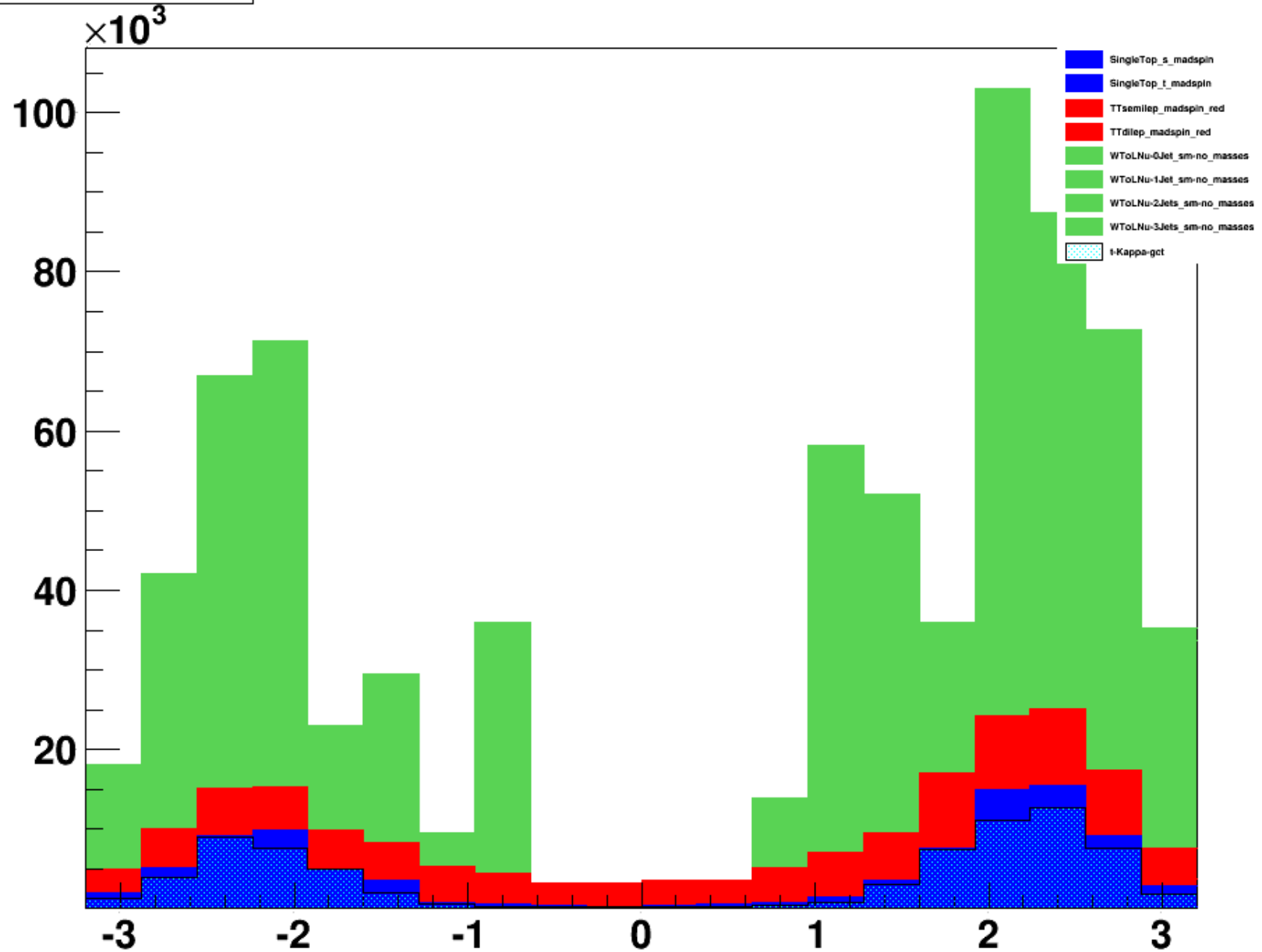
charge_l_nn



eta_l_nn



dphi_lb_nn



Observed problems

- 16:34 (only 10 root files per ttbar type) when running 1 file after the other. Other option?
- Multijet background?
- Statistics for W+jets?
- Charge of the lepton in t-Kappa-gct only negative?
- X-section information for Z+jets & tW? Not clear what is the unity for σ & lumi...
- For /grid_mnt/opt__sbg__data__sbgse24__data1/cms/pheno13TeV/bkg/SingleTop_t_madspin/*.root

WARNING: the input file has been produced with ROOT version 53200 whereas the loaded ROOT libs are related to the version 53407

[sl5, ui5, CMSSW_7_0_0_pre0, v1.1.12beta]

Idem for TTsemilep_madspin_1 & TTsemilep_madspin_2 & TTdilep_madspin

- Need $p_z(\nu)$, W, and top reco info

X-sections used so far

Signal t-Kappa-gct: I take arbitrarily

- `xsection = 10` , and then `Scale(1000)`;

X-section from ValidationWJets

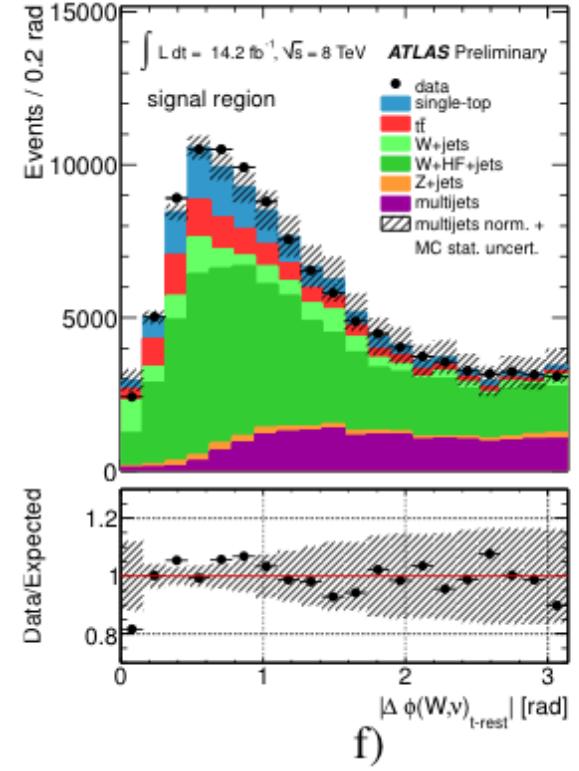
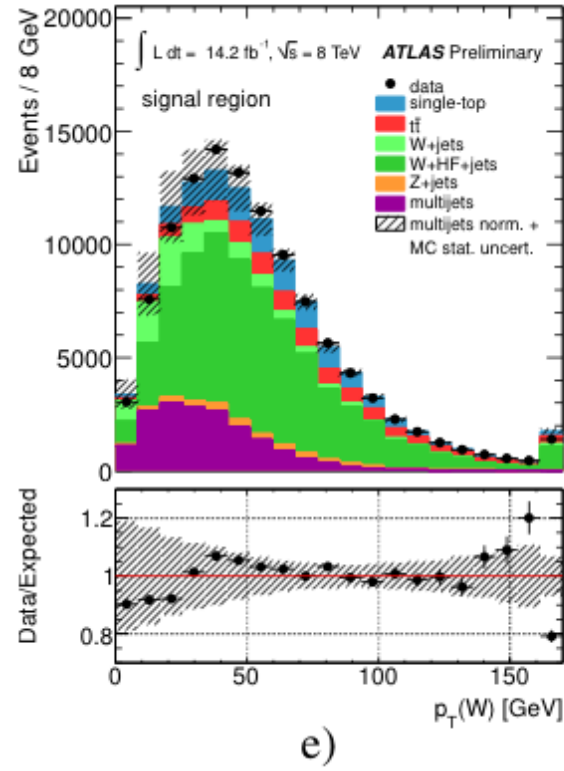
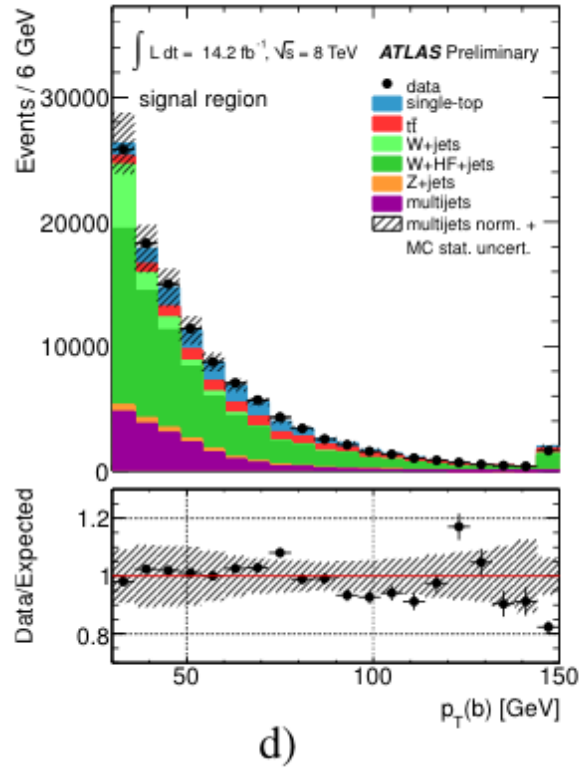
- `Insert("WToLNu-0Jet_sm-no_masses",50118*pb);`
- `Insert("WToLNu-1Jet_sm-no_masses",7311*pb);`
- `Insert("WToLNu-2Jets_sm-no_masses",2020*pb);`
- `Insert("WToLNu-3Jets_sm-no_masses",518*pb);`

Change the name for ttbar:

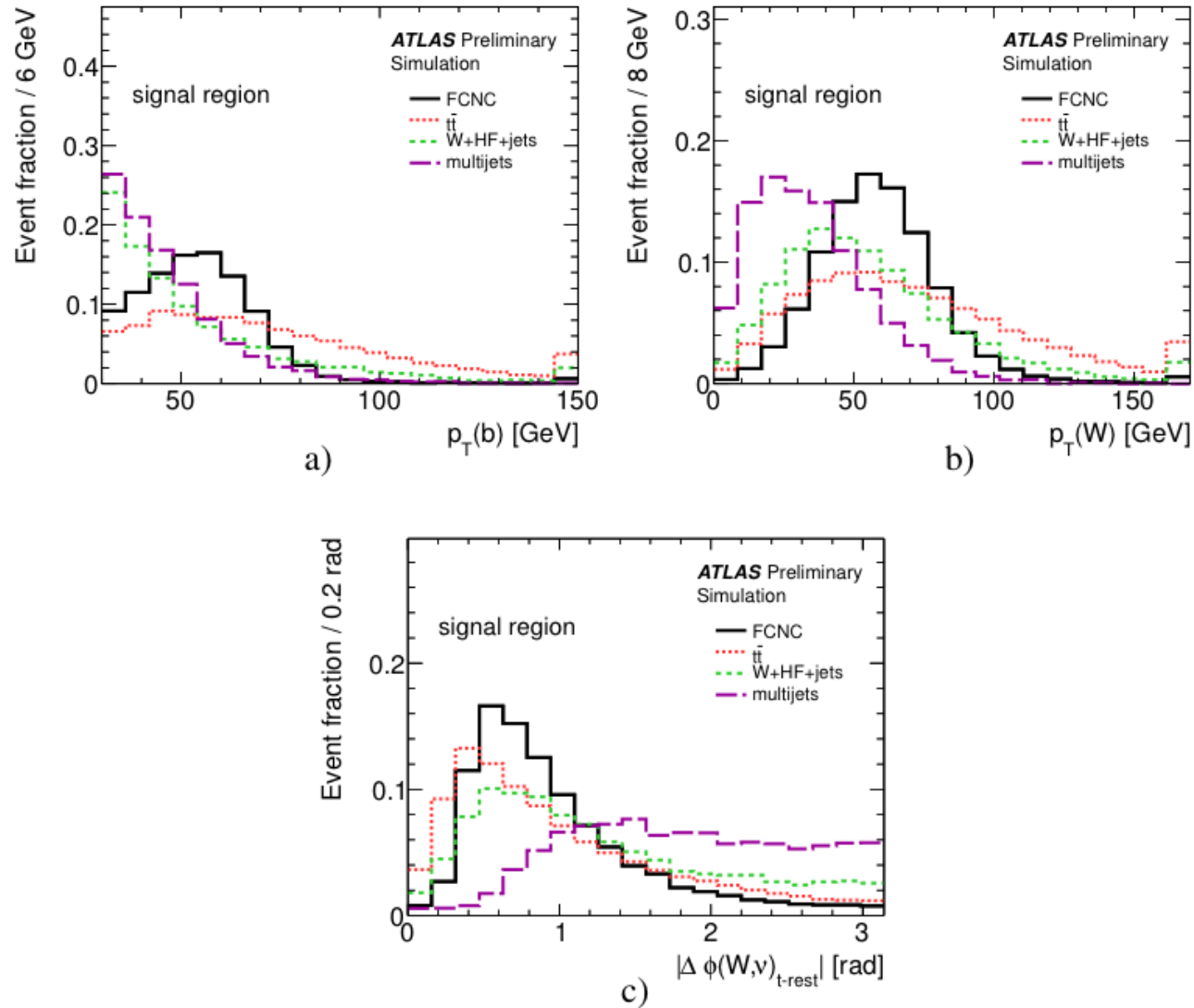
- `Insert("TTsemilep_madspin",357.0*pb);`
- `Insert("TTdilep_madspin",86.22*pb);`

- `Insert("SingleTop_s_madspin",10.01*pb);`
- `Insert("SingleTop_t_madspin",156.3*pb);`
- `Insert("SingleTop_W_madspin",-1*fb);`

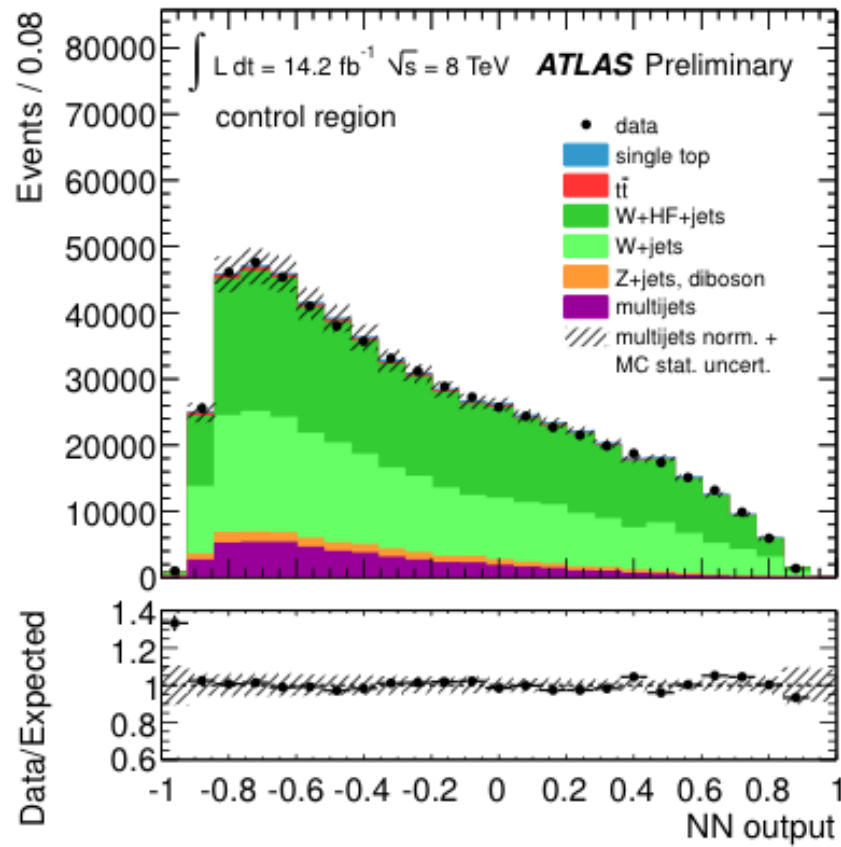
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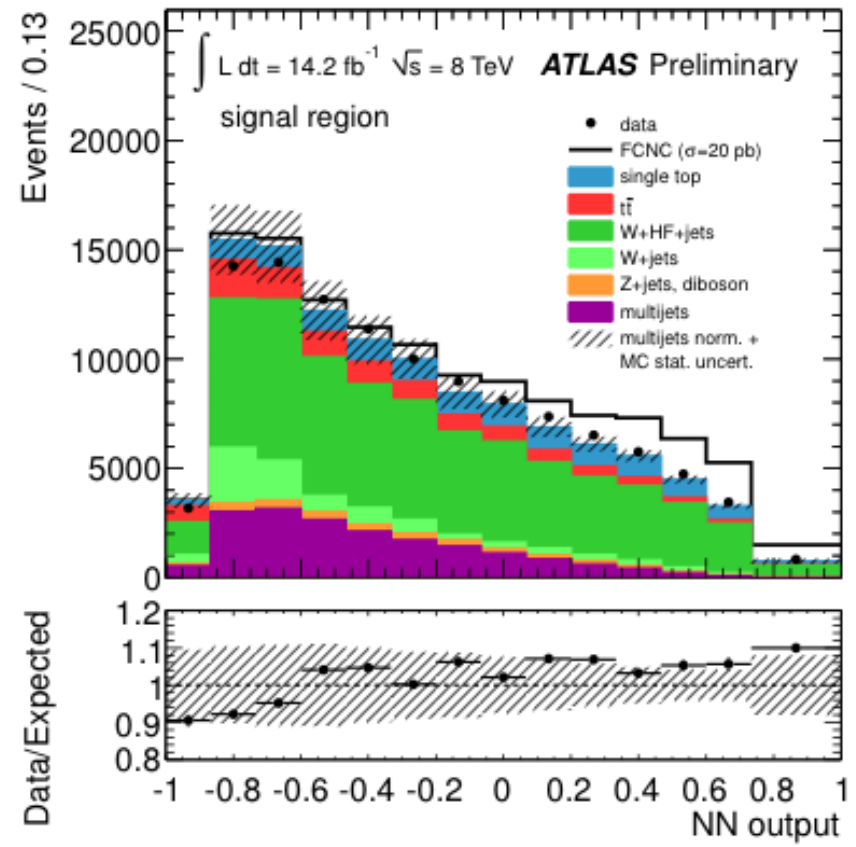
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a)



b)