

Weekly report

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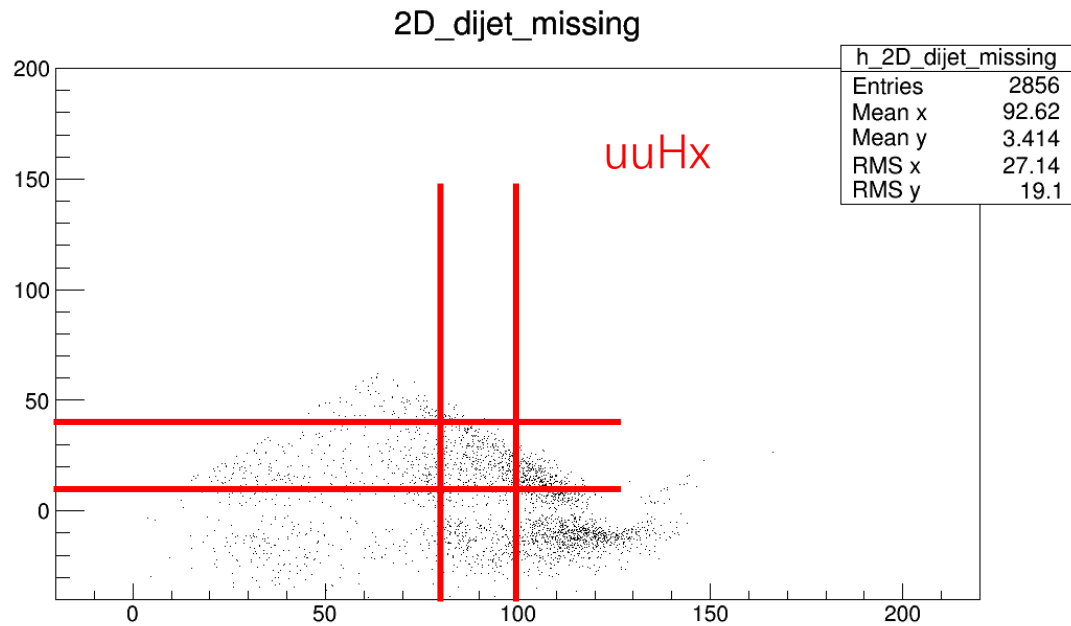
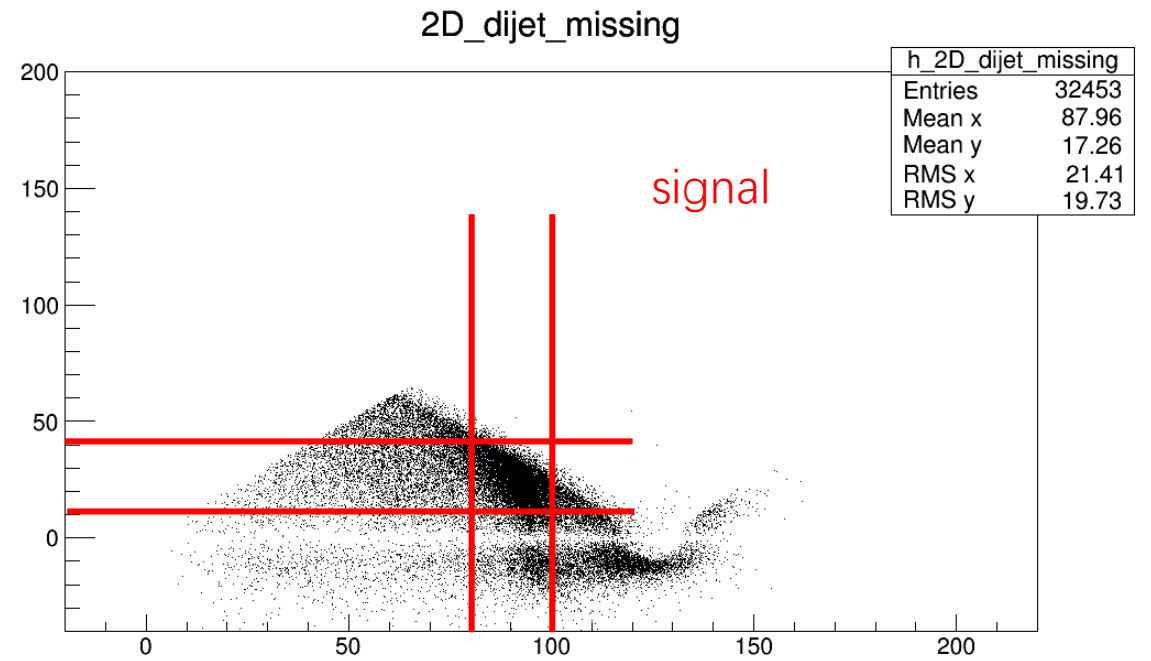
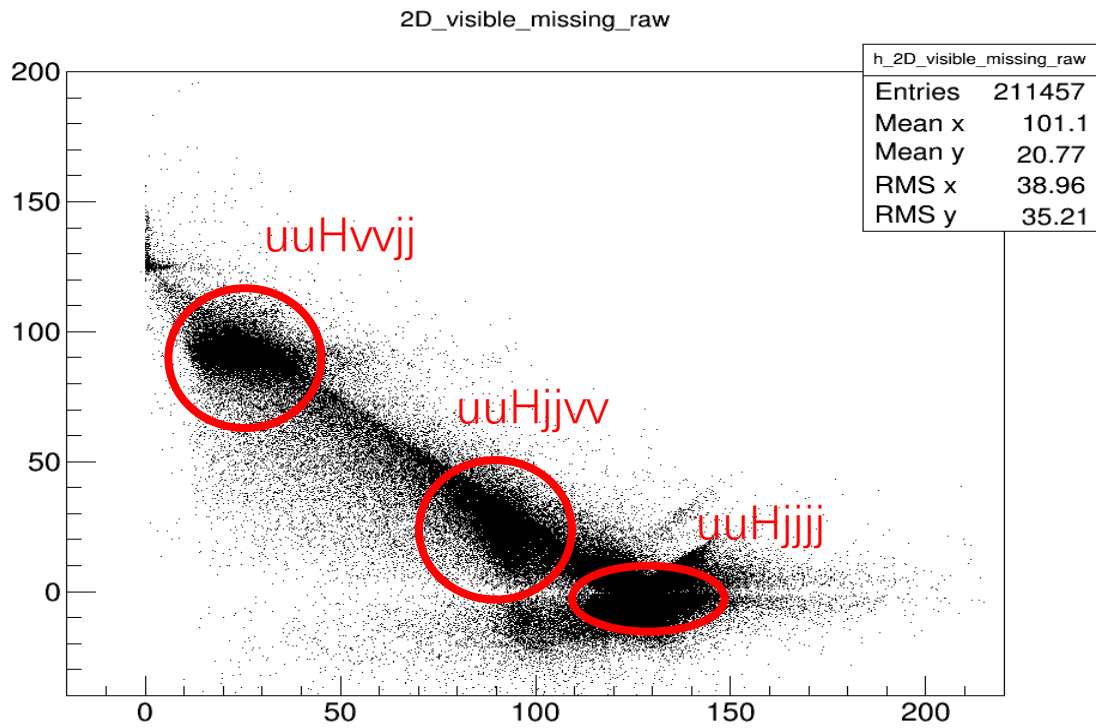
2018/10/25

uuHjjvv channel Cut Flow table

	Signal	ZH	uuHx	Other Background
Missing mass < M(di-jets)	596	29312	25643	2638315
80 < M(dimuon) < 100	547	23771	23228	1678091
120 < RecM(dimuon) < 135	493	21030	20932	58734
N(pfo) > 15	489	20712	20618	14053
Pt(total visible) > 10	119	5242	5210	1434
Min angle > 0.3	113	5010	4979	1237
Missing Mass & M(dijets)	83	2270	2266	574
Pt(jet1) > 3 & Pt(jet2) > 3	84	2240	2236	522
N(lepton)<3	73	1623	1619	483

statistical error = $\frac{\sqrt{s+B}}{s} = 64\%$!

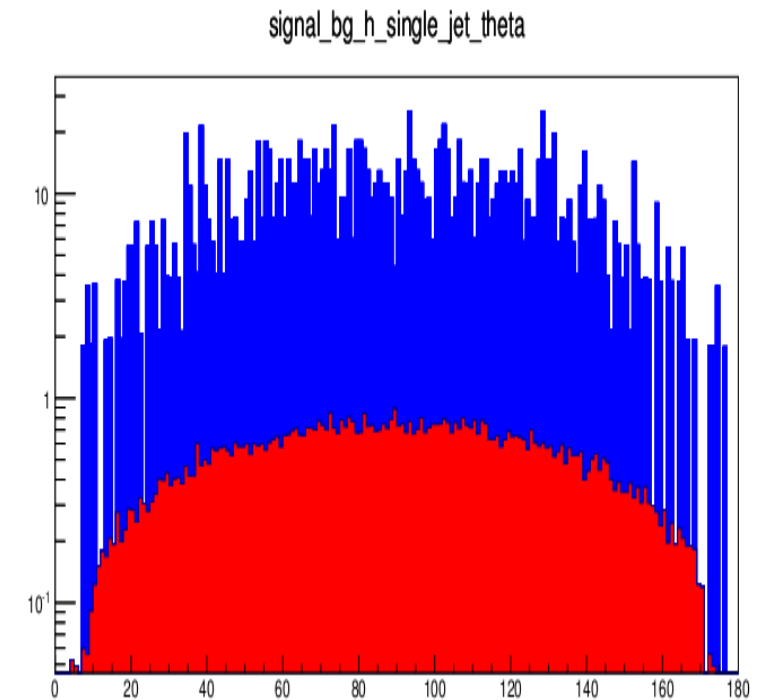
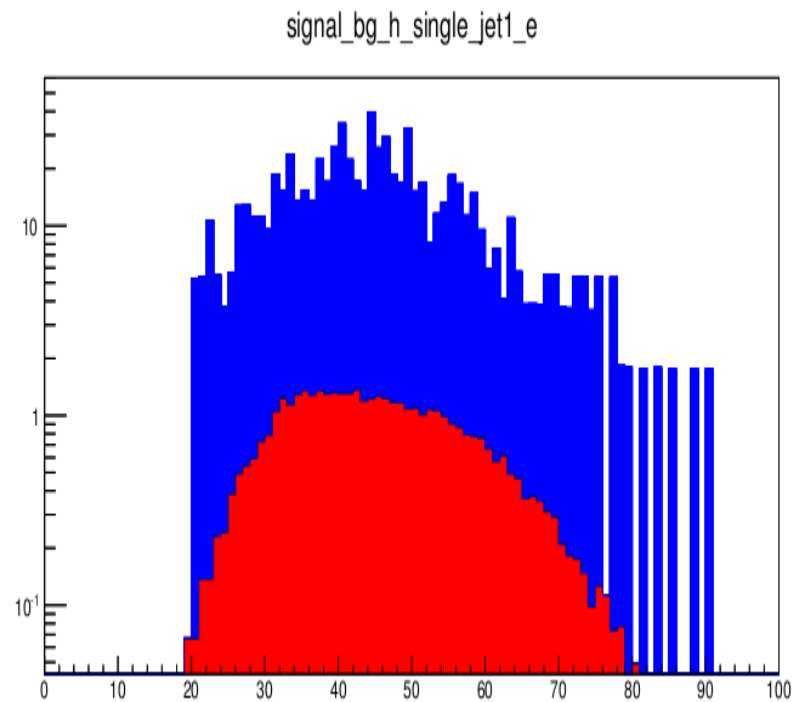
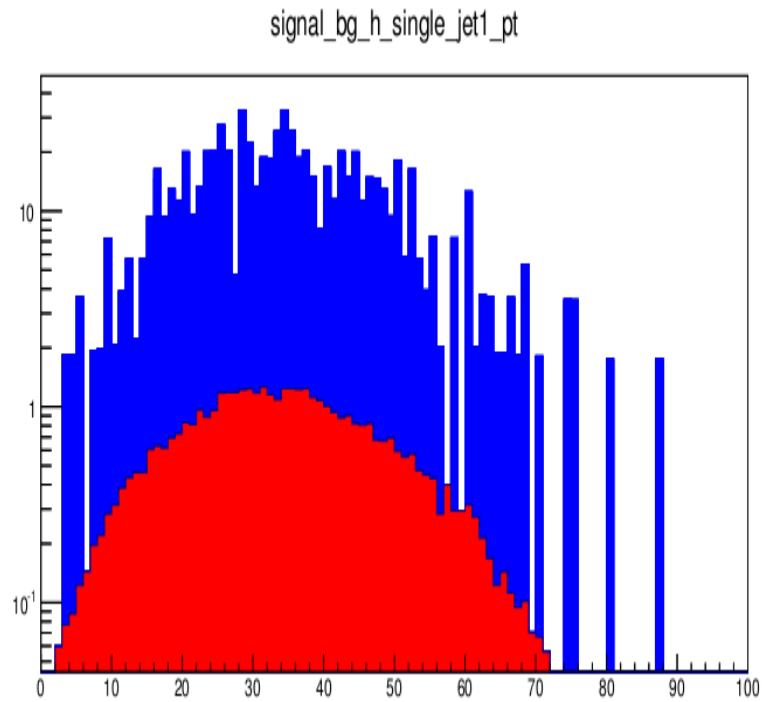
Main part of background is from uuHx in ZH background, zz_sl0mu_down and zz_sl0mu_up in other background.



80Gev < di-jets invariant mass <100Gev
 10Gev < missing mass <40Gev

Can't remove uuHx background well

Signal -ZH jet after Missing Mass & M(dijets)



No obvious cuts to remove ZH background

uuHvvjj channel Cut Flow table

	Signal	ZH	vvHx	Other Background
Missing mass > M(di-jets)	144	3257	371	2012382
80 < M(dimuon) < 100	132	2063	147	1265888
120 < RecM(dimuon) < 135	118	1783	71	63335
N(pfo) >15	98	553	55	2477
Pt(total visible) > 10	93	502	55	814
Min angle > 0.3	87	455	45	589
Missing Mass & M(dijets)	60	70	45	455
Pt(jet1) > 3 & Pt(jet2) > 3	54	55	40	13
N(lepton)<3	52	55	40	12

statistical error = $\frac{\sqrt{s+B}}{s} = 21\%$

Main background: vvHx

name	scale	event1	event2
zz_h0utut	1.0	3.0	0.0
zz_h0dtdt	1.0	56.0	0.0
zz_h0uu_notd	1.002	10.0	0.0
zz_h0cc_nots	1.0	11.0	0.0
zz_sl0nu_up	0.993	0.0	0.0
zz_sl0nu_down	0.996	0.0	0.0
zz_sl0mu_up	0.983	126777.0	100.0
zz_sl0mu_down	0.974	218100.0	311.0
zz_sl0tau_up	1.0	1545.0	0.0
zz_sl0tau_down	1.0	2650.0	4.0
zz_l04tau	0.233	158.0	1.0
zz_l04mu	0.787	18557.0	0.0
zz_l0taumu	0.938	10253.0	37.0
zz_l0mumu	0.98	3.0	0.0
zz_l0tautau	0.486	0.0	0.0
ww_h0cuxx	2.371	6.0	0.0
ww_h0uubd	0.003	0.0	0.0
ww_h0uusd	1.001	2.0	0.0
ww_h0ccbs	0.297	0.0	0.0
ww_h0ccds	1.0	0.0	0.0
ww_sl0muq	1.0	6907.0	34.0
ww_sl0tauq	1.0	449.0	2.0
ww_l0ll	1.001	22.0	0.0
zzorww_h0udud	1.106	3.0	0.0
zzorww_h0cscs	1.101	6.0	0.0
zzorww_l0mumu	1.0	1746.0	0.0
zzorww_l0tautau	1.0	0.0	0.0
sze_l0tau	1.0	945.0	0.0
sze_l0mu	1.0	223508.0	0.0
sze_l0nunu	1.0	0.0	0.0
sze_sl0uu	1.0	0.0	0.0
sze_sl0dd	1.0	20.0	0.0
sznu_l0mumu	1.0	2.0	0.0
sznu_l0tautau	0.736	0.0	0.0
sznu_sl0nu_up	1.0	0.0	0.0
sznu_sl0nu_down	1.0	0.0	0.0
sw_l0mu	1.0	0.0	0.0
sw_l0tau	1.0	0.0	0.0
sw_sl0qq	1.017	0.0	0.0
szeorsw_l0l	1.0	0.0	0.0
qq	51.925	11.0	0.0
e2e2	6.733	301404.0	1.0
e3e3	6.001	1534.0	0.0
e1e1	31.273	0.0	0.0
n1n1	57.306	0.0	0.0
n2n2	11.229	0.0	0.0
n3n3	11.131	0.0	0.0

event1 = Background event number after
Missing mass < M(di-jets)

event2 = Background event number after
N(lepton)<3

For ww_h0cuxx , I run 60 of 141, for others, I
almost run all the samples.

Scales for qq, e1e1, n1n1, are bigger, don't
know why. but qq, e1e1, n1n1 have no
influence to final results, e2e2 do have a
little influence. (6 of 483)

name	scale	event1	event2
e1e1h_X	1.796	42.0	0.0
e2e2h_X	1.743	14709.0	929.0
e3e3h_X	1.704	250.0	2.0
nnh_X	5.084	12.0	0.0
qqh_X	27.735	112.0	0.0

For ZH background, qqh_X scale are bigger, as I only run 20 of 324 files, but no influence for final result.

Plan

- Some cuts before Missing Mass & $M(\text{dijets})$ may be inappropriate, I will try to change some according to the signal – ZH diagram.
- Understand the meaning of dimuon
- Increase efficiency:
 - Using Pyroot to plot THStack maybe bad choice, if I have time, I will use C++.
 - So many options in submit.sh, may I merge some options? For example, 0.1.1: pre-selection, 0.1.2: sel_events.
 - Name of file folders are confused, /ana for pre-selection, event/ana for sel_event, need to be changed.
 - VScode, rcode.