
Weekly

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Sample status

- lvjjyy for WWyy is done!

https://prodtask-dev.cern.ch/prodtask/inputlist_with_request/5955/

- W+jets, Z+jets, ttH, ttbar samples are existing.

- Due to some bugs in ttH->Multileptons framework, used AnalysisTop framework temporarily

<https://twiki.cern.ch/twiki/bin/view/AtlasProtected/TopxAODStartGuide>

- Run over HIGG8D1 derivation samples

- › at least 2 loose leptons (electrons OR muons)
- › $p_T > 15 \text{ GeV}$ (leading) , $p_T > 5 \text{ GeV}$ (sub-leading)
- › $|\eta| < 2.6$

- $W(+)$ $\rightarrow$ $e\ell$ ν , $m_{e\nu} > 2.5\text{GeV}$, $x_{\text{sec}} = 11500.9154\text{ pb}$

mc15_13TeV.361100.PowhegPythia8EvtGen_AZNLOCTEQ6L1_Wplusenu.merge.DAOD_HIGG8D1.e3601_s2576_s2132_r6765_r6282_p2434_tid06677290_00

- Trigger: HLT_e24_lhmedium_L1EM18VH HLT_e60_lhmedium HLT_e120_lhloose

- ee:

cut	#events
initial	100000
PRIVTX	99999
Trigger	29189
$pt_{\text{jet}} > 25\text{GeV}$, $n_{\text{jet}} \geq 4$	35
$pt_{e\ell} > 10\text{GeV}$, $n_{e\ell} == 2$	0
SS	0

- But, due to very large x_{sec} , need run over all the samples to see how many events will survive!

➤ Z-→ e e, $m_{ee} > 60\text{GeV}$, $x_{\text{sec}}=1950.6321\text{ pb}$

mc15_13TeV.361106.PowhegPythia8EvtGen_AZNLOCTEQ6L1_Zee.merge.DAOD_HIGG8D1.e3601_s2576_s2132_r6765_r6282_p2434_tid06676529_00

➤ Trigger: HLT_e24_lhmedium_L1EM18VH HLT_e60_lhmedium HLT_e120_lhloose

➤ ee:

cut	#events
initial	100000
PRIVTX	99999
Trigger	52253
$pt_{\text{jet}} > 25\text{GeV}$, $n_{\text{jet}} \geq 4$	248
$pt_{\text{el}} > 10\text{GeV}$, $n_{\text{el}} = 2$	41
SS	1

19.5 fb remaining?

llvvjj(j) like-sign QCD

➤ Order_EW=4, xsec=0.025797 pb

mc15_13TeV.361069.Sherpa_CT10_llvvjj_ss_EW4.merge.DAOD_HIGG8D1.e3836_s2608_s2183_r7267_r6282_p2501

➤ Trigger: HLT_e24_lhmedium_L1EM18VH HLT_e60_lhmedium HLT_e120_lhloose,
HLT_mu20_loose_L1MU15 HLT_mu50

cut	ee	mumu	emu
initial	10000	10000	10000
PRIVTX	10000	10000	10000
Trigger	2975	2996	678
pt_jet>25GeV, n_jet>=4	697	676	130
pt_el>10GeV, n_el==2	47	51	127
SS	46	51	127

~0.6 fb remaining

llvvjj(j)-EW like-sign

➤ Order_EW=6, xsec=0.043004 pb

mc15_13TeV.361070.Sherpa_CT10_llvvjj_ss_EW6.merge.DAOD_HIGG8D1.e3836_s2608_s2183_r7267_r6282_p2501_tid07310715_00

➤ Trigger: HLT_e24_lhmedium_L1EM18VH HLT_e60_lhmedium HLT_e120_lhloose,
HLT_mu20_iloose_L1MU15 HLT_mu50

cut	ee	mumu	emu
initial	10000	10000	10000
PRIVTX	9999	9999	9999
Trigger	3220	3152	817
pt_jet>25GeV, n_jet>=4	560	521	113
pt_el>10GeV, n_el==2	46	51	112
SS	45	51	112

~1 fb remaining

Data!

- Lumi=3.2 fb⁻¹
- Have not run over all the data!
- CR: OS, n_jet<4
- data15_13TeV:data15_13TeV.00280464.physics_Main.merge.DAOD_HIGG8D1.f629_m1504_p2432

cut	ee	mumu	emu
initial	7468	7468	7468
PRIVTX	7462	7462	7462
Trigger	126	499	2
pt_jet>25GeV, n_jet < 4	115	487	2
pt_el > 10GeV, n_el==2	31	183	2
OS	31	183	2

To do list

- Migrate to ttH->multileptons framework which is based on AnalysisTop framewrok
- Complete cut-flow for all existing relevant bkg samples, run over grid.
- Create JOs for WWWW bkg samples, start to request samples.

Backup



Final yields:

- ee cutflow:

	cut	events	mc weights	mc*pu weights	lepton SF	b-tag SF		
1	INITIAL	100000.00	1130693229.21	1130693229.21	0.00	0.00		
2	GRL	100000.00	1130693229.21	1130693229.21	0.00	0.00		
3	GOODCALO	100000.00	1130693229.21	1130693229.21	0.00	0.00		
4	PRIVTX	99999.00	1130681777.11	1130681777.11	0.00	0.00		
5	TRIGDEC HLT_e120_lhloose HLT_e24_lhmedium_L1EM18VH HLT_e60_lhmedium				37662.00	424358429.77	424358429.77	35905.61
7646.04								3
6	EL_N 25000 >= 1	29189.00	328705634.73	328705634.73	27432.61	29185.85		
7	TRIGMATCH	29189.00	328705634.73	328705634.73	27432.61	29185.85		
8	JETCLEAN LooseBad	29188.00	328694177.43	328694177.43	27431.64	29184.85		
9	JET_N 25000 >= 1	7409.00	83485685.64	83485685.64	7030.40	7405.85		
10	JET_N 25000 >= 4	35.00	401007.50	401007.50	33.47	34.96		
11	EL_N 10000 == 2	0.00	0.00	0.00	0.00	0.00		
12	MU_N 25000 == 0	0.00	0.00	0.00	0.00	0.00		
13	SS	0.00	0.00	0.00	0.00	0.00		
14	EXAMPLEPLOTS	0.00	0.00	0.00	0.00	0.00		
15	SAVE	0.00	0.00	0.00	0.00	0.00		

➤ H->inclusive

➤ CR

Final yields:							
- ee cutflow:							
	cut	events	mc weights	mc*pu weights	lepton SF	b-tag SF	
1	INITIAL	40000.00	21354.00	21354.00	0.00	0.00	
2	GRL	40000.00	21354.00	21354.00	0.00	0.00	
3	GOODCALO	40000.00	21354.00	21354.00	0.00	0.00	
4	PRIVTX	40000.00	21354.00	21354.00	0.00	0.00	
5	TRIGDEC HLT_e120_lhloose HLT_e24_lhmedium_L1EM18VH HLT_e60_lhmedium	17162.00	9212.00	9212.00	16584.64	1	
6	EL_N 25000 >= 1	14046.00	7566.00	7566.00	13553.43	14044.12	
7	TRIGMATCH	14004.00	7536.00	7536.00	13512.94	14002.22	
8	JETCLEAN LooseBad	14000.00	7534.00	7534.00	13509.17	13998.22	
9	JET_N 25000 < 4	3186.00	1764.00	1764.00	3064.52	3182.07	
10	EL_N 10000 == 2	535.00	301.00	301.00	509.24	535.85	
11	MU_N 25000 == 0	452.00	256.00	256.00	431.18	453.04	
12	OS	405.00	237.00	237.00	386.53	406.16	
13	EXAMPLEPLOTS	405.00	237.00	237.00	386.53	406.16	
14	SAVE	405.00	237.00	237.00	386.53	406.16	
- mumu cutflow:							
	cut	events	mc weights	mc*pu weights	lepton SF	b-tag SF	
1	INITIAL	40000.00	21354.00	21354.00	0.00	0.00	
2	GRL	40000.00	21354.00	21354.00	0.00	0.00	
3	GOODCALO	40000.00	21354.00	21354.00	0.00	0.00	
4	PRIVTX	40000.00	21354.00	21354.00	0.00	0.00	
5	TRIGDEC HLT_mu20_iloose_L1MU15 HLT_mu50	17927.00	9665.00	9665.00	16785.62	17946.84	
6	MU_N 25000 >= 1	13062.00	7118.00	7118.00	11969.99	13072.16	
7	TRIGMATCH	12786.00	6990.00	6990.00	11698.11	12796.85	
8	JETCLEAN LooseBad	12782.00	6990.00	6990.00	11694.46	12792.79	
9	JET_N 25000 < 4	2957.00	1645.00	1645.00	2743.34	2958.49	
10	MU_N 10000 == 2	566.00	346.00	346.00	534.89	568.50	
11	EL_N 25000 == 0	485.00	293.00	293.00	457.73	487.81	
12	OS	431.00	261.00	261.00	406.84	432.73	
13	EXAMPLEPLOTS	431.00	261.00	261.00	406.84	432.73	
14	SAVE	431.00	261.00	261.00	406.84	432.73	
- emu cutflow:							
	cut	events	mc weights	mc*pu weights	lepton SF	b-tag SF	
1	INITIAL	40000.00	21354.00	21354.00	0.00	0.00	
2	GRL	40000.00	21354.00	21354.00	0.00	0.00	
3	GOODCALO	40000.00	21354.00	21354.00	0.00	0.00	
4	PRIVTX	40000.00	21354.00	21354.00	0.00	0.00	
5	TRIGDEC HLT_e120_lhloose HLT_e24_lhmedium_L1EM18VH HLT_e60_lhmedium HLT_mu20_iloose_L1MU15 HLT_mu50	29641.00	15917.00				
6	EL_N_OR_MU_N 25000 >= 1	24340.00	13174.00	13174.00	22845.76	24345.67	
7	EL_N 25000 >= 1	14254.00	7696.00	7696.00	13740.18	14251.11	
8	MU_N 25000 >= 1	3639.00	2007.00	2007.00	3500.83	3638.71	
9	TRIGMATCH	3634.00	2002.00	2002.00	3496.01	3633.70	
10	JETCLEAN LooseBad	3634.00	2002.00	2002.00	3496.01	3633.70	
11	HT > 120000	3629.00	2001.00	2001.00	3491.39	3628.70	
12	JET_N 25000 < 4	1118.00	620.00	620.00	1071.53	1115.25	
13	EL_N 25000 == 1	1031.00	573.00	573.00	989.68	1028.47	
14	MU_N 25000 == 1	953.00	521.00	521.00	915.24	950.79	
15	OS	855.00	455.00	455.00	821.86	853.32	
16	EXAMPLEPLOTS	855.00	455.00	455.00	821.86	853.32	
17	SAVE	855.00	455.00	455.00	821.86	853.32	