

VBF phase space with MVA

M. Malberti (CERN) for CMS



Jet issues in Higgs Physics Meeting, January 25th 2013



Introduction

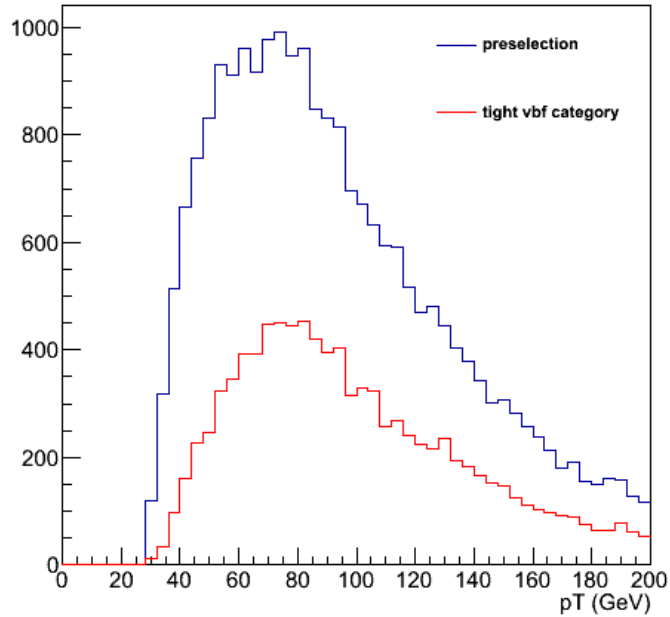
- Some basic distributions are shown for VBF $H \rightarrow \gamma\gamma$ ($M_H=125$ GeV)
 - after a loose preselection(*)
 - after a tight cut on the MVA classifier
 - Generator POWHEG, variables shown at reco level

(*) Jet preselections:

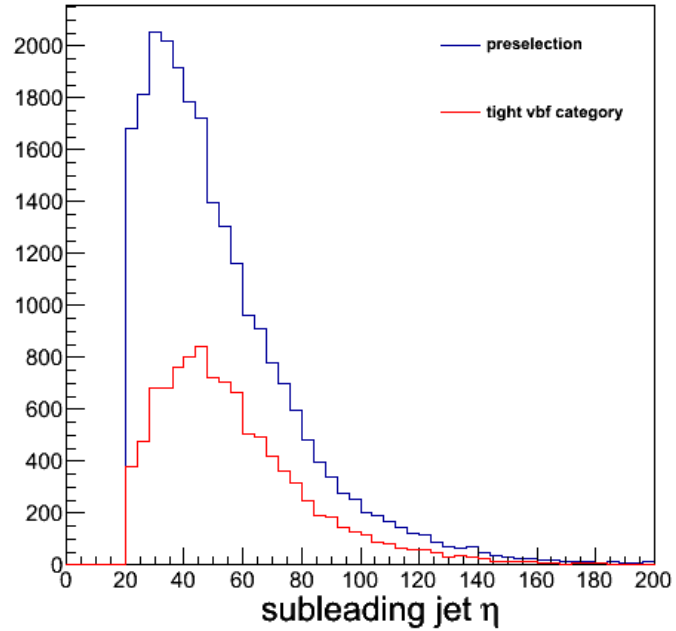
- Two photons
- Leading jet $PT > 30$ GeV
- Subleading jet $pt > 20$ GeV
- $M(JJ) > 250$ GeV

Leading and sub-leading jets (I)

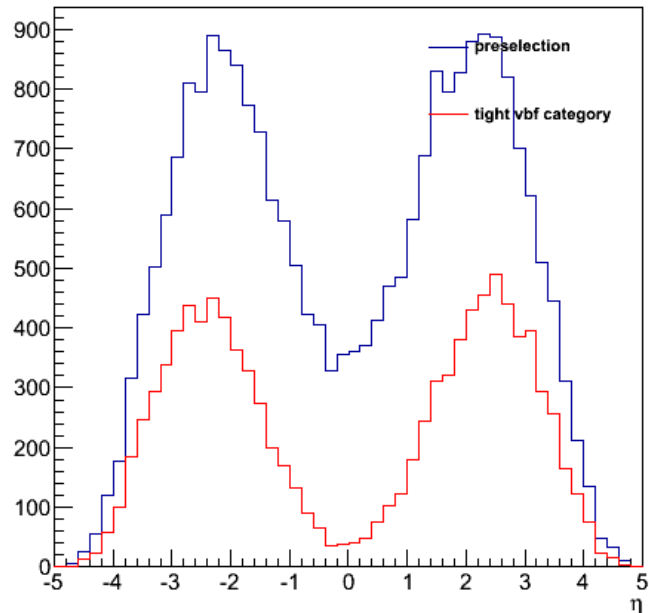
Leading jet pT



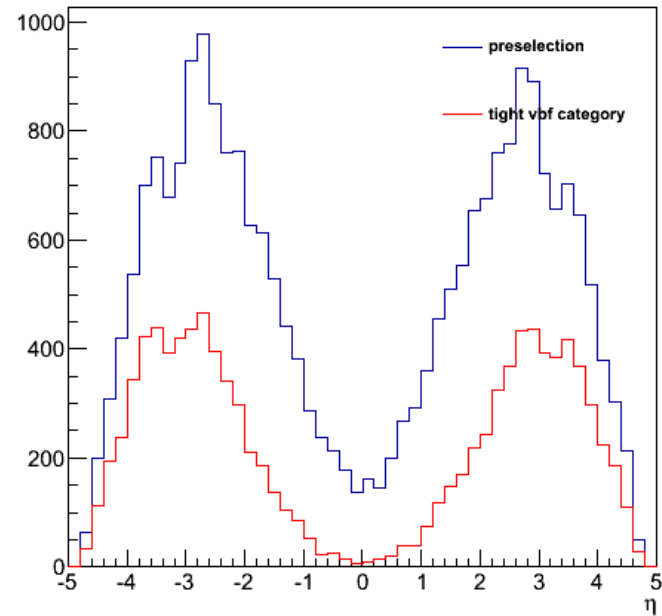
subleading jet pT



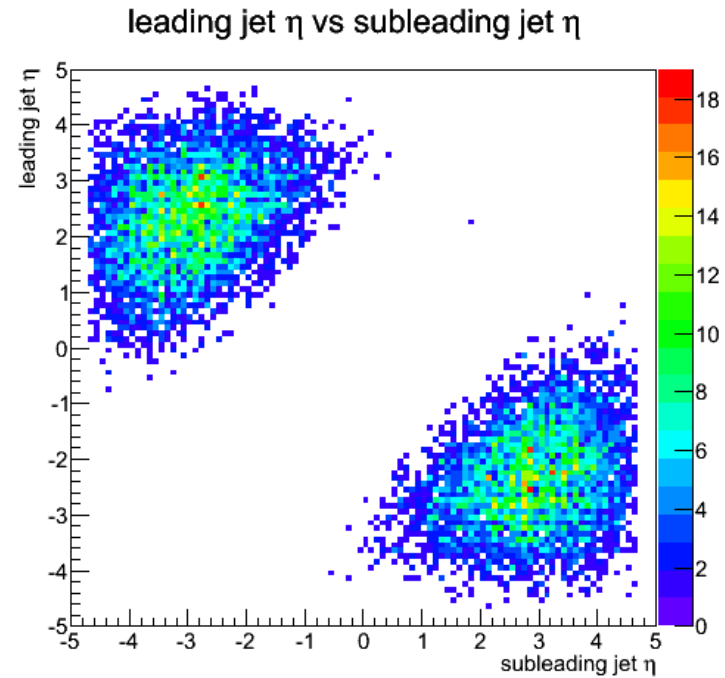
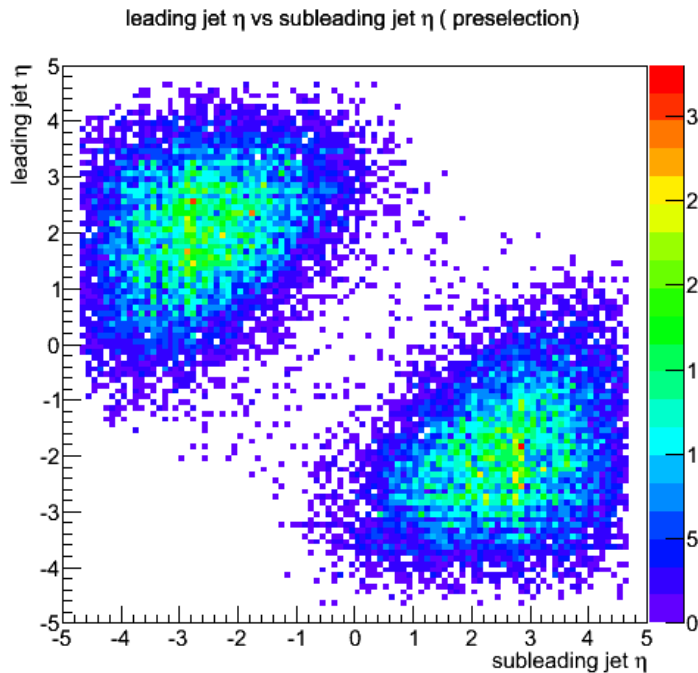
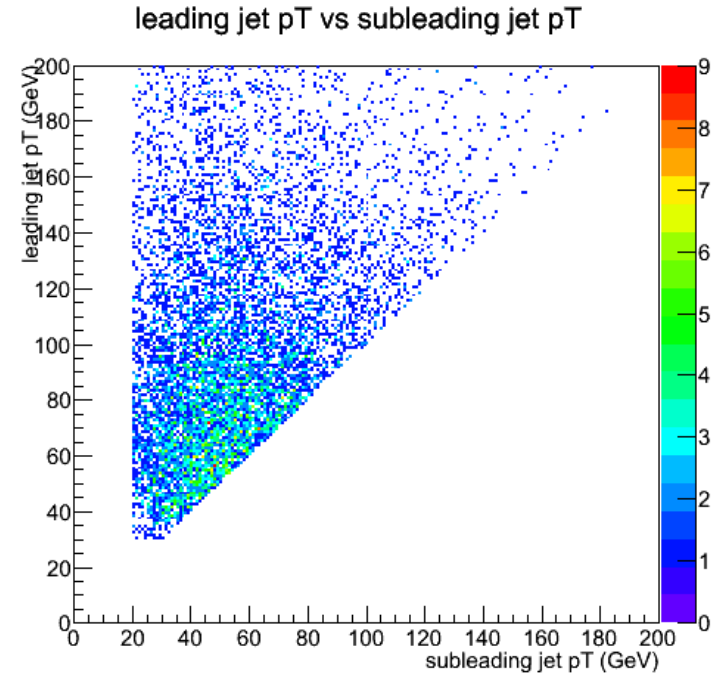
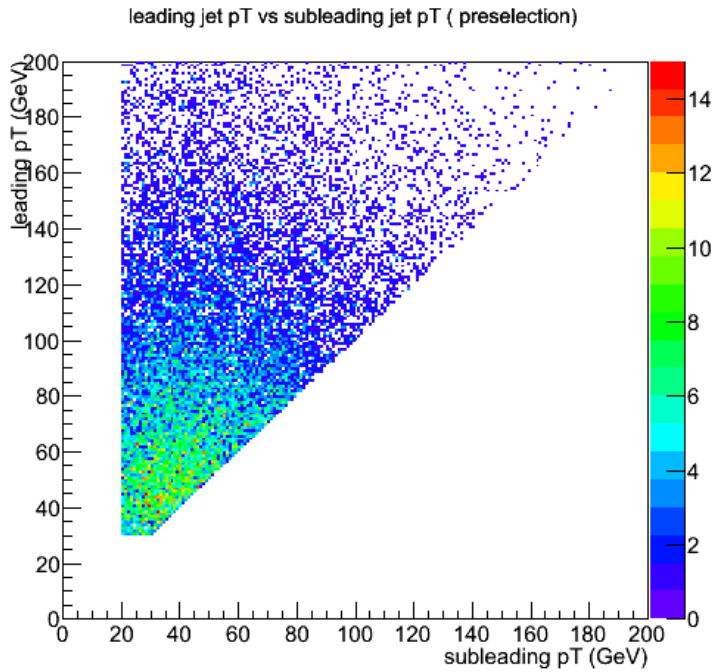
Leading jet η



subleading jet η

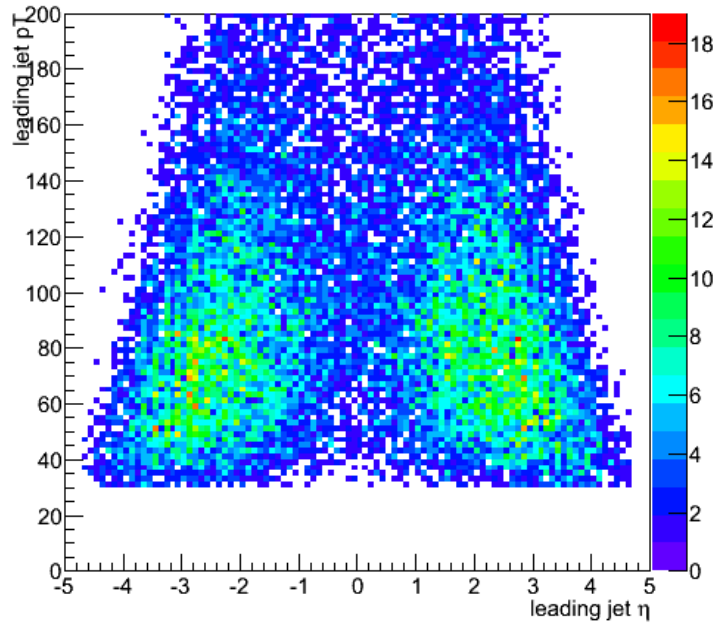


Leading and sub-leading jets (II)

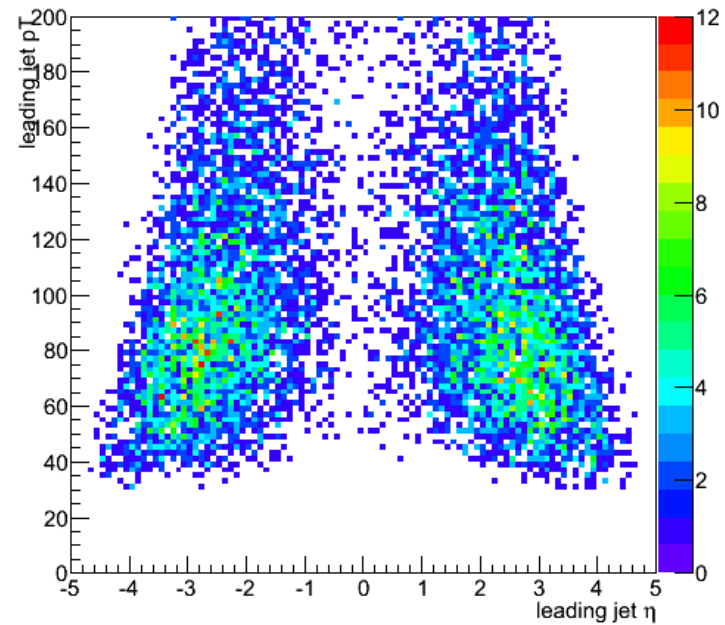


Leading and sub-leading jets (III)

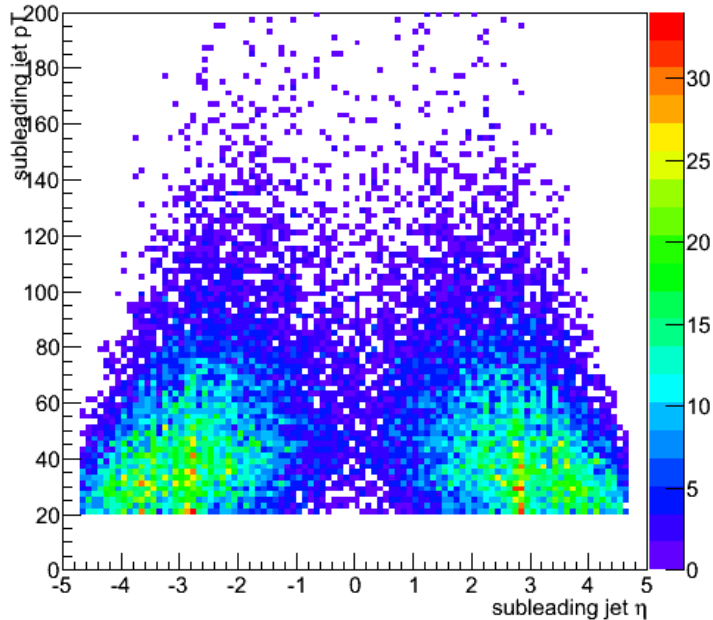
leading jet pT vs leading jet η (preselection)



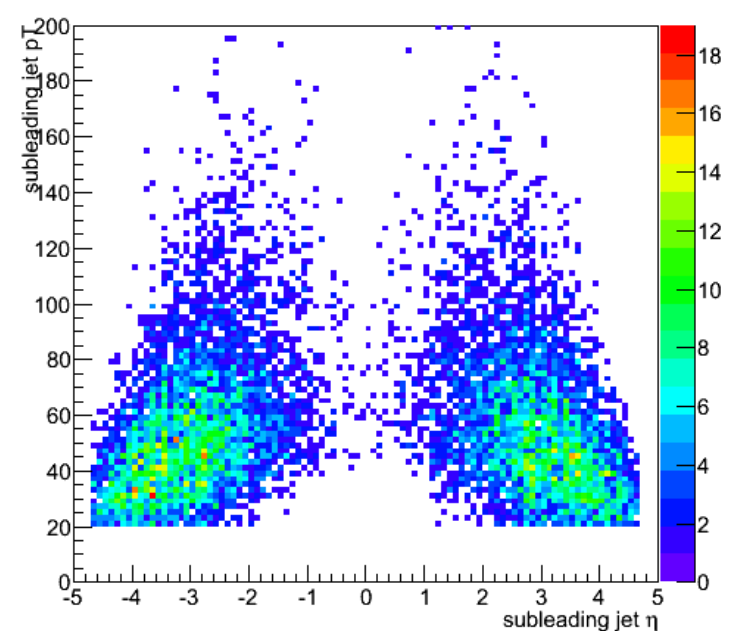
leading jet pT vs leading jet η



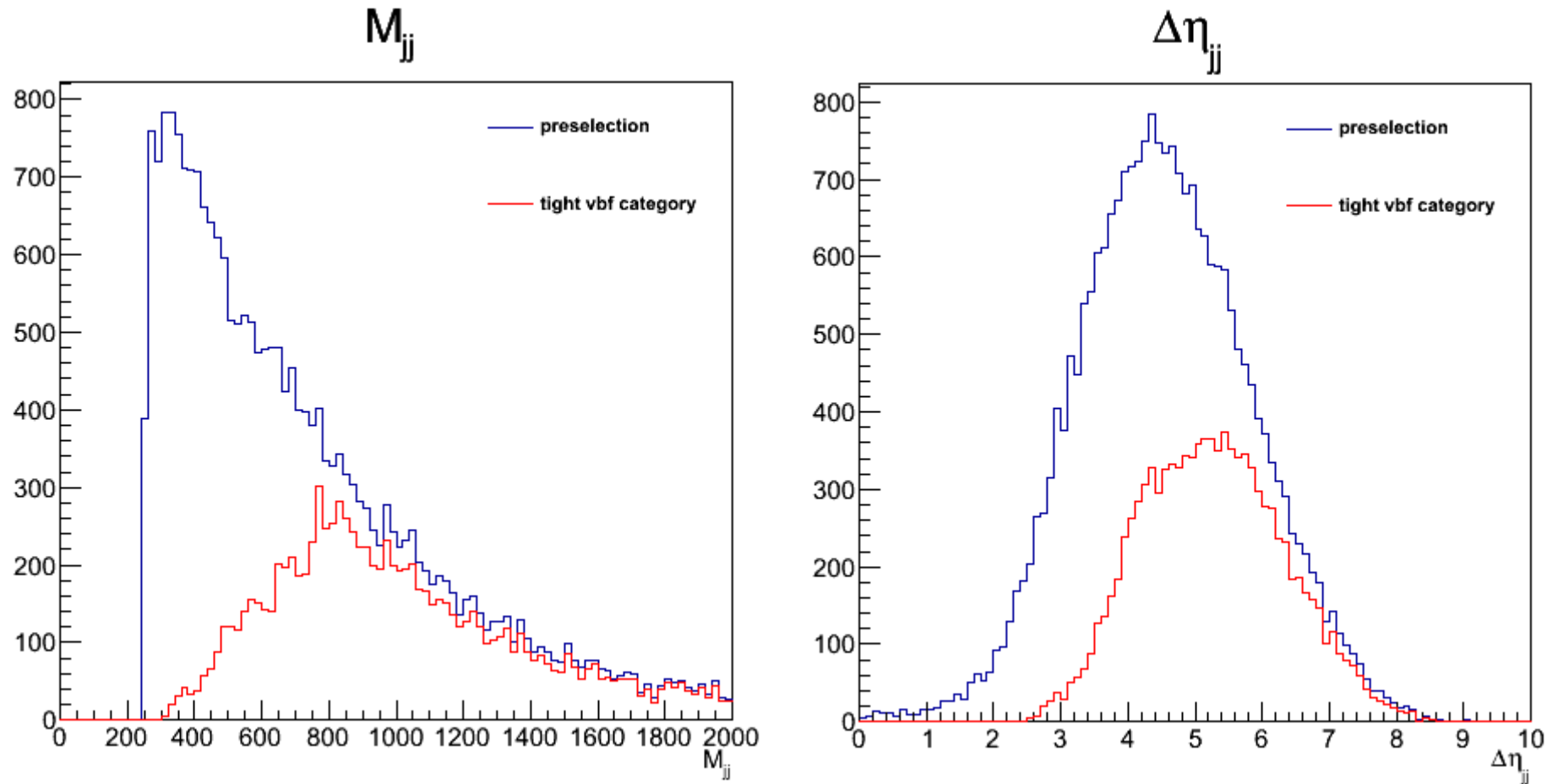
subleading jet pT vs subleading jet η (preselection)



subleading jet pT vs subleading jet η

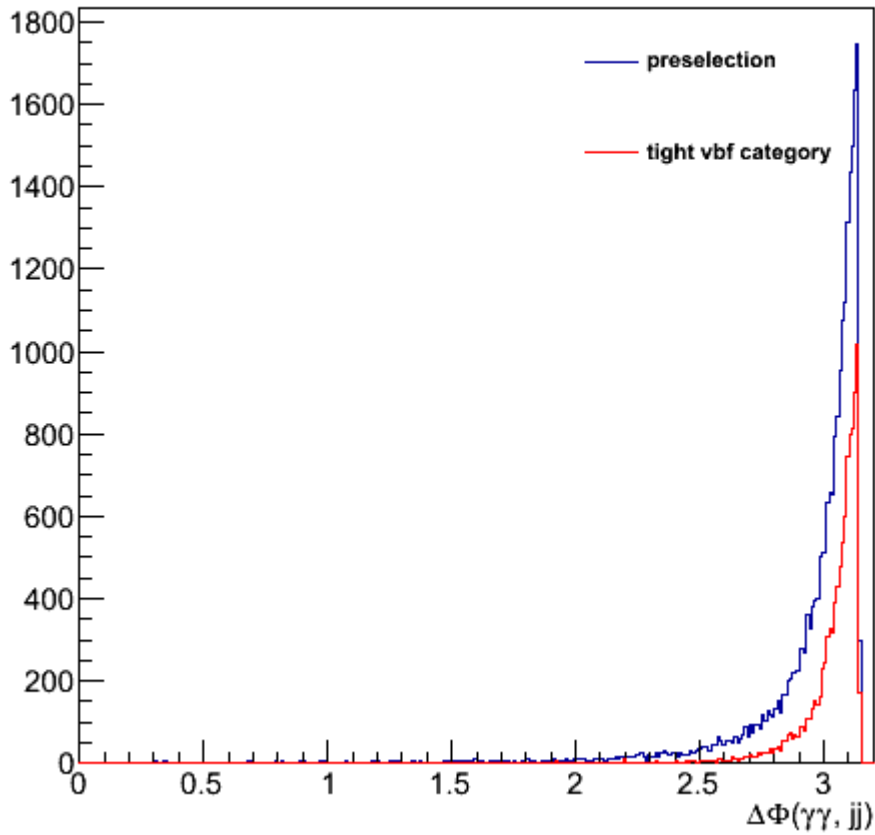


M_{jj} and $\Delta\eta_{jj}$

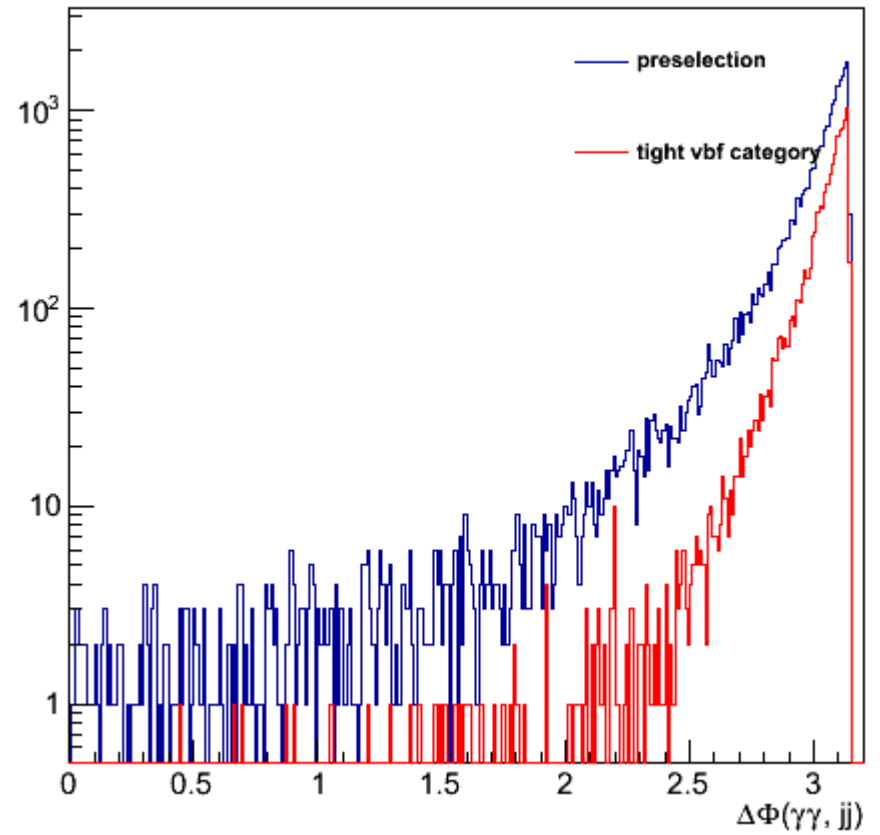


$\Delta\phi(\gamma\gamma, jj)$

$\Delta\phi(\gamma\gamma, jj)$

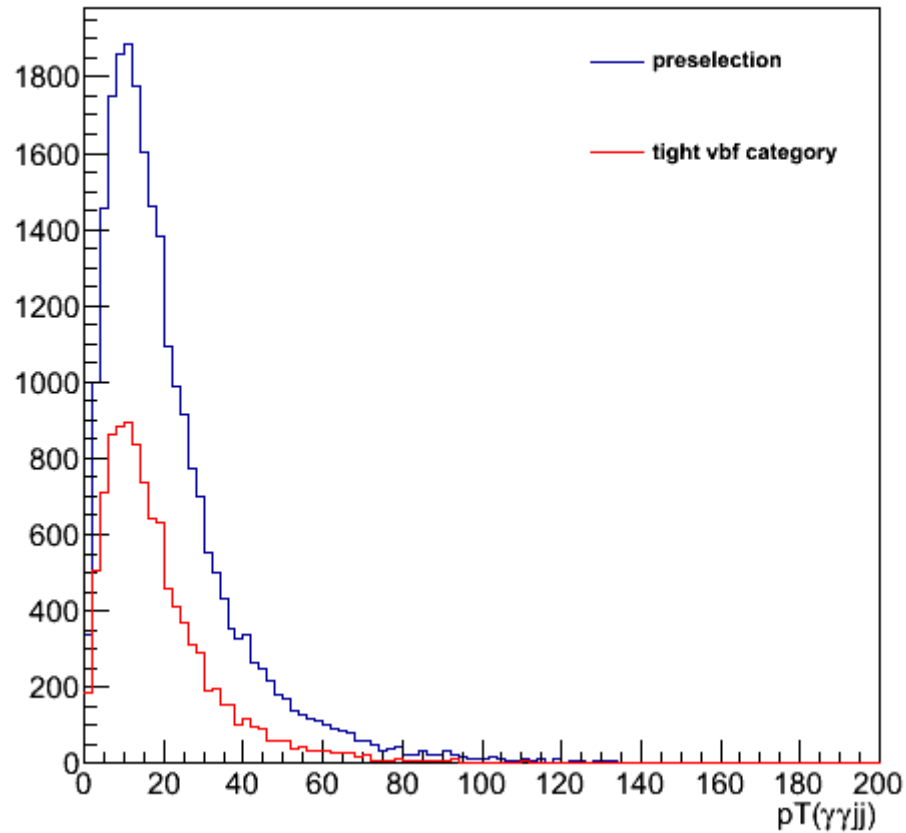


$\Delta\phi(\gamma\gamma, jj)$

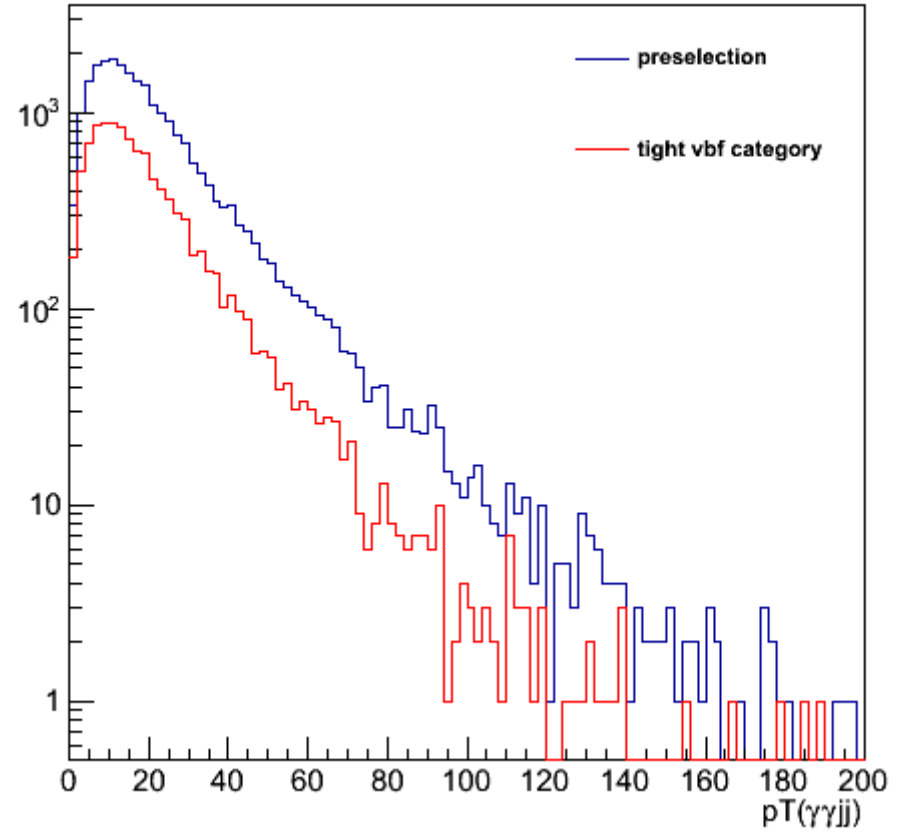


$p_T(\gamma\gamma jj)$

$p_T(\gamma\gamma jj)$

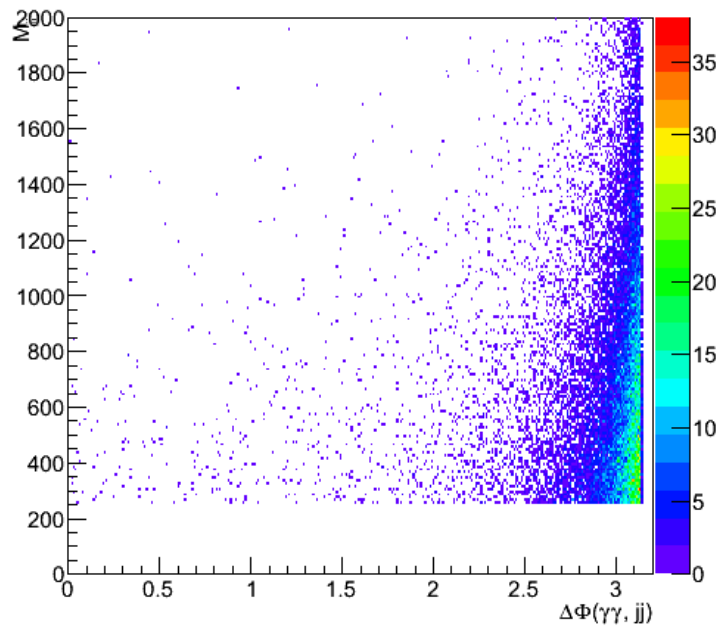


$p_T(\gamma\gamma jj)$

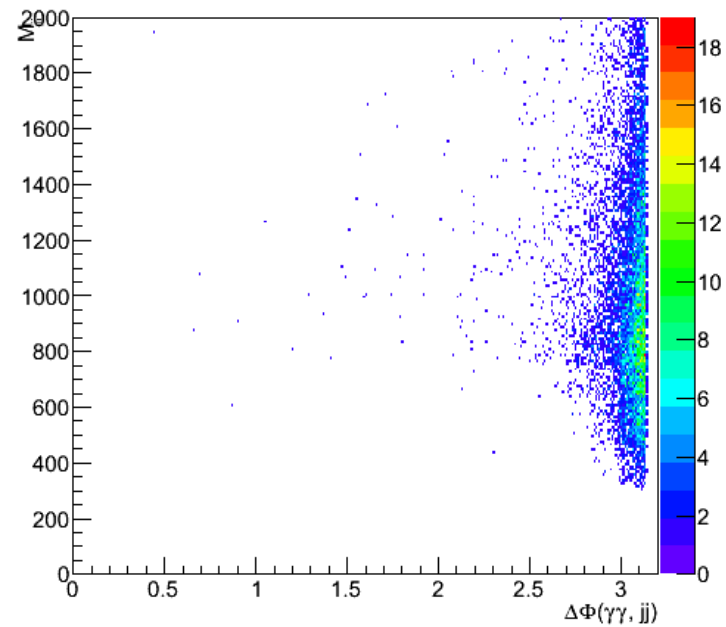


M_{jj} vs $\Delta\phi(\gamma\gamma, jj), pT(\gamma\gamma jj)$

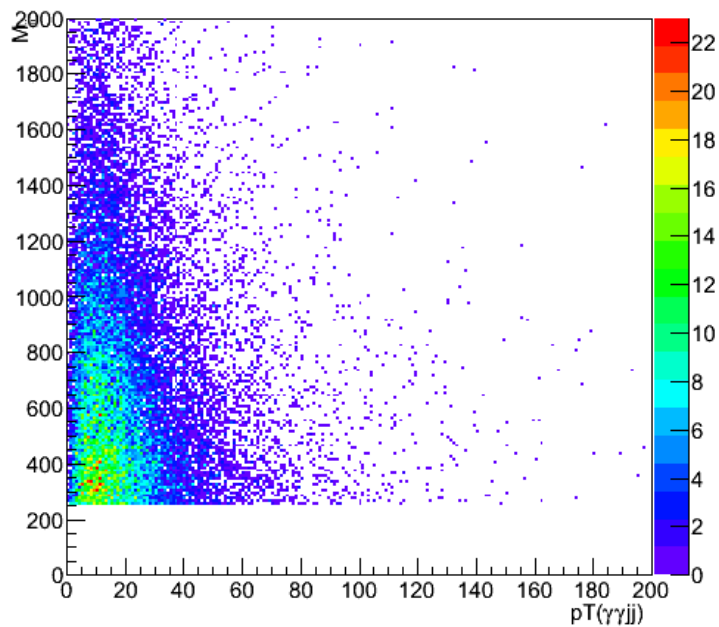
M_{jj} vs $\Delta\phi(\gamma\gamma, jj)$ (preselection)



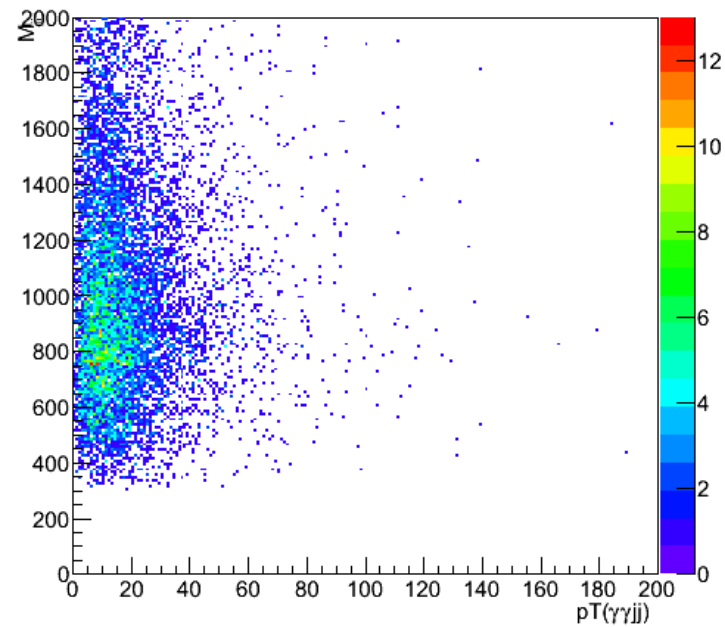
M_{jj} vs $\Delta\phi(\gamma\gamma, jj)$



M_{jj} vs $pT(\gamma\gamma jj)$ (preselection)

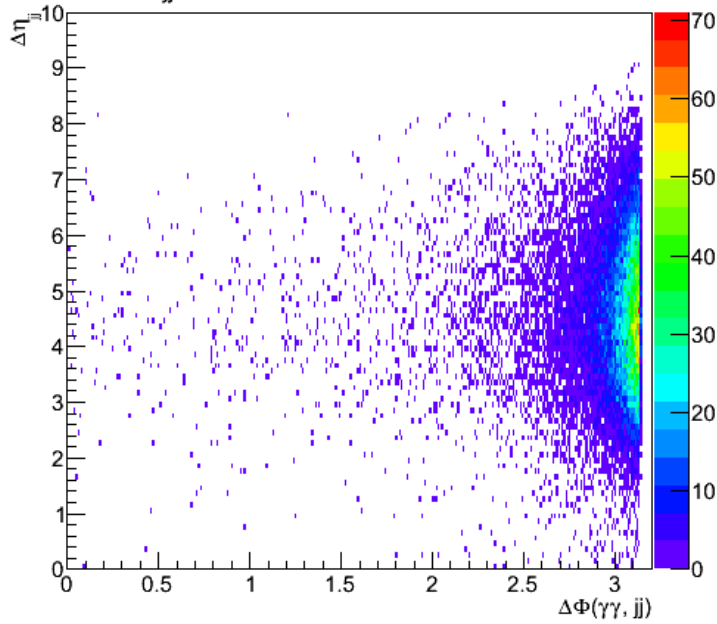


M_{jj} vs $pT(\gamma\gamma jj)$

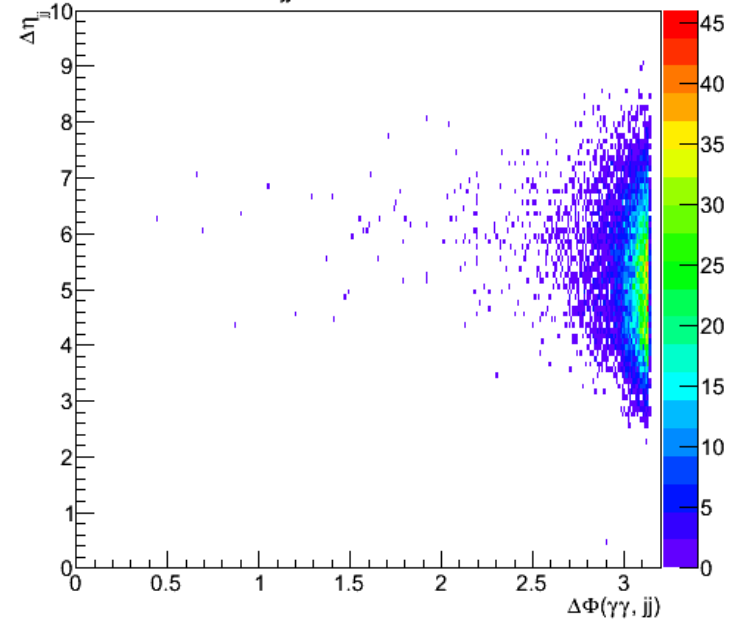


$\Delta\eta_{jj}$ vs $\Delta\phi(\gamma\gamma, jj), pT(\gamma\gamma jj)$

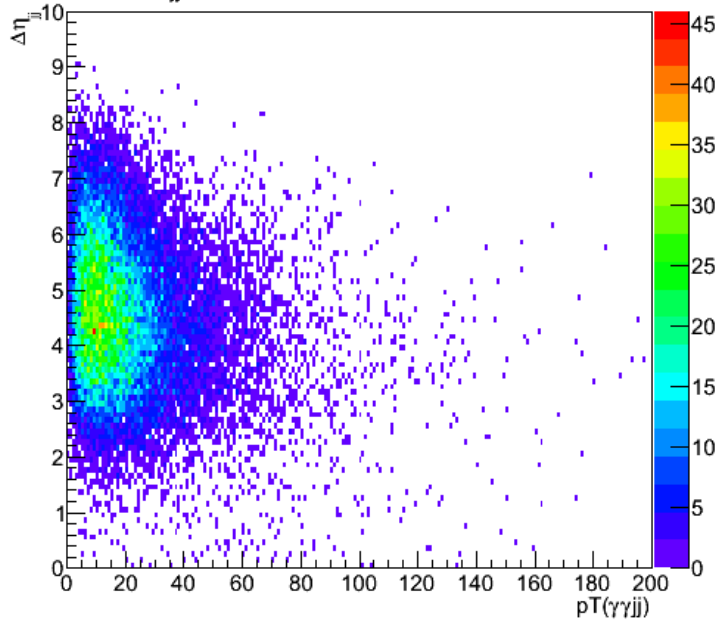
$\Delta\eta_{jj}$ vs $\Delta\phi(\gamma\gamma, jj)$ (preselection)



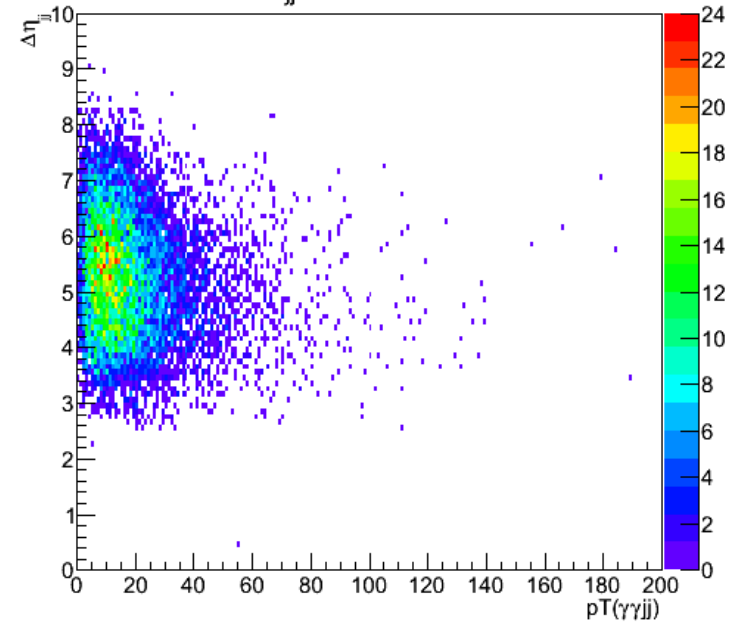
$\Delta\eta_{jj}$ vs $\Delta\phi(\gamma\gamma, jj)$



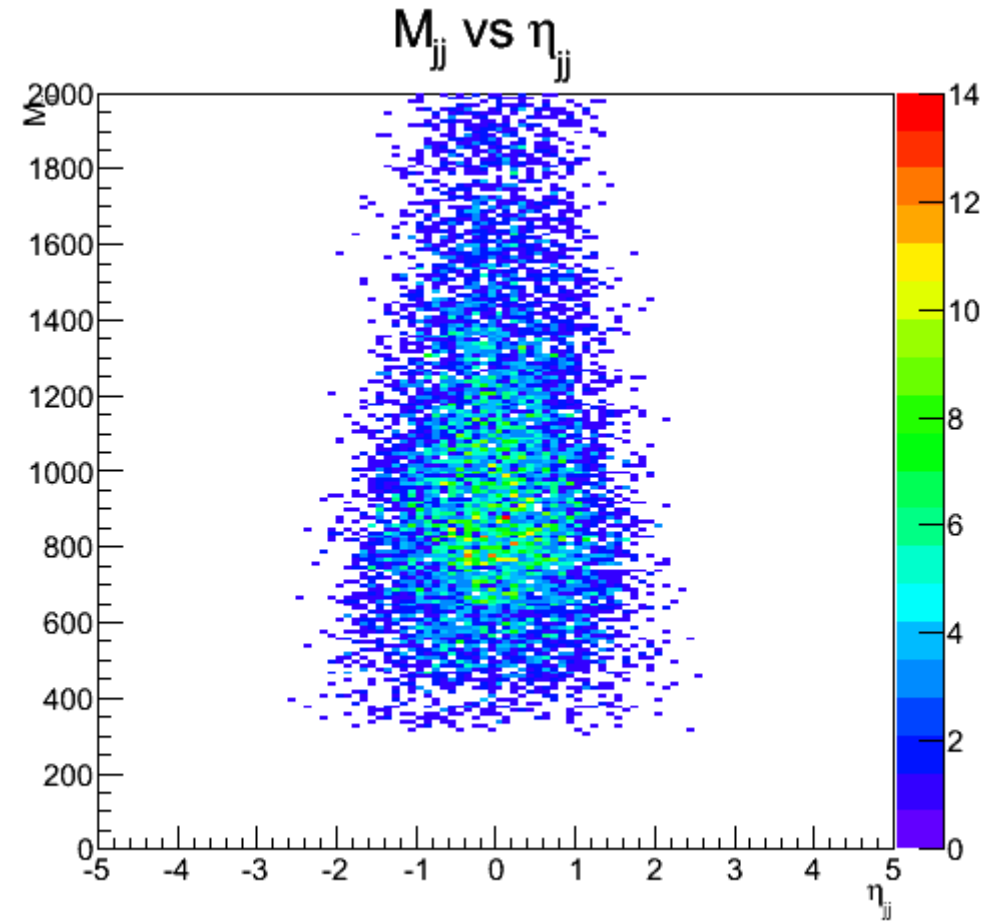
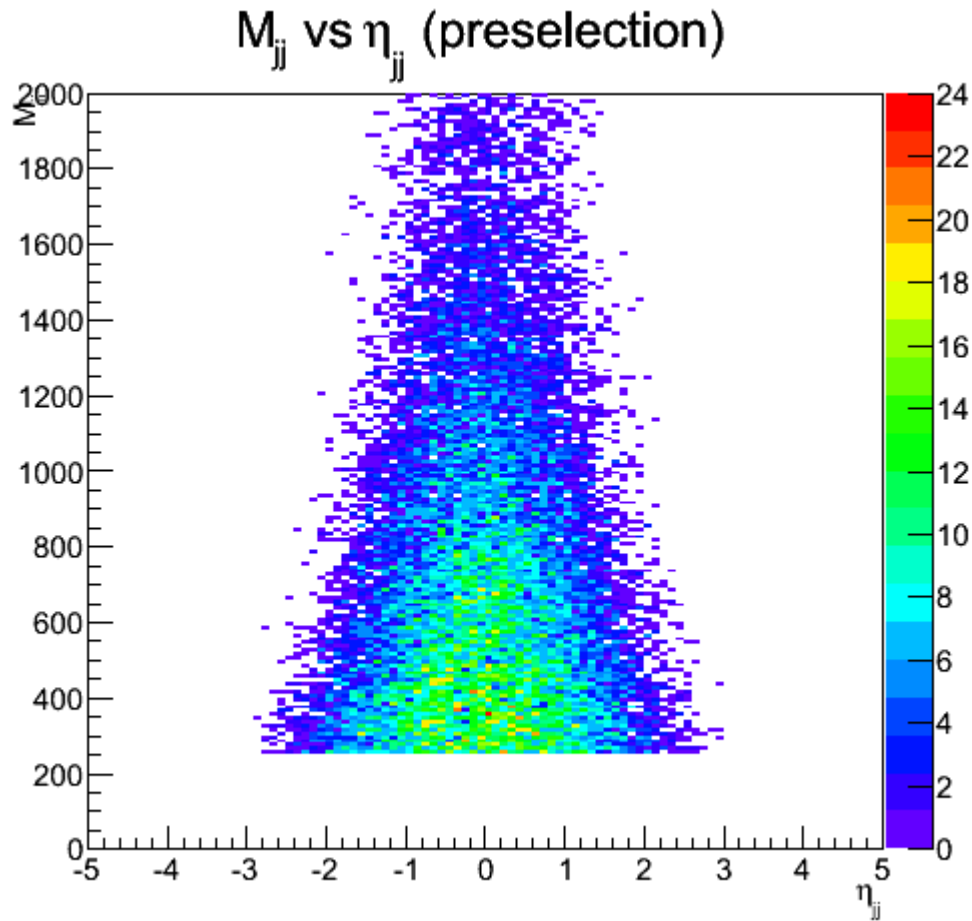
$\Delta\eta_{jj}$ vs $pT(\gamma\gamma jj)$ (preselection)



$\Delta\eta_{jj}$ vs $pT(\gamma\gamma jj)$

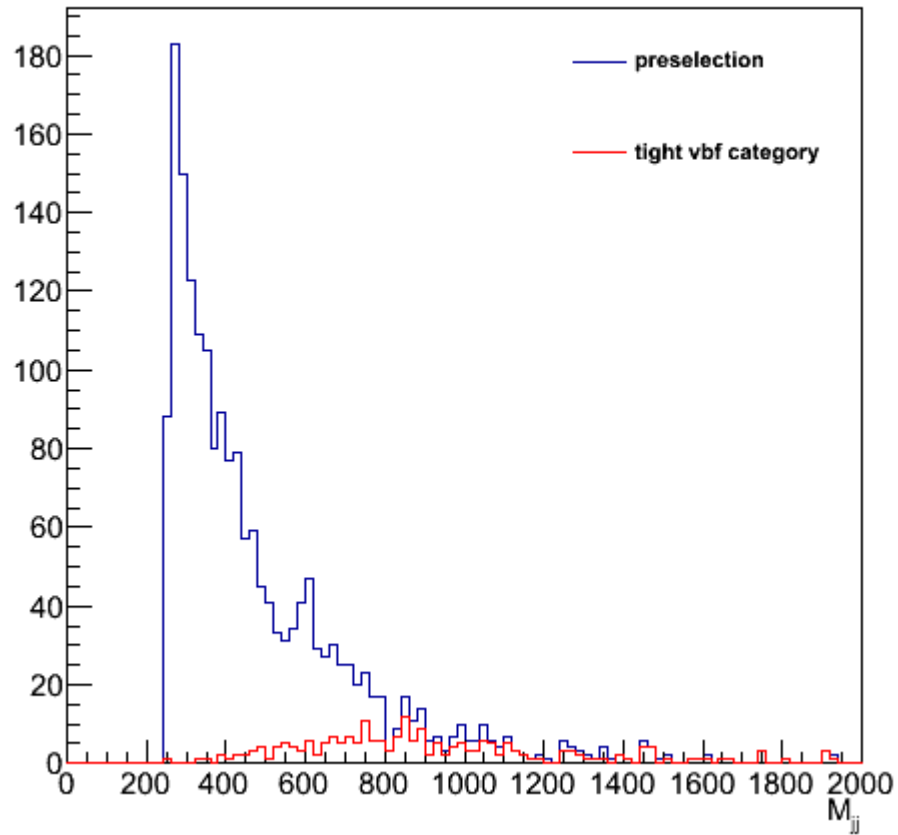


M_{jj} vs η_{jj}

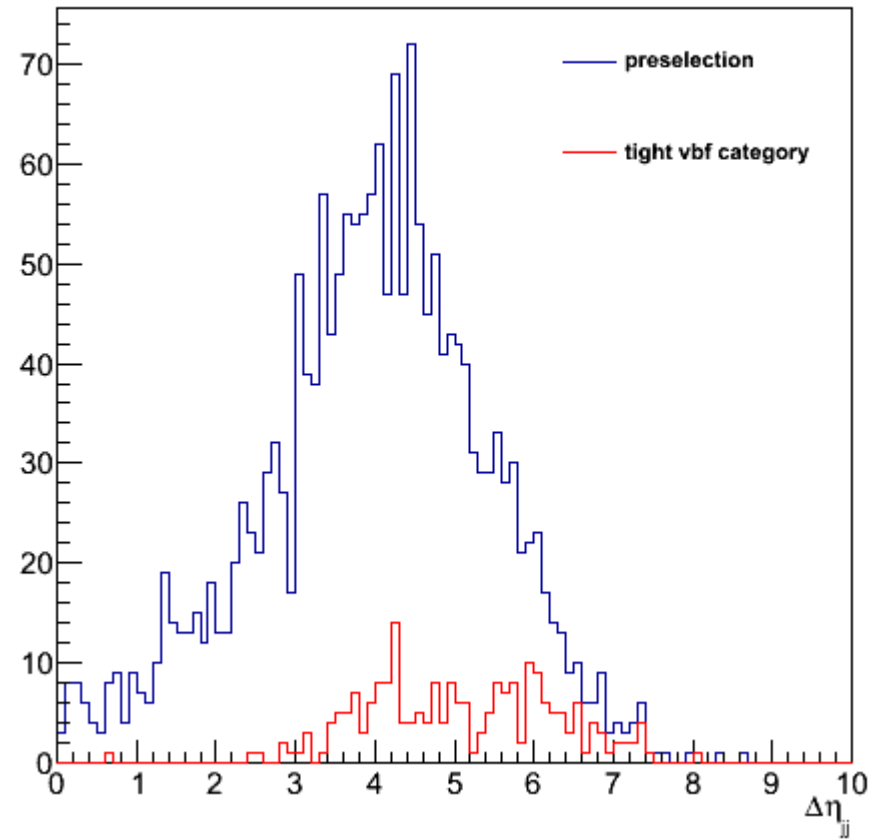


ggH

M_{jj}

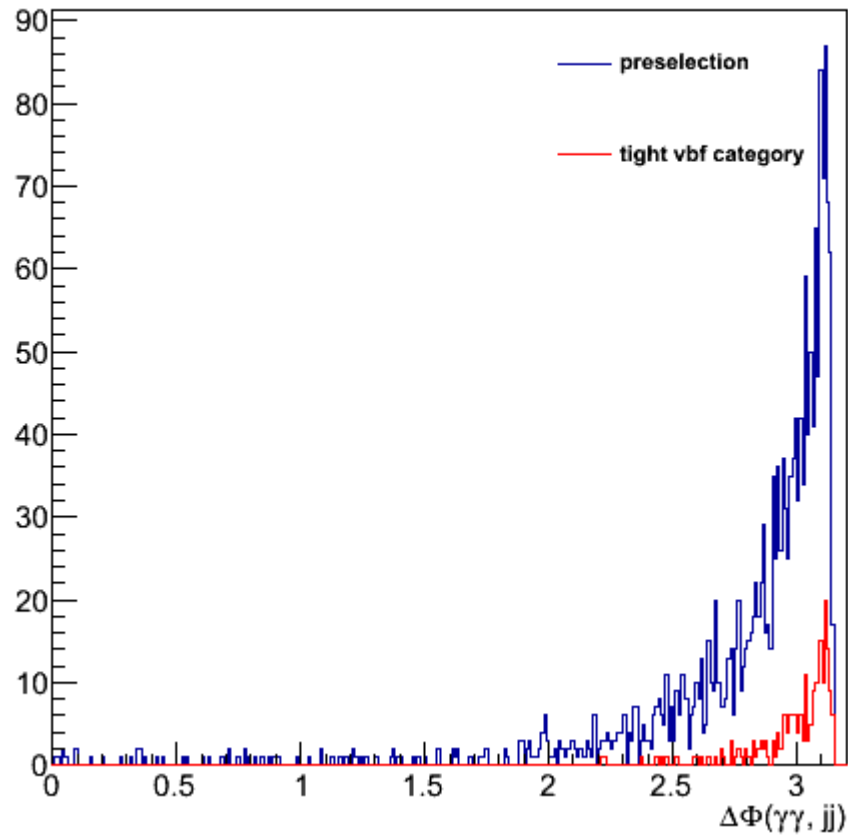


$\Delta\eta_{jj}$

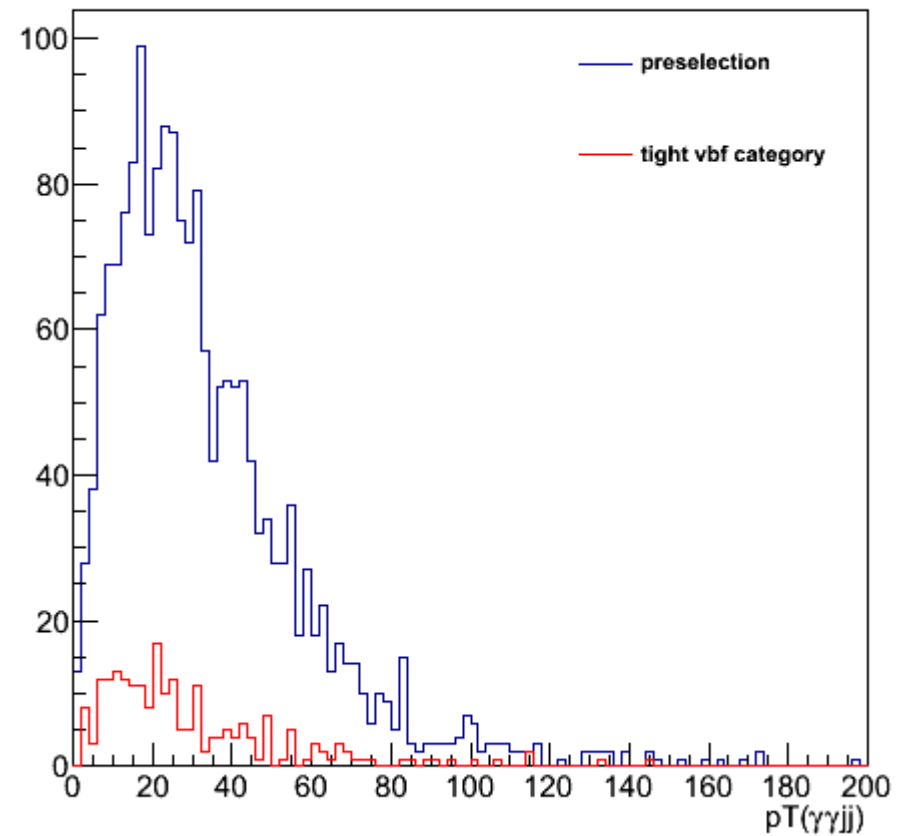


ggH

$\Delta\Phi(\gamma\gamma, jj)$



$p_T(\gamma\gamma jj)$



BACKUP