

HMSemilepSKIMv6_8

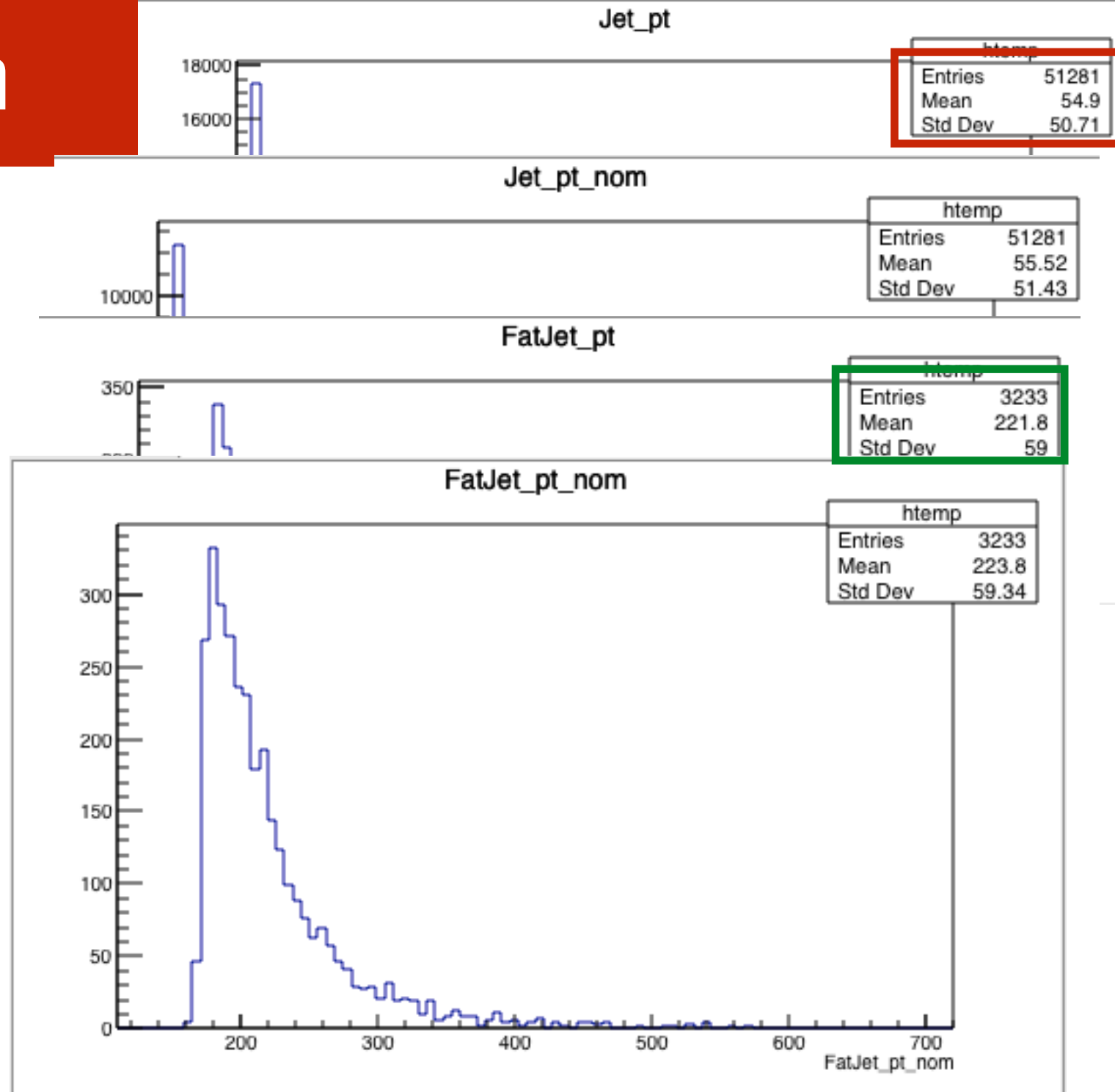
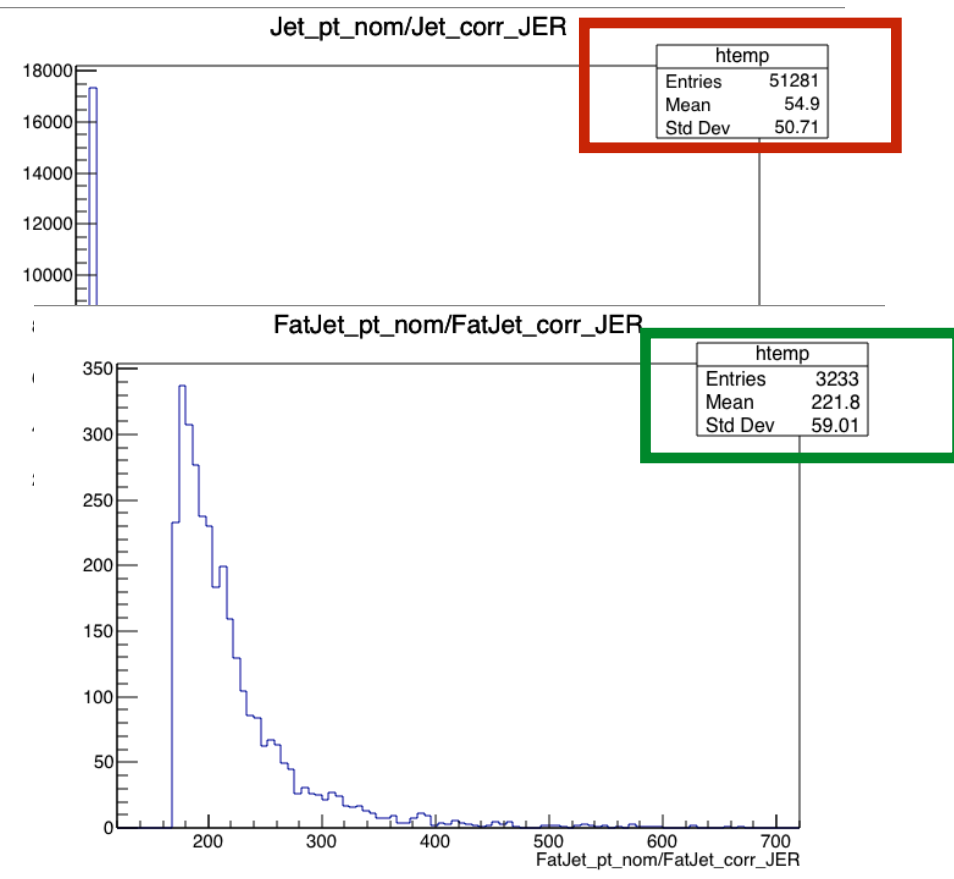
1. Test jobs-MC nom

- pt_nom -> redo JEC/Jet smearing
- Check using ggf M400 part0 sample

- ak4 : ~1% variation
- ak8 : ~0.8% variation

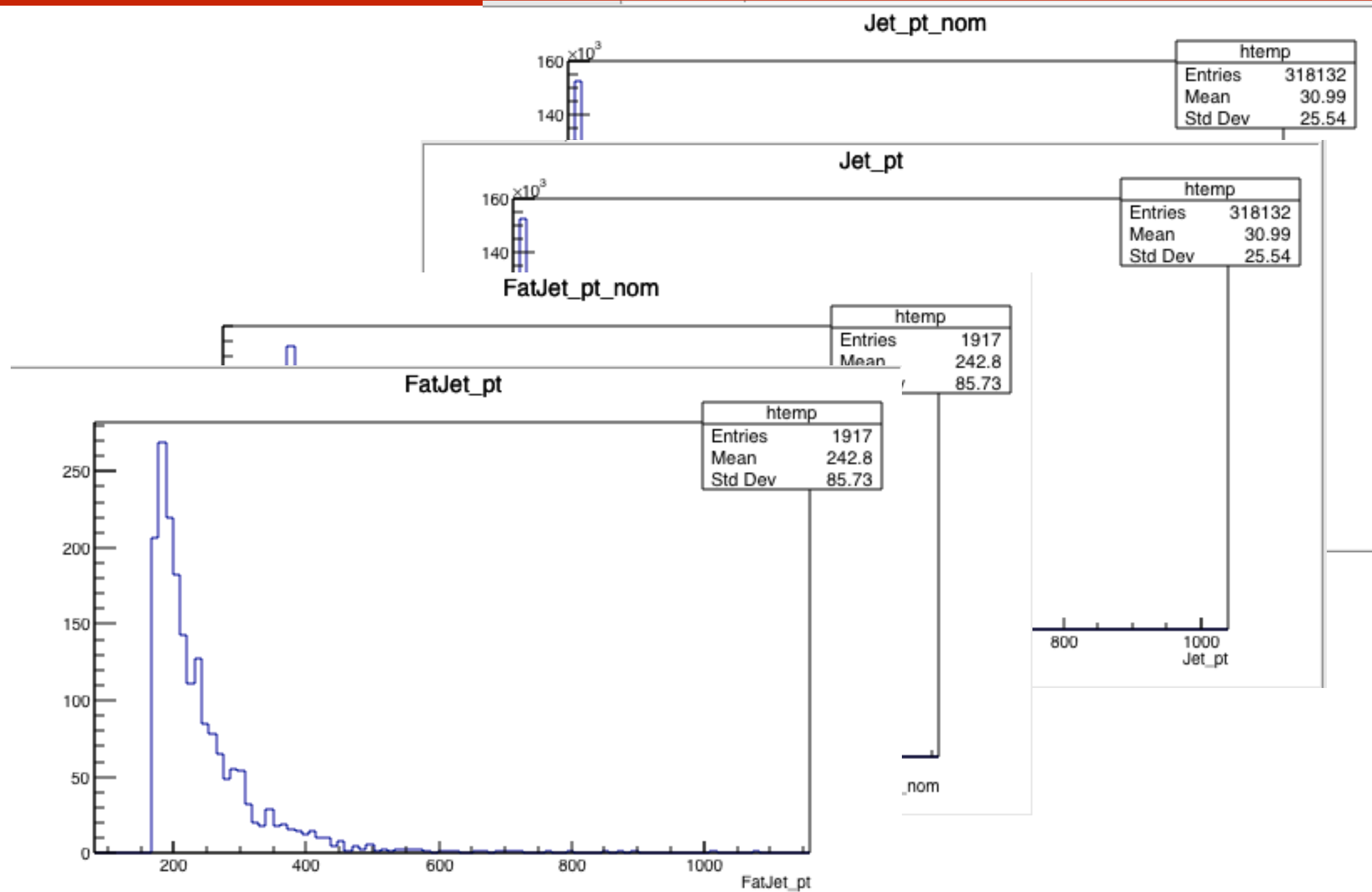
• Validation

-Jet_pt_nom/Jet_corr_JER=?Jet_pt



1. TestJob(2) DATA -nom

- ak4:Fine



1. TestJob MC sys - nominal is between up/down?

AK4

- [jesTotal]
- cent= 58.1459892377
- up= 59.3513844428
- do= 56.9405940625
- [jesAbsolute]
- cent= 58.1459892377
- up= 58.6361282845
- do= 57.6558502074
- [jesBBEC1]
- cent= 58.1459892377
- up= 58.3416118636
- do= 57.9503666399
- [jesEC2]
- cent= 58.1459892377
- up= 58.2233066553
- do= 58.0686718216
- [jesFlavorQCD]
- cent= 58.1459892377
- up= 58.6742865225
- do= 57.617691973
- [jesHF]
- cent= 58.1459892377
- up= 58.2549745129
- do= 58.0370039664
- [jesRelativeBal]
- cent= 58.1459892377
- up= 58.3553603867
- do= 57.9366180998
- [jesAbsolute_2017]
- cent= 58.1459892377
- up= 58.402595346
- do= 57.8893831437
- [jesBBEC1_2017]
- cent= 58.1459892377
- up= 58.2345694183
- do= 58.0574090692
- [jesEC2_2017]
- cent= 58.1459892377
- up= 58.3201569246
- do= 57.9718215605
- [jesHF_2017]
- cent= 58.1459892377
- up= 58.1633163843
- do= 58.1286620964
- [jesRelativeSample_2017]
- cent= 58.1459892377
- up= 58.4907088858
- do= 57.801269611
- [jer]
- cent= 58.1459892377
- up= 58.44119332
- do= 57.873869572⁴

AK8

- [jesTotal]
- cent= 223.794165798
- up= 225.511589978
- do= 222.076741647
- [jer]
- cent= 223.794165798
- up= 224.914973784
- do= 222.65923858

2)Read Jet_pt_nom @HEM weight

- Print pt / pt_nom @ HEMweight module
- MC[ggf400]:
 - cleanajt_pt-> 18.8125
 - [jhchoi] Get orig jet coll
 - >>pt= 18.8006369892
- ->Fine.

3) SKIM

- Define @ SNUAnalytics/NanoGardenerFrameworks/HWWSemilepHM/20200403_HMSemilepSKIMv6_8/Steps_cfg.py
- Simple kinematic skim + Corr ak4/ak8 jets + HEMweight

```
Steps['HMSemilepSKIMv6_8']= { ##To ReRun CleanFatJet

    'isChain'      : True ,
    'do4MC'        : True ,
    'do4Data'      : False ,
    'selection'     : '"( Lepton_pt[0]>20) && ( Alt$( Lepton_pt[1],-1) < 20 ) && (PuppiMET_pt > 20) )"',
    'subTargets'    : ['wwNLOEWK', 'wzNLOEWK', 'zzNLOEWK', 'zNLOEWK', 'wNLOEWK', 'CorrJetMC', 'CorrFatJetMC', 'HEMweightMC'],
}##['wwNLOEWK', 'wzNLOEWK', 'zzNLOEWK', 'zNLOEWK', 'wNLOEWK',

Steps['HMSemilepSKIMv6_8_data']= { ##To ReRun CleanFatJet

    'isChain'      : True ,
    'do4MC'        : False ,
    'do4Data'      : True ,
    'selection'     : '"( Lepton_pt[0]>20) && ( Alt$( Lepton_pt[1],-1) < 20 ) && (PuppiMET_pt > 20) )"',
    'subTargets'    : ['CorrJetDATA', 'CorrFatJetDATA', 'HEMweightDATA'],
}
```

Example of Jet systematic branches

- **!!!! Please use following branches for Nominal!!!!**
 - >Jet_pt_nom
 - >FatJet_pt_nom
 - >Jet_mass_nom...
- **Systematics tree**
 - >Jet_mass_jerUp
 - >Jet_mass_jerDown
 - >Jet_pt_jesFlavorQCDUp
 - >Jet_pt_jesFlavorQCDDown
 - ...

Format : Jet_<pt/mass>_<jer/jes><Source><Up/Down>

<Source>='Total', 'Absolute', 'BBEC1', 'EC2', 'FlavorQCD', 'HF', 'RelativeBal',
'Absolute_'+yr, 'BBEC1_'+yr, 'EC2_'+yr, 'HF_'+yr, 'RelativeSample_'+yr

Format : FatJet_<pt/msoftdrop>_<jer/jes><Up/Down>
- **DO NOT USE MET branch itself. -> Propagate [Jet_px - Jet_px_nom] to MET you use.**