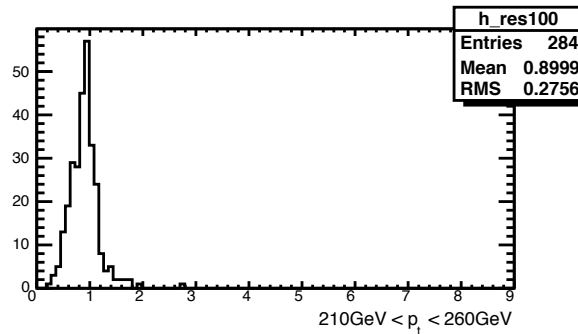
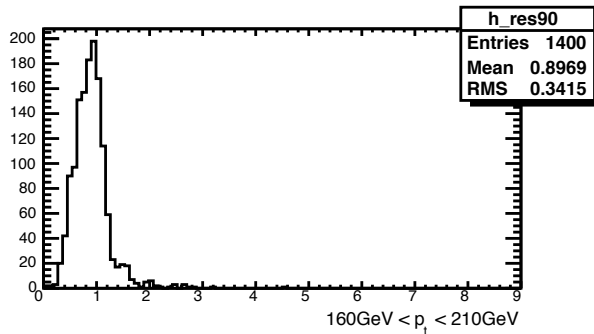
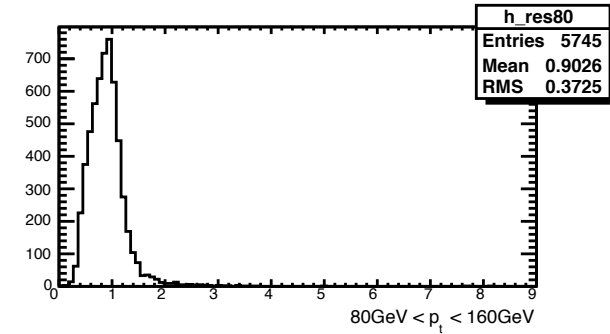
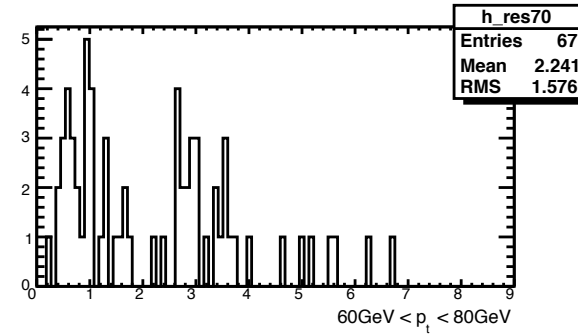
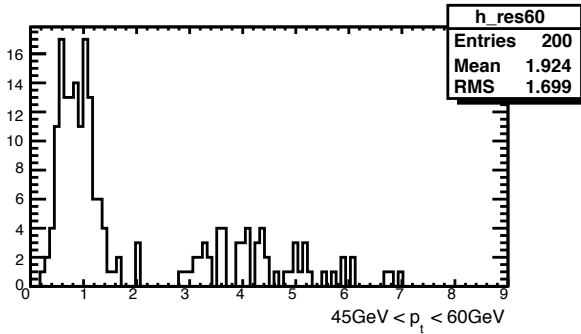
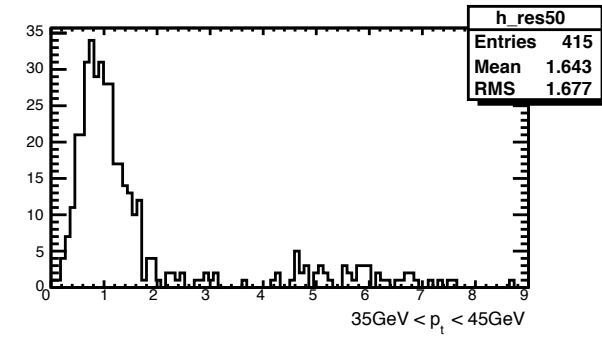
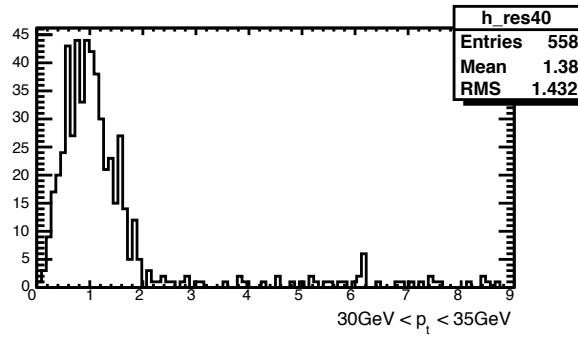
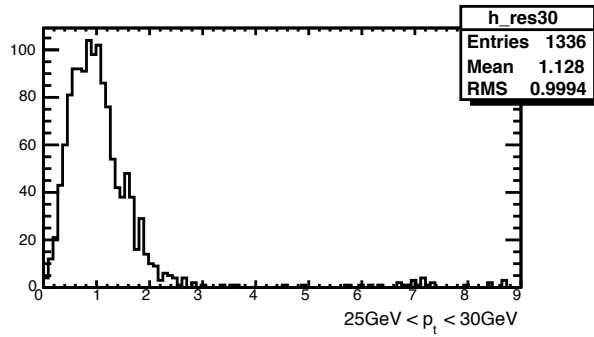
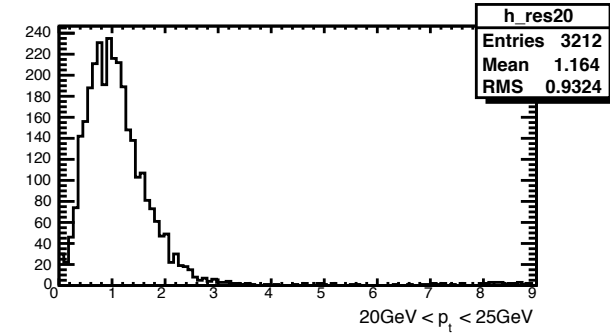
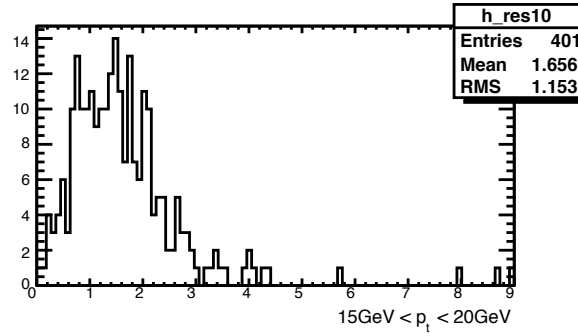
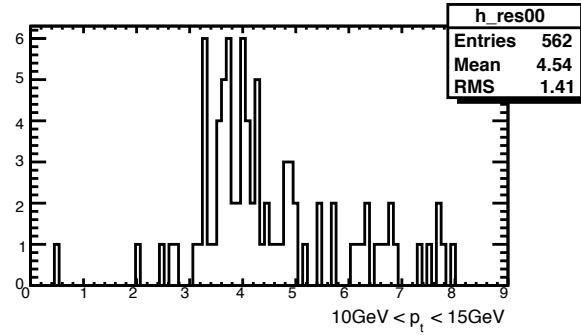


29, Aug, 2013, Naoyuki Kamo

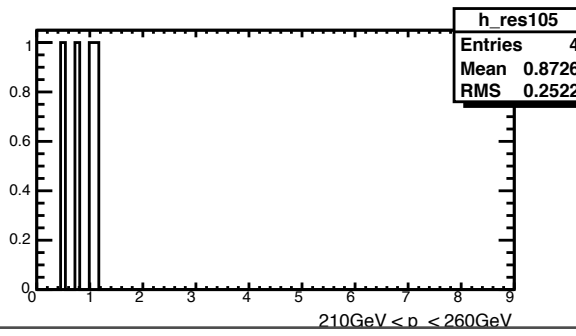
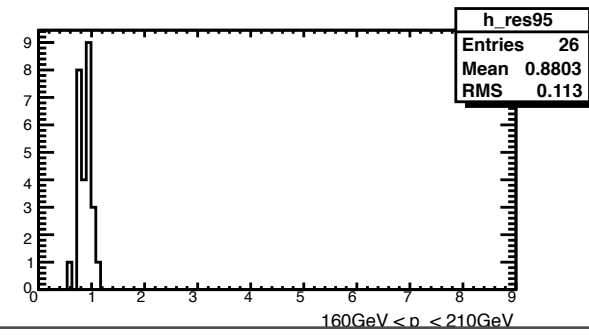
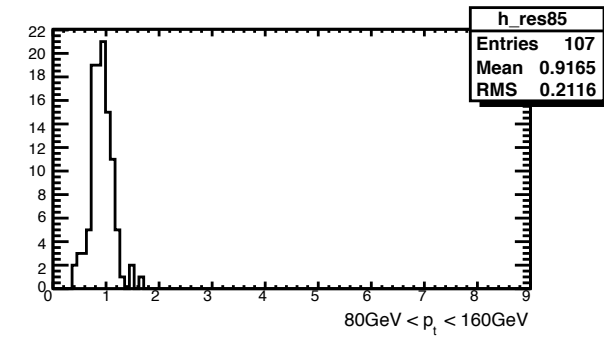
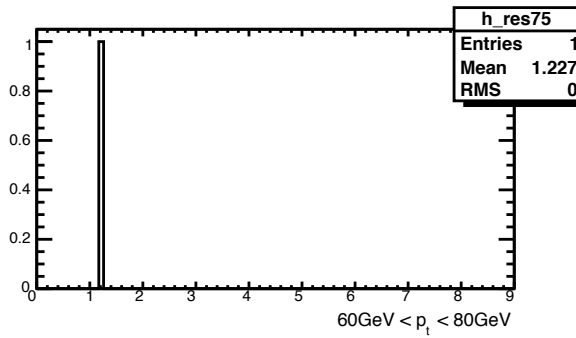
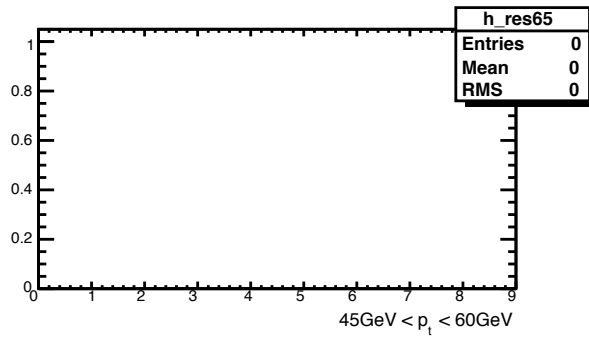
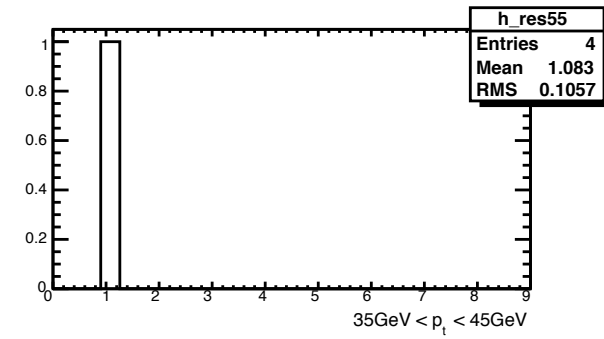
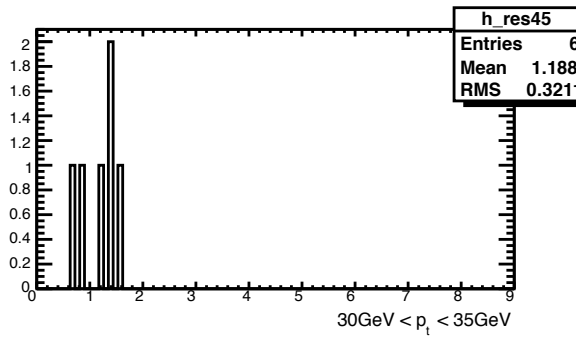
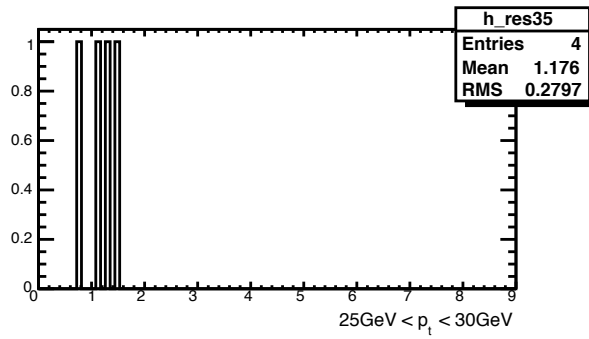
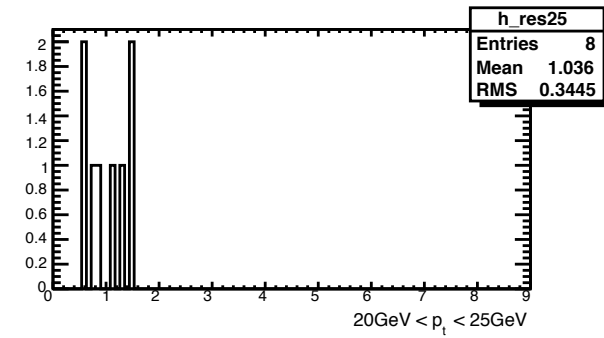
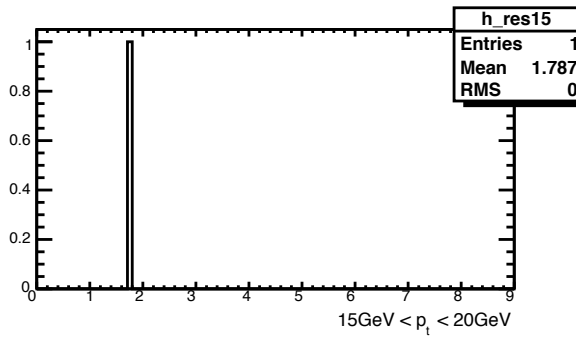
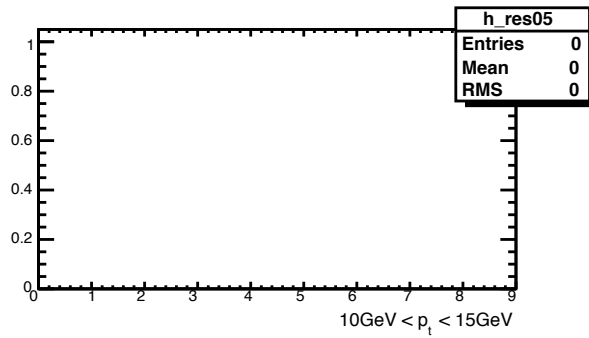
今週の進展

- ZeeでZのピークが見つからないという問題は解決
 - (細かい話になるので簡単に書きますが)
 - electronのvertexの決めるために、trackとの対応をつける必要があり、その対応の条件がtightすぎた
- Data(egamma)をskim & slimをして、全体の2.8%をローカルにおとした
 - skimming作業はback groundで進行中
 - (lumiblockのbranchを残すのを忘れていたので、今回はGRLはかけていない)
- Zmumu + jetは今回はなし

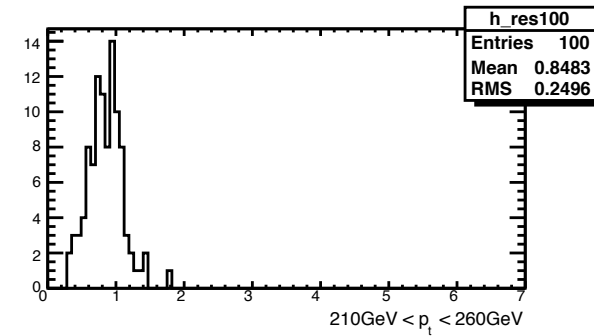
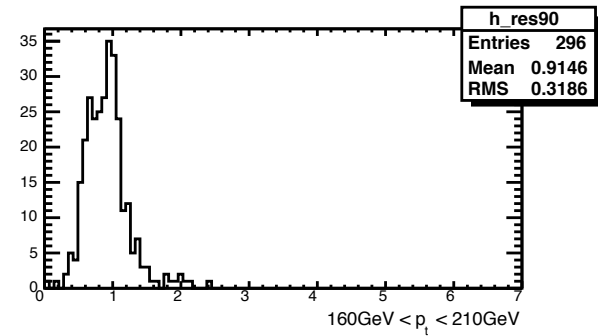
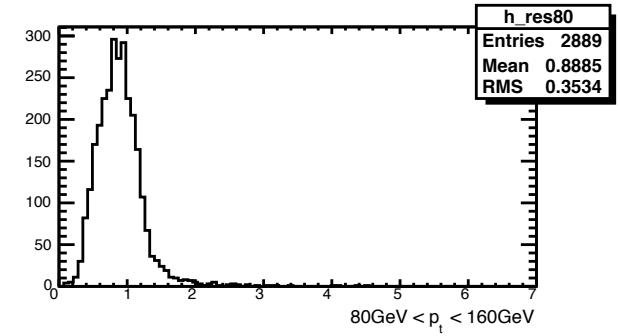
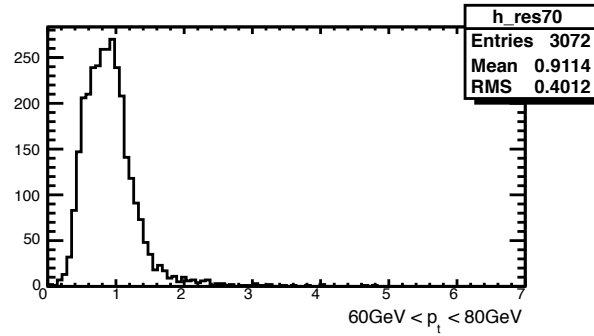
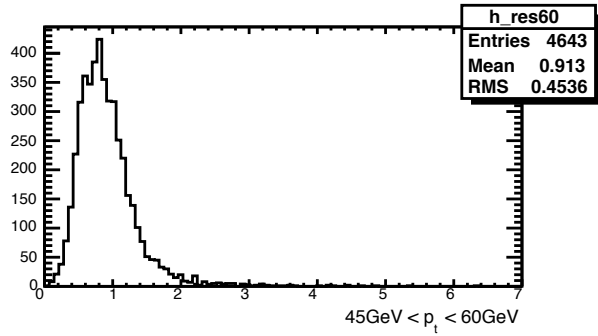
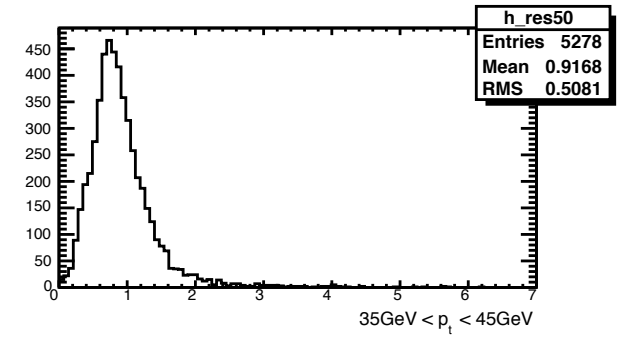
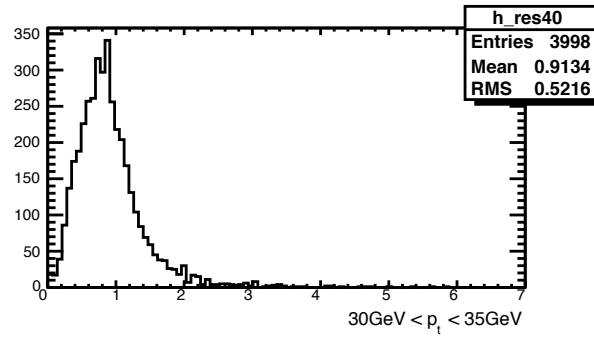
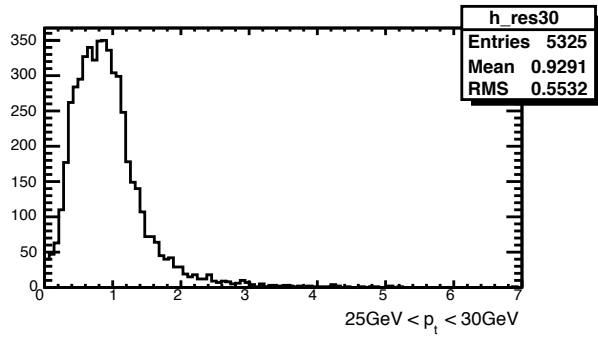
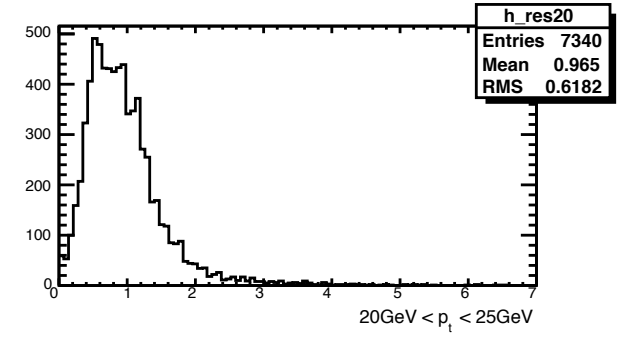
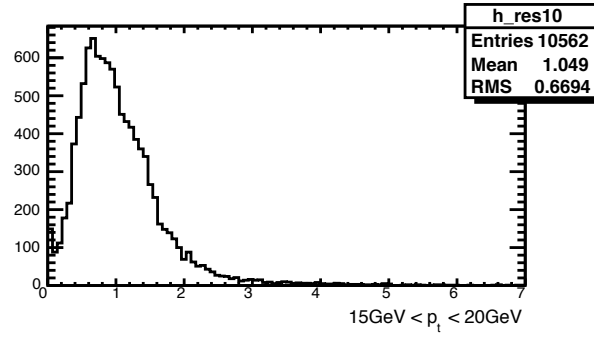
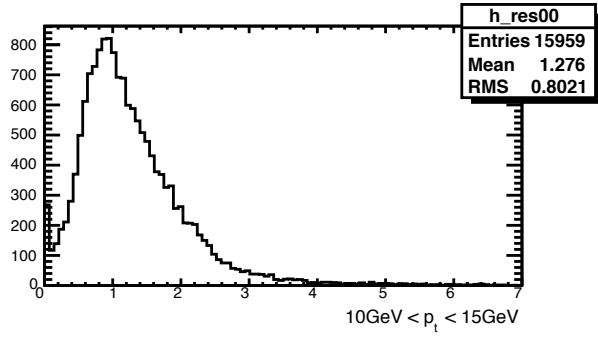
$\gamma + \text{jet}$, 20 ~ 120のORをとったもの (cut前)



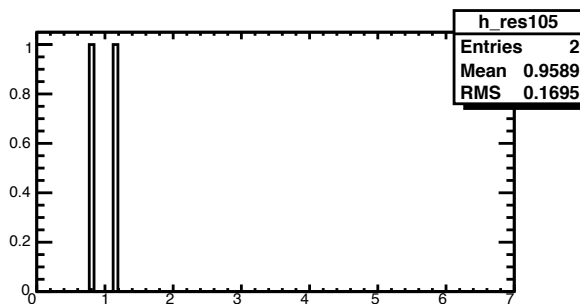
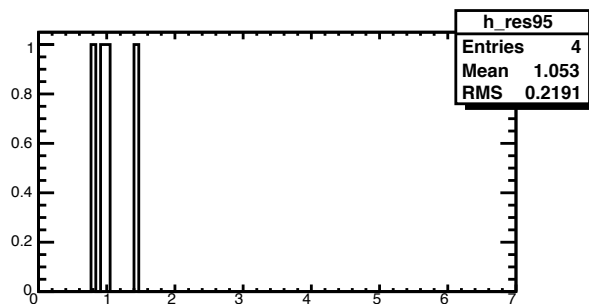
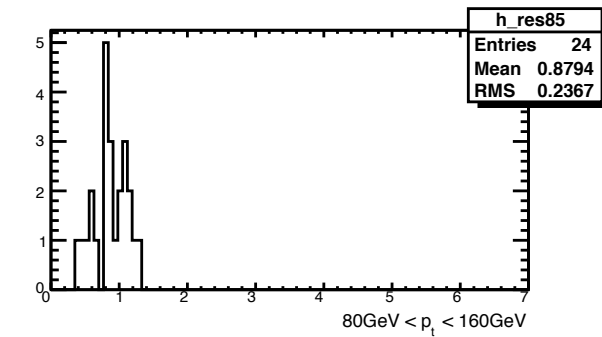
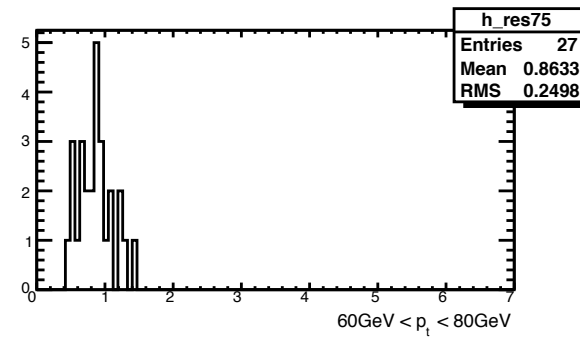
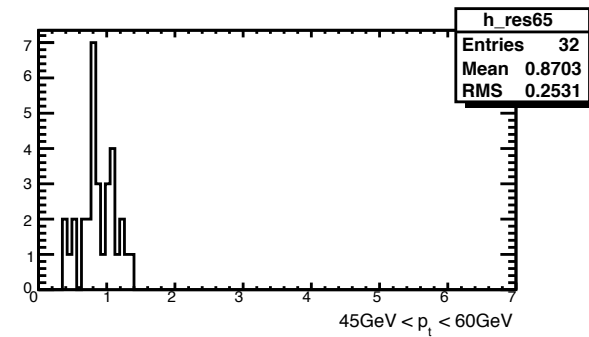
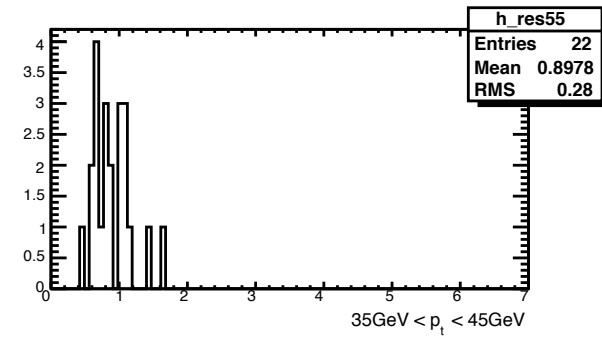
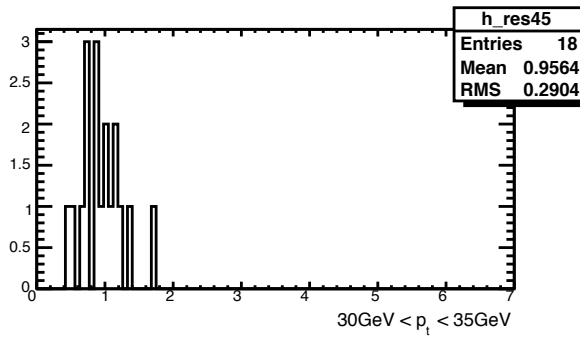
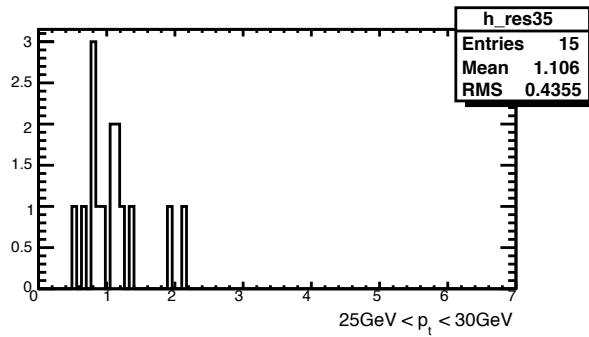
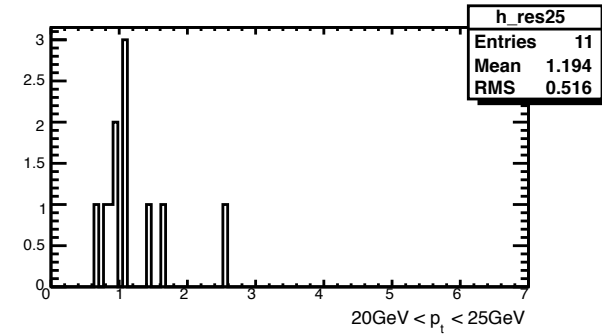
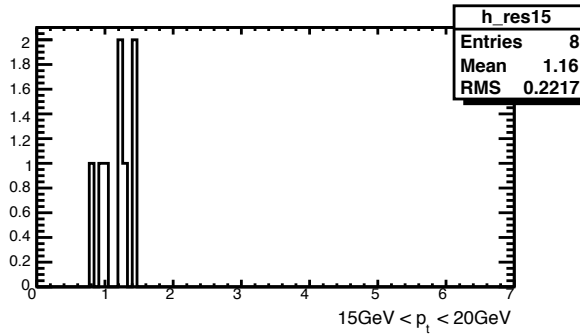
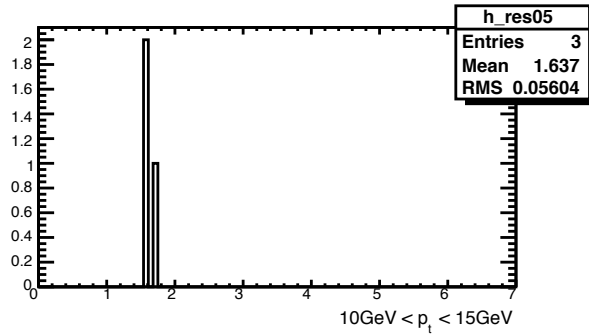
$\gamma + \text{jet}$, 20 ~ 120のORをとったもの (cut後)



Zee+ jet (cut前)



Zee + jet (cut後)



- 得られた統計を30倍して
- $\gamma + \text{jet}$ では $[80, 160]\text{GeV}$ で3000events程度、
- $Zee + \text{jet}$ では $[30, 35], [35, 45], [45, 60], [60, 80], [80, 160]$ で600~900events程度と見積もられる

back up

Z + jet

- el_medium++ , mu_medium
- $\Delta R(\text{jet}, \text{el_medium++}) < 0.1$ のjetはelectronとする
- Trigger(zee): EF_el2Tvh_loose1 (multi-electron , unprecaled)
- Trigger(zmumu): EF_mu24i_tight || EF_mu36_tight
- B-tag : $MVI > 0.8119$ (nominal efficiency 70%)

Variable	Selection	description
e_1, e_2	$E_T^{e_{1,2}} > 20 \text{ GeV}$	electron pre-selection
	$80 \text{ GeV} < M_{e^+e^-} < 116 \text{ GeV}$	
	$ \eta^{e_{1,2}} < 2.47$ excluding $1.37 < \eta^e < 1.52$	
leading jet	$ \eta^{\text{jet}} < 0.8, JVF > 0.25$ if $p_T < 50 \text{ GeV}$	jet pre-selection
$\Delta R_{j,e} = \sqrt{(\Delta\eta)^2 + (\Delta\varphi)^2}$	> 0.35 anti- k_t $R = 0.4$ jets	isolation/topology
	> 0.5 anti- k_t $R = 0.6$ jets	
$p_T^{\text{jet}2}$	$< \max(0.2 \times p_T^Z, 10 \text{ GeV})$	radiation/topology
JVF(jet2)	$> 0.25,$ if $ \eta^{\text{jet}2} < 2.4$ and $p_T < 50 \text{ GeV}$	JVF restriction for sub-leading jets

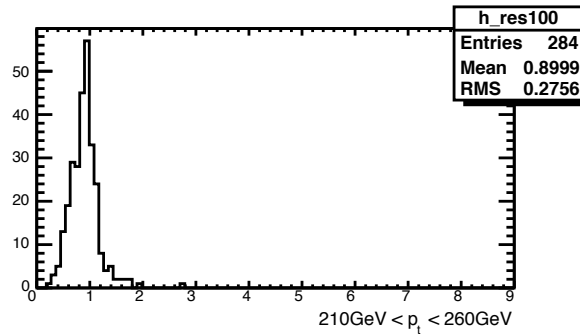
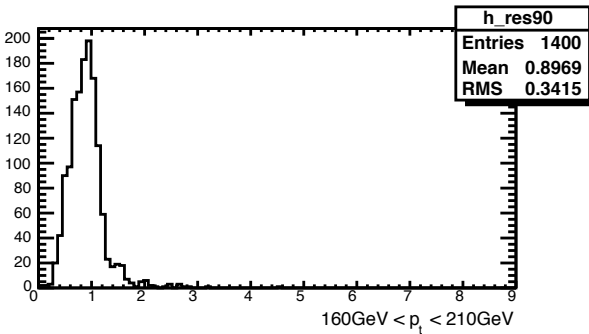
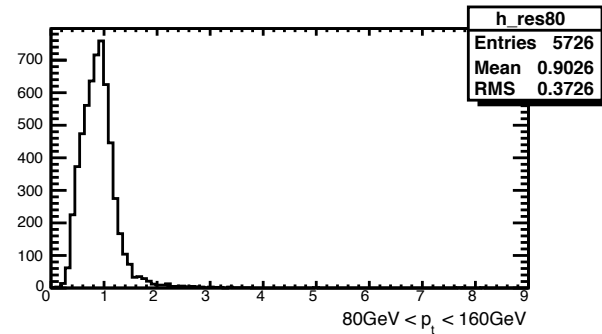
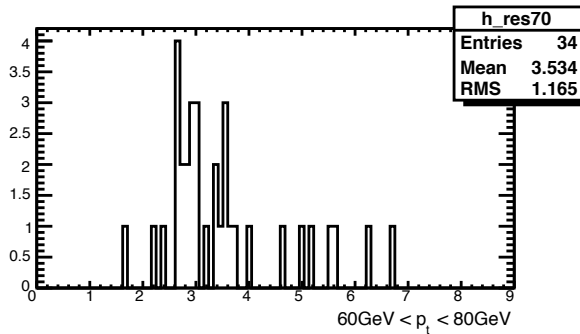
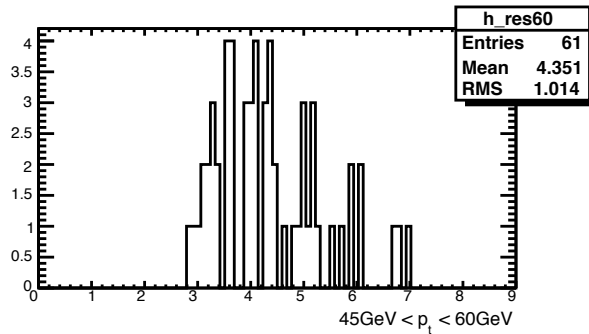
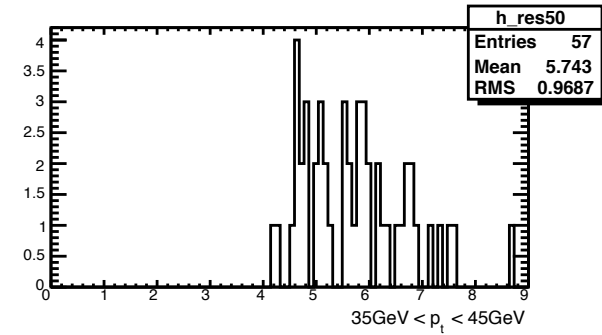
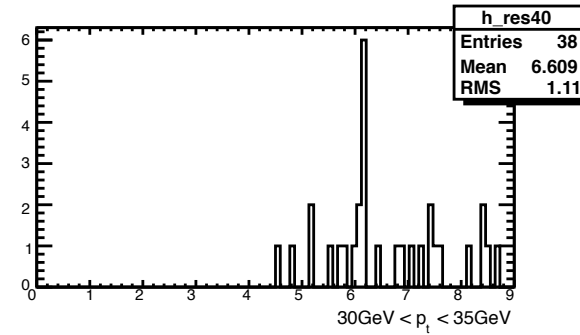
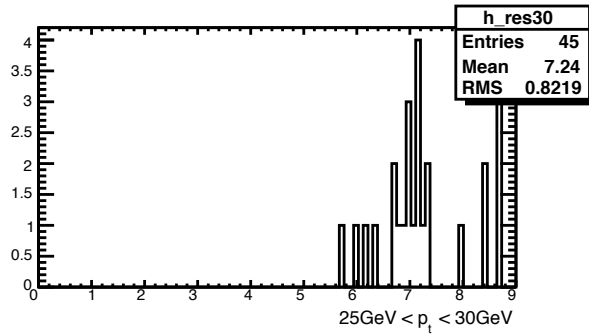
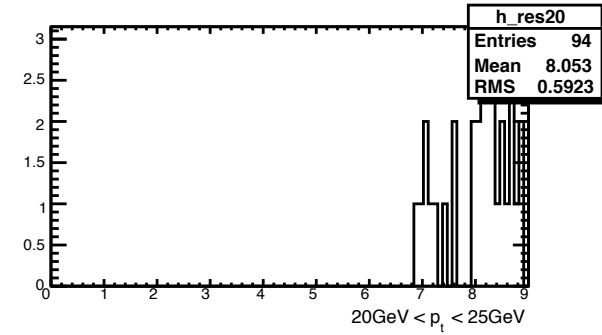
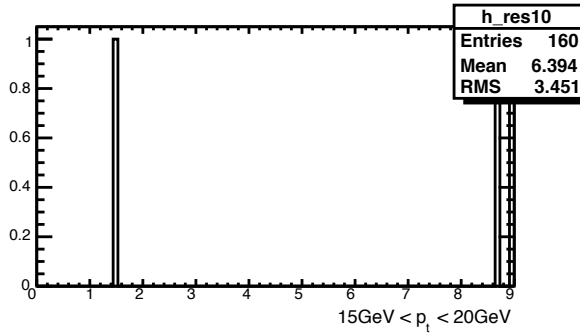
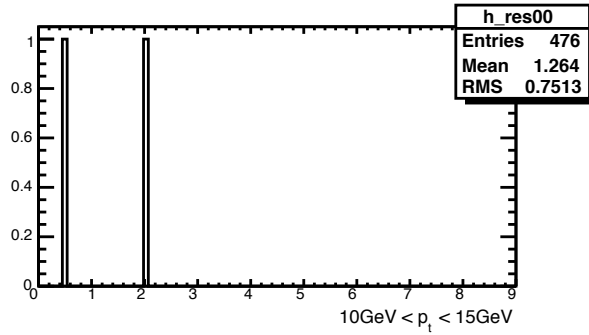
gamma+ jet

- $\Delta R(\text{jet}, \text{gamma}) < 0.1$ のjetはgammaとする（ただしgammaは下表の条件を満たす）。
- Trigger(zmumu): EF_g120_loose (unprescaled)
- B-tag : $MV1 > 0.8119$ (nominal efficiency 70%)
- selectionについては <https://twiki.cern.ch/twiki/bin/viewauth/AtlasProtected/GammaJetCalib2012> に詳しく書いてある

Variable	Selection	description
leading γ	$p_T^\gamma > 85 \text{ GeV}$ and $ \eta^\gamma < 1.37$	photon pre-selection
$E_T^{\gamma \text{ Iso}}$	$< 3 \text{ GeV}$	γ isolation
$E_T^{\gamma \text{ cluster}} / (\sum p_T^{\text{tracks}})$	$\in [0, 2]$ (single-track conversions) $\in [0.5, 1.5]$ (double-track conversions)	jets faking photons
leading jet	$p_T^{\text{jet}} > 12 \text{ GeV}$ and $ \eta^{\text{jet1}} < 0.8$	jet pre-selection
$\Delta\phi_{\text{jet}-\gamma}$	$> 2.9 \text{ radians}$	radiation suppression
p_T^{jet2}	$< 0.2 \times p_T^\gamma$	radiation suppression
JVF(jet2)	> 0.25 , if $ \eta^{\text{jet2}} < 2.4$	JVF restriction for sub-leading jets

※ $p_{T_gamma} > 85 \text{ GeV}$ は要求していない

gamam + jet (EF_gI20_loose,cut前)



gamma + jet (EF_g|20_loose,cut後)

