WggEventYields

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# Outline

- Logistics
- Control region plots – comparison with data
- Signal region plots (blinded)
- Event yields

Status

- Basic filtered ntuples in /eos/cms/store/user/jkunkle/Wgamgam/FilteredSamplesFeb14 (650 Gb)
- Apply PU weigting, also have electron and muon momentum corrections ready (but not shown today)
- MC cross sections taken from GgNtupleMCSamples twiki
- Generator photon overlap removed from Wjets, Zjets, Wg samples
- using MVA electrons (but need to implement trigger matching)
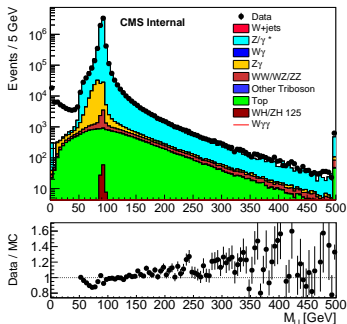- Using loose photons

Z control region

- Overall normalization looks good in Z peak
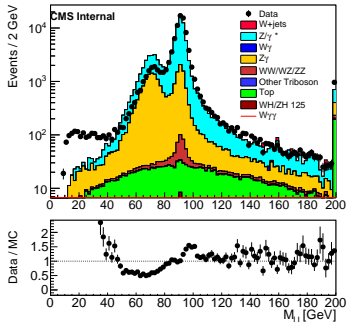- Still need to apply lepton momentum corrections
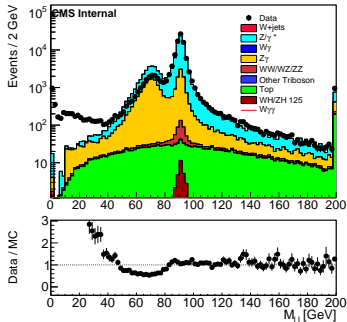
electron channel
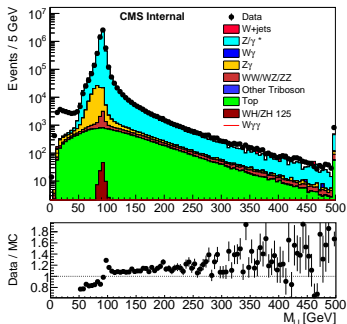
muon channel

Z+γ control region

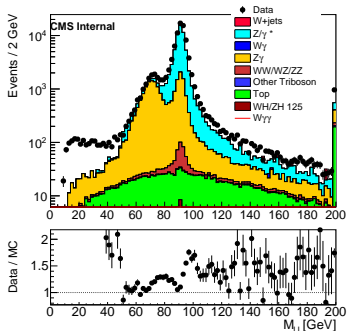- These plots show overlap between $Z\gamma$ and Z+jets samples
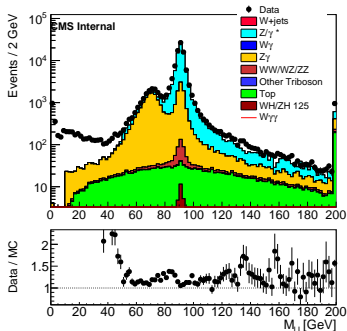
electron channel

muon channel

Z+γ control region

- Agreement is better after photon overlap removal
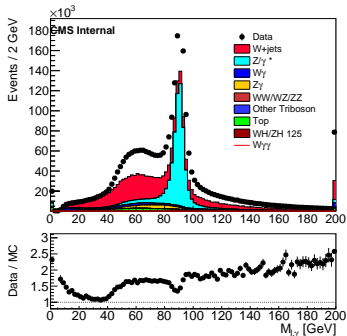- The same overlap removal is applied to W+jets and Wγ samples

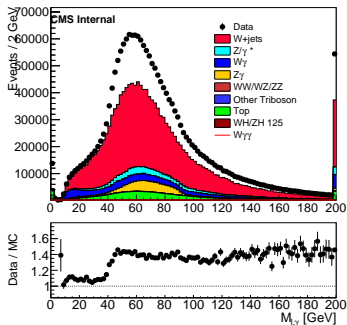electron channel

muon channel

Lepton + photon control regions

- Large contributions from Ws as expected
- Some disagreement between data and MC – will investigate
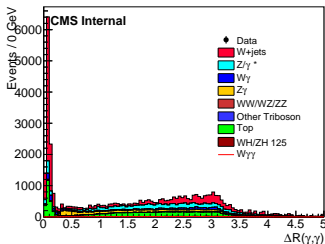
electron channel

muon channel

Signal region – photon ΔR

- Two identified photons tend to be very close in many caases
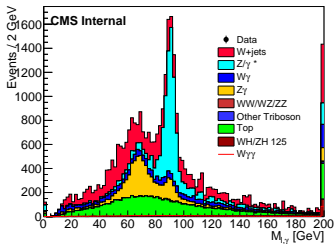- In the following plots, require $\Delta R > 0.2$
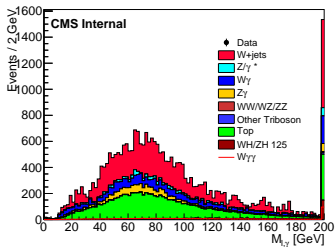
electron channel

Signal region

- Still large contributions from Ws
- The W background seems to be larger than before. Difference is possibly caused by using loose photons

electron channel

muon channel

Event Yields – muon channel

Sample	Pass trigger	1 μ	1 μ + 1 γ	1 μ + 2 γ
Wjets	174043241	84468551	1048278	11630
Zjets	27331241	13726436	90148	956
Wγ	1689770	796705	131275	3426
Zγ	828157	410840	87177	1831
Top	2044336	994788	127756	8360
DiBoson	95580	52738	2985	77
TriBoson	7417	3655	1101	83
VH	3269	1079	284	634
Total Bkg	206055095	100460423	1491078	27591
Data	140597517	62264753	2015926	–
Signal	12081	5628	2070	590

Event Yields – electron channel

Sample	Pass trigger	1 e	1 e + 1 γ	1 e + 2 γ
Wjets	174043241	76771860	826026	9842
Zjets	27331241	12670317	656650	7625
Wγ	1689770	742886	104568	2804
Zγ	828157	385567	80116	5197
Top	2044336	1122991	110510	7129
DiBoson	95580	52693	2813	89
TriBoson	7417	4061	994	68
VH	3269	2273	432	523
Total Bkg	206055095	91758693	1783904	33788
Data	140597517	70411234	2851959	–
Signal	12081	6041	1791	506

summary

- First quick look at control regions and signal region with new ntuples
- A few bugs still have to be worked out with sample normalization and data/mc discrepancies
- Next steps : apply object momentum corrections, continue with studies of electrons faking photons