ttbar threshold

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topic

➢ Xs study

  – The optimization of significance was finished.

    →Following slide .

Xs study

➢ Compere the result of new and old samples.
- – Old sample applied "anti-kt cut" but new ones didn't.
  - • When new samples applied the cut, top quark pair did not reconstructed correctly since too many PFOs were reject.

(e+,e-)=(30,-80%)	tt6j	tt4j	tt2j	SM bkg.	S_{6j}	ε_{6j}
Generated	1643	1583	381	133321	4.4	100
# of lepton = 0	1590	353	18	100576	5.0	96.8
btag > 0.09 × 2	1499	330	17	19336	10.3	91.2
Thrust<0.825	1439	285	11	2447	22.3	87.6
Evis>300 GeV	1424	61	0	1092	28.0	86.6
m_t>107 GeV × 2	1383	37	0	492	31.6	84.1
# of pfos>84	1376	33	0	442	32.0	83.8
y45> 0.0012 y56 >0.0006	1362	31	0	392	32.2	82.9
Sphericity>0.22	1347	24	0	329	32.7	82.0

(e+,e-)=(30,-80%)/with anti-kt	tt6j	tt4j	tt2j	SM bkg.	S_{6j}	ε_{6j}
Generated	1643	1583	381	133321	4.4	100
# of lepton = 0	1590	353	18	100568	5	96.8
btag > 0.09 × 2	1498	330	17	19043	10.4	91.2
Thrust<0.825	1429	281	11	2364	22.4	87
Evis>300 GeV	1402	47	0	1009	28.3	85.3
m_t>107 GeV × 2	1355	27	0	434	31.8	82.5
# of pfos>84	1334	22	0	359	32.2	81.2
y45> 0.0012 y56 >0.0006	1318	20	0	320	32.4	80.2
Sphericity>0.22	1304	15	0	274	32.7	79.4

Xs study

➢ Compere the result of new and old samples.
  – Both sample were not applied

(e+,e-)=(30,-80%)	tt6j	tt4j	tt2j	SM bkg.	S_{6j}	ε_{6j}
Generated	1643	1583	381	133321	4.4	100
# of lepton = 0	1590	353	18	100576	5.0	96.8
btag > 0.09 × 2	1499	330	17	19336	10.3	91.2
Thrust<0.825	1439	285	11	2447	22.3	87.6
Evis>300 GeV	1424	61	0	1092	28.0	86.6
m_t>107 GeV × 2	1383	37	0	492	31.6	84.1
# of pfos>84	1376	33	0	442	32.0	83.8
y45> 0.0012 y56 >0.0006	1362	31	0	392	32.2	82.9
Sphericity>0.22	1347	24	0	329	32.7	82.0

(e+,e-)=(30,-80%)/ w/o anti-kt	tt6j	tt4j	tt2j	SM bkg.	S_{6j}	ε_{6j}
Generated	1643	1583	381	133321	4.4	100
# of lepton = 0	1592	357	18	100576	5	96.9
btag > 0.09 × 2	1533	344	17	19336	10.5	93.3
Thrust<0.825	1492	310	11	2447	22.9	90.8
Evis>300 GeV	1487	158	0	1092	28.4	90.5
m_t>107 GeV × 2	1465	133	0	492	32	89.2
# of pfos>84	1464	128	0	442	32.5	89.1
y45> 0.0012 y56 >0.0006	1455	121	0	393	32.8	88.5
Sphericity>0.22	1438	105	0	329	33.2	87.5

notification

- ➢ Previous study was wrong.
  - – At fitting the cross section, the template was total cross section, nevertheless efficiency which was used for toy MC had **no information of branching fraction**.
  - ⇒ results get worse

  - – Since yt is estimated using the significance which is calculate from cut analysis, δyt (=4.4%) was correct.

$m_t{}^{PS}$ (GeV)	Γ_t(GeV)
172±0.018	1.4±0.024

$m_t{}^{PS}$(GeV)	Γ_t(GeV)
172±0.027	**1.4±0.038**

I am very sorry