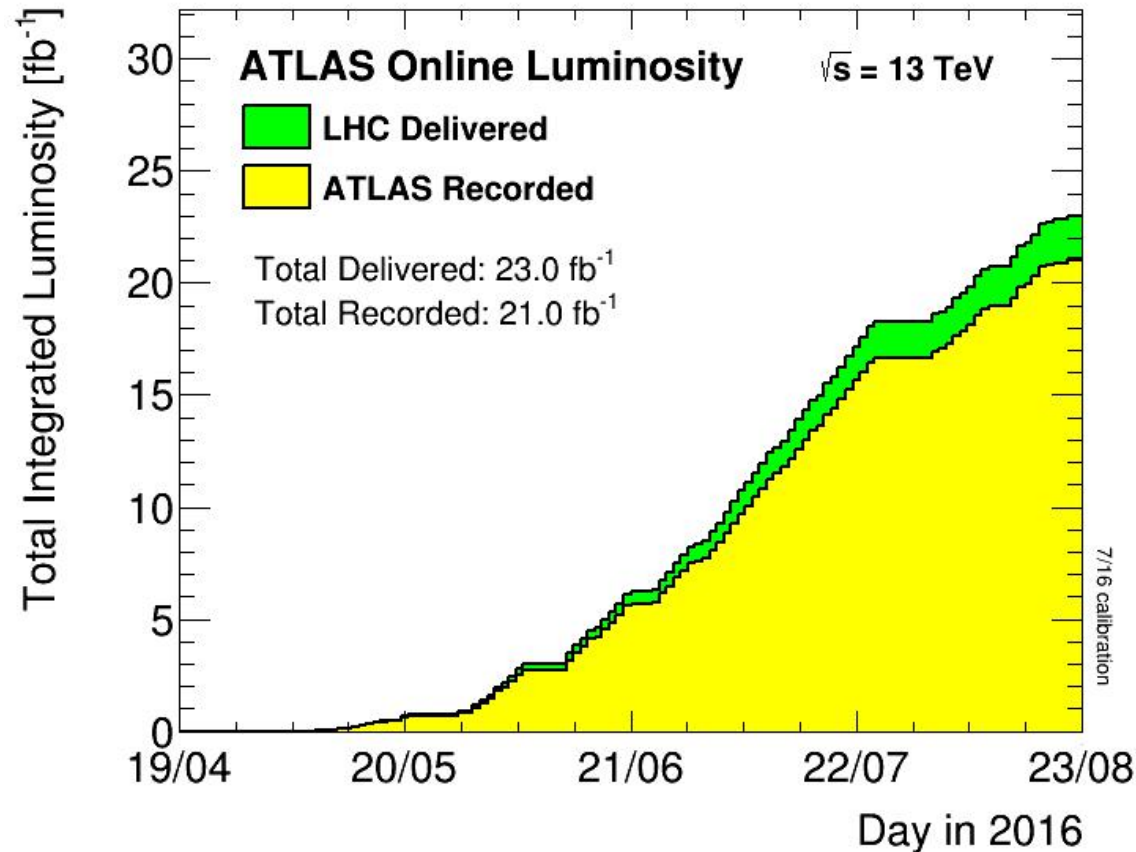


weekly report



21/fb for 2016

15/fb available

$15 + 3.2 = 18.2$

GRL updated on Aug 3

outline

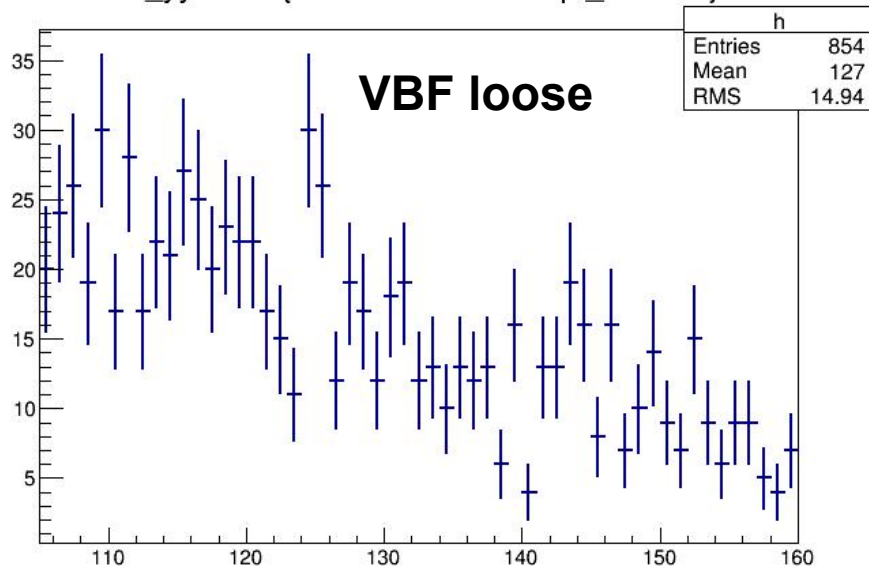
2

- update some plots with more data
 - VBF loose and tight categories
 - WWyy 1lep channel
 - yy+at least 3jets
 - high-mass diphoton
- preliminary local test on WW(jjjj)yy

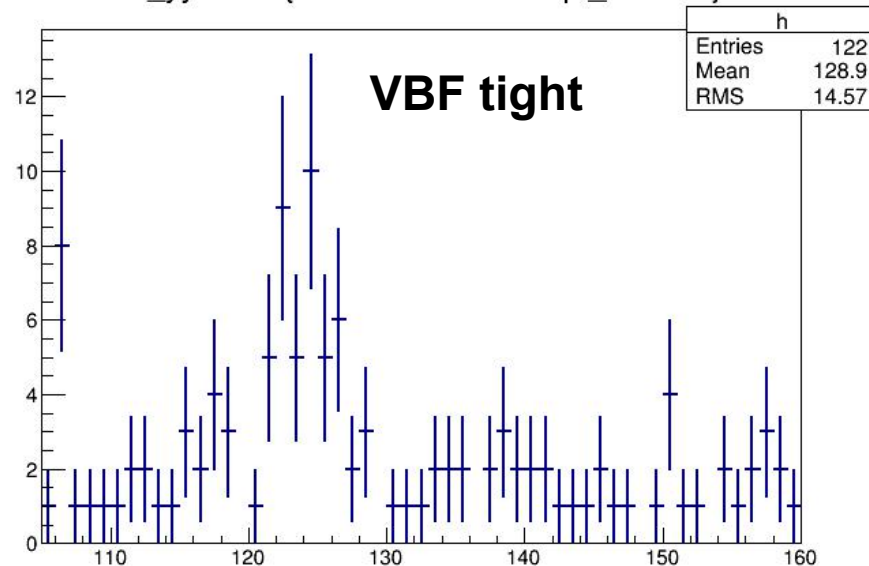
myy --- 18.2/fb

3

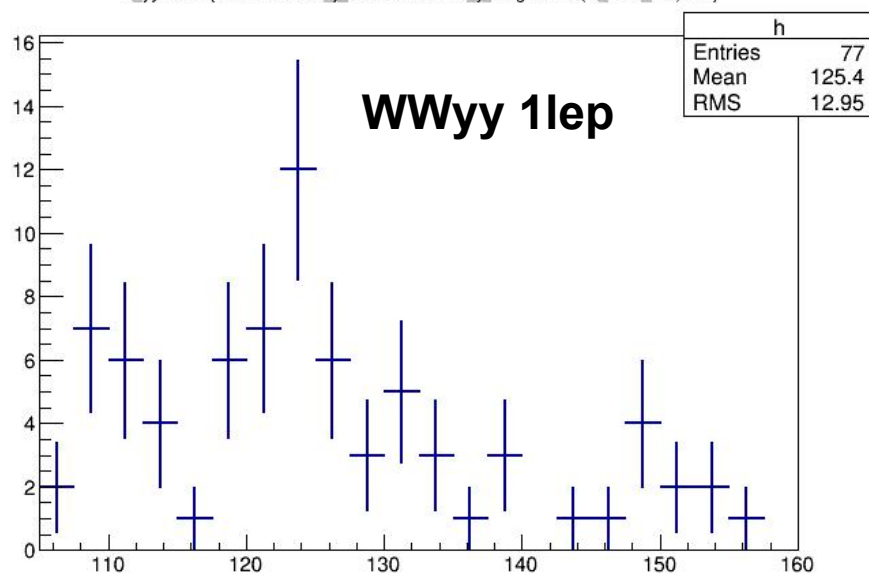
m_yy/1000 {isPassed&&catCoupt_dev==5}



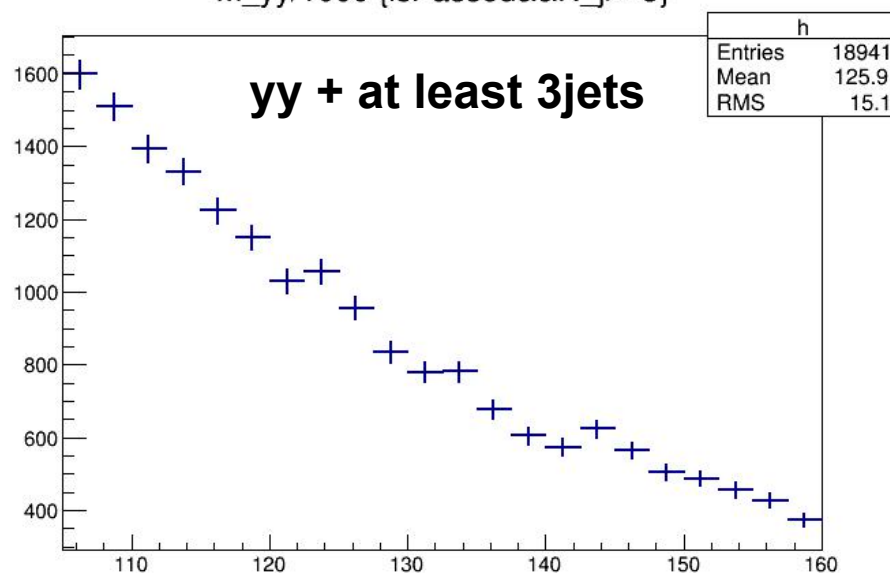
m_yy/1000 {isPassed&&catCoupt_dev==6}



m_yy/1000 {isPassed&&N_j_central>=2&&N_j_btag==0&&(N_e+N_mu)>=1}

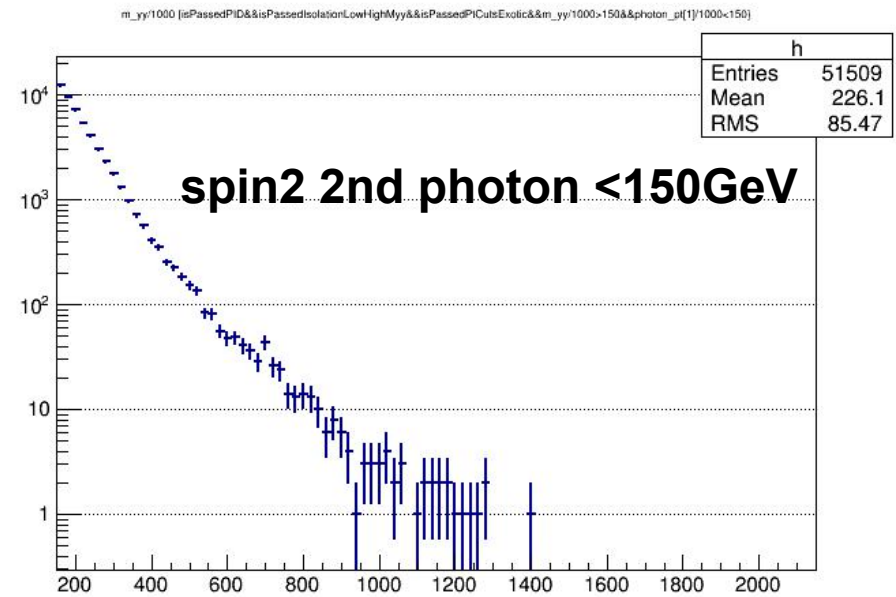
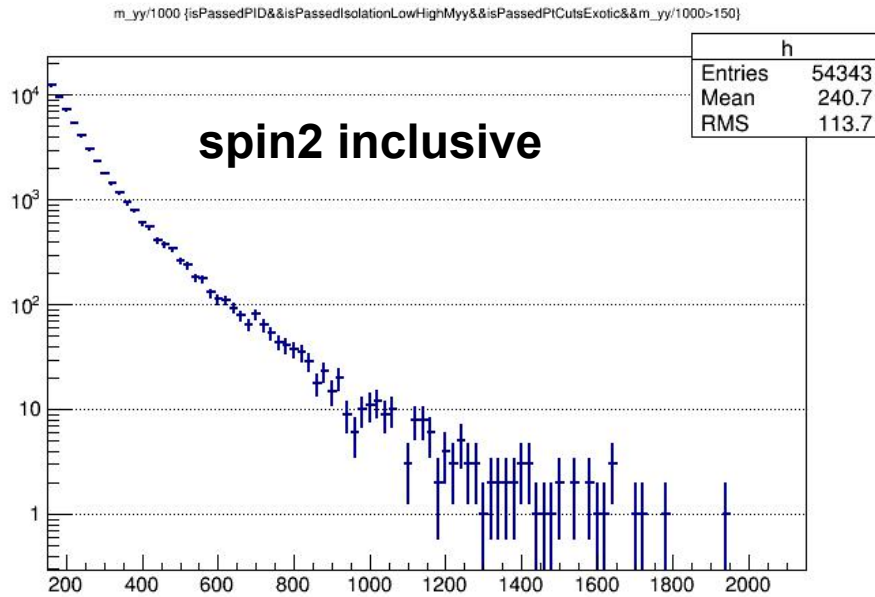


m_yy/1000 {isPassed&&N_j>=3}

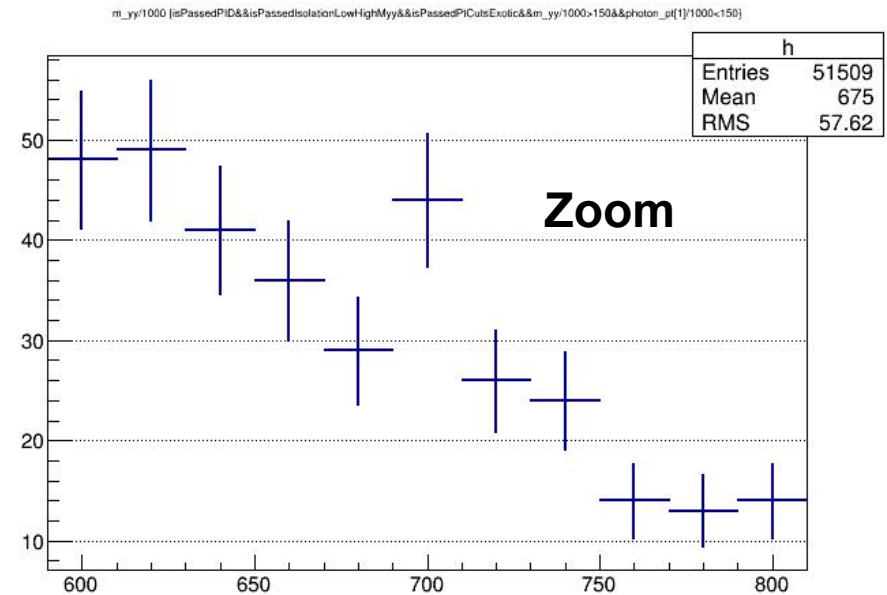


750 myy --- 18.2/fb

4

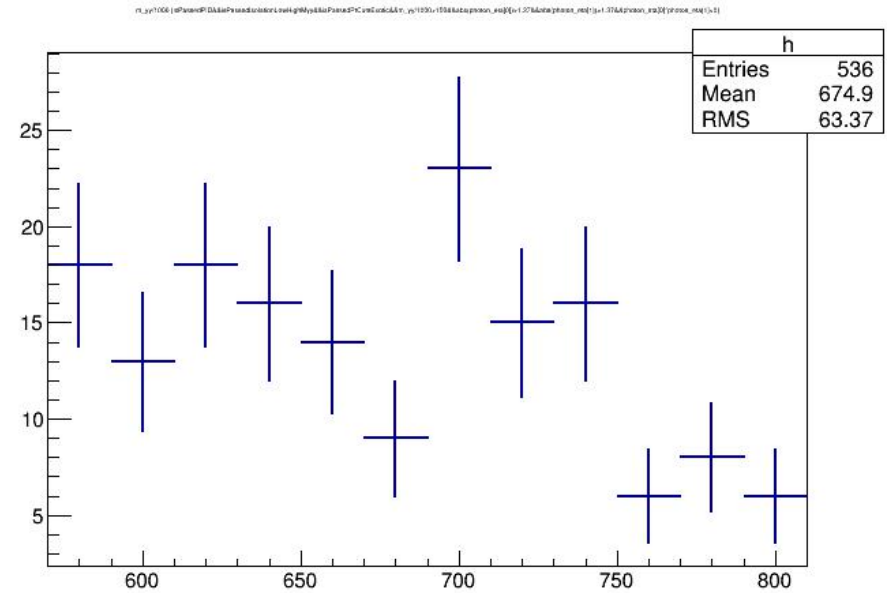
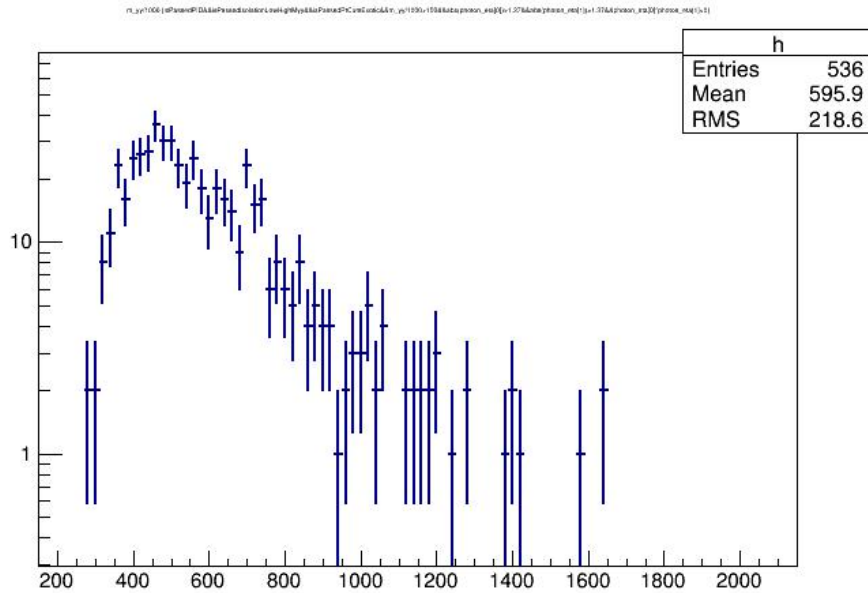


- 700 GeV is there

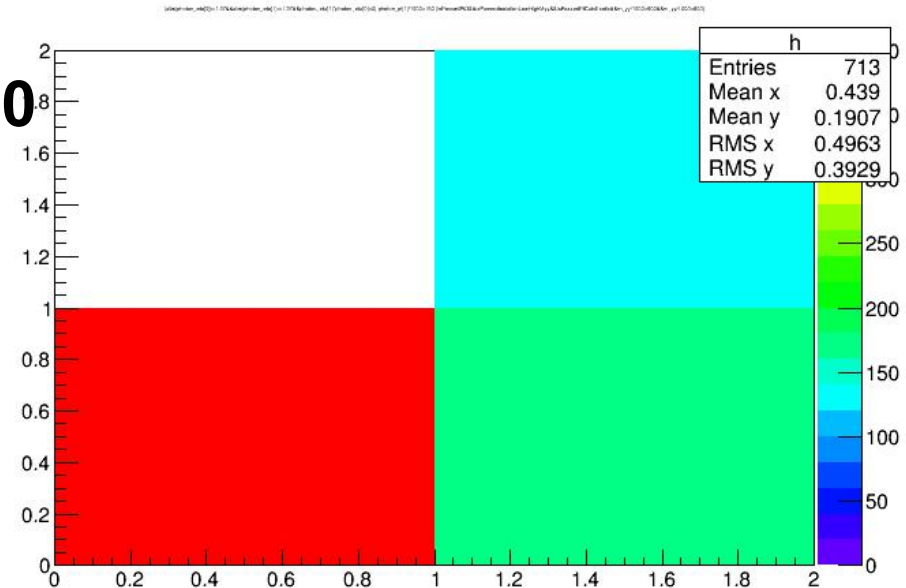


EEos 750 myy --- 18.2/fb

5



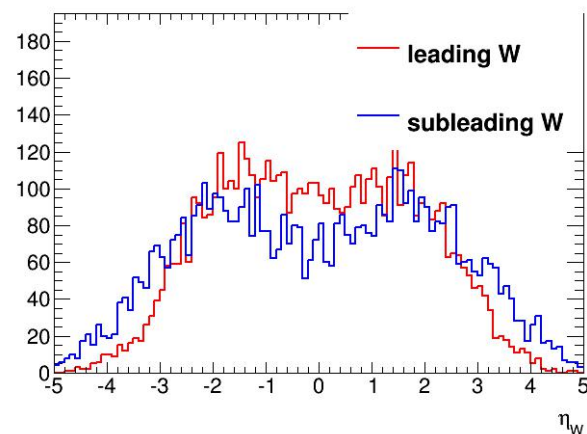
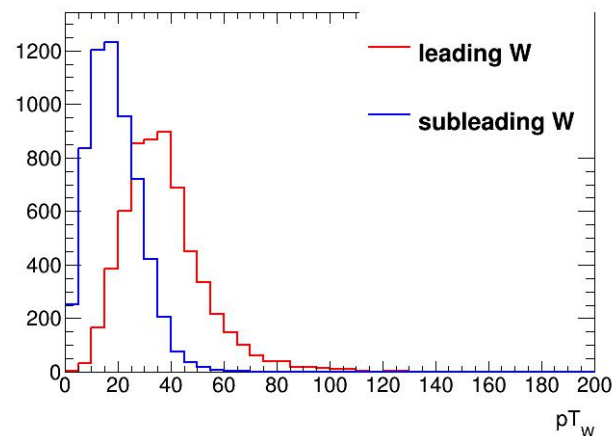
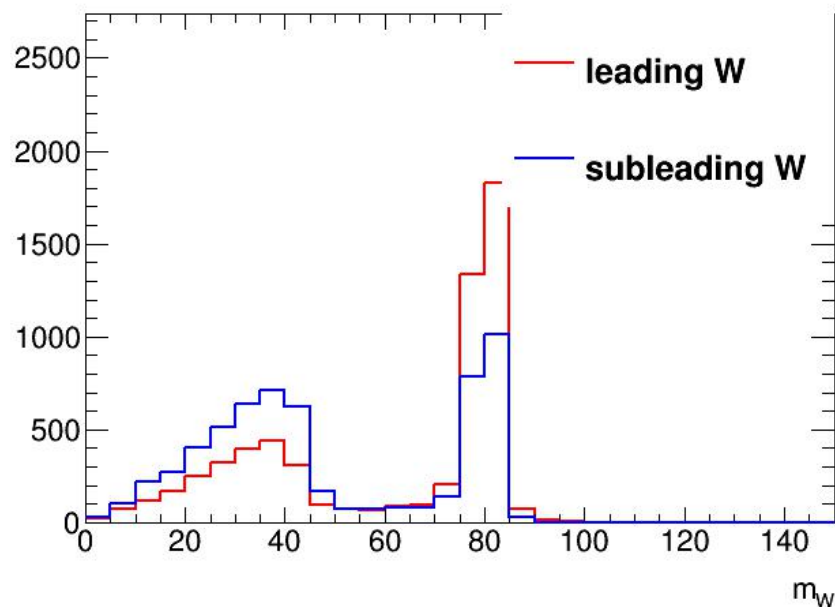
- (bool)EEos vs (bool)pTy2<150
- EEos is part of pTy2<150



$WW(jjj)yy$

6

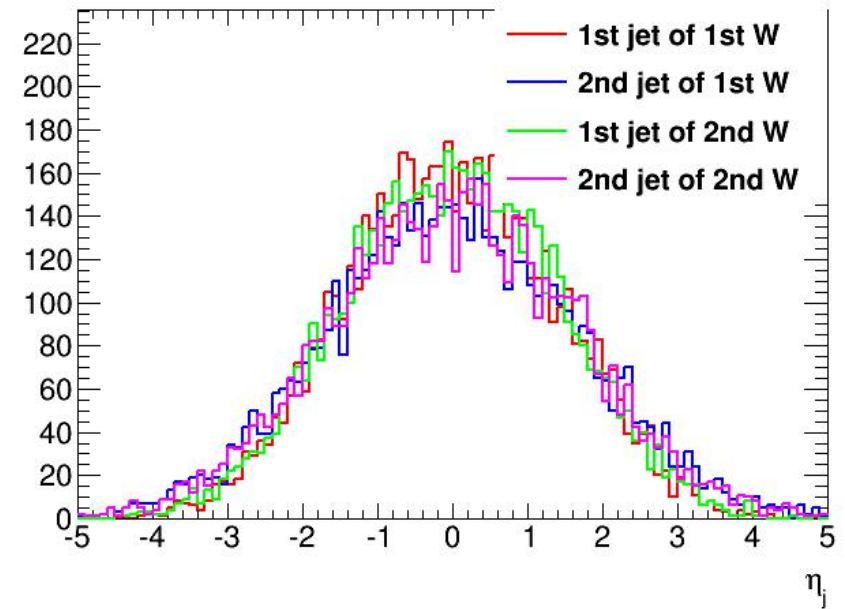
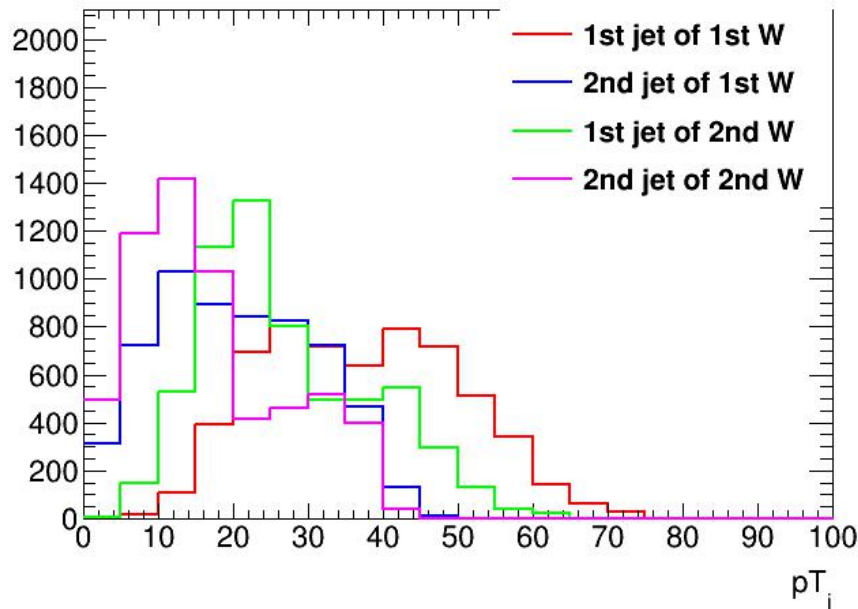
- Sample : H260, $WWyy$ inclusive, 10k events for local test
- veto the leptonic channel, but tautau is included
- check the kinematic of truth W and truth jet
- plan to check more kinematic e.g. pT_{yy} , ΔR_{jj} etc
- reco diphoton is required



WW(jjjj)

7

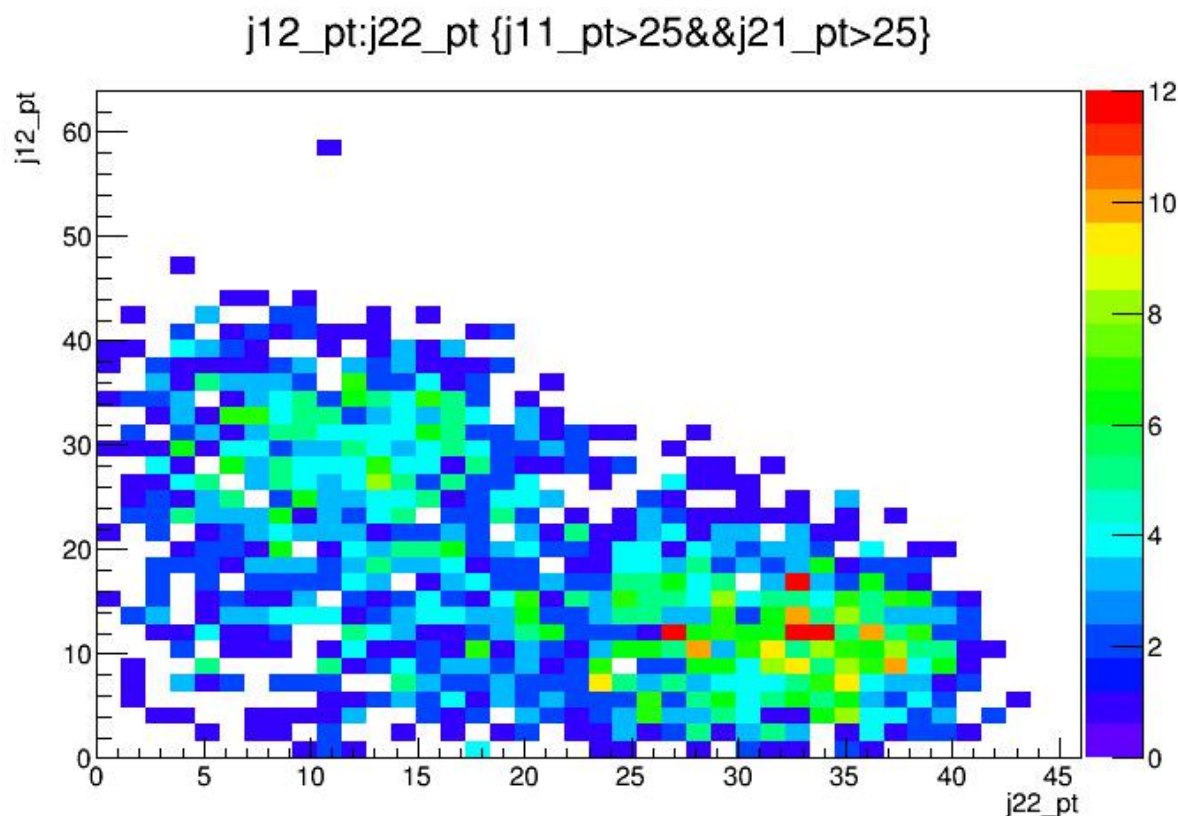
- jet from on-shell W has high p_T , so double peaks are seen in jet p_T plot
- if require four 25GeV jets, only $16/5965=0.3\%$
- if require three 25GeV jets, only $1256/5956=21.1\%$
- if require two 25 GeV jets, $1881/5956=30.4\%$



2D jet pt plot

8

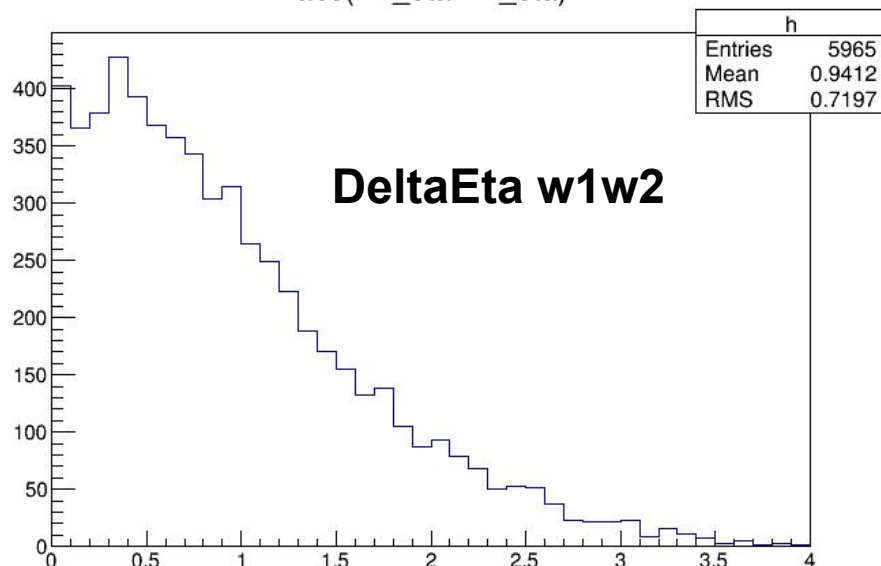
- 2nd jet from 1st W vs 2nd jet from 2nd W
- 1881 events has at least two 25GeV jets in the selected 5965 events
- the jet pt could be higher with higher mass of H, but ΔR_{jj} will be smaller.



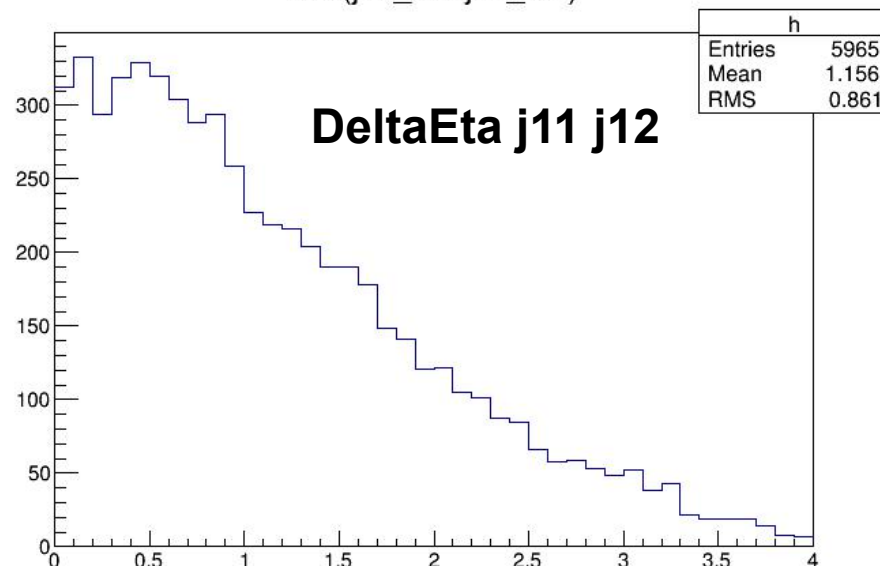
DeltaEta --- little surprise!

9

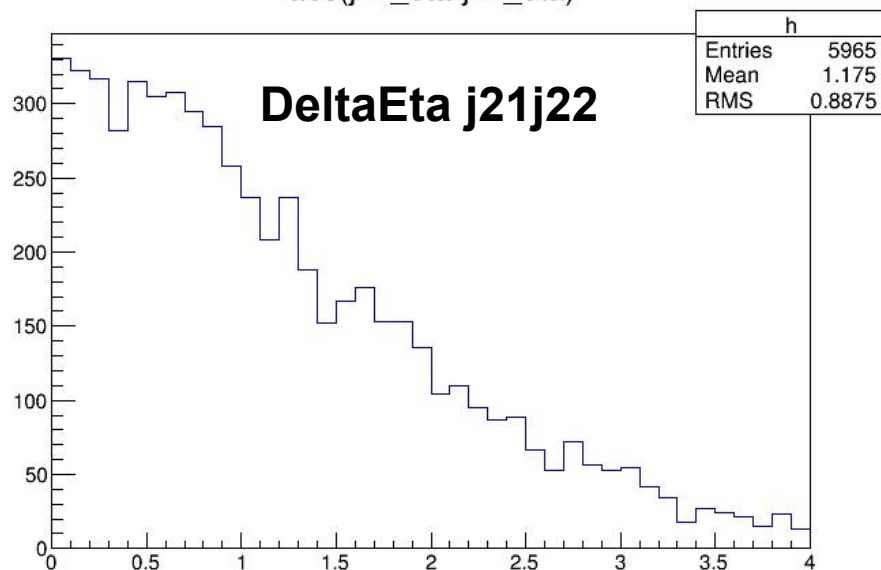
$\text{abs}(w1_eta - w2_eta)$



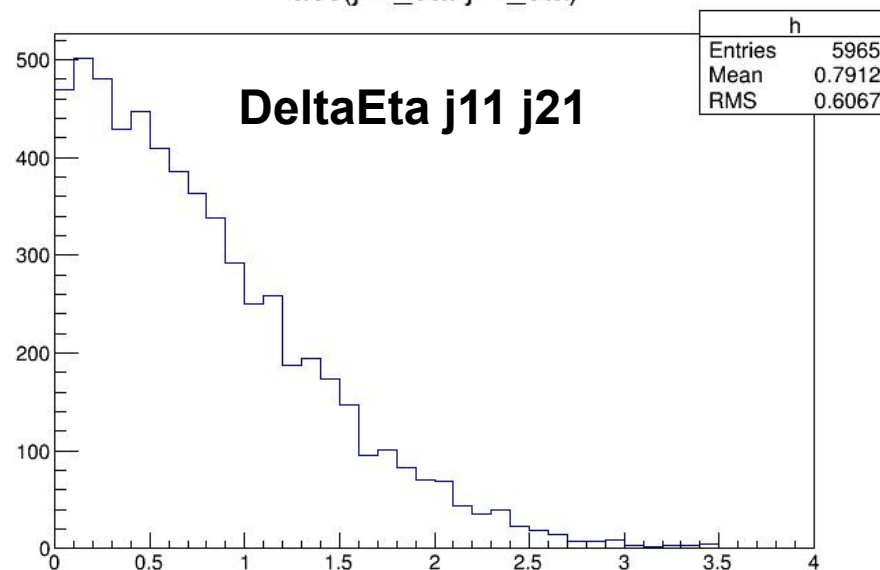
$\text{abs}(j11_eta - j12_eta)$



$\text{abs}(j21_eta - j22_eta)$



$\text{abs}(j21_eta - j11_eta)$



- SM VBF H
 - check each MVA variables to understand the excess
 - Spin study needs to produce samples with MadGraph
 - perform the fit
- WW(jjjj)yy
 - check more mass point and kinematic variables