ZFB Asymmetry in 7 TeV

1. Dimuon Selection
2. TTbar (cross section:LO/NLO)
3. Background rate

Youn Roh,
Nural Akchurin, Efe Yazgan
(Texas Tech Univ.)

Information

- Sample information :

/Zmumu/Summer09-MC_31X_V3_7TeV-v1/GEN-SIM-RECO [2M,1300pb]
/Ztautau/Summer09-MC_31X_V3_7TeV-v1/GEN-SIM-RECO [2.2M,1300pb]
/TTbar/Summer09-MC_31X_V3_7TeV-v1/GEN-SIM-RECO [0.6M,94.3pb]
/TTbar-mcatnlo/Summer09-MC_31X_V3_7TeV-v2/GEN-SIM-RECO [1M,149.8pb]
/Wmunu/Summer09-MC_31X_V3_7TeV-v1/GEN-SIM-RECO [2M,7899pb]
/Wjets-sherpa/Summer09-MC_31X_V3_7TeV-v1/GEN-SIM-RECO [11M,30379.6pb]
/WW/Summer09-MC_31X_V3_7TeV-v1/GEN-SIM-RECO [0.1M,28pb]
/WZ/Summer09-MC_31X_V3_7TeV-v1/GEN-SIM-RECO [0.1M,10.5pb]

- Muon selection :

1. Global Muon
2. (MuonID: GlobalMuonPromptTight) : #outerTrackValidHits>0, chi2<10
3. #hit>10, |d0|<2cm
5. Pt > 15 GeV , |eta|<2.1
6. dimuon : one from +charge, the other from -charge
7. Isolation cut : SumPt (dr=0.3, Tracker based)

- Scale to $100pb^{-1}$

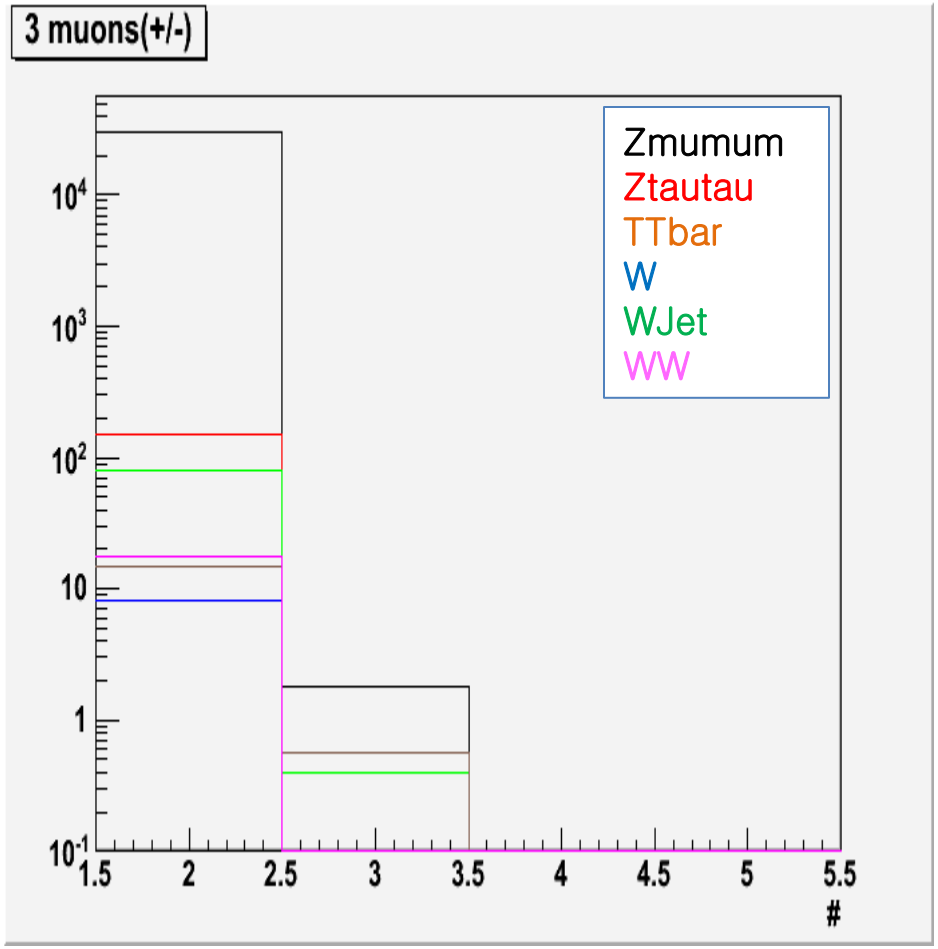
Dimuon selection

(−) 1st mu−, 2nd mu−, 3rd mu−

(+) 1st mu+, 2nd mu+, 3rd mu+

- Method 1 : All combination (9 combination)
- Method 2 : Two leading pt (2nd mu−, 1st mu+)
- Method 3 : Random (1st mu−, 1st mu+)

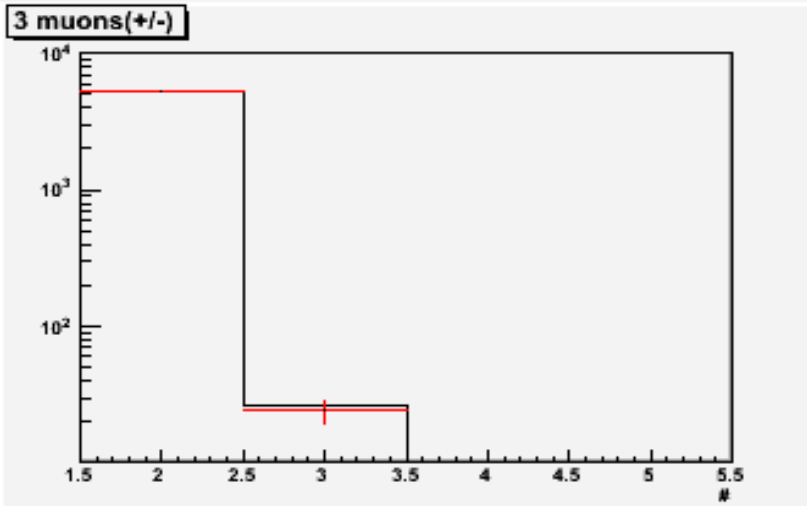
Combination

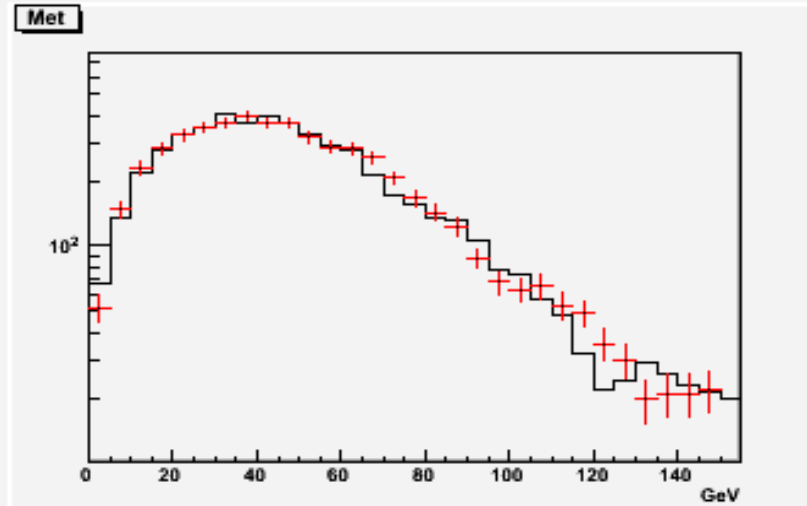


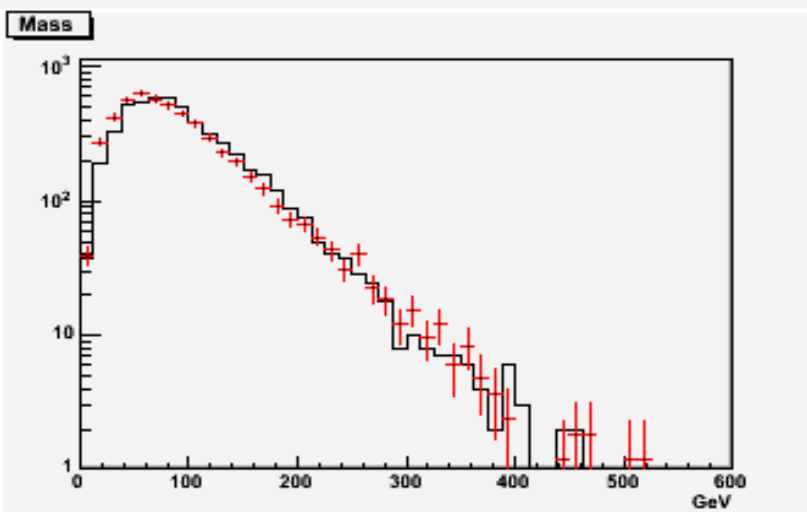
Zmumu

combination	forward	backward	All	AFB
(40-70)*All*	1120.25	1201.17	2321.42	-0.0348569
LeadingPt	1119.94	1201.04	2320.98	-0.034944
Random	1120.19	1201.17	2321.35	-0.0348847
(70-82)*All*	892.022	956.856	1848.88	-0.0350664
LeadingPt	892.022	956.856	1848.88	-0.0350664
Random	892.022	956.856	1848.88	-0.0350664
(82-88)*All*	1827.25	1864.34	3691.59	-0.0100478
LeadingPt	1827.18	1864.28	3691.46	-0.0100481
Random	1827.06	1864.28	3691.34	-0.0100822
(88-91)*All*	4580.55	4533.74	9114.29	0.00513669
LeadingPt	4580.55	4533.74	9114.29	0.00513669
Random	4580.37	4533.74	9114.1	0.00511628
(91-93)*All*	3595.96	3519.46	7115.42	0.0107501
LeadingPt	3595.96	3519.4	7115.36	0.0107589
Random	3595.77	3519.34	7115.11	0.0107418
(93-98)*All*	1903.61	1821.07	3724.69	0.0221597
LeadingPt	1903.61	1821.07	3724.69	0.0221597
Random	1903.55	1821.07	3724.63	0.0221434
(98-115)*All*	548.654	491.364	1040.02	0.055086
LeadingPt	548.592	491.364	1039.96	0.0550294
Random	548.654	491.364	1040.02	0.055086
(115-140)*All*	128.67	107.786	236.455	0.0883206
LeadingPt	128.61	107.786	236.393	0.0880802
Random	128.67	107.786	236.455	0.0883206
(140-600)*All*	100.18	70.4441	170.624	0.174278
LeadingPt	100.18	70.4441	170.624	0.174278
Random	100.18	70.3818	170.562	0.174708

TTbar (LO/NLO)







LO : 94.3pb
NLO : 149.8pb

Acceptance = reco/all event

LO = 0.8552%
NLO = 0.8996%