

update on NanoAODplus jets: FatJets

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Strategy

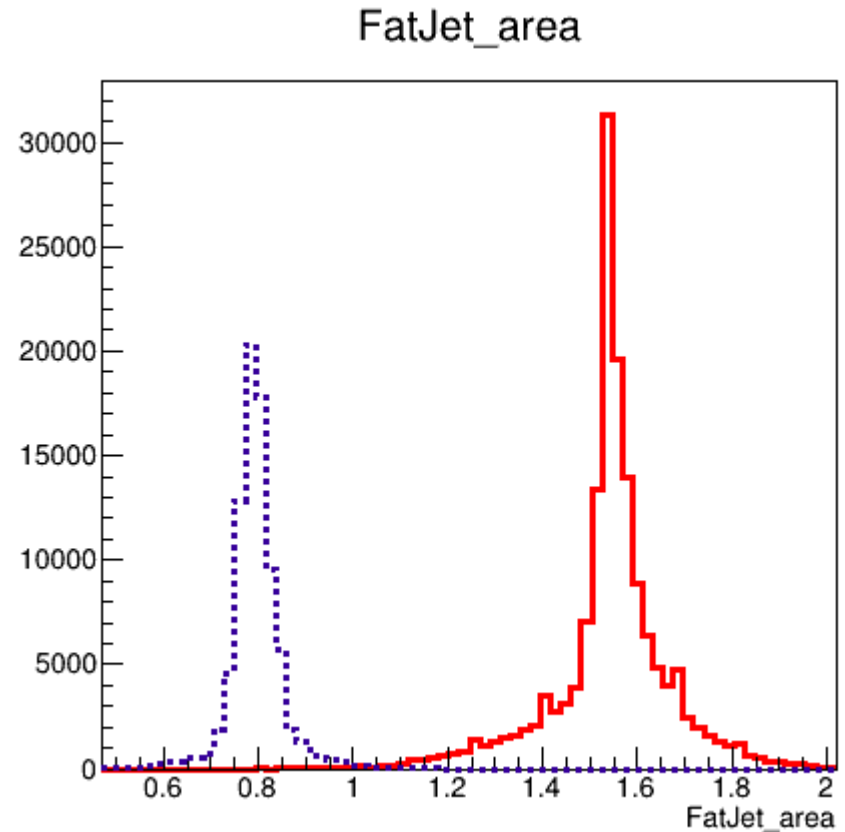
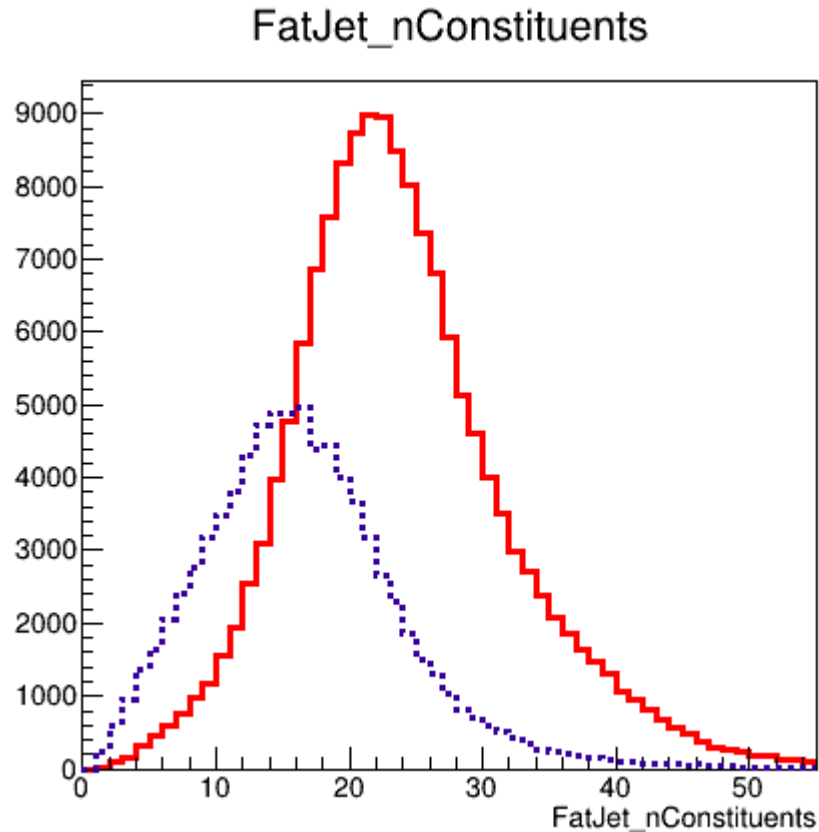
- Fill in NanoAOD FatJet collection with ak7 jets for Run I

```
iEvent.getByLabel("ak5PFJets", jets);  
iEvent.getByLabel("ak7PFJets", fatjets);
```

```
// FatJets  
t_event->Branch("nFatJet", &value_fatjet_n, "nFatJet/i");  
t_event->Branch("FatJet_pt", value_fatjet_pt, "FatJet_pt[nFatJet]/F");  
t_event->Branch("FatJet_eta", value_fatjet_eta, "FatJet_eta[nFatJet]/F");  
t_event->Branch("FatJet_phi", value_fatjet_phi, "FatJet_phi[nFatJet]/F");  
t_event->Branch("FatJet_mass", value_fatjet_mass, "FatJet_mass[nFatJet]/F");  
t_event->Branch("FatJet_area", value_fatjet_area, "FatJet_area[nFatJet]/F");  
t_event->Branch("FatJet_nConstituents", value_fatjet_nConstituents, "FatJet_nConstituents[nFatJet]/i");  
t_event->Branch("FatJet_nElectrons", value_fatjet_nElectrons, "FatJet_nElectrons[nFatJet]/i");  
t_event->Branch("FatJet_nMuons", value_fatjet_nMuons, "FatJet_nMuons[nFatJet]/i");  
t_event->Branch("FatJet_chEmEF", value_fatjet_chEmEF, "FatJet_chEmEF[nFatJet]/F");  
t_event->Branch("FatJet_chHEF", value_fatjet_chHEF, "FatJet_chHEF[nFatJet]/F");  
t_event->Branch("FatJet_neEmEF", value_fatjet_neEmEF, "FatJet_neEmEF[nFatJet]/F");  
t_event->Branch("FatJet_neHEF", value_fatjet_neHEF, "FatJet_neHEF[nFatJet]/F");
```

Object property	Type	Description
FatJet_area	Float_t	jet catchment area, for JECs
FatJet_btagCMVA	Float_t	CMVA V2 btag discriminator
FatJet_btagCSVV2	Float_t	pfCombinedInclusiveSecondaryVertexV2 b-tag discriminator (aka CSVV2)
FatJet_btagDDBvL	Float_t	DeepDoubleX (mass-decorrelated) discriminator for H(Z)->bb vs QCD
FatJet_btagDDBvL_noMD	Float_t	DeepDoubleX discriminator (no mass-decorrelation) for H(Z)->bb vs QCD
FatJet_btagDDCvB	Float_t	DeepDoubleX (mass-decorrelated) discriminator for H(Z)->cc vs H(Z)->bb
FatJet_btagDDCvB_noMD	Float_t	DeepDoubleX discriminator (no mass-decorrelation) for H(Z)->cc vs H(Z)->bb
FatJet_btagDDCvL	Float_t	DeepDoubleX (mass-decorrelated) discriminator for H(Z)->cc vs QCD
FatJet_btagDDCvL_noMD	Float_t	DeepDoubleX discriminator (no mass-decorrelation) for H(Z)->cc vs QCD
FatJet_btagDeepB	Float_t	DeepCSV b+bb tag discriminator
FatJet_btagHbb	Float_t	Higgs to BB tagger discriminator
FatJet_deepTagMD_H4qvsQCD	Float_t	Mass-decorrelated DeepBoostedJet tagger H->4q vs QCD discriminator
FatJet_deepTagMD_HbbvsQCD	Float_t	Mass-decorrelated DeepBoostedJet tagger H->bb vs QCD discriminator
FatJet_deepTagMD_TvsQCD	Float_t	Mass-decorrelated DeepBoostedJet tagger top vs QCD discriminator
FatJet_deepTagMD_WvsQCD	Float_t	Mass-decorrelated DeepBoostedJet tagger W vs QCD discriminator
FatJet_deepTagMD_ZHbbvsQCD	Float_t	Mass-decorrelated DeepBoostedJet tagger Z/H->bb vs QCD discriminator
FatJet_deepTagMD_ZHccvsQCD	Float_t	Mass-decorrelated DeepBoostedJet tagger Z/H->cc vs QCD discriminator
FatJet_deepTagMD_ZbbvsQCD	Float_t	Mass-decorrelated DeepBoostedJet tagger Z->bb vs QCD discriminator
FatJet_deepTagMD_ZvsQCD	Float_t	Mass-decorrelated DeepBoostedJet tagger Z vs QCD discriminator
FatJet_deepTagMD_bbvsLight	Float_t	Mass-decorrelated DeepBoostedJet tagger Z/H/gluon->bb vs light flavour discriminator
FatJet_deepTagMD_ccvsLight	Float_t	Mass-decorrelated DeepBoostedJet tagger Z/H/gluon->cc vs light flavour discriminator
FatJet_deepTag_H	Float_t	DeepBoostedJet tagger H(bb,cc,4q) sum
FatJet_deepTag_QCD	Float_t	DeepBoostedJet tagger QCD(bb,cc,b,c,others) sum
FatJet_deepTag_QCDothers	Float_t	DeepBoostedJet tagger QCDothers value
FatJet_deepTag_TvsQCD	Float_t	DeepBoostedJet tagger top vs QCD discriminator
FatJet_deepTag_WvsQCD	Float_t	DeepBoostedJet tagger W vs QCD discriminator
FatJet_deepTag_ZvsQCD	Float_t	DeepBoostedJet tagger Z vs QCD discriminator
FatJet_electronIdx3SJ	Int_t(index to Electron)	index of electron matched to jet
FatJet_eta	Float_t	eta
FatJet_genJetAK8Idx	Int_t(index to GenJetak8)	index of matched gen AK8 jet
FatJet_hadronFlavour	Int_t	flavour from hadron ghost clustering
FatJet_jetID	Int_t	Jet ID flags bit1 is loose (always false in 2017 since it does not exist), bit2 is tight, bit3 is tightLepVeto
FatJet_lsf3	Float_t	Lepton Subjet Fraction (3 subjets)
FatJet_mass	Float_t	mass
FatJet_msoftdrop	Float_t	Corrected soft drop mass with PUPPI
FatJet_muonIdx3SJ	Int_t(index to Muon)	index of muon matched to jet
FatJet_n2b1	Float_t	N2 with beta=1
FatJet_n3b1	Float_t	N3 with beta=1
FatJet_n3b1	Float_t	N3 with beta=1
FatJet_nBHadrons	UChar_t	number of b-hadrons
FatJet_nCHadrons	UChar_t	number of c-hadrons
FatJet_phi	Float_t	phi
FatJet_pt	Float_t	pt
FatJet_rawFactor	Float_t	1 - Factor to get back to raw pT
FatJet_subJetIdx1	Int_t(index to Subjet)	index of first subjet
FatJet_subJetIdx2	Int_t(index to Subjet)	index of second subjet
FatJet_tau1	Float_t	Nsubjettiness (1 axis)
FatJet_tau2	Float_t	Nsubjettiness (2 axis)
FatJet_tau3	Float_t	Nsubjettiness (3 axis)
FatJet_tau4	Float_t	Nsubjettiness (4 axis)
nFatJet	UInt_t	slimmedJetsAK8, i.e. ak8 fat jets for boosted analysis

Jet vs FatJet



Data samples:

root://eospublic.cern.ch//eos/opendata/cms/Run2011A/SingleMu/AOD/12Oct2013-v1/10000/00209631-9C37-E311-BACA-002590494FDE.root