

Weekly Report

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November 9.2020

Signal MC request

❖ Events selection

- ◇ 2 tight same sign leptons
- ◇ B-veto with DL1r@77%
- ◇ τ -veto with nTaus_OR_Pt25==0
- ◇ Single, di-lep triggers & trigger match
- ◇ $M_{ll} > 15\text{GeV}$
- ◇ $\text{MET} > 15\text{GeV}$
- ◇ $P_T^l > 15\text{GeV}$

electron			
	Loose	Tight	Anti-Tight
D0sig	5	5	5
Z0sintheta	0.5mm	0.5mm	0.5mm
Electron ID	LooseLH	Tight LH	
Isolation		FixedCutLoose WP	Fail one of tight requirements
Non-prompt rejection		PromptLeptonVeto<-0.7	
Qmis rejection		QMisIDBDT>0.7	

muon			
	Loose	Tight	Anti-tight
D0sig	3	3	3
Z0sintheta	0.5mm	0.5mm	0.5mm
Electron ID	Medium	Tight	
Isolation		FixedPFlowLoose WP	Fail one of tight requirements
Non-prompt rejection		PromptLeptonVeto<-0.5	

❖ Total events of signal samples

- ◇ mc16_13TeV 450661 AOD mc16a 450000
- ◇ mc16_13TeV 450661 AOD mc16d 600000
- ◇ mc16_13TeV 450661 AOD mc16e 750000

1.8M totally

Numbers for BDT input

❖ Signal

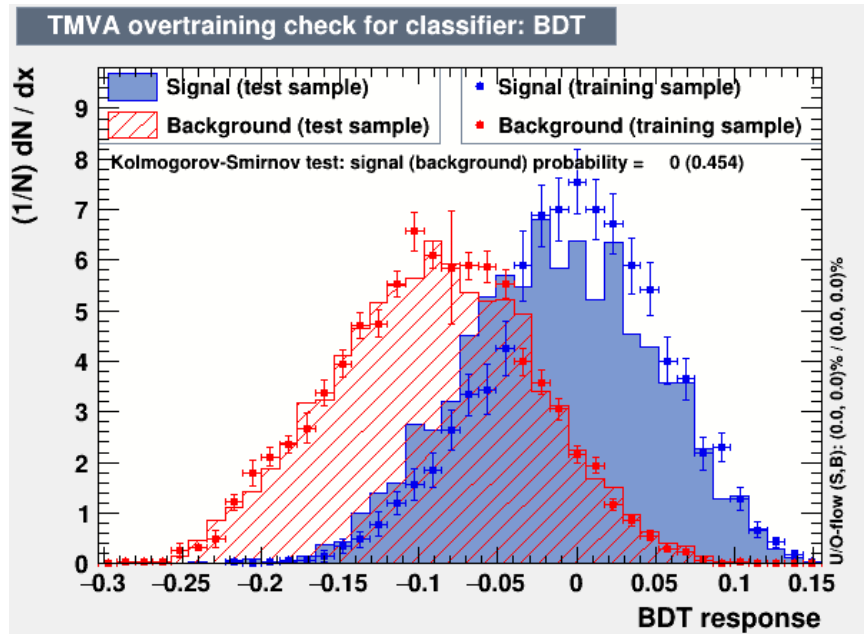
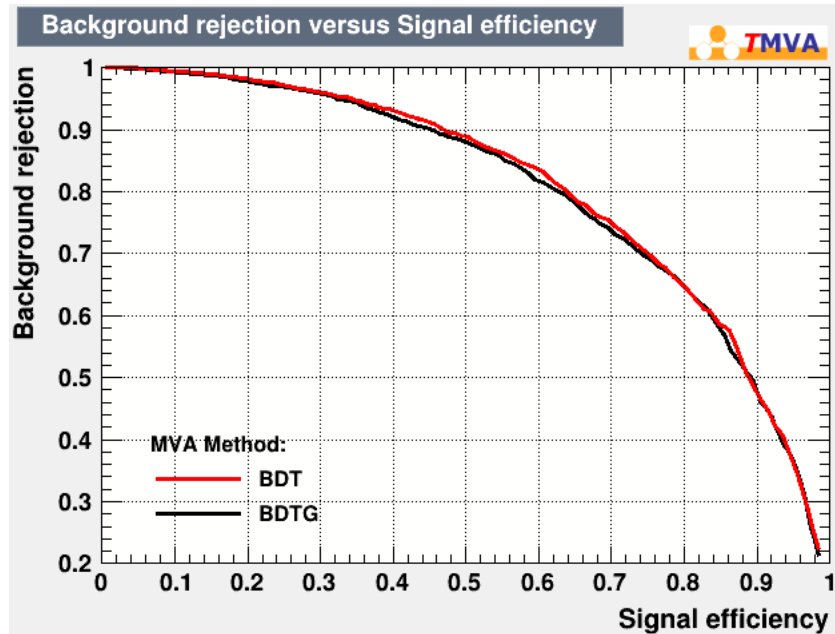
- ◇ 13185 events
- ◇ Mainly from $HH \rightarrow 2l$

<i>process</i>	$pp \rightarrow HH \rightarrow 2l$	$pp \rightarrow HH \rightarrow 3l$	$pp \rightarrow HH \rightarrow 4l$
Fraction	65.9%	29.9%	4.1%

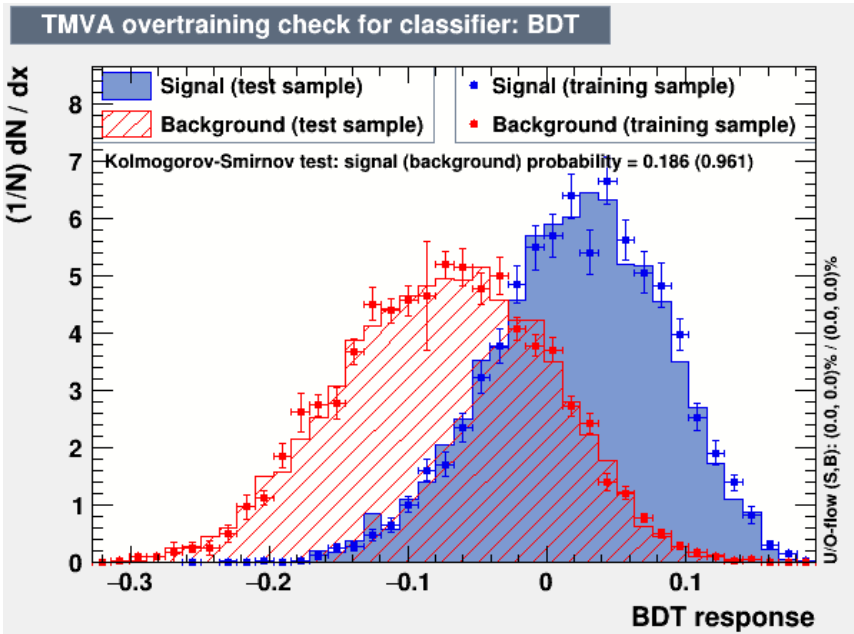
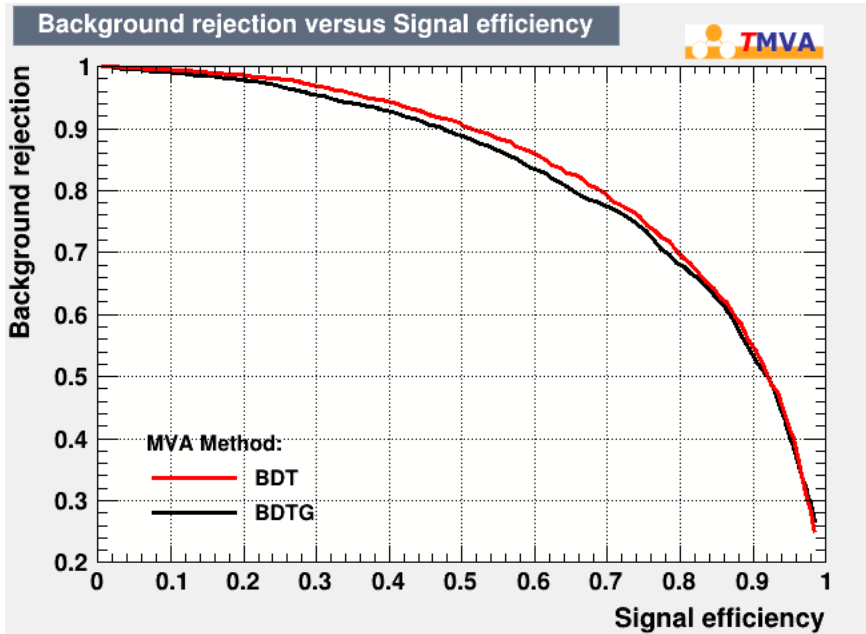
❖ Backgrounds

- ◇ 384035 events

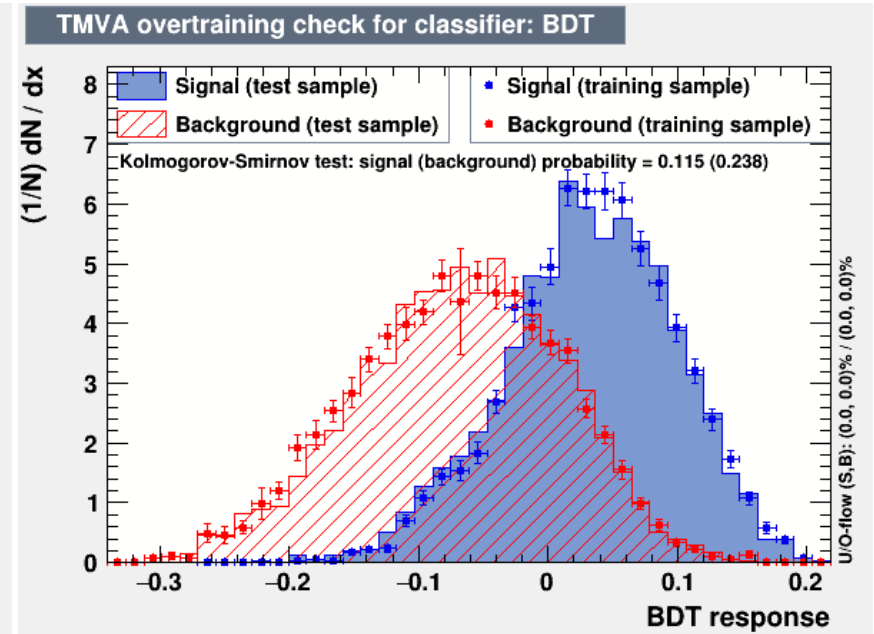
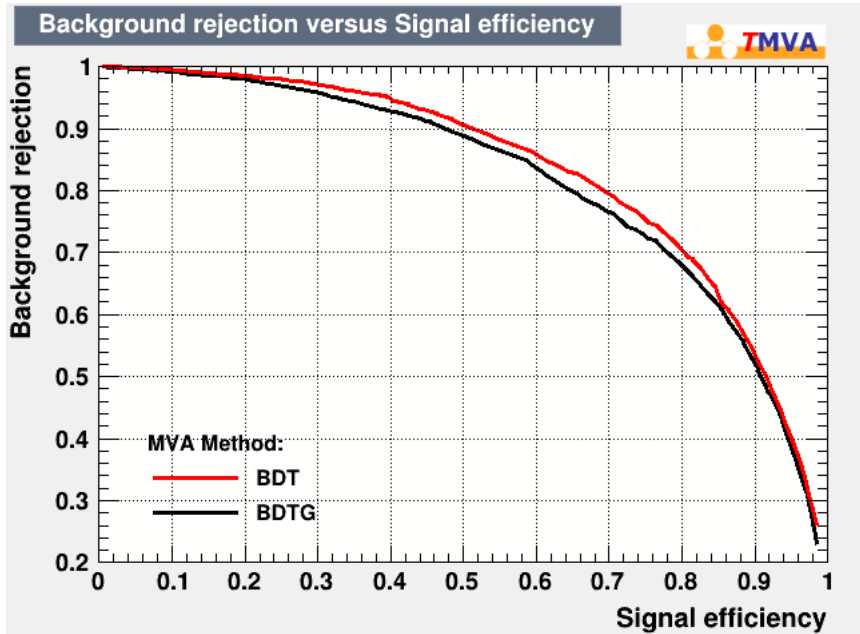
Current statistics



Tow times statistics



Three time statistics



Summary

- ❖ If select signal efficiency to be 80%, the bkg rejection would be $\sim 65\%(1x)$, $70\%(2x)$, $70\%(3x)$
- ❖ Would like to request that increasing statistics of double
- ❖ Acceptance Challenge ?
 - ◇ Need some time to move analysis to new production