



HIGGS SELF-COUPPLING ANALYSIS WITH $H \rightarrow WW^*$

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STUDYING LEPTON ID IMPROVEMENT

○ Forming likelihood to reject the soft leptons

- Now, focusing on the single lepton coming from the W boson decay in signal events
- Checking the signal efficiency & background survival efficiency
 - Set the likelihood cut on the point with almost same signal efficiency as cut based

type	signal	ttbar- lep+jets	ttbar - allhad
Cut based	98.4	71.4	7.9
Likelihood	98.1	70.3	3.1

- Survival efficiency improvement $\times 2.6$ @all hadronic events
- Lep+jets sample contains tau modes – suppress them well

○ Performance for $Z \rightarrow ll$ search – need to check signal eff.

type	ttbar – lep+jets	ttbar - dilepton
Cut based	0.79	17.3
Likelihood	0.59	18.9

○ Making samples for 1TeV study – full simulation



LIKELIHOOD OUTPUT

