

tth study

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validation plots of 6f samples

I put validation plots on
`/home/ilc/sudoyuji/dirtth/dirplot6fva`

Jets and leptons are looks good

Number of PFOs of new samples are not good agreement with DBD 6f

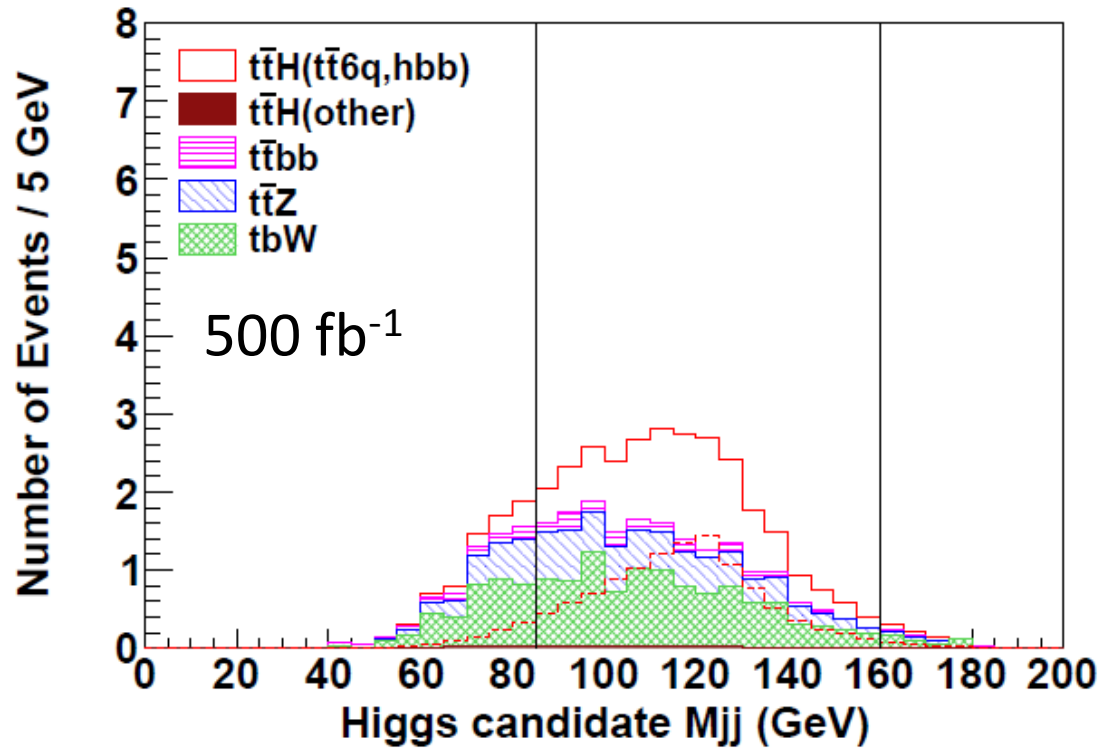
(by eye, two samples have almost same shape.)

(by KS test, probability is very low or ~ 0 .)

event selection cuts for $t\bar{t}h \rightarrow 8\text{jets}$

- forced 8 jet clustering
- Number of isolated lepton = 0
- Y value of Durham jet clustering: $Y_{87} > 0.00042$,
 $Y_{76} > 0.0021$ && $Y_{87} \leq 0.00042$
- 4 b tagged (b likeness = 0.85, 0.8, 0.6, 0.2)
- detector acceptance $\text{Cos}\theta_{\text{jet}} > 0.99$
- jet pairing by maximum likelihood method : llh value > -15.5
- jet energy Sum of jet1 and jet 2 < 190 GeV,
jet energy Sum of jet6-8 > 94 GeV
- reconstructed 3 jets mass of top candidates > 140 GeV
- reconstructed 2 jets mass of the higgs candidate :
500(-0.8,+0.3) $85 < M_{jj} < 160$, 500(+0.8,-0.3) $95 < M_{jj} < 150$
200(-0.8,+0.3) $90 < M_{jj} < 155$, 200(+0.8,-0.3) $95 < M_{jj} < 150$
1600(-0.8,+0.3) $85 < M_{jj} < 160$, 1600(+0.8,-0.3) $85 < M_{jj} < 160$

Result of $t\bar{t}H \rightarrow 8\text{jets}$

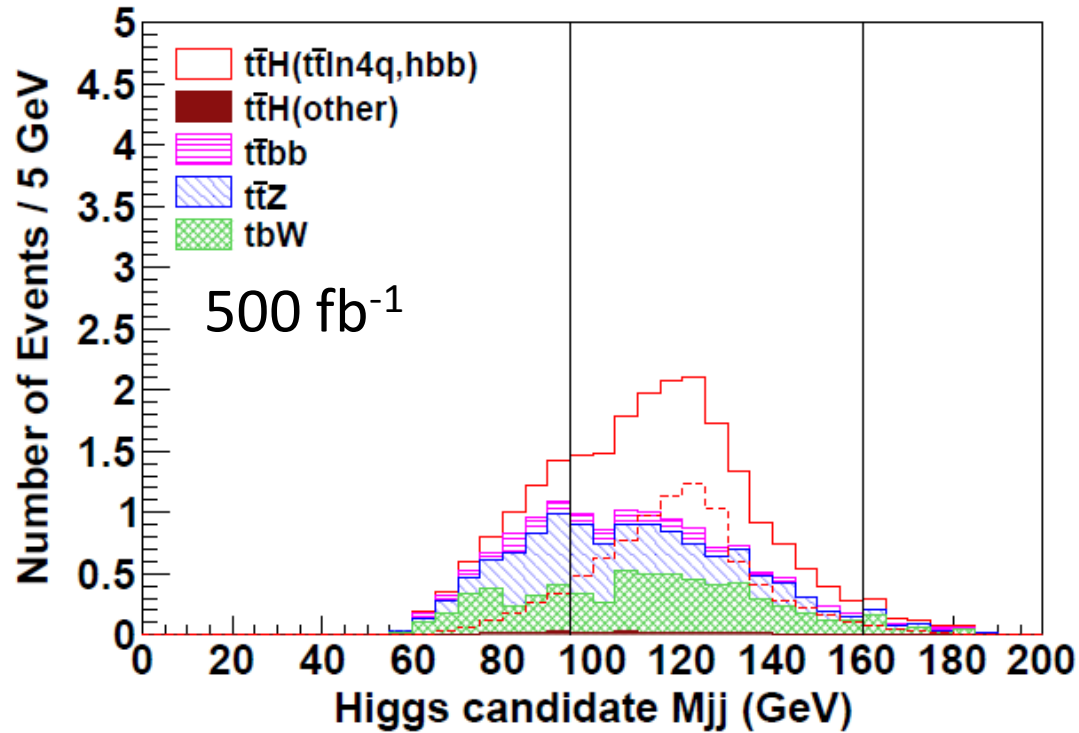


| Integrated Lumi. (fb ⁻¹) | (-0.8,+0.3) | (+0.8,-0.3) |
|--------------------------------------|-------------|-------------|
| 500 | 2.04 | 1.33 |
| 200 | 1.27 | 0.84 |
| 1600 | 3.65 | 2.45 |

event selection cuts for $t\bar{t}h \rightarrow l\nu + 6\text{jets}$

- forced 6 jet clustering
- Number of isolated lepton = 1
- Y value of Durham jet clustering: $Y_{65} > 0.00088$,
 $Y_{54} > 0.021$ && $Y_{65} \leq 0.00088$
- 4 b tagged (b likeness = 0.85, 0.8, 0.6, 0.2)
- detector acceptance $\text{Cos}\theta_{\text{jet}} > 0.99$
- missing P > 20 GeV
- jet pairing by maximum likelihood method : llh value > -20.0
- jet energy Sum of jet1 and jet2 < 198 GeV,
jet energy Sum of jet5 and jet6 > 68 GeV
- reconstructed 3 jets mass of top candidates > 140 GeV
- reconstructed 2 jets mass of the higgs candidate :
500(-0.8,+0.3) $95 < M_{jj} < 160$, 500(+0.8,-0.3) $95 < M_{jj} < 150$
200(-0.8,+0.3) $95 < M_{jj} < 155$, 200(+0.8,-0.3) $95 < M_{jj} < 145$
1600(-0.8,+0.3) $95 < M_{jj} < 160$, 1600(+0.8,-0.3) $95 < M_{jj} < 150$

Result of $t\bar{t}h \rightarrow l\nu + 6\text{jets}$

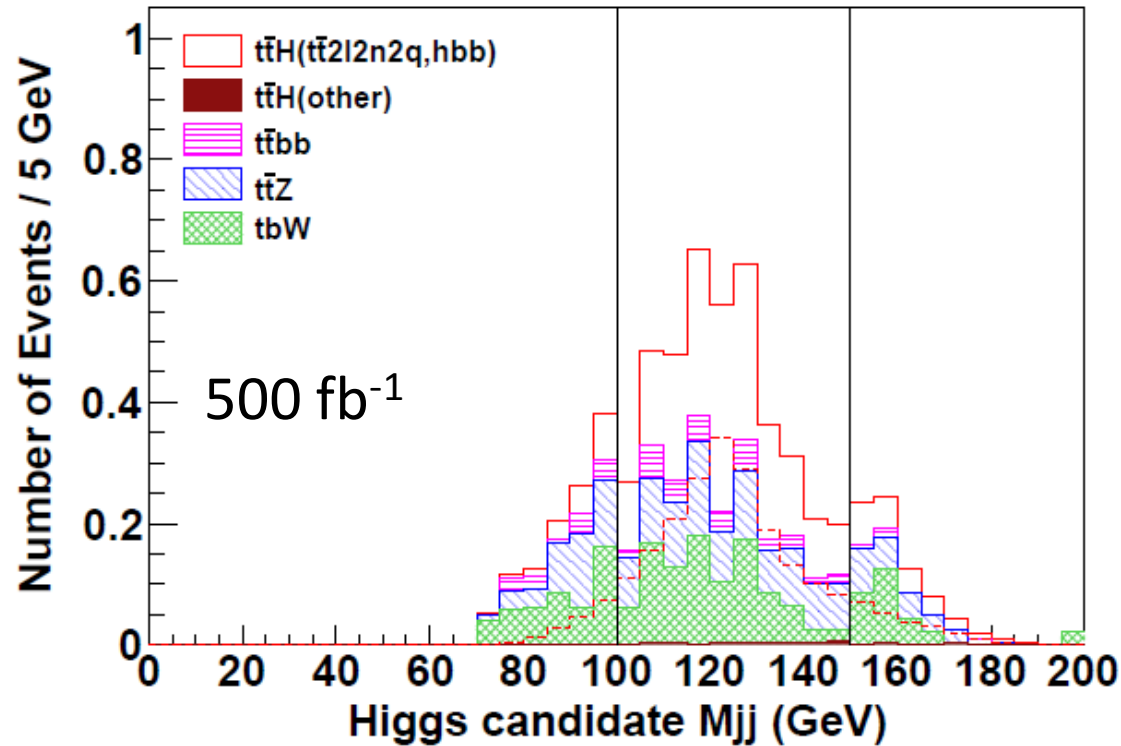


| Integrated Lumi. (fb^{-1}) | (-0.8,+0.3) | (+0.8,-0.3) |
|---------------------------------------|-------------|-------------|
| 500 | 1.95 | 1.31 |
| 200 | 1.23 | 0.82 |
| 1600 | 3.44 | 2.35 |

event selection cuts for $t\bar{t}h \rightarrow 2l2\nu+4\text{jets}$

- forced 4 jet clustering
- Number of isolated lepton = 2
- Y value of Durham jet clustering: $Y_{43} > 0.0062$,
- 4 b tagged (b likeness = 0.85, 0.8, 0.6, 0.2)
- detector acceptance $\text{Cos}\theta_{\text{jet}} > 0.99$
- missing P > 20 GeV
- jet pairing by maximum likelihood method : llh value > -10.9
- maximum jet energy < 101 GeV,
minimum jet energy > 36 GeV
- reconstructed 2 jets mass of the higgs candidate :
500(-0.8,+0.3) $100 < M_{jj} < 150$, 500(+0.8,-0.3) $100 < M_{jj} < 150$
200(-0.8,+0.3) $100 < M_{jj} < 150$, 200(+0.8,-0.3) $110 < M_{jj} < 145$
1600(-0.8,+0.3) $100 < M_{jj} < 155$, 1600(+0.8,-0.3) $100 < M_{jj} < 160$

Result of $t\bar{t}h \rightarrow 2l2\nu+4\text{jets}$



| Integrated Lumi. (fb^{-1}) | (-0.8,+0.3) | (+0.8,-0.3) |
|---------------------------------------|-------------|-------------|
| 500 | 0.92 | 0.64 |
| 200 | 0.58 | 0.38 |
| 1600 | 1.66 | 1.17 |