

W W + 2 jets Analysis



THE UNIVERSITY
of
WISCONSIN
MADISON



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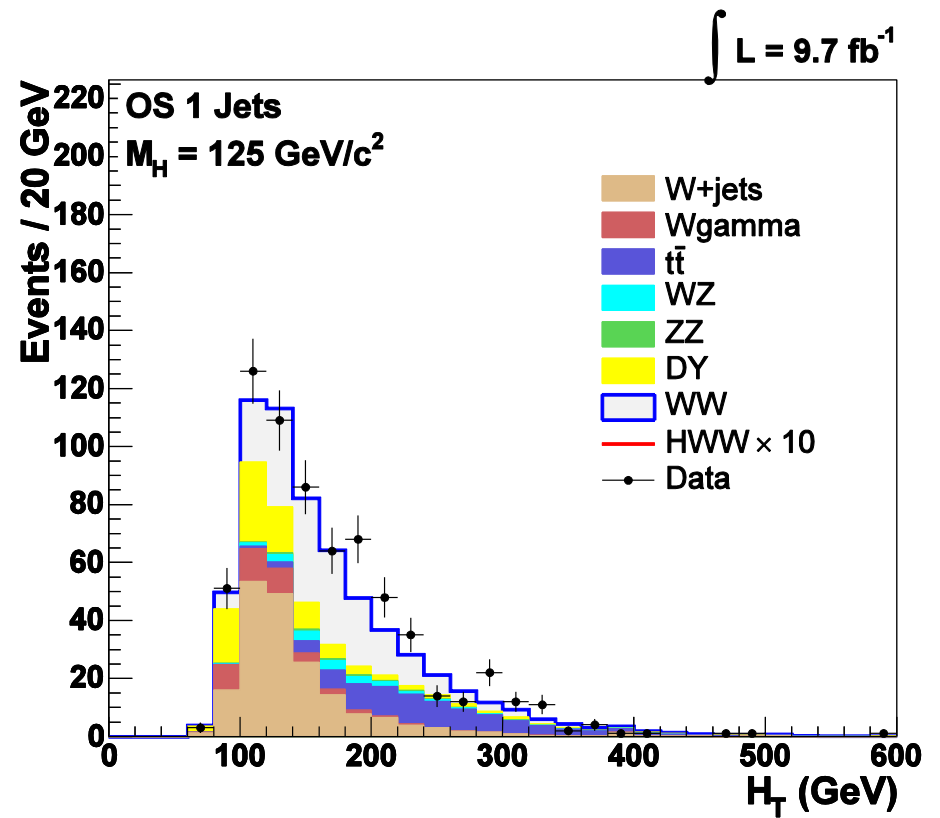
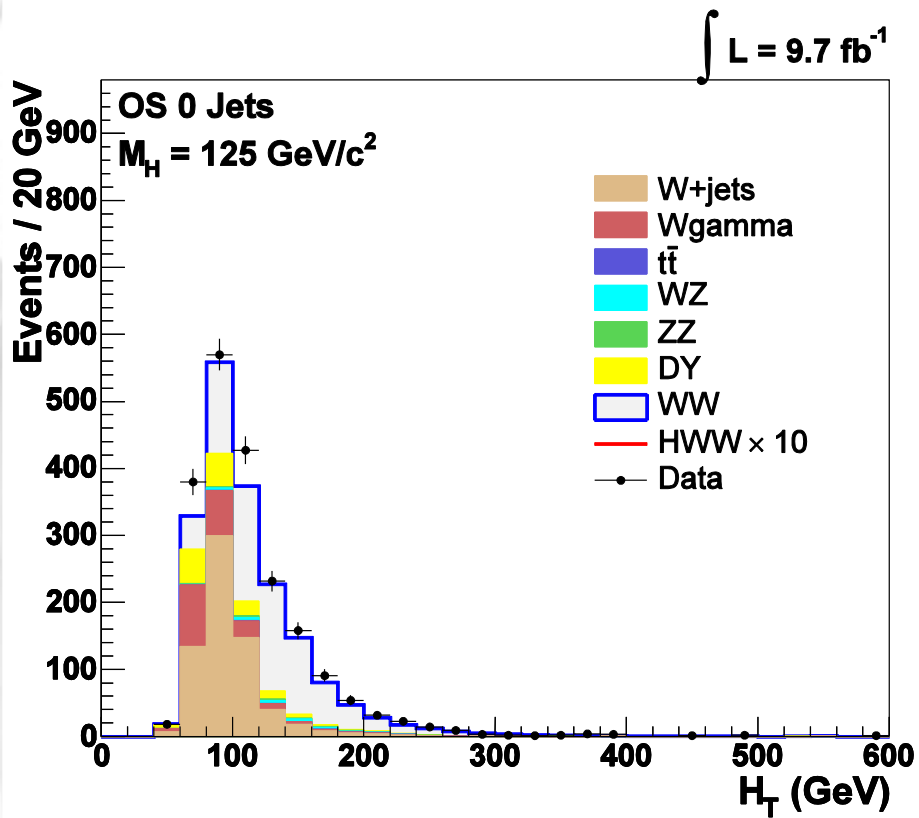
University of Wisconsin – Madison

03/04/13

Update

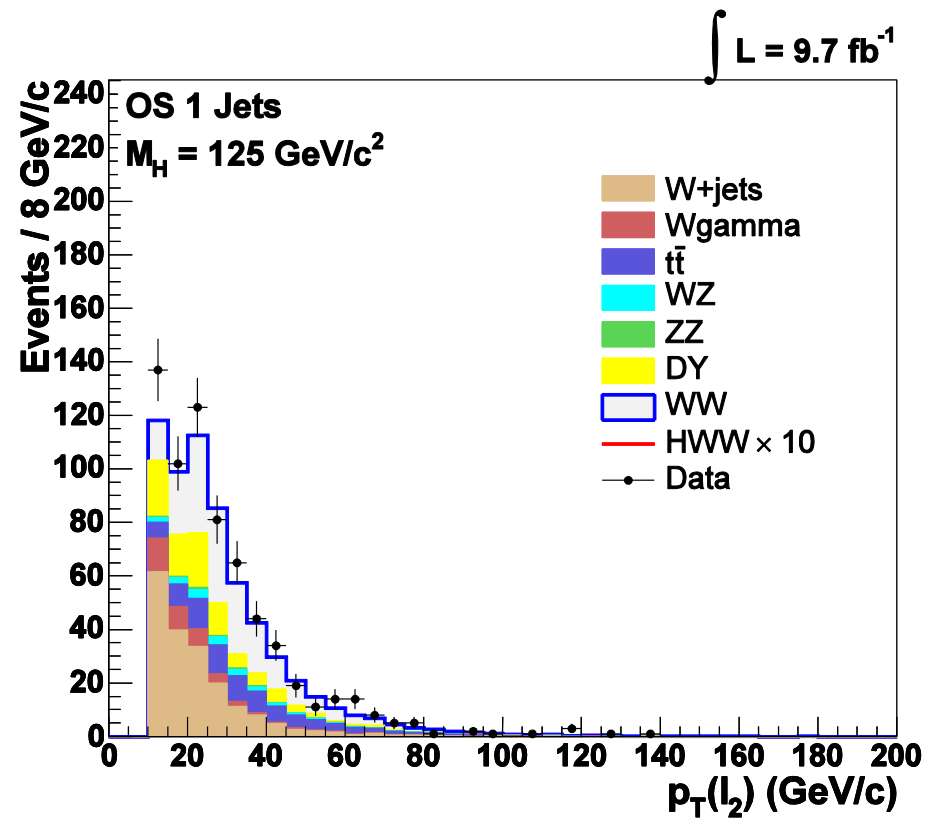
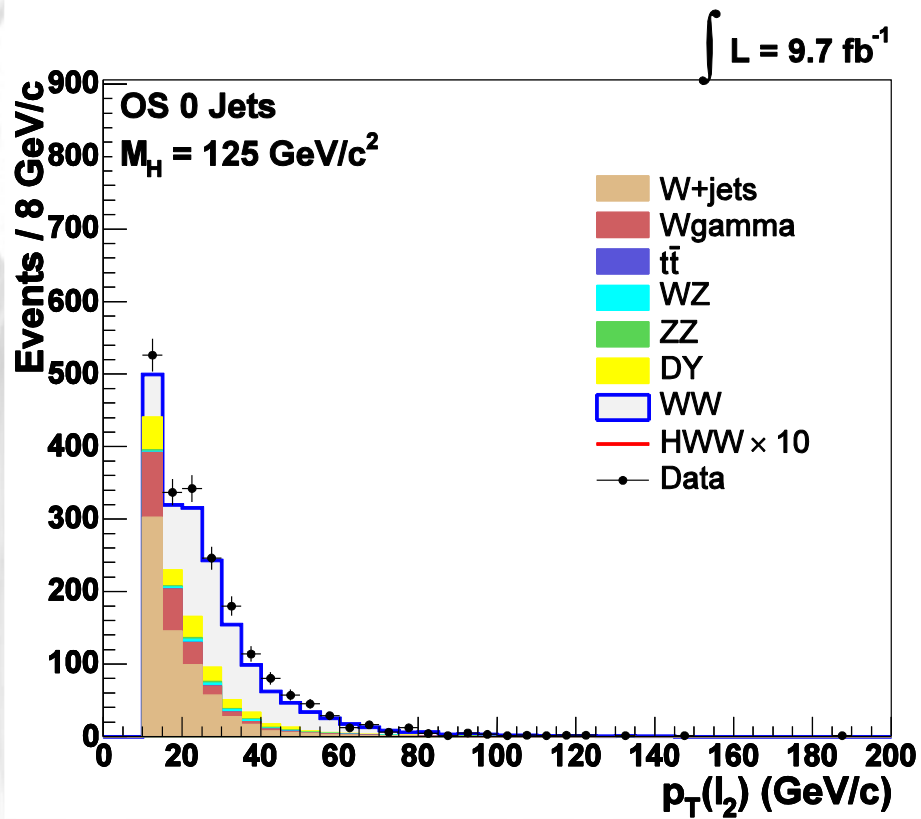
- First few 0J NN variables presented in order of significance
- In 1 jet region W+jets is more energetic relative to WW
- WW tends to be caught between W+jets and ttbar
- LRWW remarkably unimportant (assume it's using with NN variables)
- Fixed Njets plot (problem with loading of neural nets)
- 19% difference between WW MC and Data - Bkg matches other plots
- Examined Nevents as a function of Njets (should have used unfolded jets)

Ht



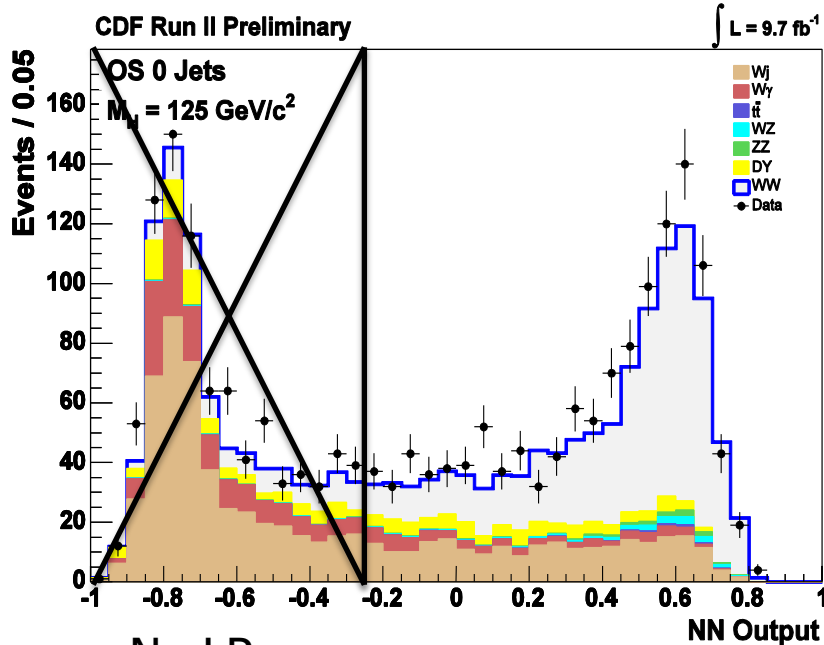
Discrimination spoiled by $t\bar{t}$, W+jets seems to have larger tail

Pt(l2)

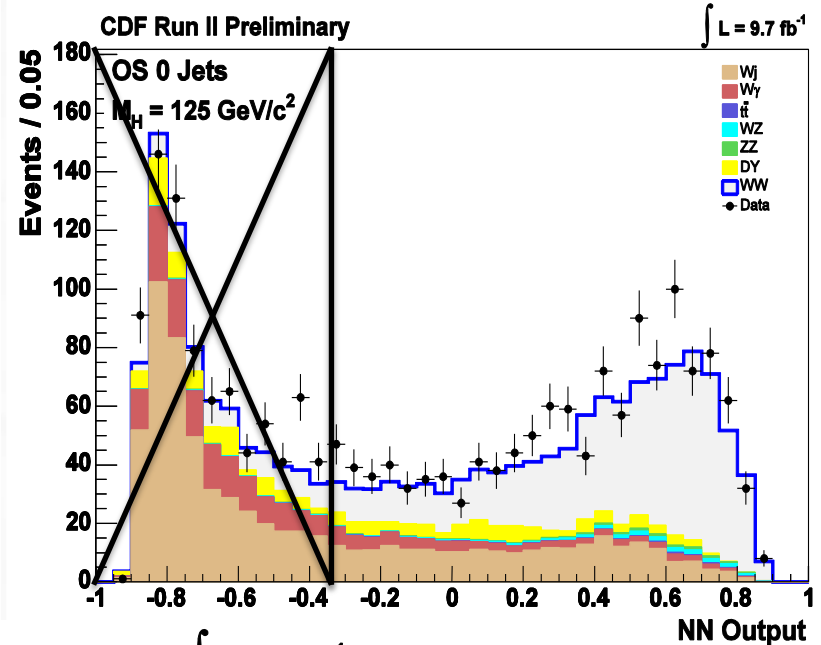


Same as Ht

LRWW



No LR

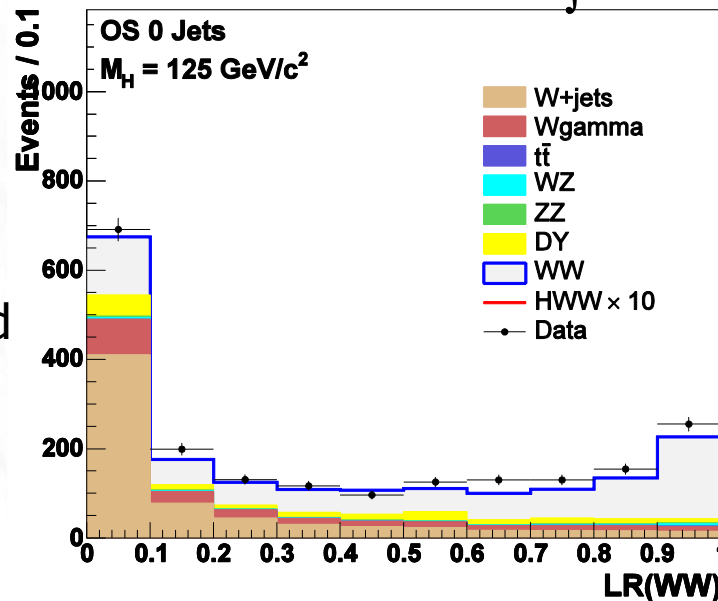


With LR

Negligible improvement in $S/\sqrt{S+B}$: 22.1 \rightarrow 22.2
WW yield: 721.5 \rightarrow 738.9

Note: 1272 events observed, 1109.4 predicted (15% deficit)

Generally within 5% of Sergio's yields, except for DY and WW (17%, 8%)

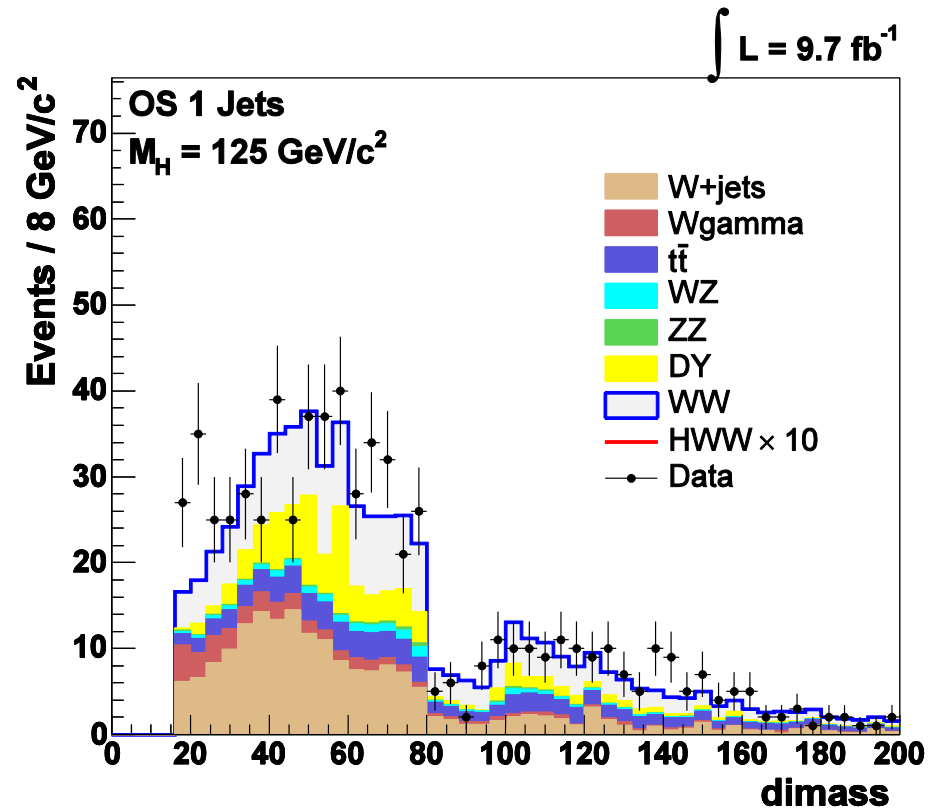
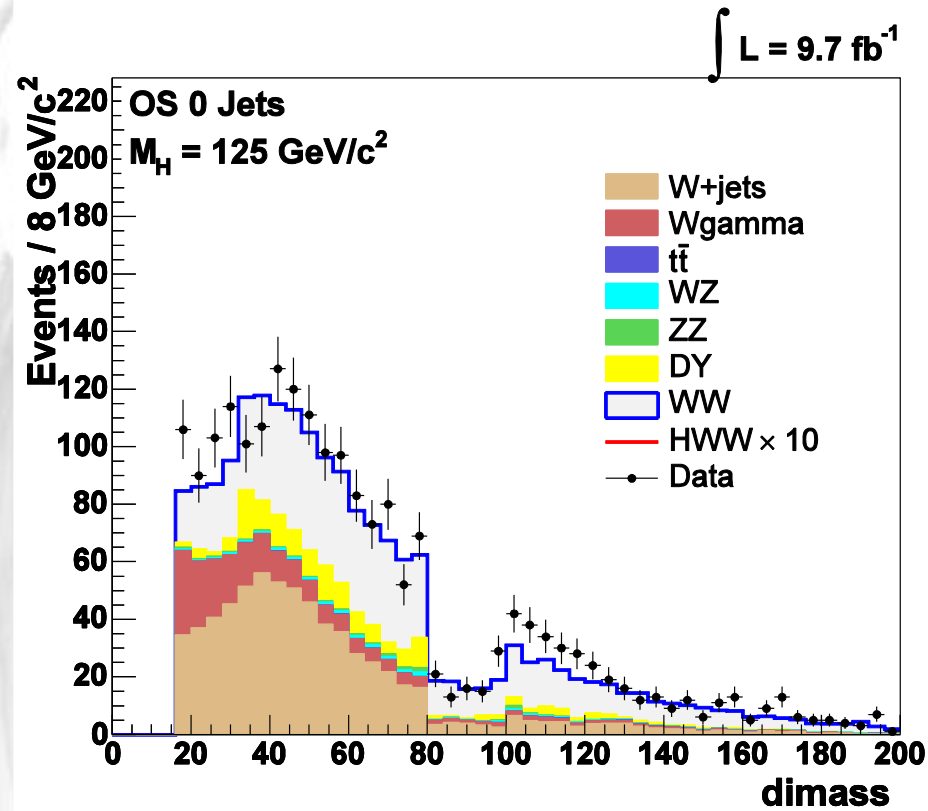


W+jets	193.1
W γ	57.6
tt	3.4
WZ	18.3
ZZ	12.2
DY	85.9
WW	738.9
Data	1272

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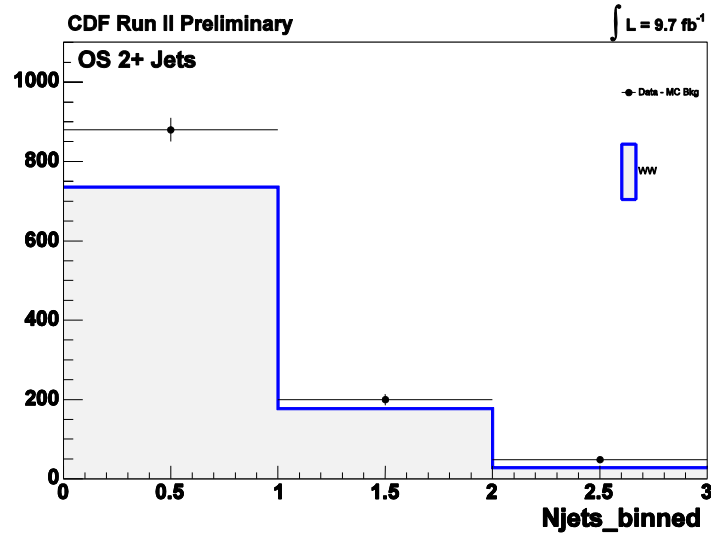
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M(II)

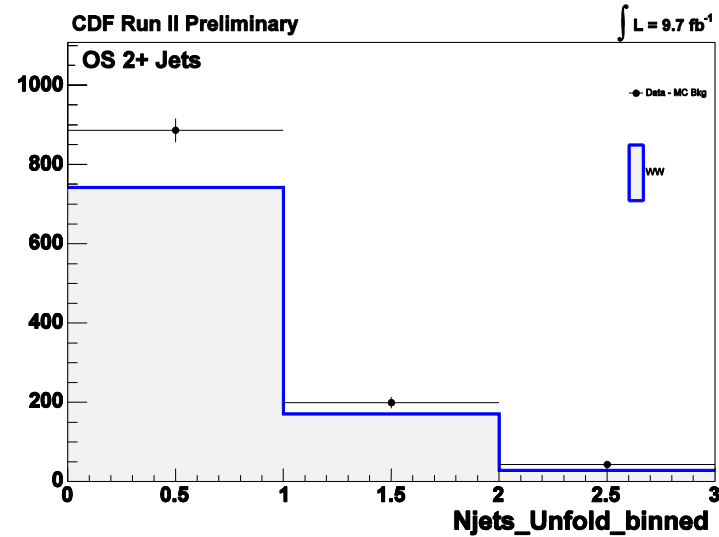


Same as Ht

Jet Multiplicity



Initial

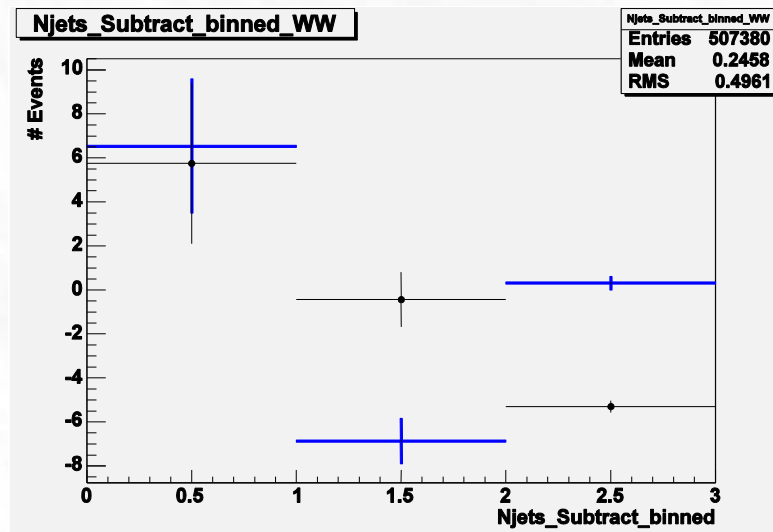


Unfolded

Nevents

MC Bkg	672.5
WW	942.0
Data	1801

12% excess of data
over total MC, 19%
excess after bkg
subtraction

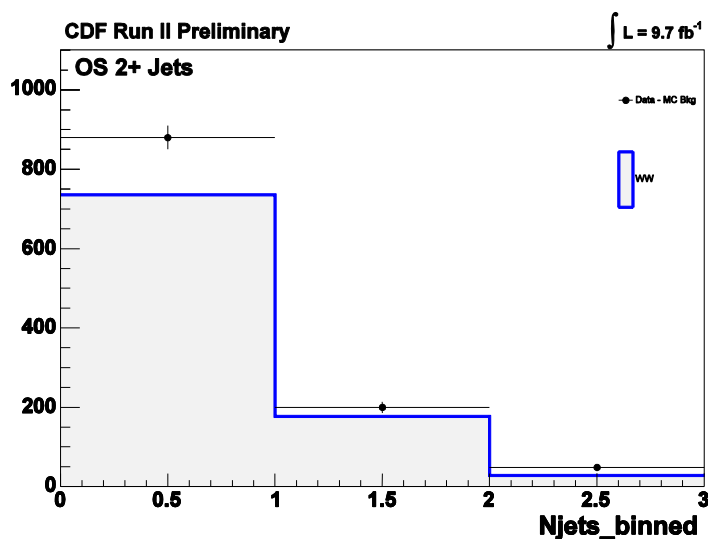


Unfolded - Initial

Data – MC Bkg
WW

Counting Events

	0 Jet	0J σ	1 Jet	1J σ	2+ Jet	2+J σ
MC Bkg	370.5	52.26	237.5	30.17	72.1	8.80
Data	1272	35.67	441	21	123	11.09
Data - MC Bkg	901.5	87.93	203.5	51.17	50.9	19.89
WW	738.9	72.9	178.7	22.44	28.6	7.18



Off by ~ 20 events. Debugging.

Also assumes WW and Bkg uncertainties are uncorrelated (minor correction, will be fixed eventually)

0 Jet is within 1.5σ , 1 and 2 are within 1σ .

To Do: Fix this slide and look at leading jet E_t distribution