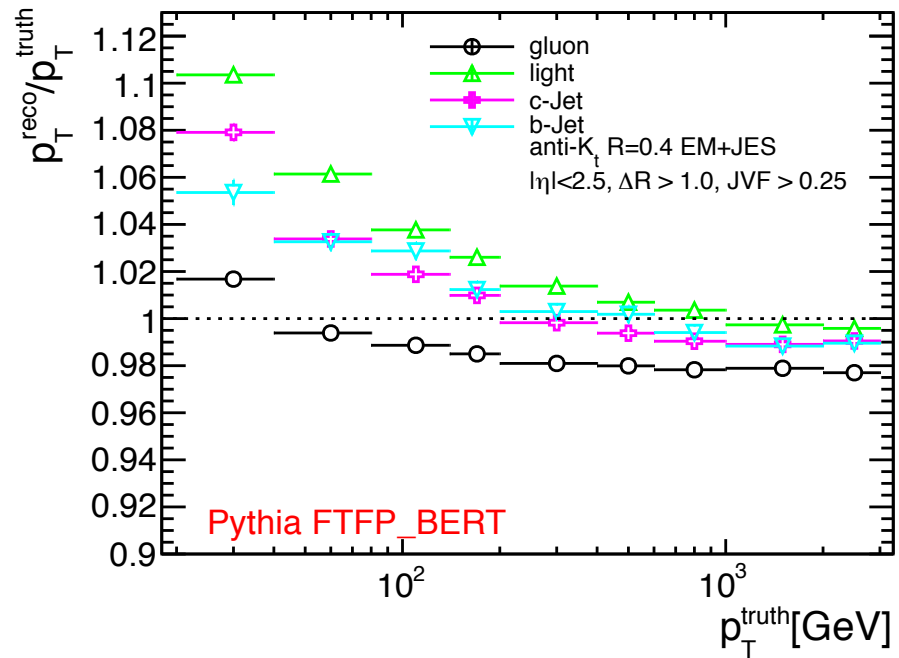
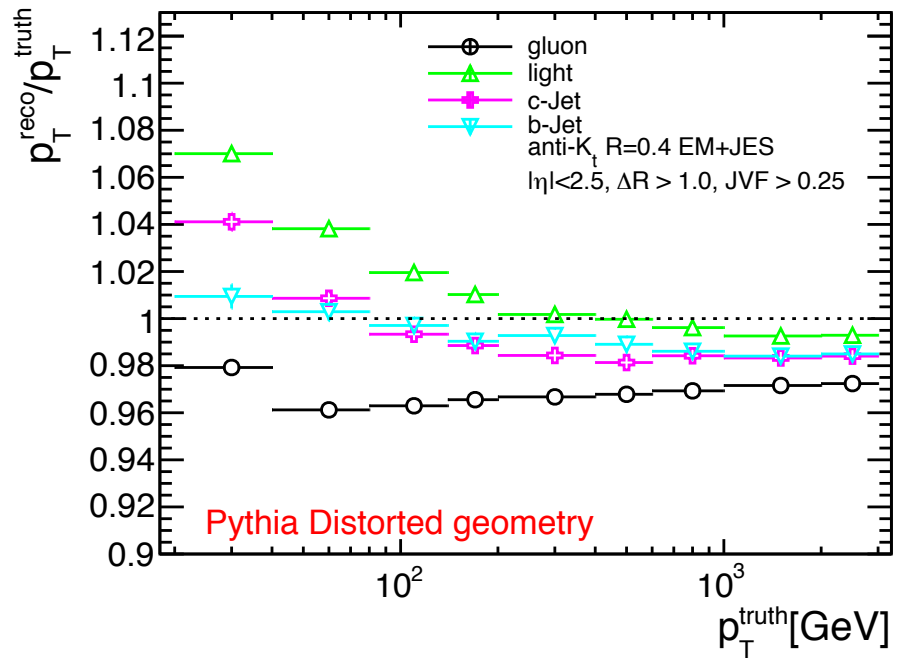
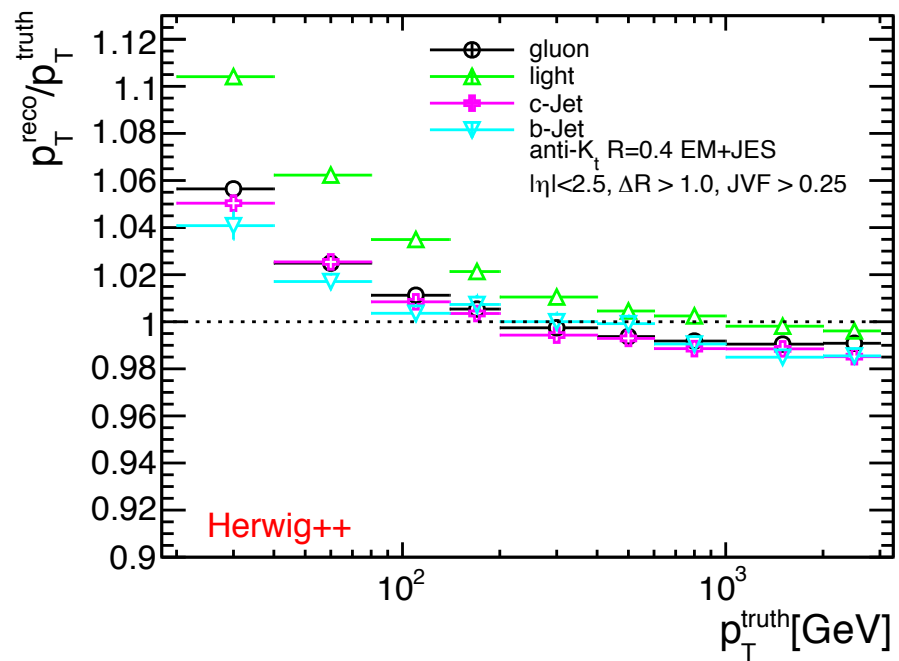
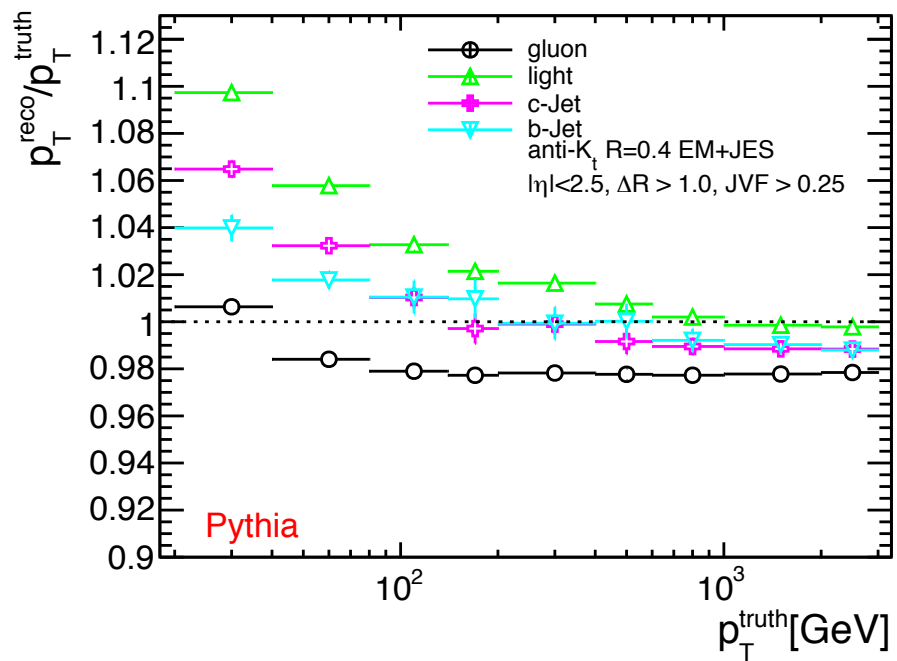


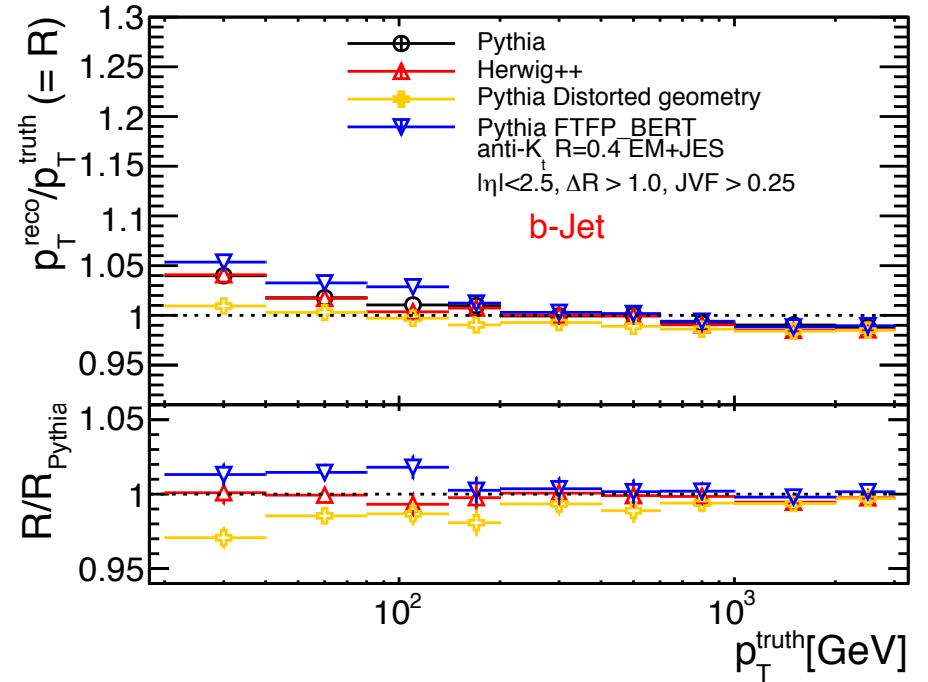
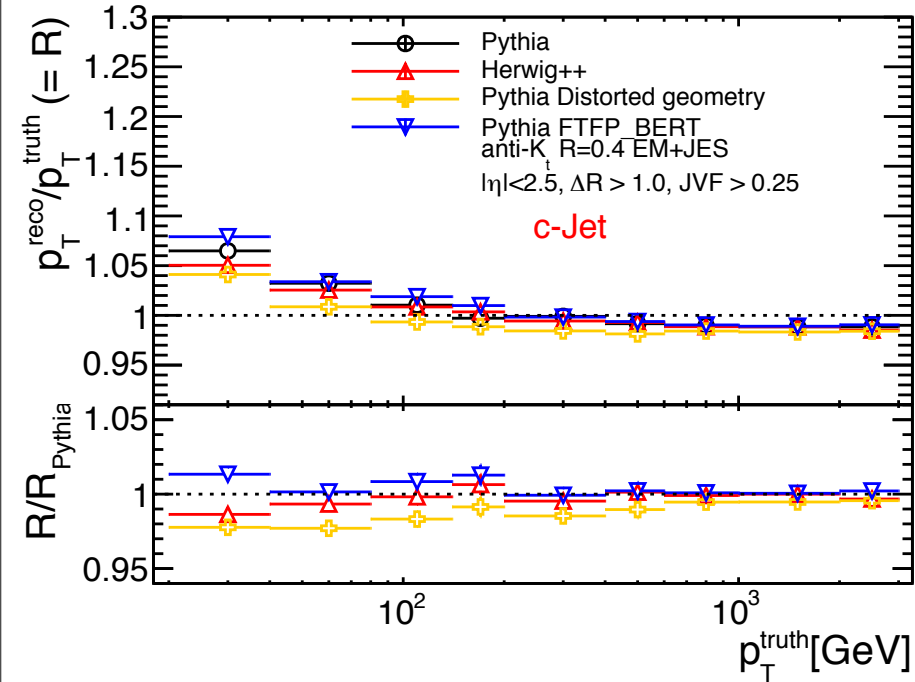
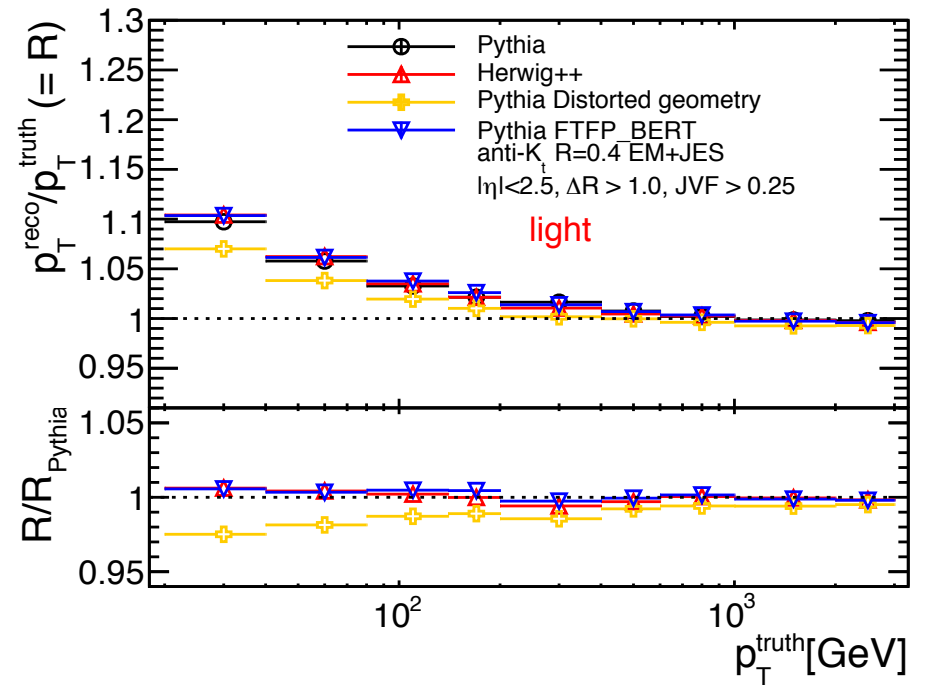
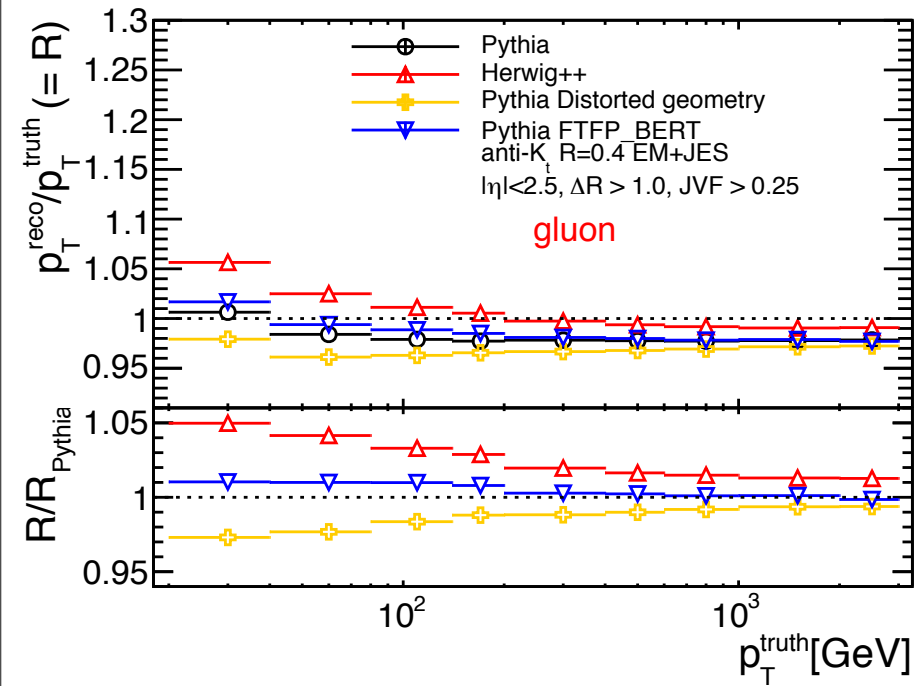
5, Sep, Naoyuki Kamo

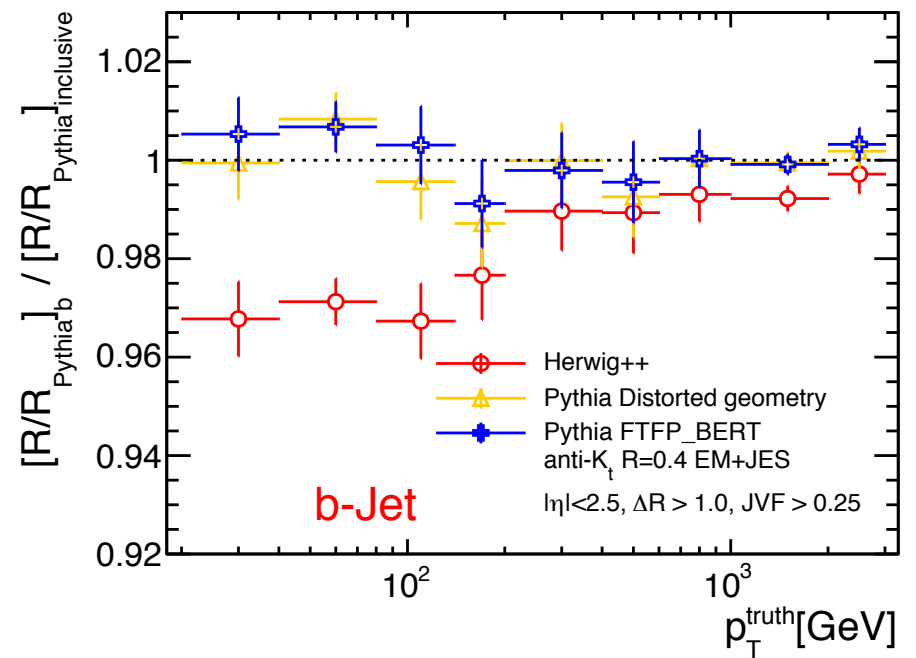
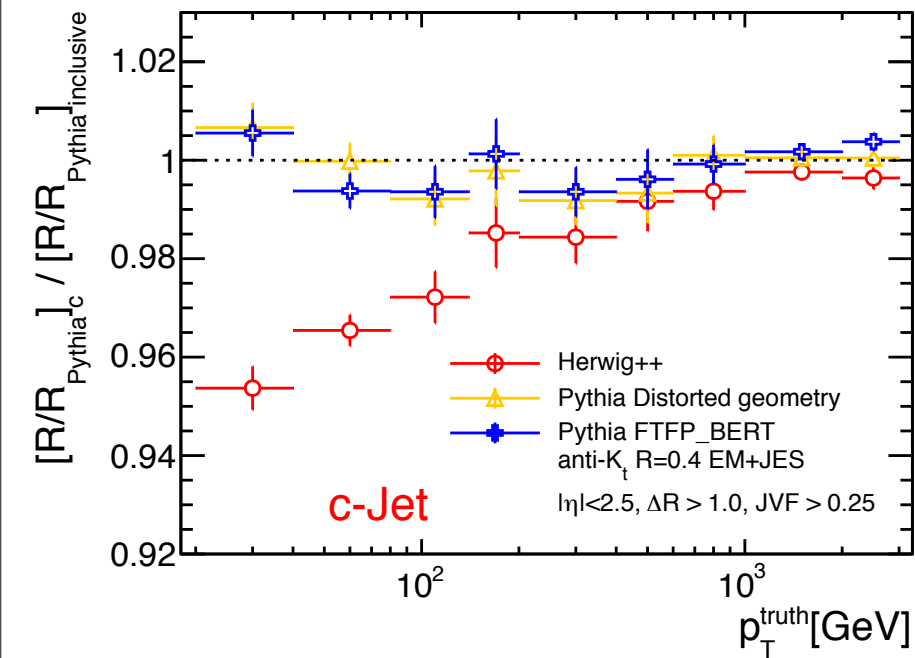
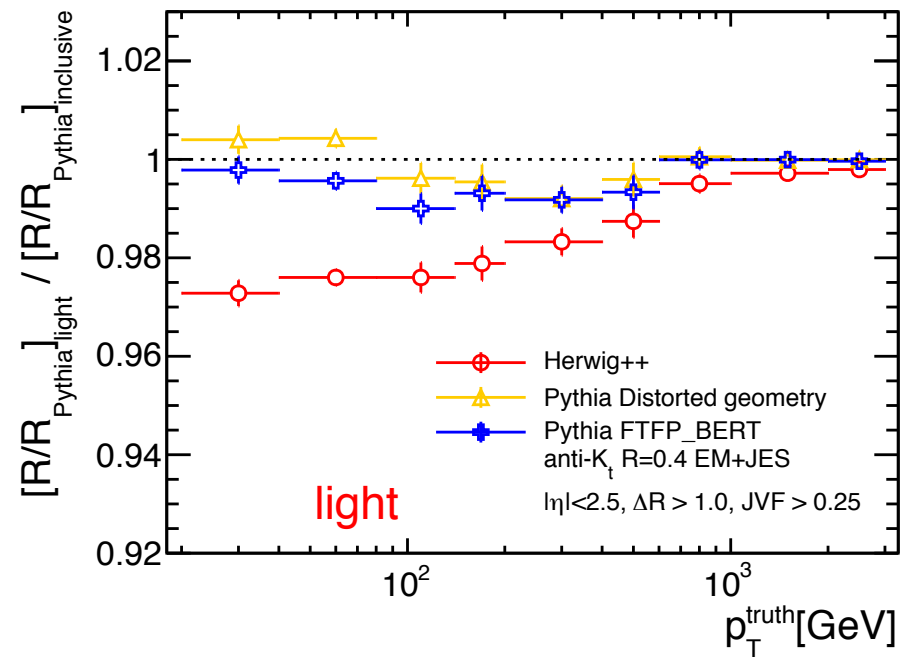
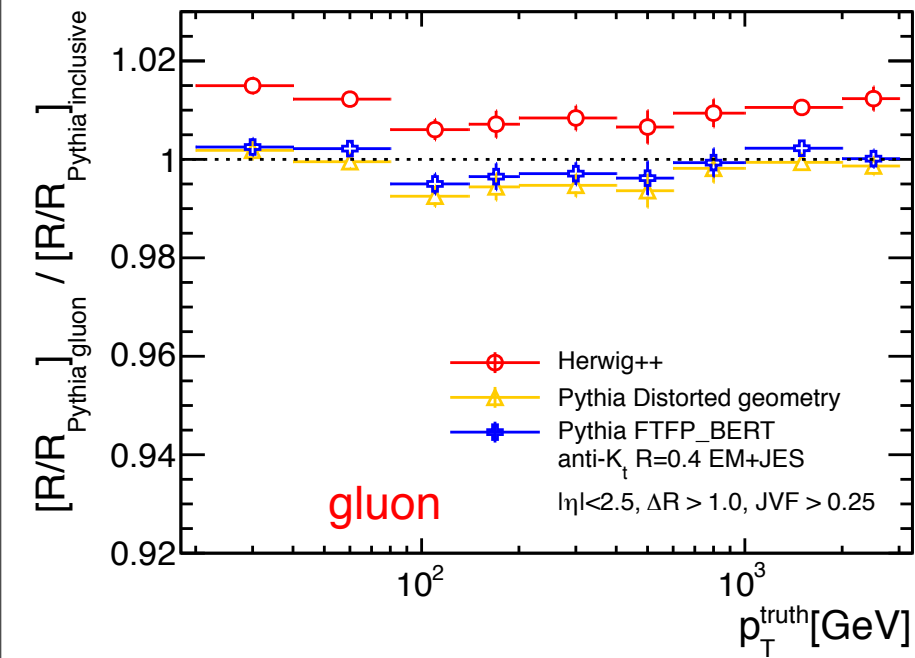
mc dijetについて

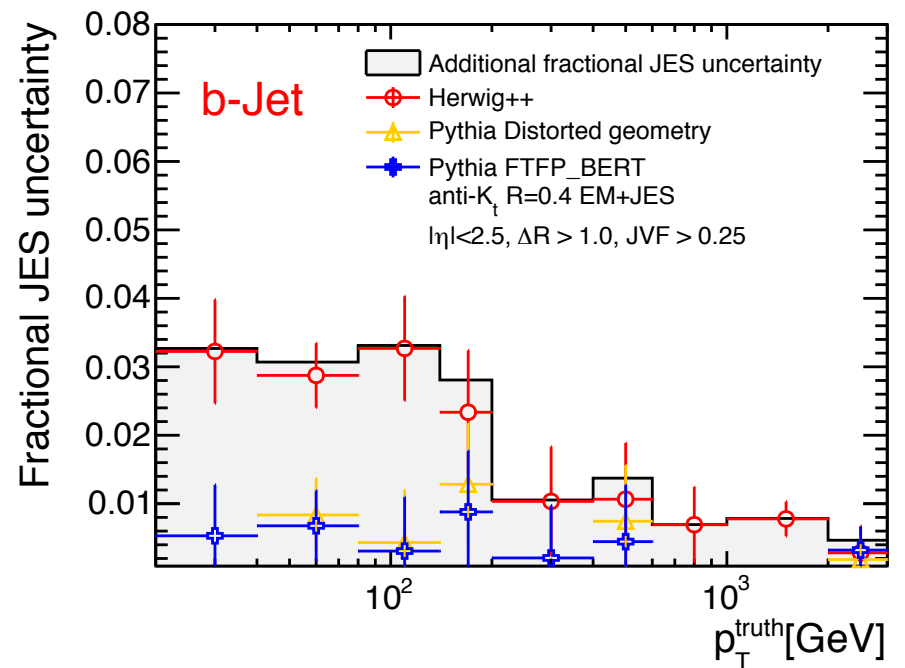
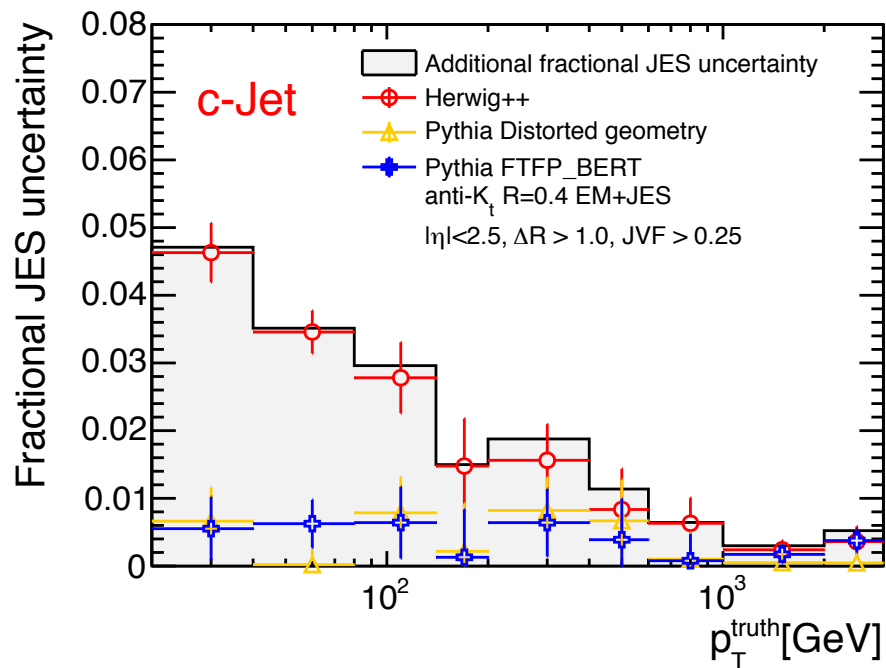
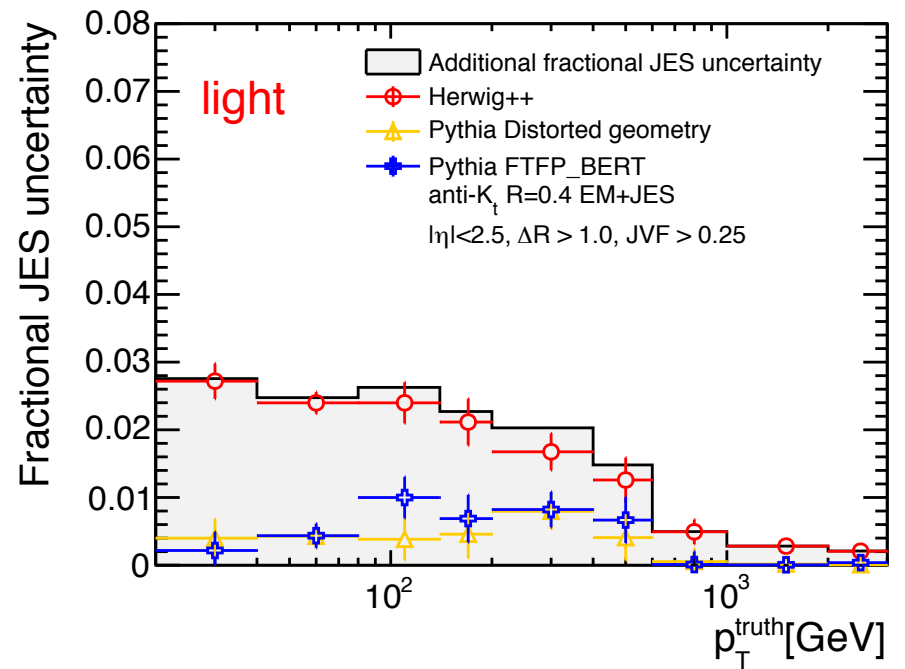
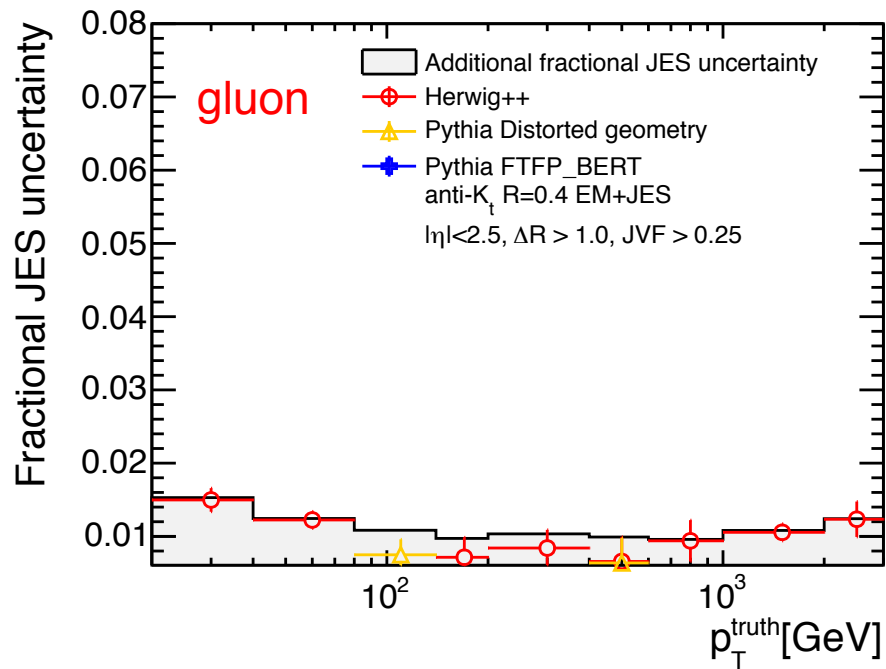
- isolatonの方法を変更して、グラフを作りなおした。
- (今まで) truth-jetのみ $\Delta R > 1.5$ を要求
- (今回) reco-jet,truth-jetに対し $\Delta R > 1.5$
 - ただし ΔR はtruth-jetからの距離
 - truth-jet < 7GeVの場合は除外
- triple ratioの値を絶対値に直して、additional systematic uncertaintyのグラフを載せた

mc dijet
systematic uncertainty
(GSCなし)

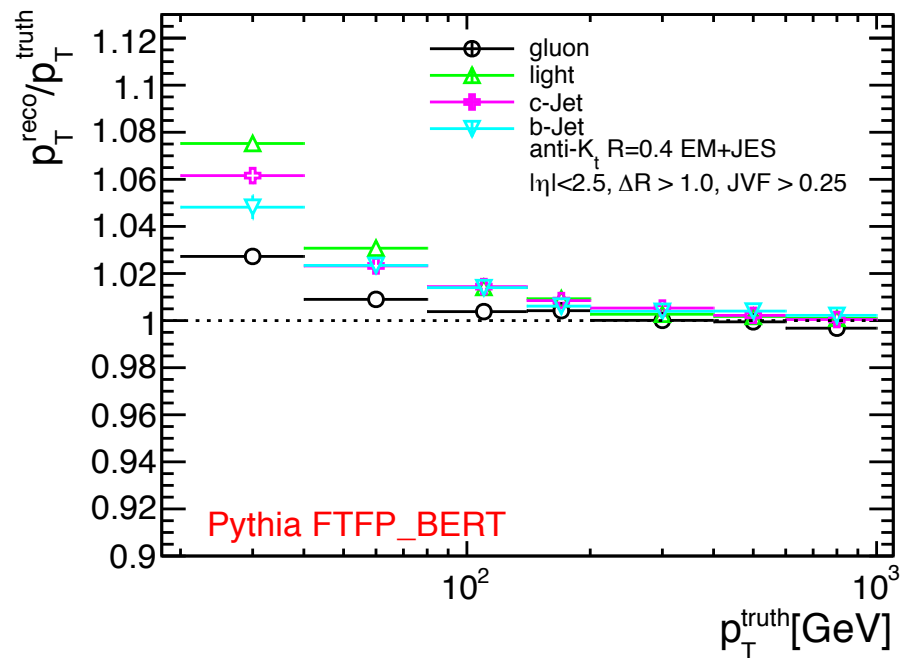
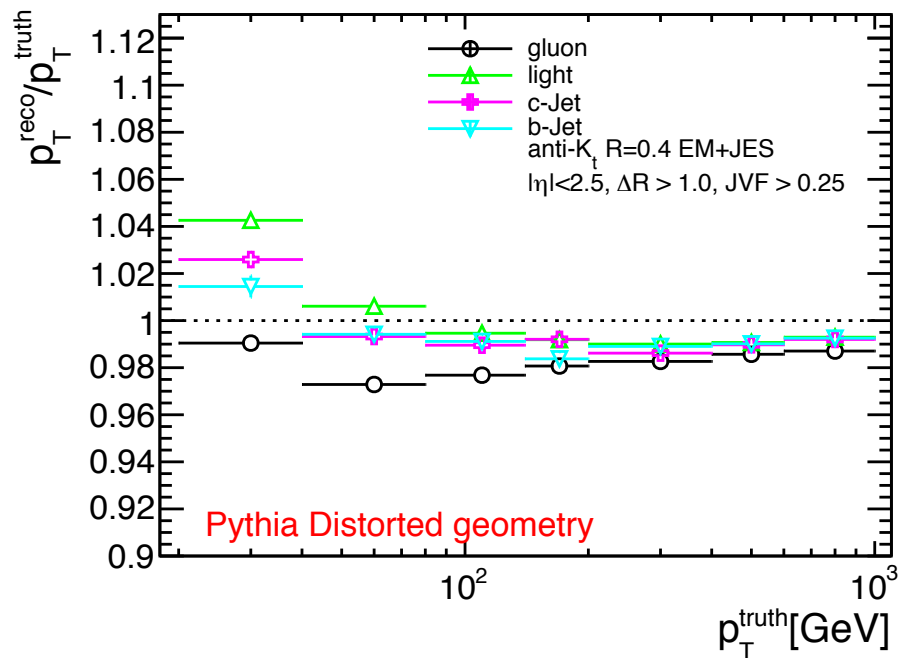
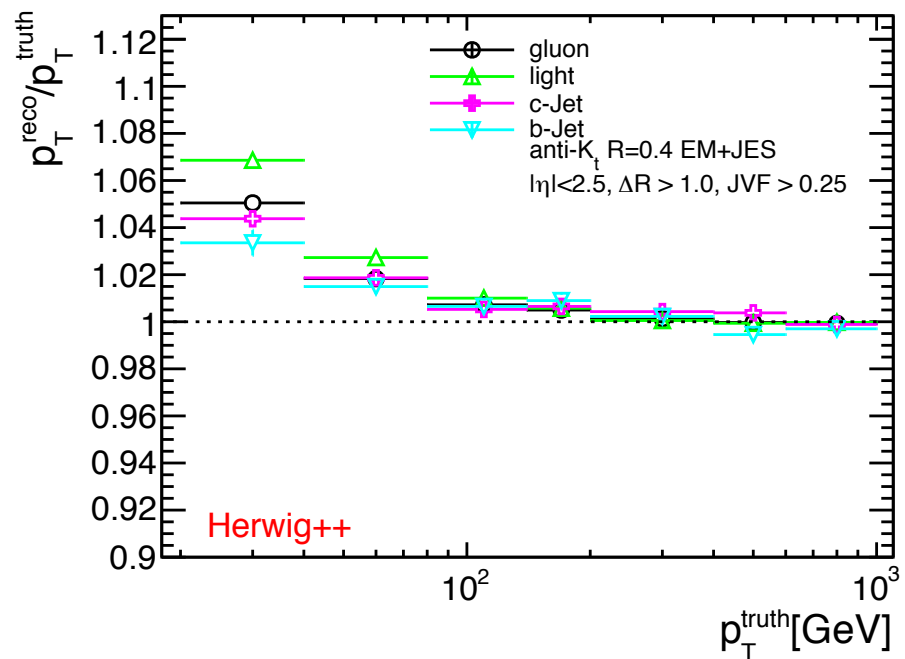
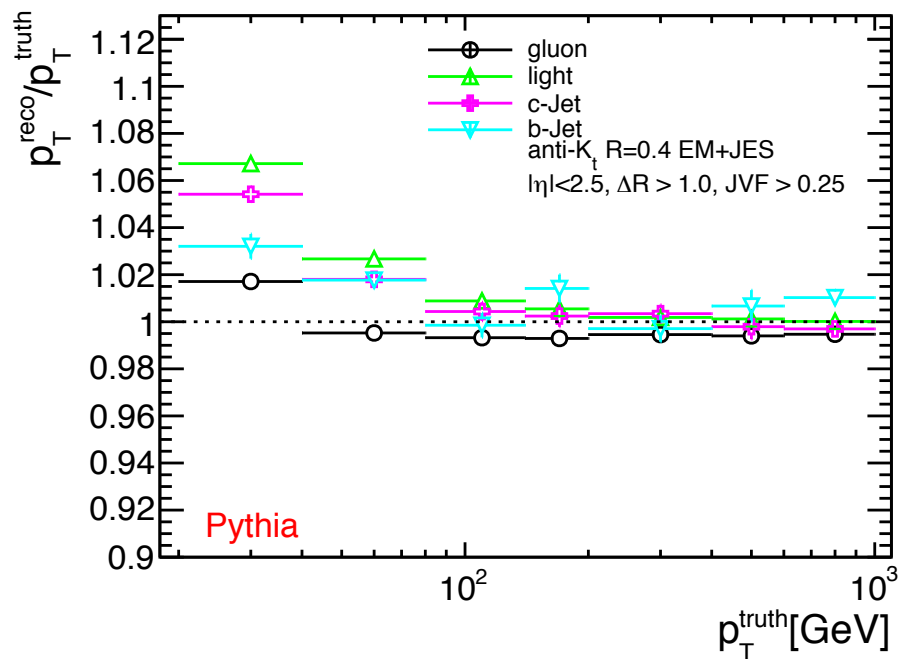


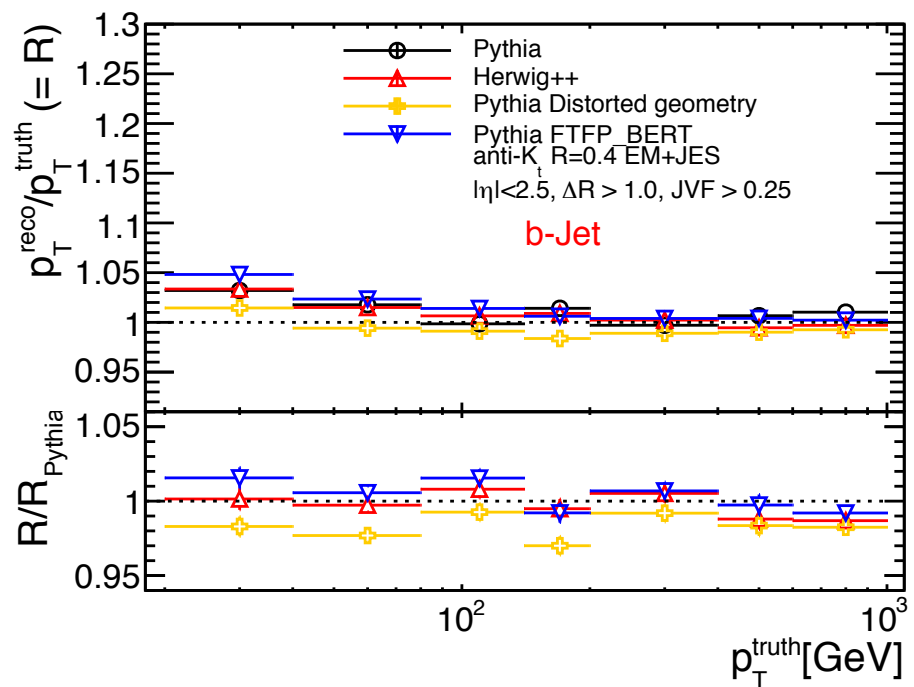
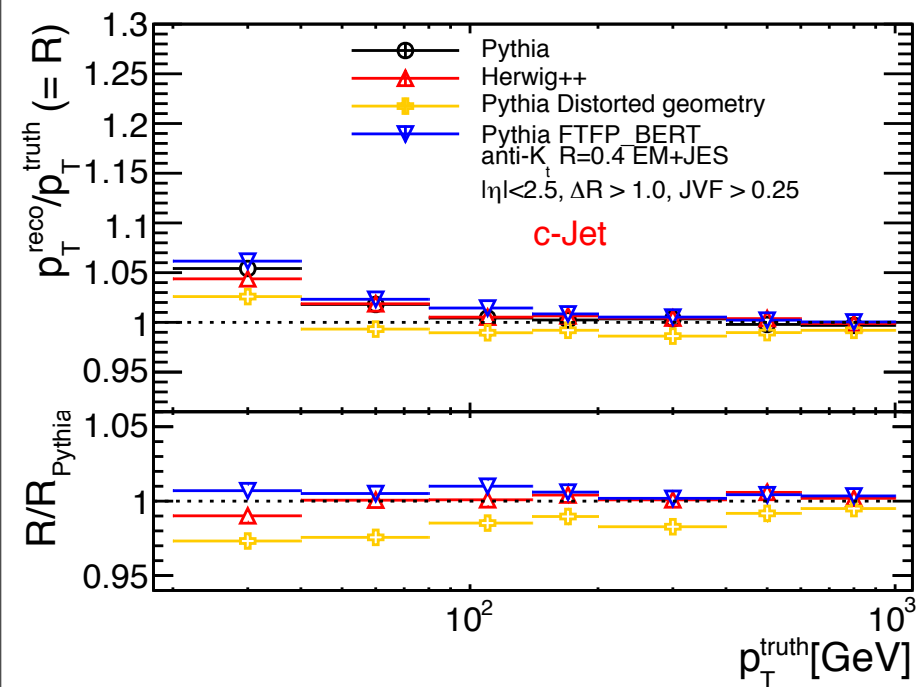
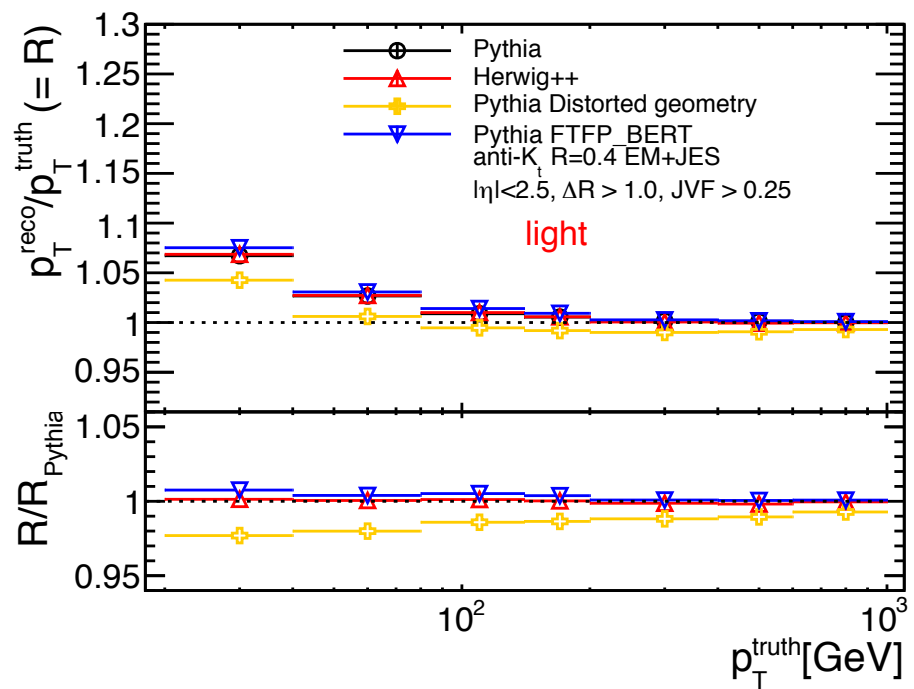
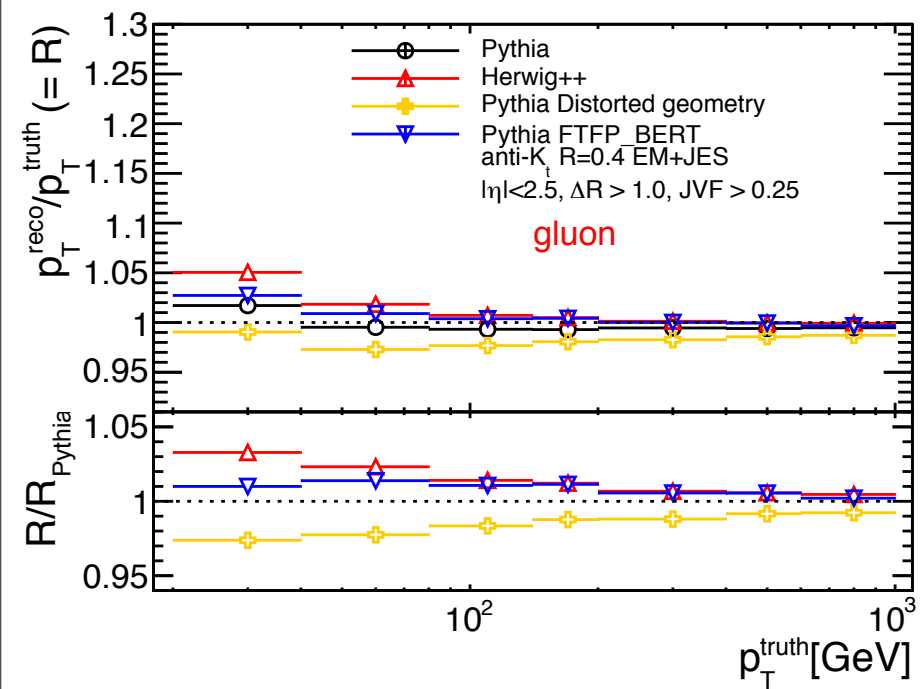


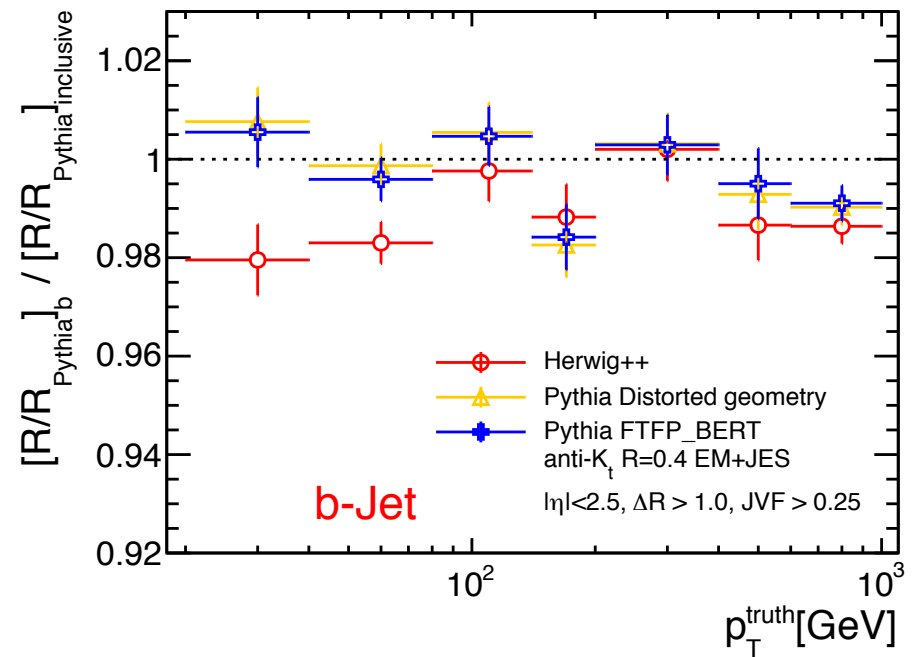
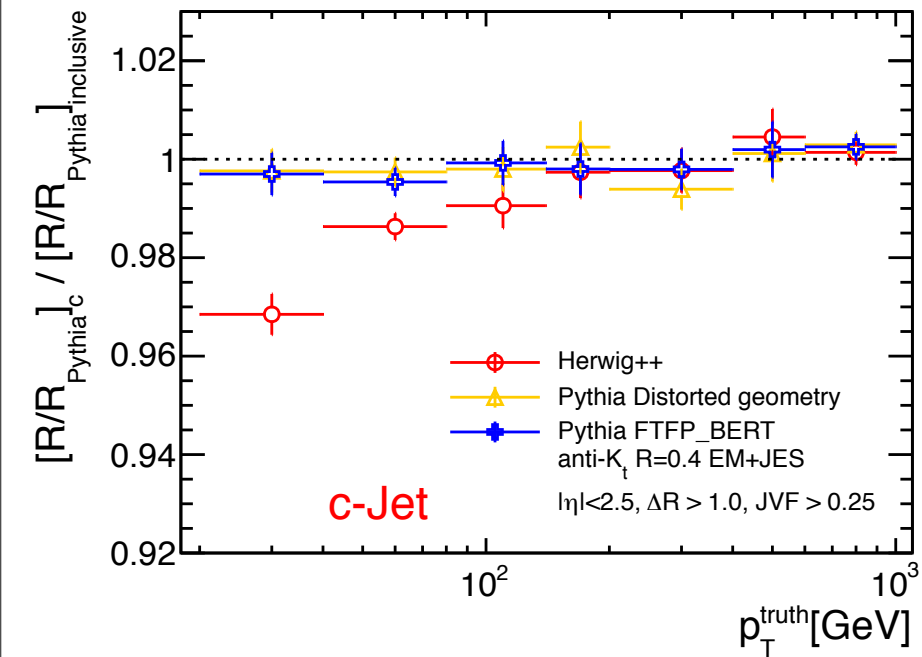
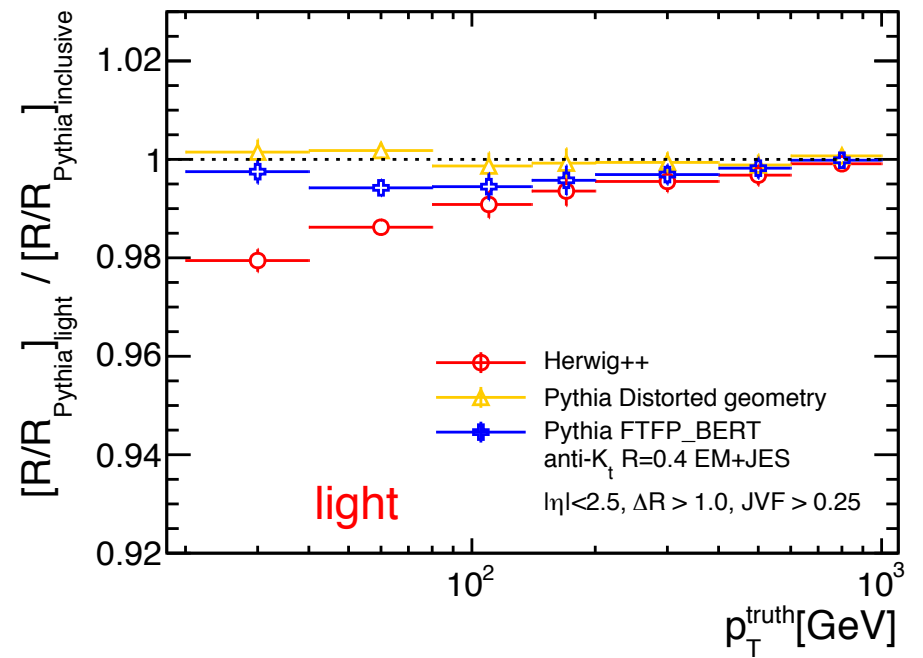
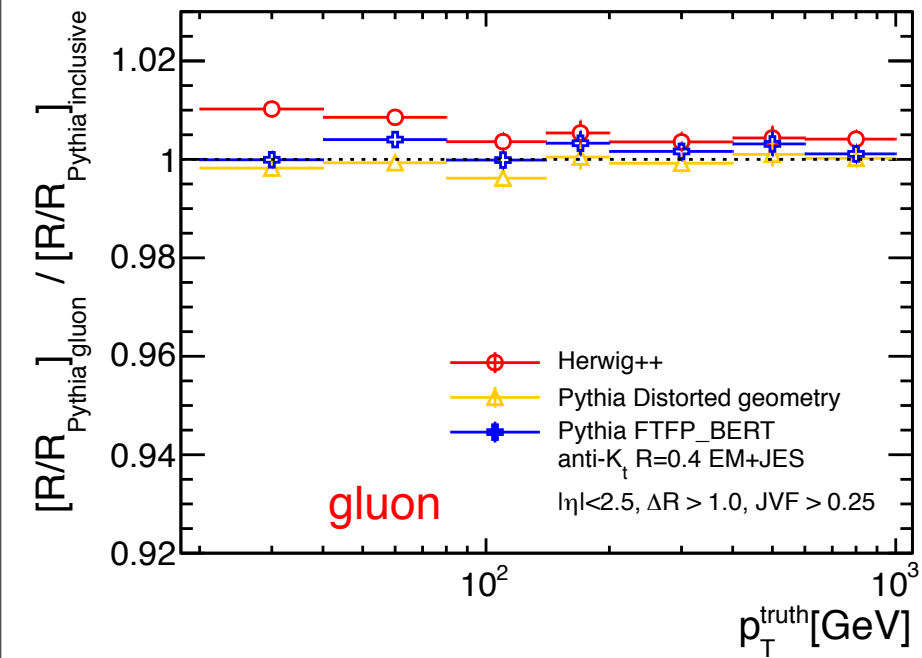


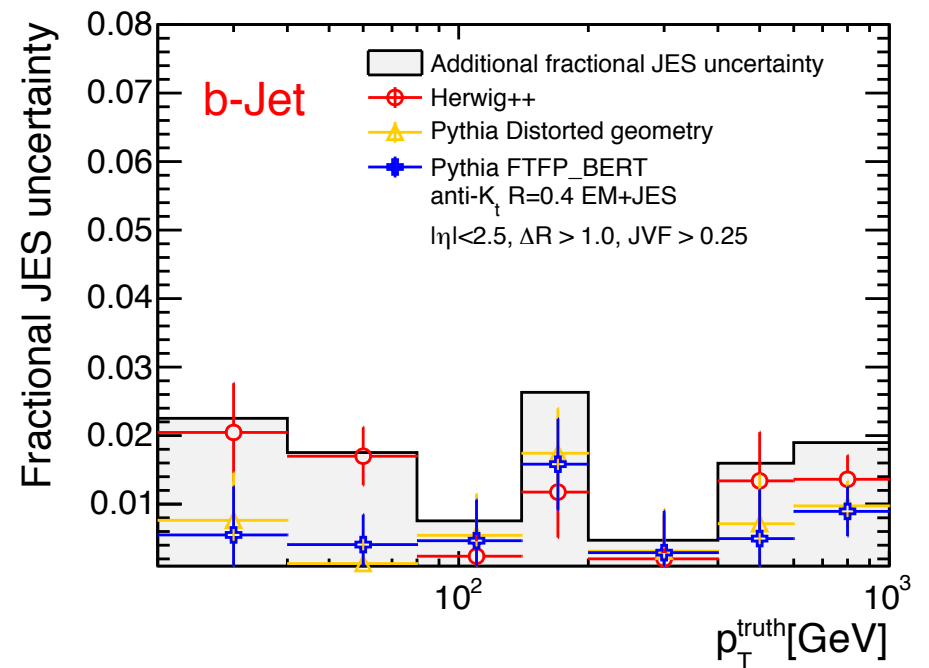
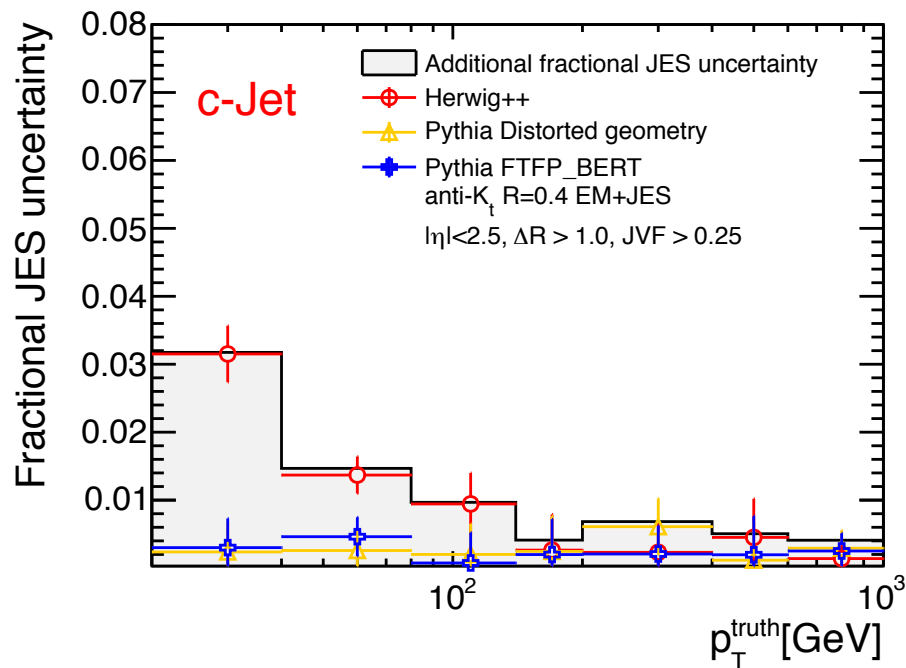
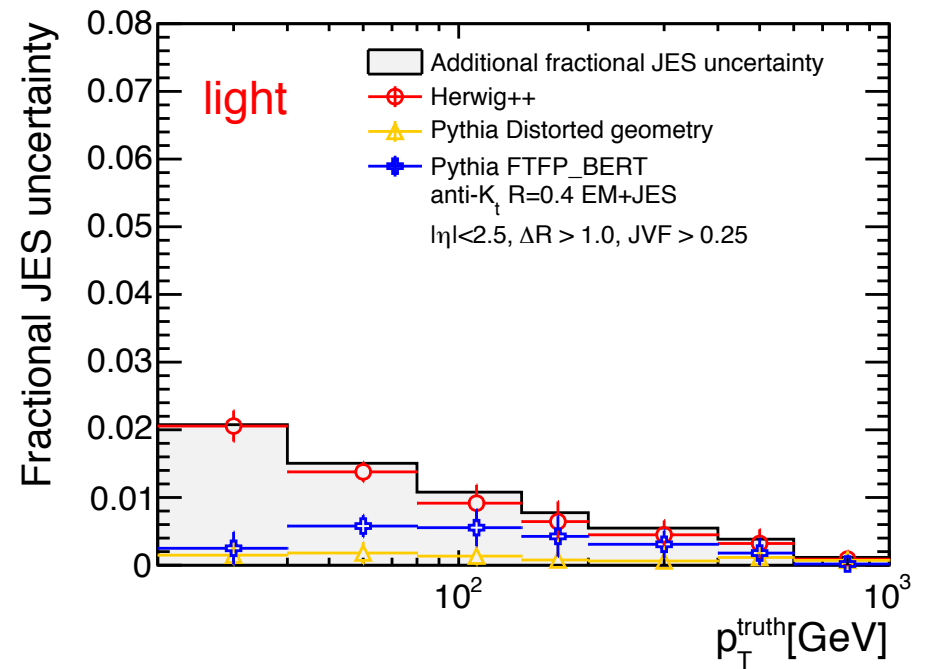
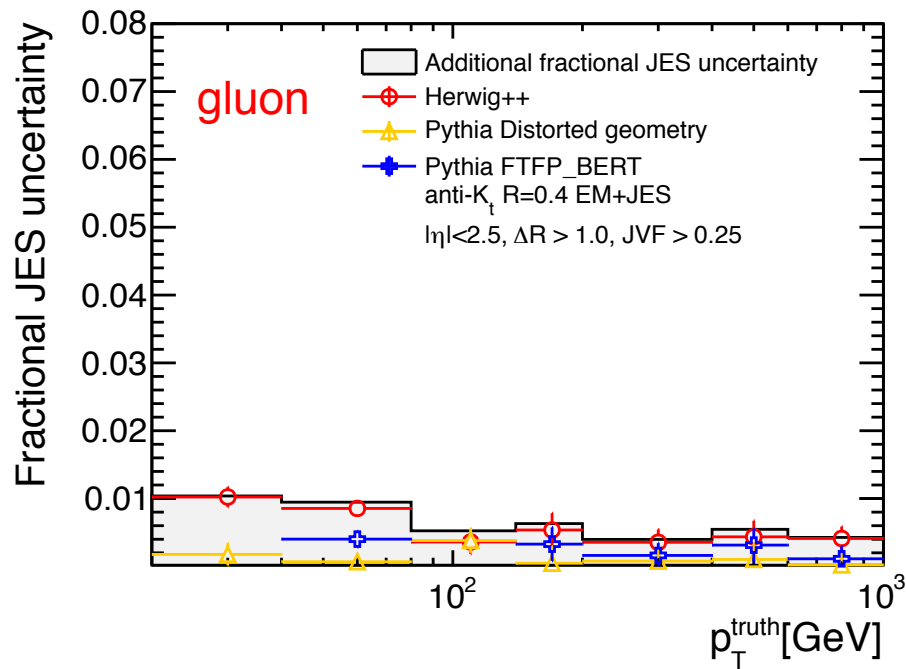


mc dijet systematic uncertainty (GSC)





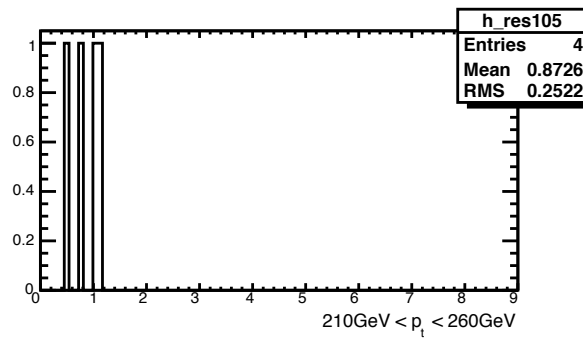
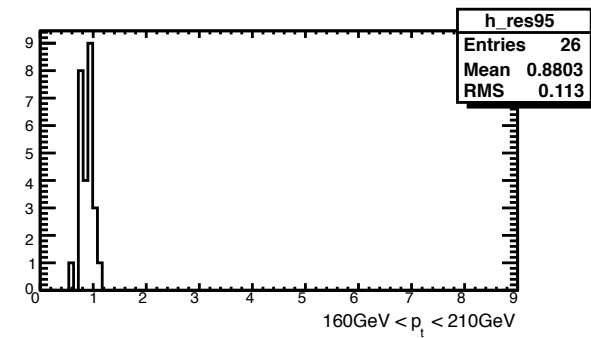
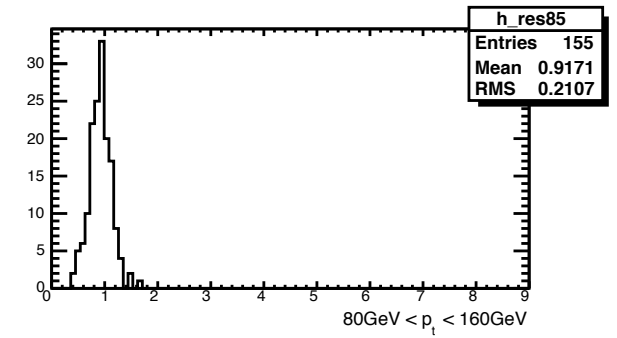
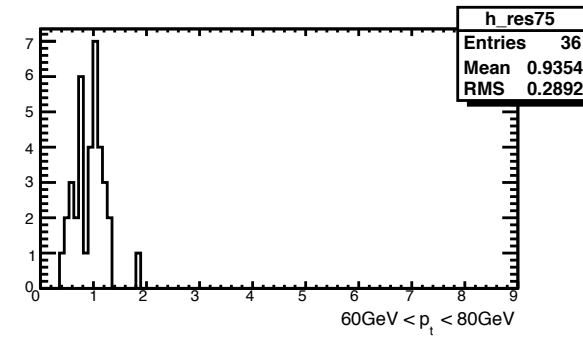
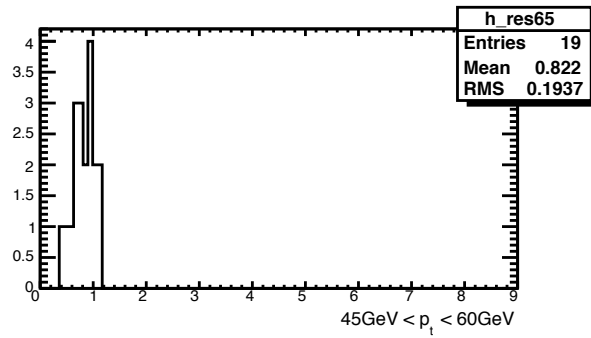
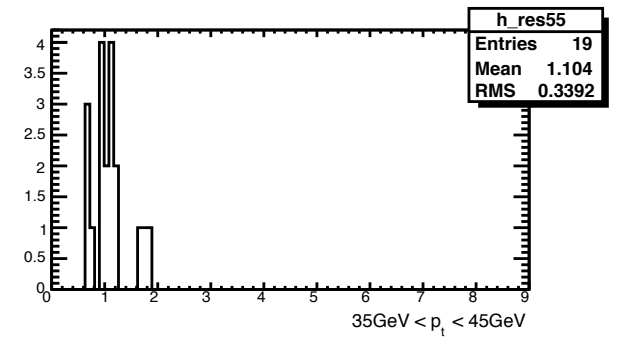
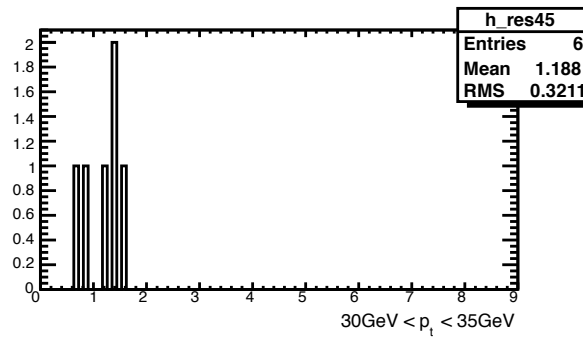
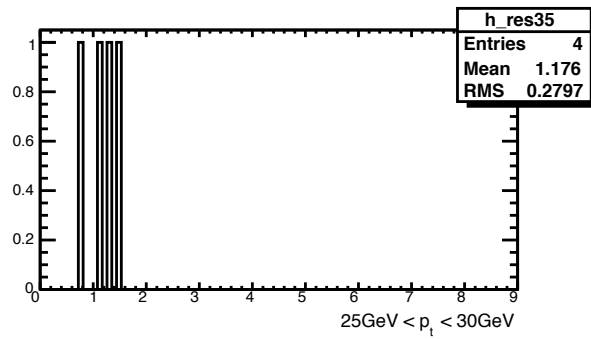
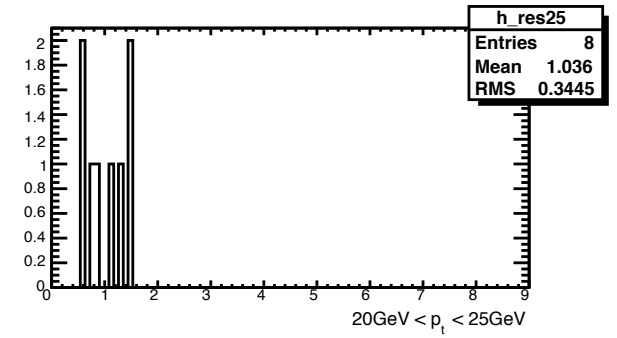
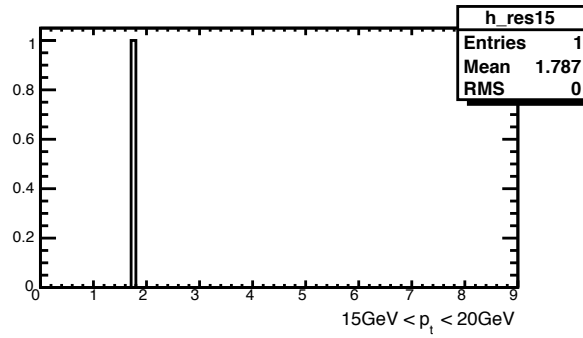
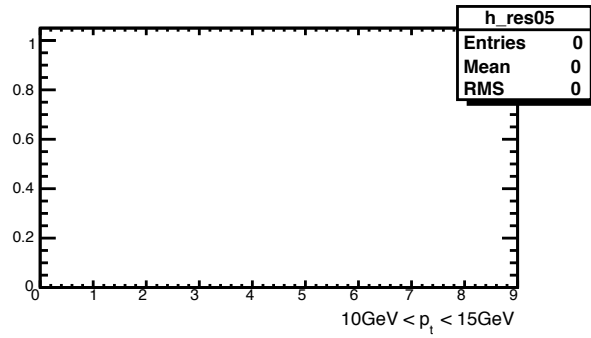




Z,gamma + jet

- 前回のmeetingでgamma + jetでlow pTで統計が足りなかった原因はコードにバグだった。
- 必要なbranchまでSetBranchStatus(0)していた
- gamma+jetでは35-210GeVの間では各binに19event以上得られた（使用した統計量は前回と同じ2.8%）
- ジョブにミスがあって、やり直していたので、skimming作業が終わっていない
- 明日にはある程度終わると思うので、統計量を増やして、値を報告する

gamma+ jet (b-jetを要求)



back up

Monte Carlo samples

- **Pythia**

- mc12_8TeV.
l479l*.Pythia8_AU2CT10_jetjet_JZ*W.merge.NTUP_JETMET.el126_sl469_sl470_r3542_r3549_pl344

- **Herwig++**

- mc12_8TeV.
l59l*.Herwigpp_EE3CTEQ6Ll_jetjet_JZ*W.merge.NTUP_JETMET.el1373_sl499_sl504_r3658_r3549_pl344

- -> for generator difference

- **Distorted geometry**

- mc12_8TeV.
l479l*.Pythia8_AU2CT10_jetjet_JZ*W.merge.NTUP_JETMET.el126_sl482_sl470_r3793_r3549_pl344

- -> for systematics from additional dead material

- **Pythia FTFP_BERT**

- mc12_8TeV.
l479*.Pythia8_AU2CT10_jetjet_JZ*W.merge.NTUP_JETMET.el126_sl625_sl622_r3658_r3549_pl344

- -> for validation of mc13

Jet selection , p_T response distribution

- **Jet selection**

- $|\eta| < 2.5$
- require isolation from other jets
 - $\rightarrow \Delta R \geq 1.0$ or 1.5
- $JVF > 0.25$
- select closest reco-jet to matched truth-jet ($\Delta R(\text{reco}, \text{truth}) < 0.3$)
 - reco-jet : calorimeter jet
 - truth-jet : truth particle jet

- **$p_T^{\text{reco}}/p_T^{\text{truth}}$**

- p_T^{truth} bin separation : {20,40,80,140,200,400,600,1000,2000,3000}
GeV

- **Flavor tagging**

- require hadrons with b- or c-quark exist in the R-size of each jet

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 : $M_{VI} > 0.8 || 9$ (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
$\Delta R_{j,e} = \sqrt{(\Delta\eta)^2 + (\Delta\phi)^2}$	> 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: EF_g120_loose
- 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