Universität Hamburg
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Bundesministerium
für Bildung
und Forschung

CMS

phys14
AOD vs miniAOD

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samples & “good” objects

miniAOD:
TTbarH_M-125_13TeV_amcatnlo-pythia8-tauola/Phys14DR-PU40bx25_PHYS14_25_V1-v1/MINIAODSIM

AOD:
TTbarH_M-125_13TeV_amcatnlo-pythia8-tauola/Phys14DR-PU40bx25_PHYS14_25_V1-v1/AODSIM

100K events each

in miniAOD:
— pat objects are already in miniAOD, slimmed collection

good muon:

isGlobalMuon
isTrackerMuon
pt >= 20.
abs(eta) <= 2.5

good electron:

pt >= 20.
abs(eta) <= 2.5

good photon:

pt >= 10.
abs(eta) <= 2.5

good jet:

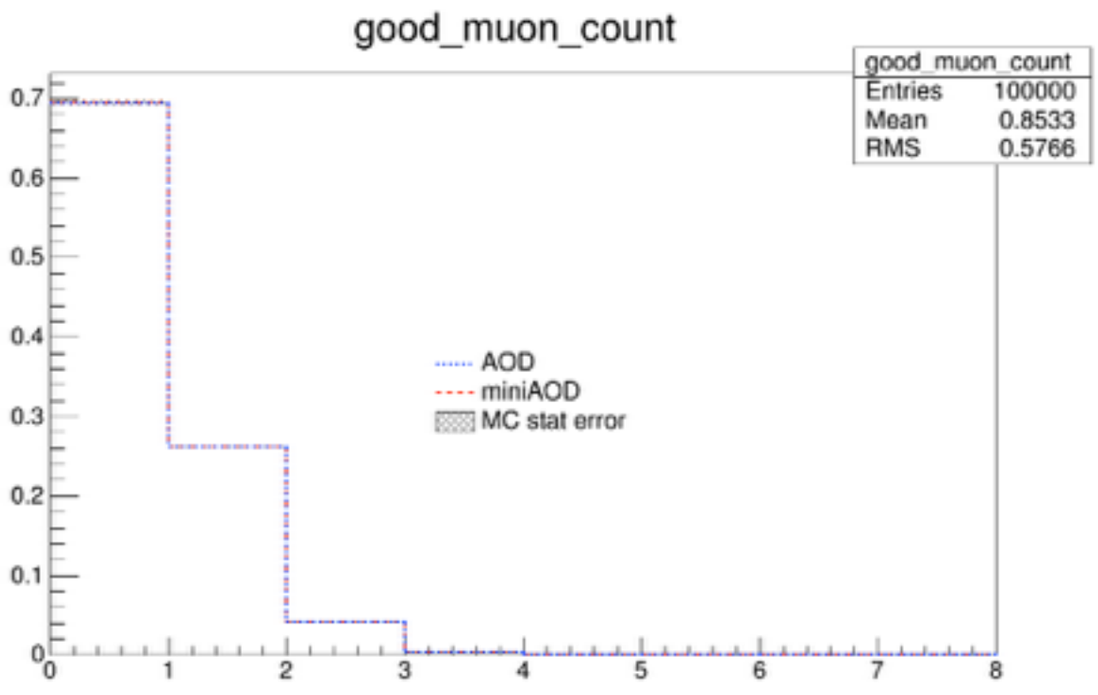
AK4PFCHSJets
pt >= 20.
abs(eta) < 3.0

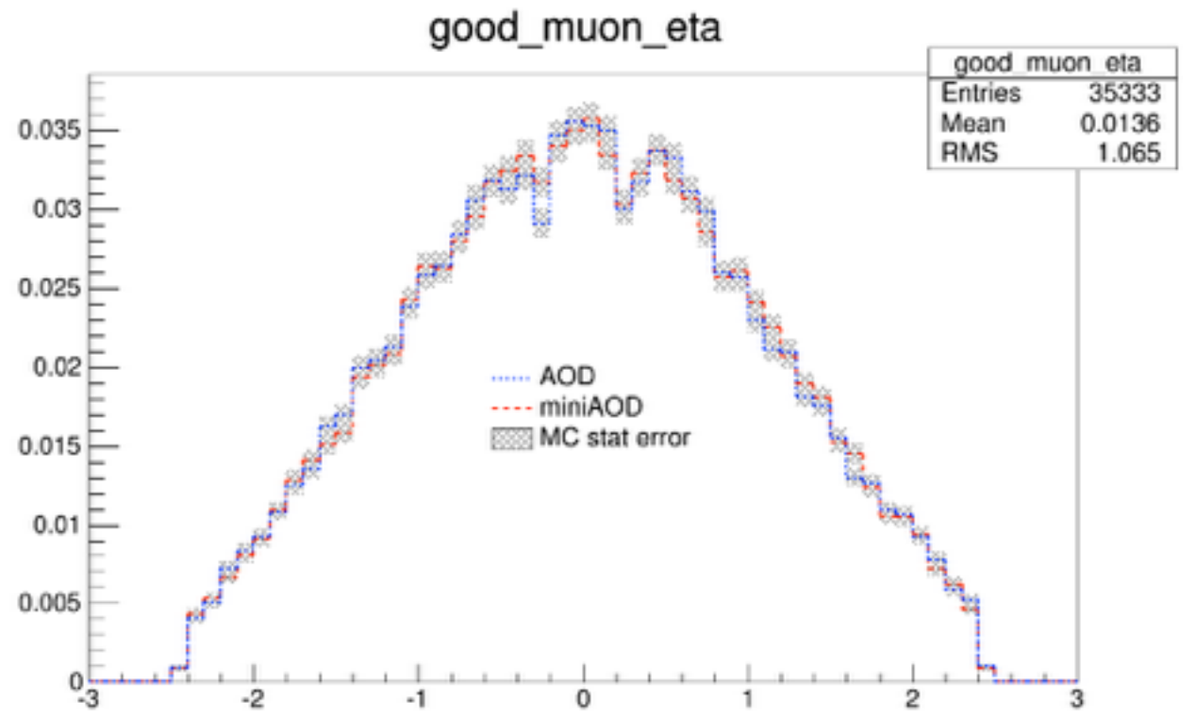
need to extend jet eta to 4.7

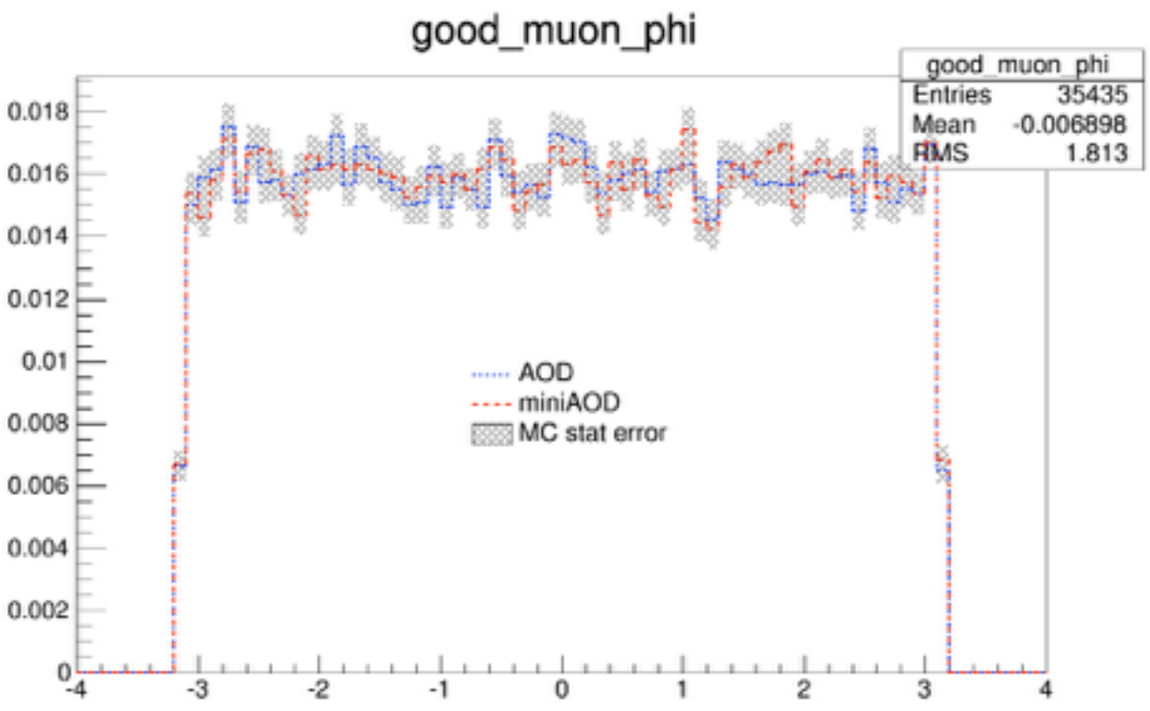
a twiki with very nice documentation

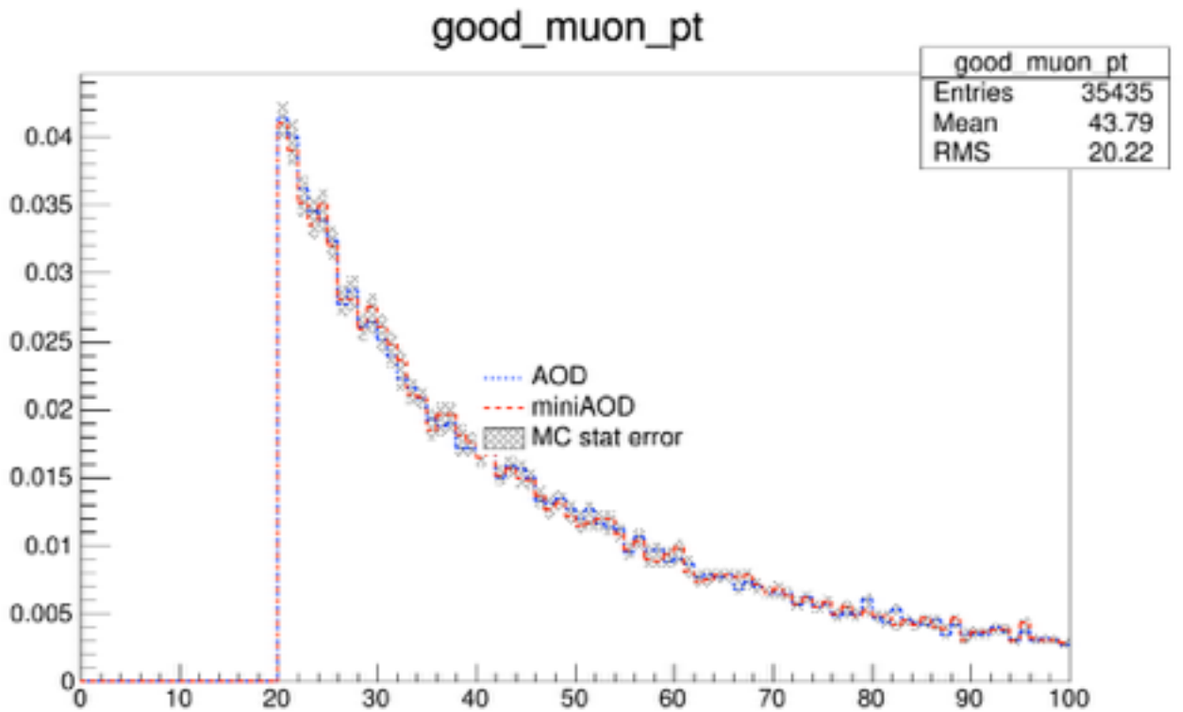
https://twiki.cern.ch/twiki/bin/view/Sandbox/MyRootMakerFrom72XTo73Xmini

muons

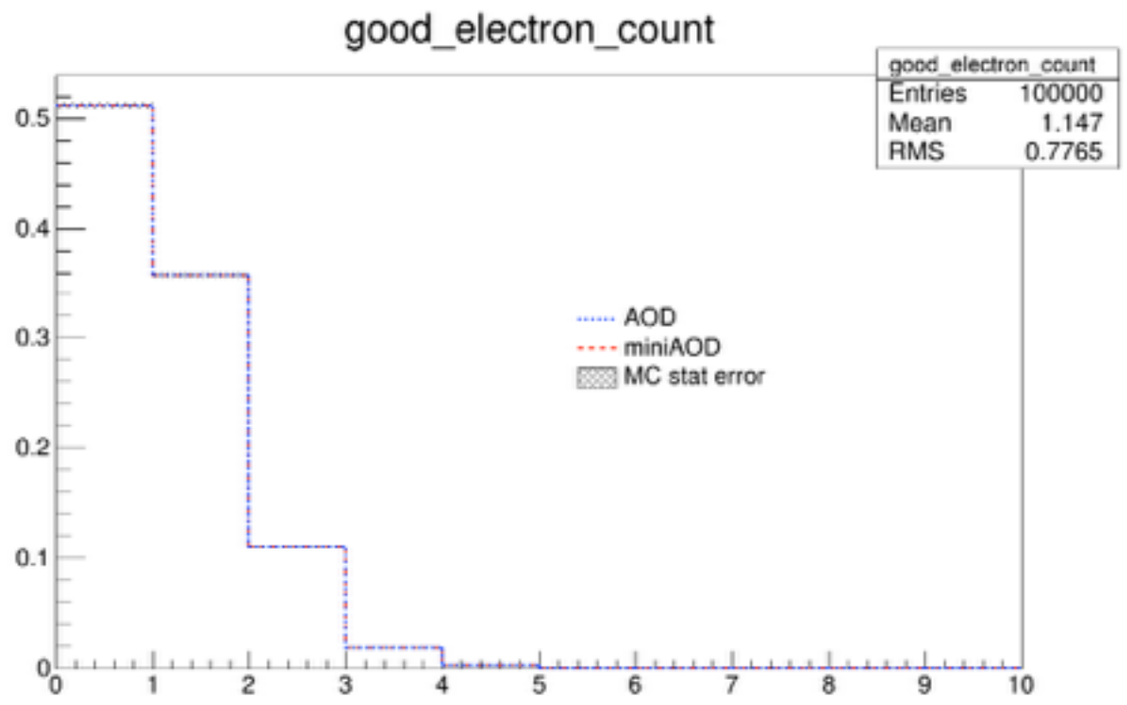

good_muon_count
good_muon_count
Entries 100000
Mean 0.8533
RMS 0.5766
AOD
miniAOD
MC stat error

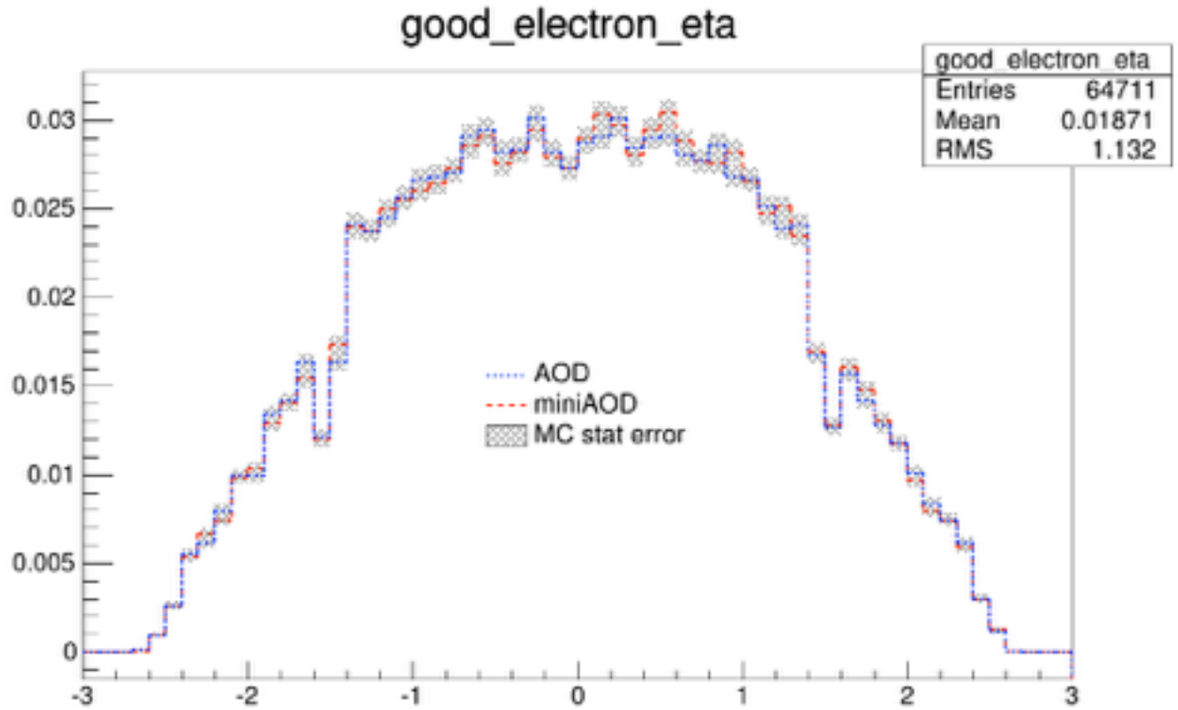

good_muon_eta
good_muon_eta
Entries 35333
Mean 0.0136
RMS 1.065
AOD
miniAOD
MC stat error

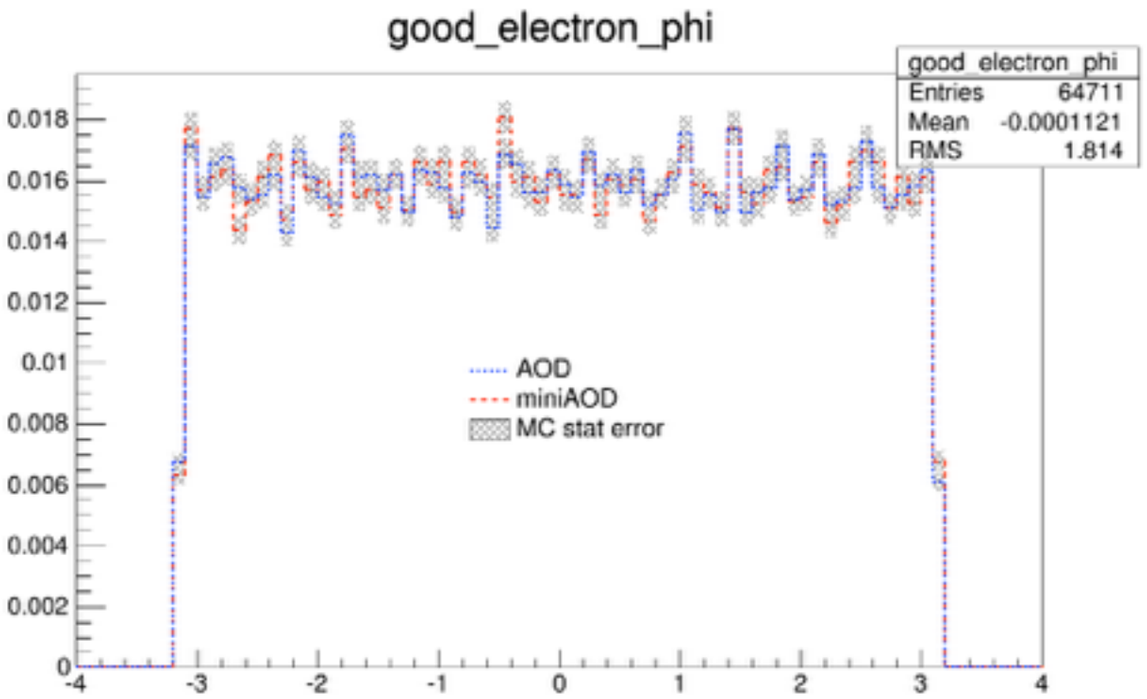

good_muon_phi
good_muon_phi
Entries 35435
Mean -0.006898
RMS 1.813
AOD
miniAOD
MC stat error

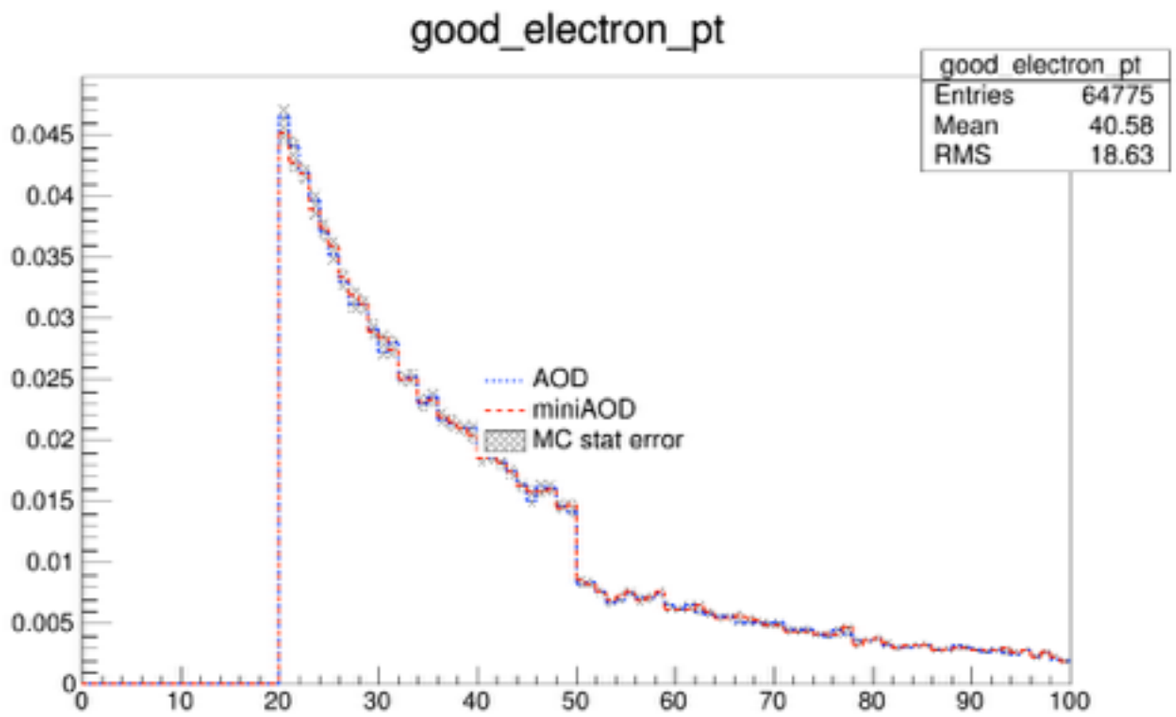

good_muon_pt
good_muon_pt
Entries 35435
Mean 43.79
RMS 20.22
AOD
miniAOD
MC stat error

electrons

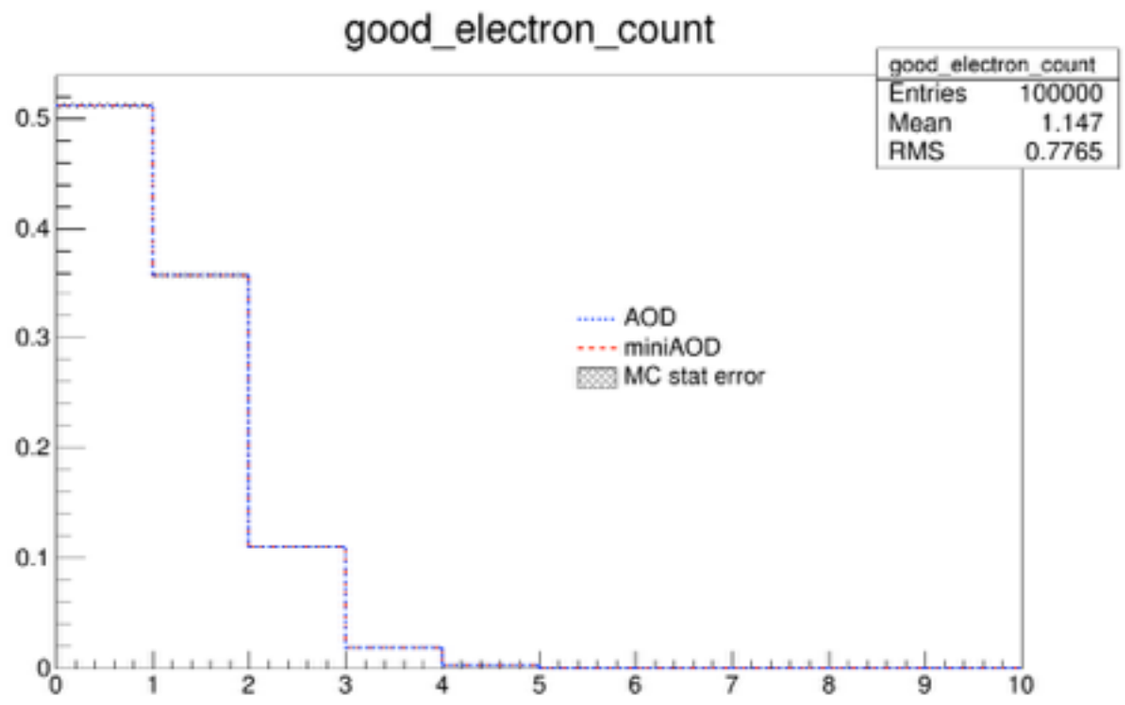

good_electron_count
good_electron_count
Entries 100000
Mean 1.147
RMS 0.7765
AOD
miniAOD
MC stat error

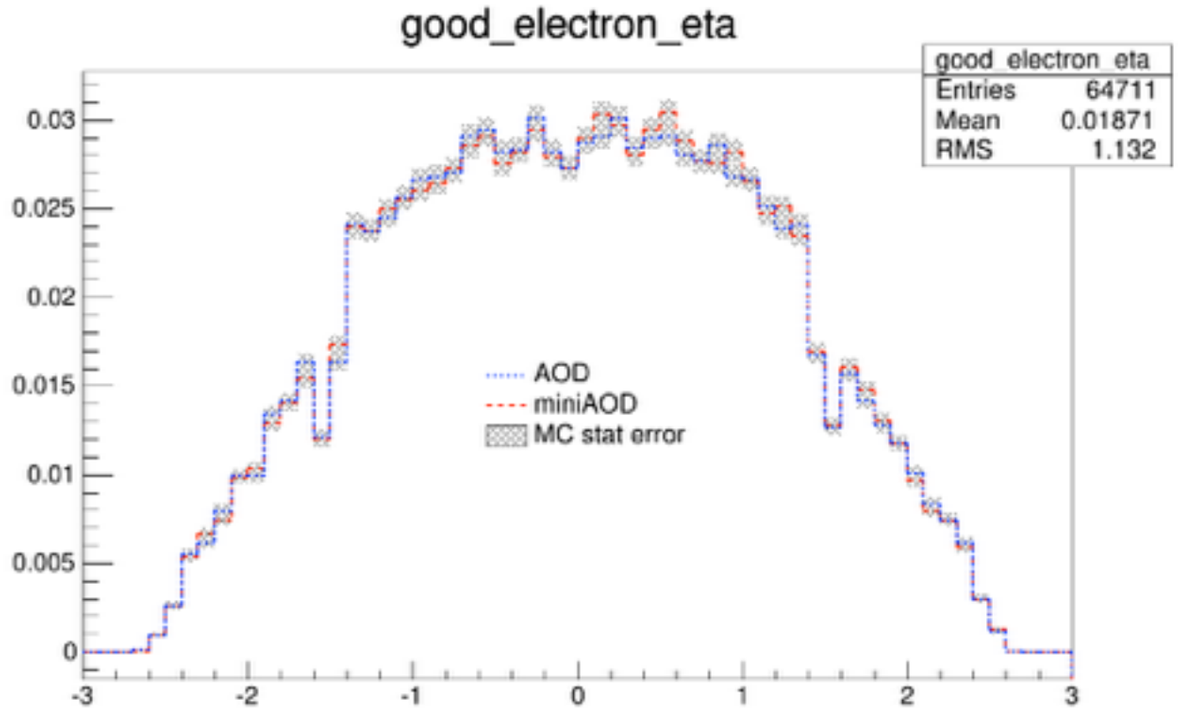

good_electron_eta
good_electron_eta
Entries 64711
Mean 0.01871
RMS 1.132
AOD
miniAOD
MC stat error

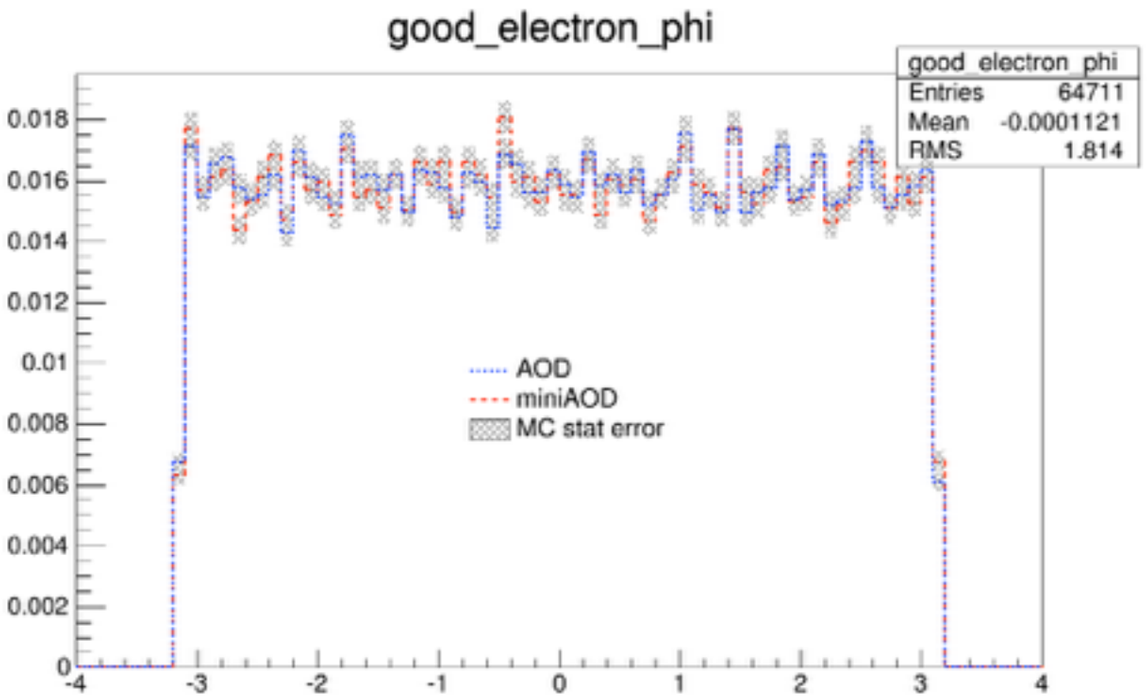

good_electron_phi
good_electron_phi
Entries 64711
Mean -0.0001121
RMS 1.814
AOD
miniAOD
MC stat error

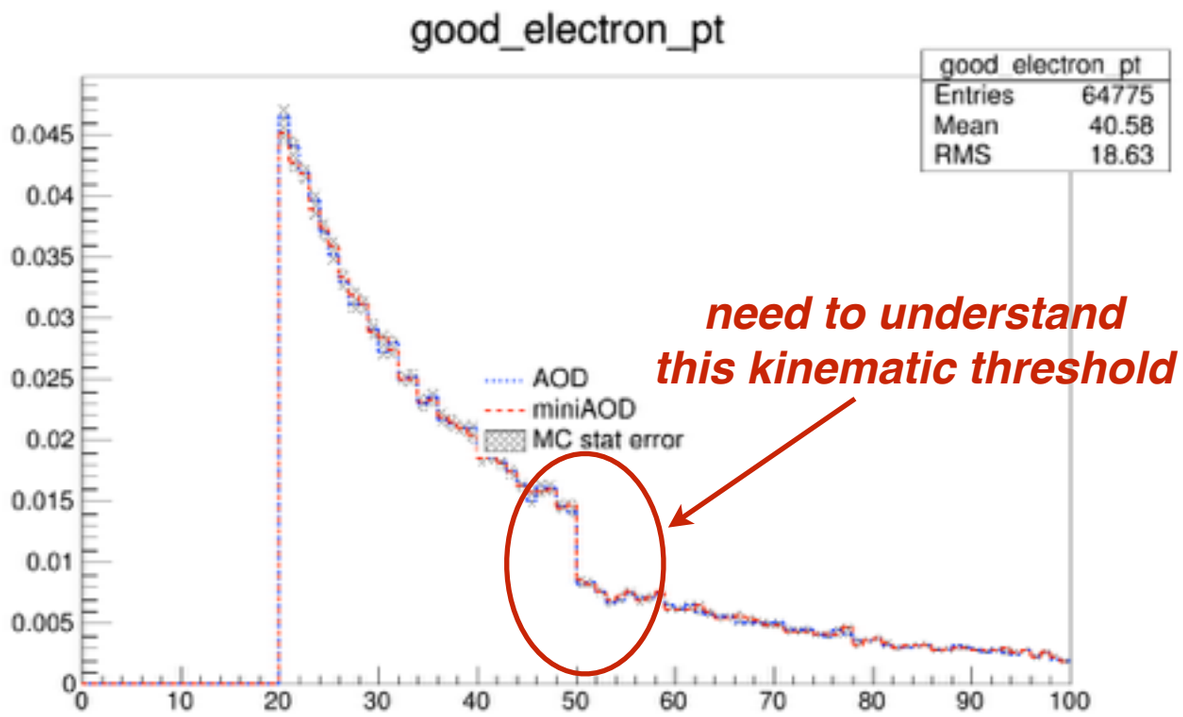

good_electron_pt
good_electron_pt
Entries 64775
Mean 40.58
RMS 18.63
AOD
miniAOD
MC stat error

electrons

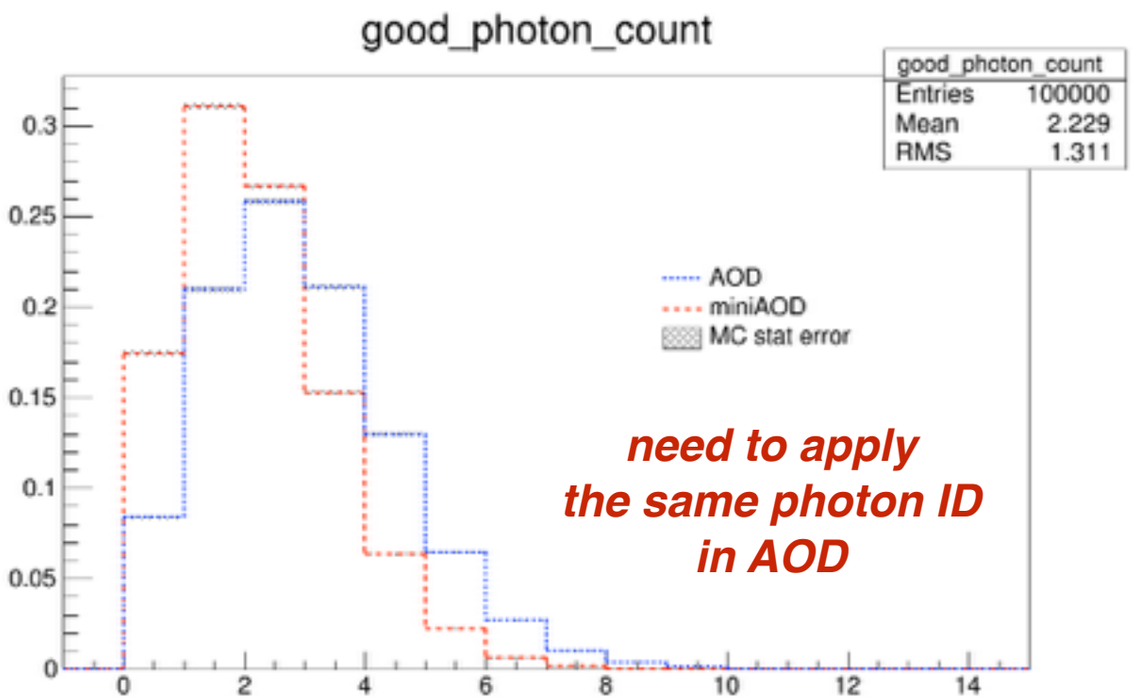

good_electron_count
good_electron_count
Entries 100000
Mean 1.147
RMS 0.7765
AOD
miniAOD
MC stat error

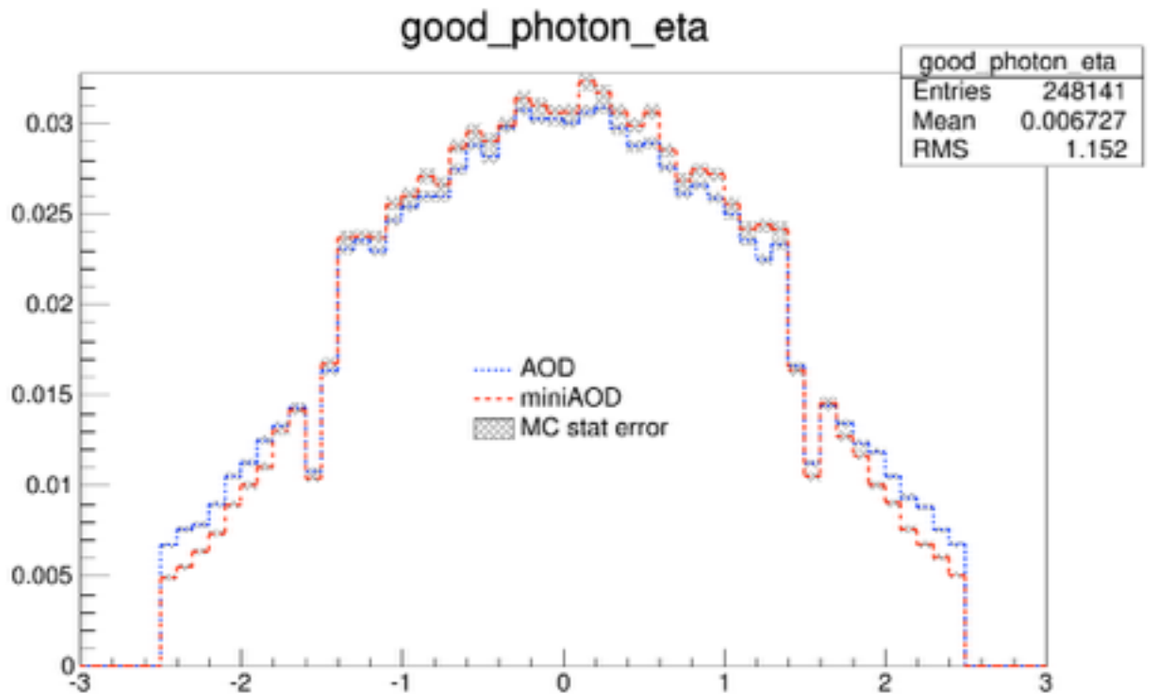

good_electron_eta
good_electron_eta
Entries 64711
Mean 0.01871
RMS 1.132
AOD
miniAOD
MC stat error

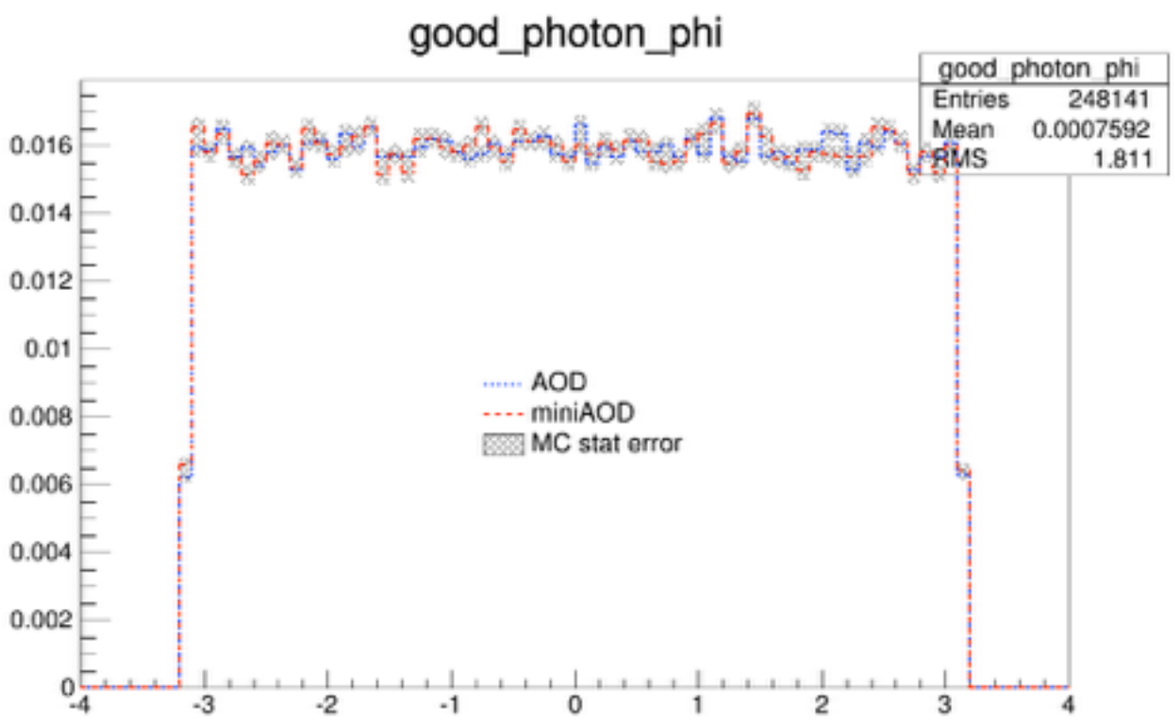

good_electron_phi
good_electron_phi
Entries 64711
Mean -0.0001121
RMS 1.814
AOD
miniAOD
MC stat error

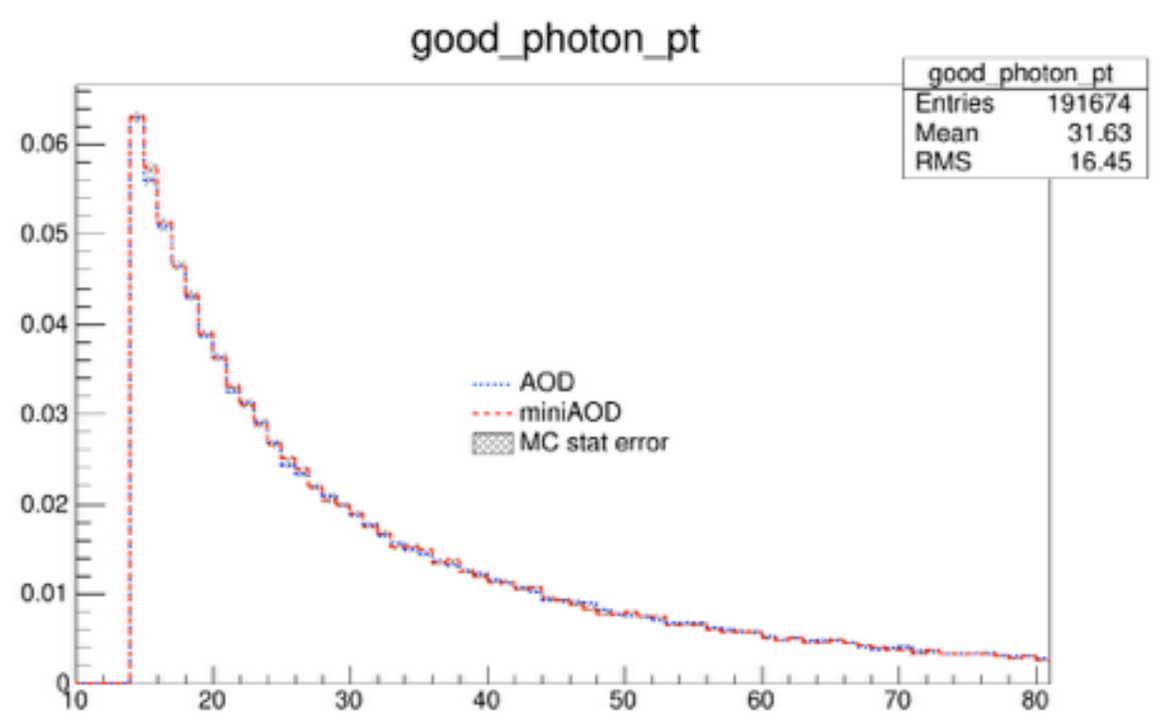

good_electron_pt
good_electron_pt
Entries 64775
Mean 40.58
RMS 18.63
AOD
miniAOD
MC stat error
need to understand
this kinematic threshold

photons

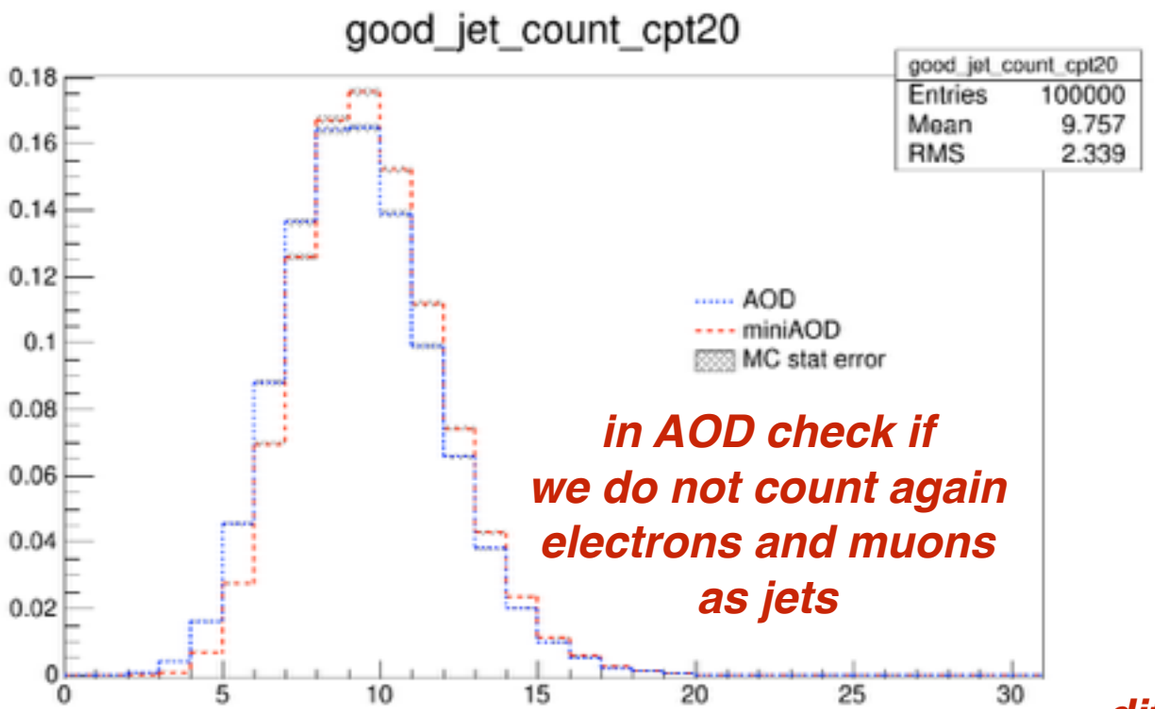

good_photon_count
good_photon_count
Entries 100000
Mean 2.229
RMS 1.311
AOD
miniAOD
MC stat error
need to apply
the same photon ID
in AOD

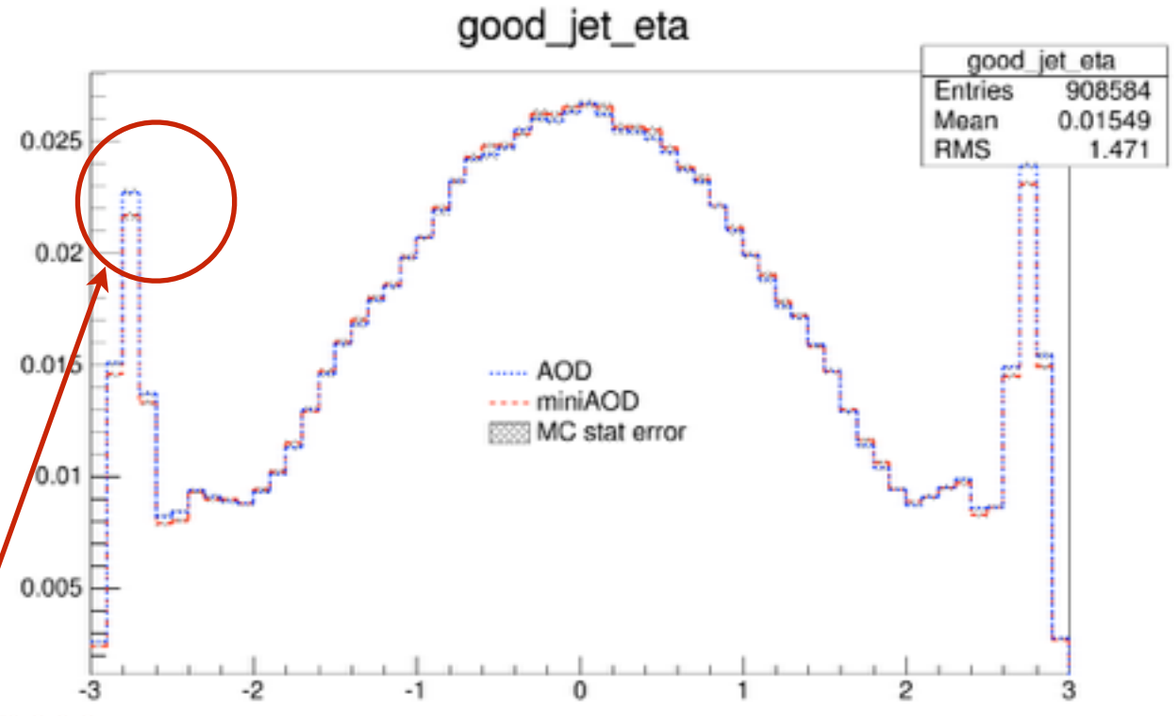

good_photon_eta
good_photon_eta
Entries 248141
Mean 0.006727
RMS 1.152
AOD
miniAOD
MC stat error


good_photon_phi
good_photon_phi
Entries 248141
Mean 0.0007592
RMS 1.811
AOD
miniAOD
MC stat error

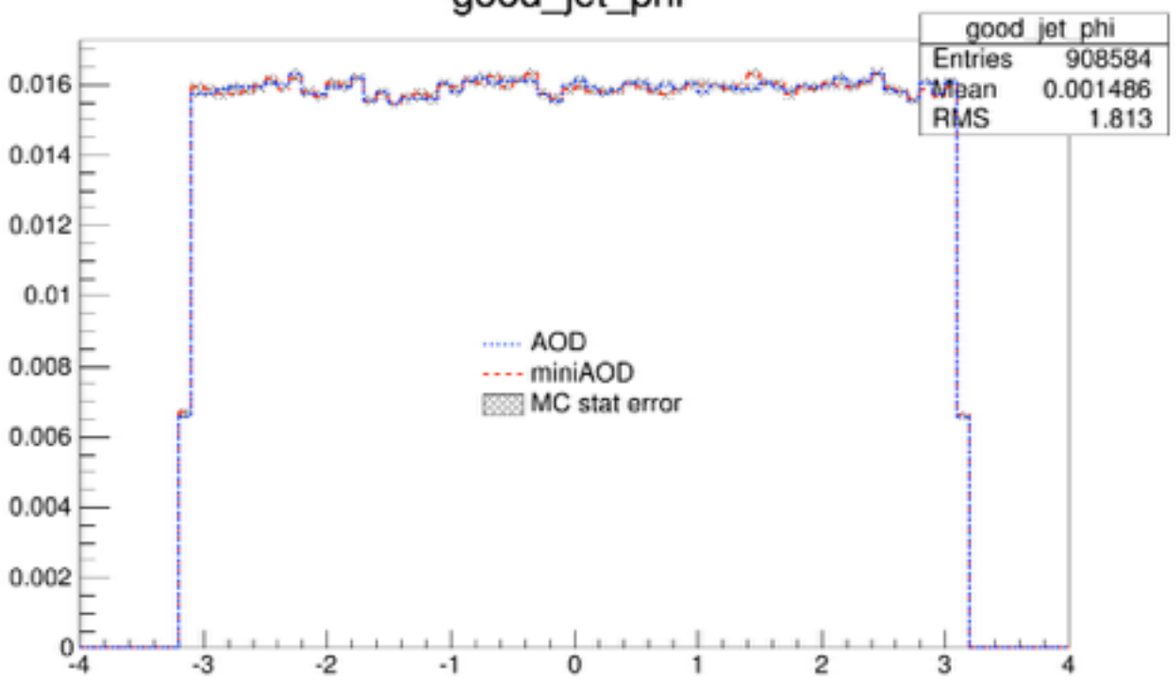

good_photon_pt
good_photon_pt
Entries 191674
Mean 31.63
RMS 16.45
AOD
miniAOD
MC stat error

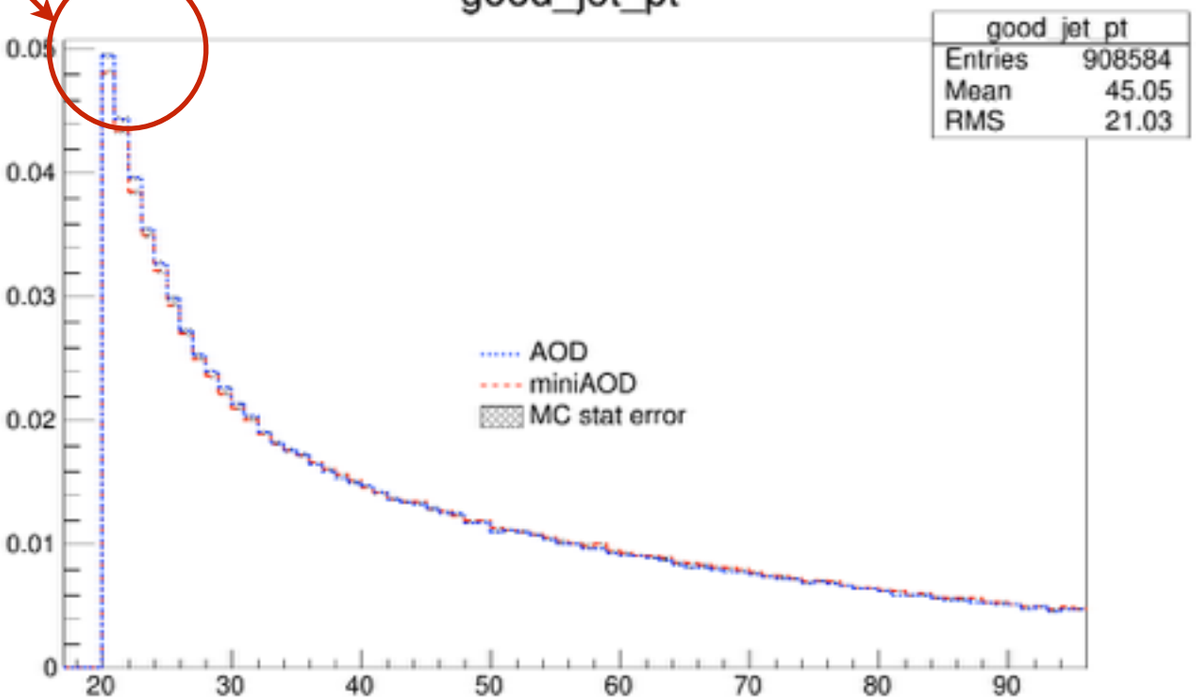
jets





differences





taus

Spring14
WH_ZH_HtoTauTau_M-125_13TeV_pythia6/Spring14miniaod-PU20bx25_POSTLS170_V5-v1/MINIAODSIM

* WH with final state:
— muon and ditau fully hadronic

* we will do a similar exercise for Phys14

	2012 Config Cut Flow (20 PU)	Recommended Config Cut flow (20 PU)	miniAOD Cut Flow (20 PU)	
Initial Entry	185000	185000	185000	
WH Filter	5395	5375	5386	
Trigger	5395	5375	5386	
Vtx Cut	5395	5375	5386	
Muon: Pt (24) & Eta (2.1)	3230	3227	3236	
Tracker & Global	3204	3211	3206	
nMatchedStations >= 2	3178	3189	3183	
nMatches >= 2 & nChamber >= 2	3178	3189	3183	
trkHits	3177	3188	3182	
pixHits	3175	3186	3180	
globalChi2	3175	3186	3180	
trkD0	3175	3186	3180	
vtxDz	3139	3148	3144	
pfRelIso < 0.1	2979	2986	2979	
Muon Final (>=1)	2979	2986	2979	*muon selection*
Tau1: drMuTau	2979	2986	2332	
Pt (20) & Eta (2.3)	2643	2645	2172	
DMF	2194	2200	2172	
chargedIso < 2GeV	1860	1855	1838	
againstMuonTight	1834	1831	1817	
againstElectronLoose	1805	1804	1791	
zVertex	1792	1793	1788	
OStoMuon	1100	1086	1077	
Tau1 Final (>= 1)	1100	1086	1077	
Tau2: drMuTau	1100	1086	1077	
drTauTau	1100	1086	619	
Pt (20) & Eta (2.3)	826	808	574	
DMF	583	574	574	
chargedIso < 1 GeV	383	375	372	
againsMuonTight	376	368	365	
againstElectronLoose	369	362	357	
zVertex	366	359	356	
SStoMuon	357	350	349	
Tau2 Final (>=1)	357	350	349	*muon & ditau selection*
dr Tau1Tau2 & Lead Tau Pt > 25	355	348	347	
zVertex(Tau1, Tau2)	353	346	346	
muTau1dz	353	346	346	
muon Veto	353	346	346	
Mt(Mu, Met) >= 30	300	305	299	*final selection*

summary & outlook

* alternative framework is running

* electrons and taus are also available, efficiencies to be calculated for next meeting

* try tag-and-probe method