



Variable Validation with Data MC Comparison(1tau0l)

Search for Four top in Tau Final States

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Outline

1 Data/MC comparison(in progress)

2 Miscellaneous

Control region definition (1tau0l)

- Signal depleted, background dominated
- Close to signal region
- To examine if background are well modeled or corrected or estimated.

	N_τ	N_l	N_{jets}	N_b
SR	1	0	≥ 8	≥ 2
CR	1	0	≥ 8	1
VR	1	0	≥ 8	0
CR2	1	0	< 8	≥ 2
CR3	1	0	< 7	≥ 2
CR4	1	0	$= 7$	≥ 2

Table 1: 1tau0l, CR and VR from Fabio

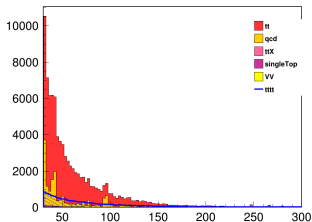
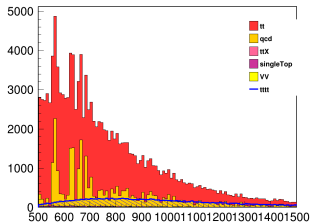
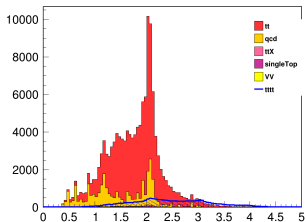
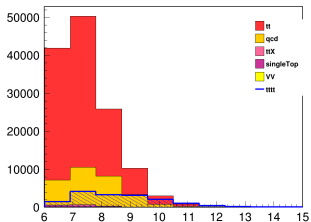
CR/VR background composition(1tau0l)

process	SR	CR	VR	CR2	CR3	CR4
TTTT	9.29	0.09	0.92	2.79	0.73	2.07
TT	6190.80	479.11	3046.66	12579.78	5885.25	6694.5
TTX	190.38	14.45	76.94	319.85	145.24	174.61
VV	0.09	0.27	0.18	0.38	0.15	0.23
SingleTop	131.85	15.23	83.37	348.22	173.53	174.70
QCD	3945.73	12504.31	8315.00	8196.65	3283.88	4912.7
allBg	10458.86	13013.37	11522.15	21444.90	9488.05	11956.8

Table 2: 1tau0l, correction applied, all MC prediction

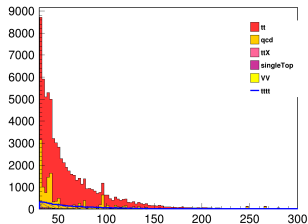
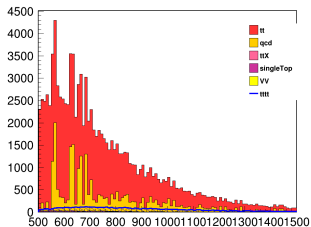
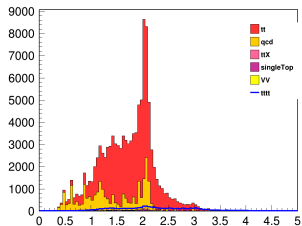
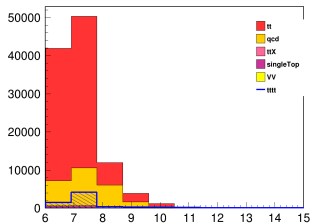
- basic weight applied(genWeight, prefiringWeight, pileupWeight); JES and JER applied
- CR: QCD control region
- CR2 : maybe TT control region

Variable distribution in SR

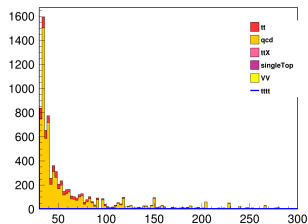
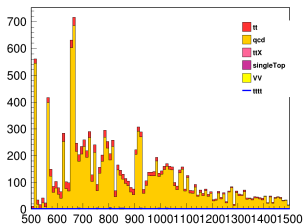
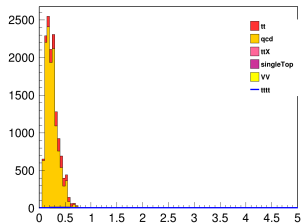
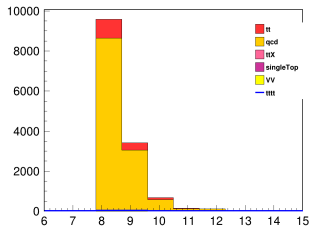


- tttt scaled up 1000 times; all MC
- jets number, b score sum, jets HT, taus HT

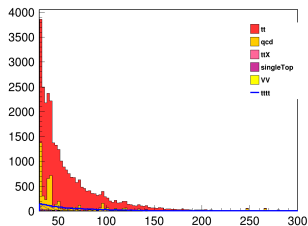
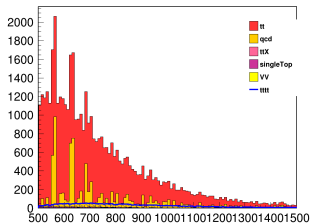
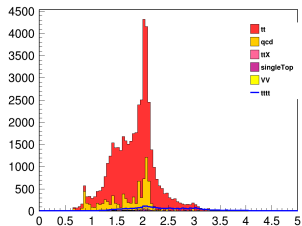
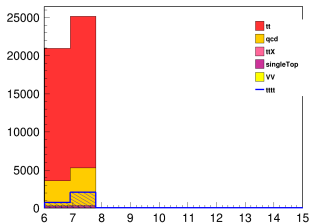
Variable distribution in CR



Variable distribution in VR



Variable distribution in CR2



Section 2

Miscellaneous



Analysis in progress

channel	strategy	object	HLT	bg estimation	variable validation	BDT	sytematic
1tau0l	HT	✓	✓	✓	ongoing	no need	ongoing
1tau1l	BDT	✓	✓	no need		✓	
1tau2l	BDT	✓	✓	no need		✓	

- Will start writing AN this week
- Table is just for 2016
- Big goal is getting CADI line before this September!

To do next week

- Finalize CR definition
- Finish data/MC plot code
- Plot more interesting variables
- Start writing AN
- Systematic study of $1\tau 0l$ (if have time)

Section 3

Back up

