



First Look at Data

Laurie McClymont
Valerio, Andy, Antonello

Flav. Tagging Algorithm Meeting
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Samples

- `user.vdao.mc15_13TeV.*.Pythia8EvtGen_jetjet_JZ*W.merge.A0D.*.BTAGNTUP_OrigV7full_BTAGSTREAM/`

- No JZ0
- 1,388,792

- `user.vdao.data15_comm.periodD2.physics_Main.PhysCont.A0D.t0pro17_v01.BTAGNTUP_OrigV7full_BTAGSTREAM.*`

– 700,460

Details/Cuts

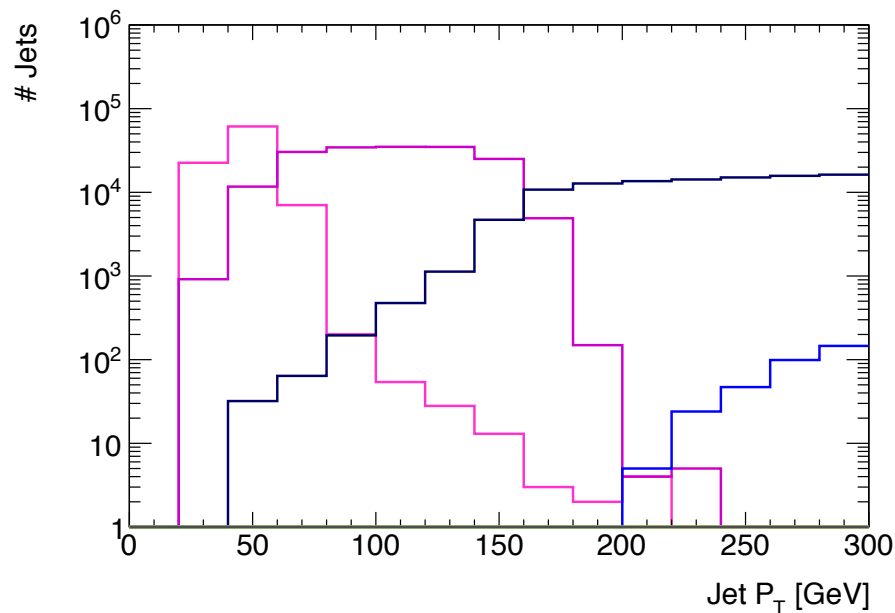
- $n_{\text{jets}} \geq 1$
- Leading Jet Only

- LabDr_HadF truth matching.
- AntiKt4EMTopoJets.

- $P_T > 35 \text{ GeV}$
- $|\eta| < 2.5$

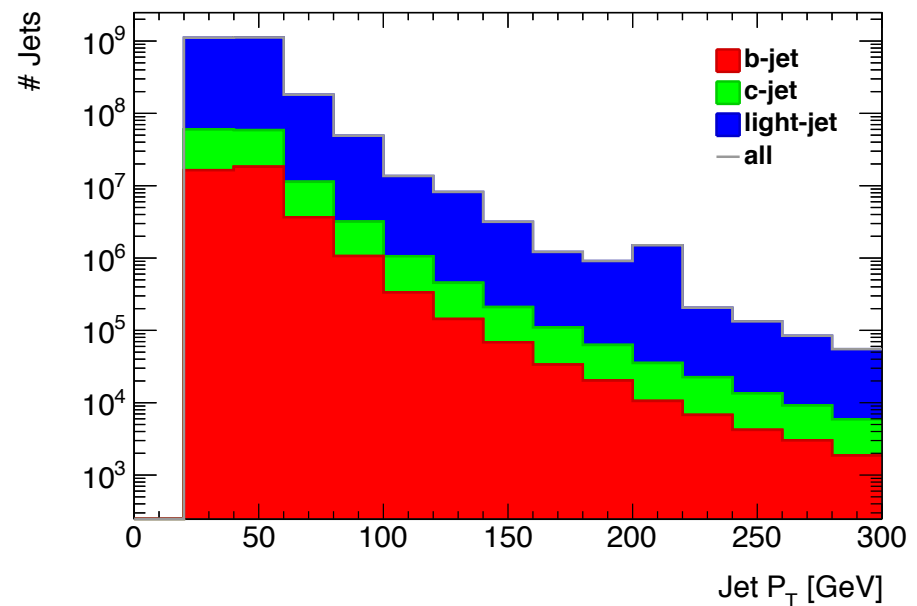
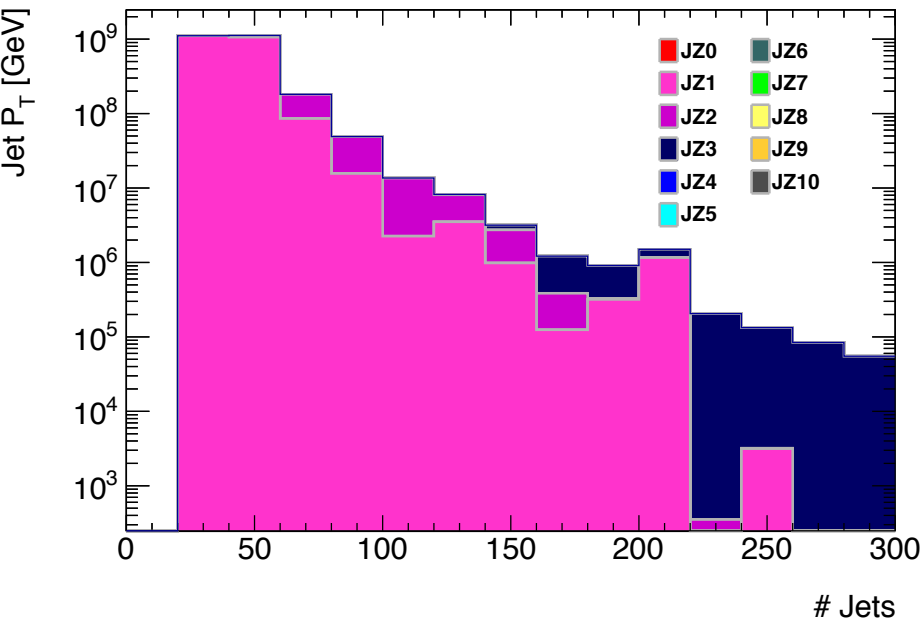


3 Di-jet sample re-weighting



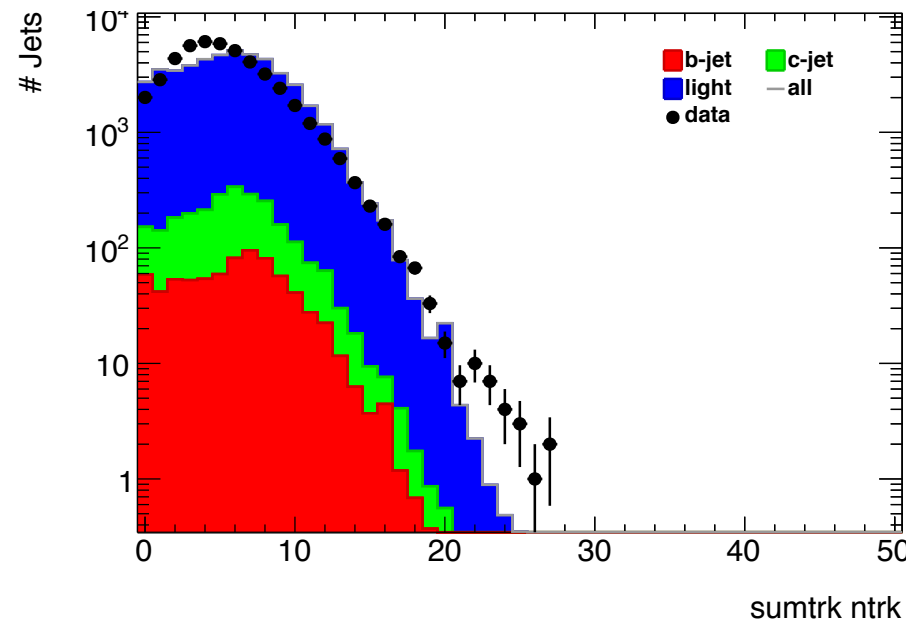
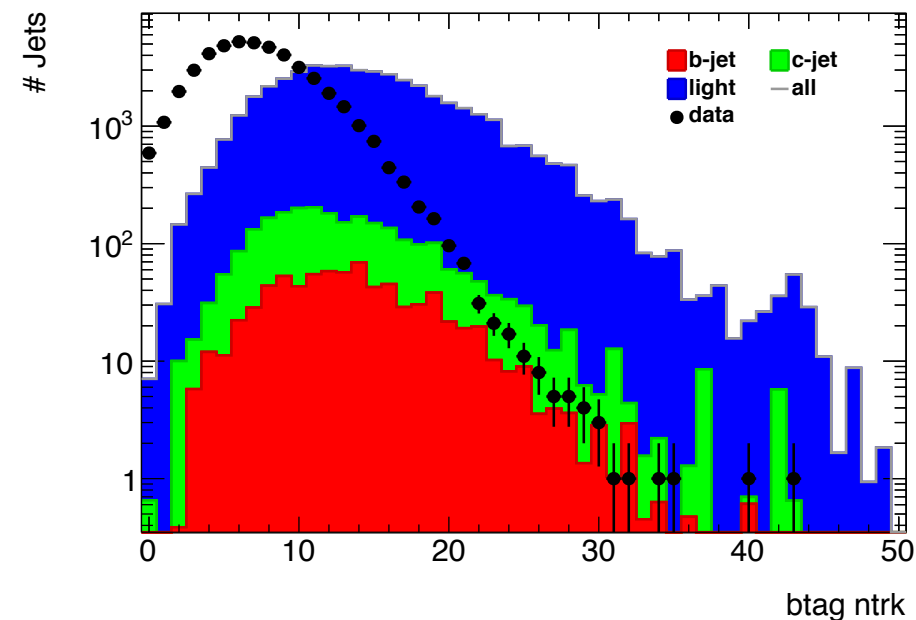
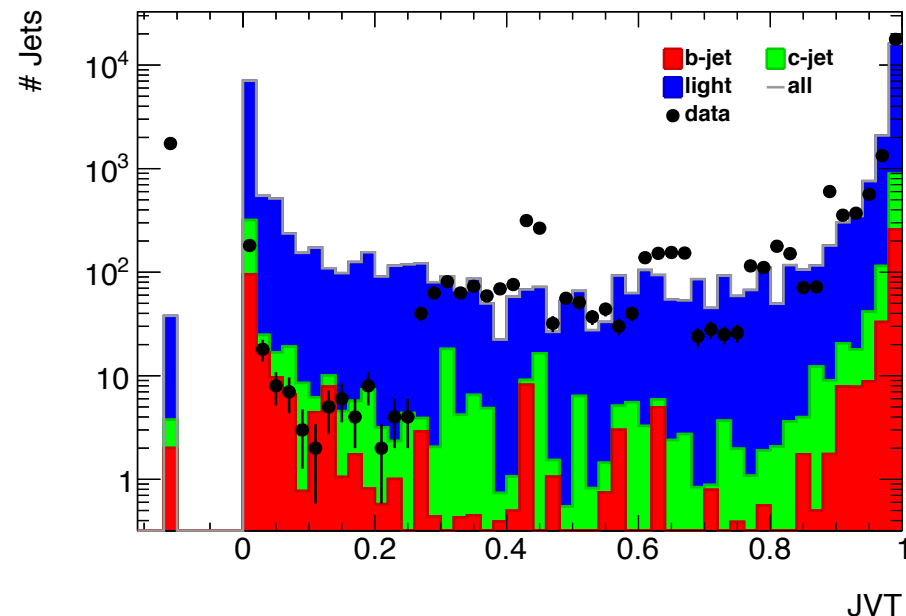
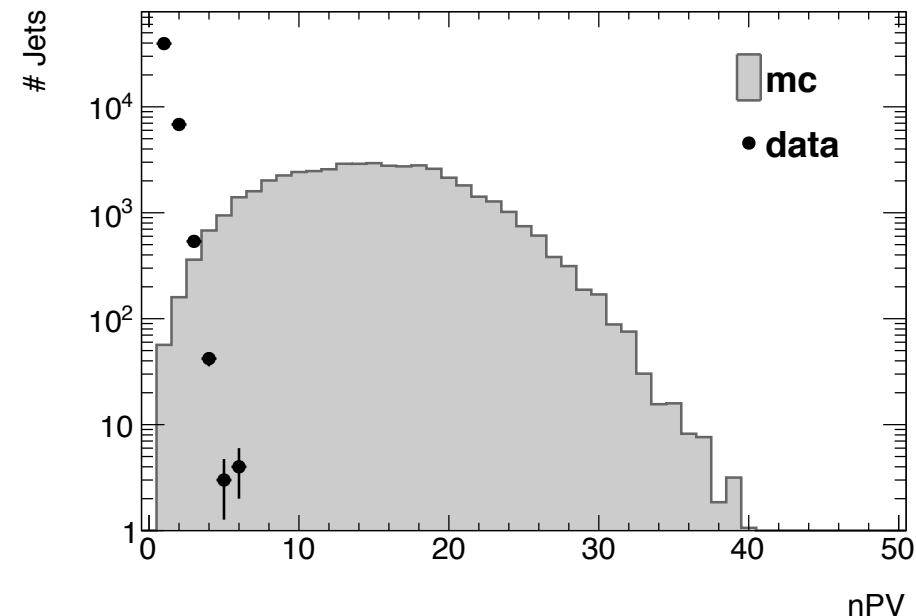
$$\text{Total Weight} = \frac{mcwg * (\text{Filter Eff.}) * (\text{CS[fb]}) * (\text{Lumi[fb}^{-1}\text{]})}{(\text{\# Events})}$$

Xs(fb)	Eff.	Slice and Energy
7.8420E+13	1.0240E+00	#JZ0W 0-20 GeV
7.8420E+13	6.7198E-04	#JZ1W 20-60 GeV
2.4334E+12	3.3264E-04	#JZ2W 60-160 GeV
2.6454E+10	3.1953E-04	#JZ3W 160-400 GeV
2.5464E+08	5.3009E-04	#JZ4W 400-800 GeV
4.5536E+06	9.2325E-04	#JZ5W 800-1300 GeV
2.5752E+05	9.4016E-04	#JZ6W 1300-1800 GeV
1.6214E+04	3.9282E-04	#JZ7W 1800-2500 GeV
6.2505E+02	1.0162E-02	#JZ8W 2500-3200 GeV
1.9640E+01	1.2054E-02	#JZ9W 3200-3900 GeV
1.1961E+00	5.8935E-03	#JZ10W 3900-4600 GeV





4 Jet Kinematic Distributions

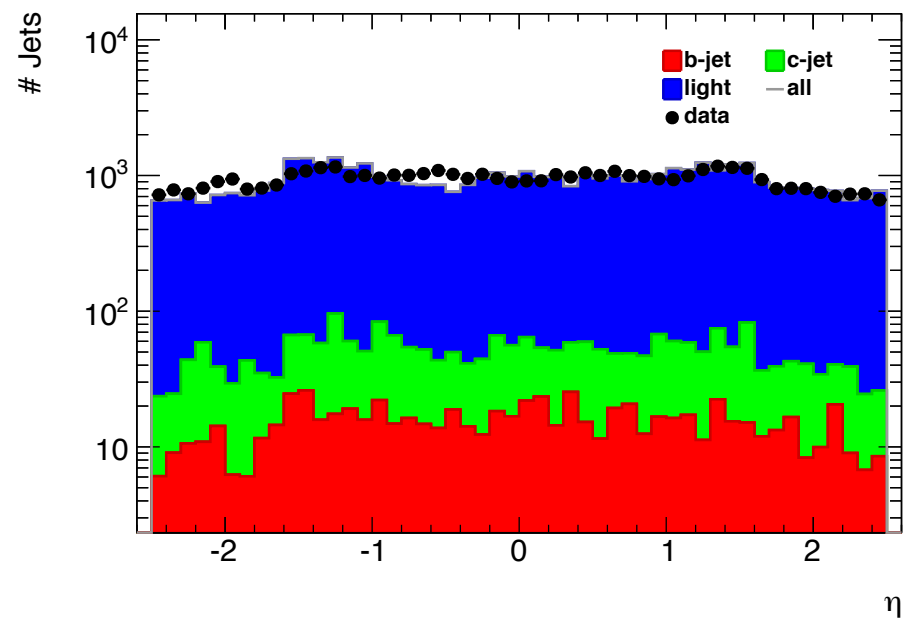
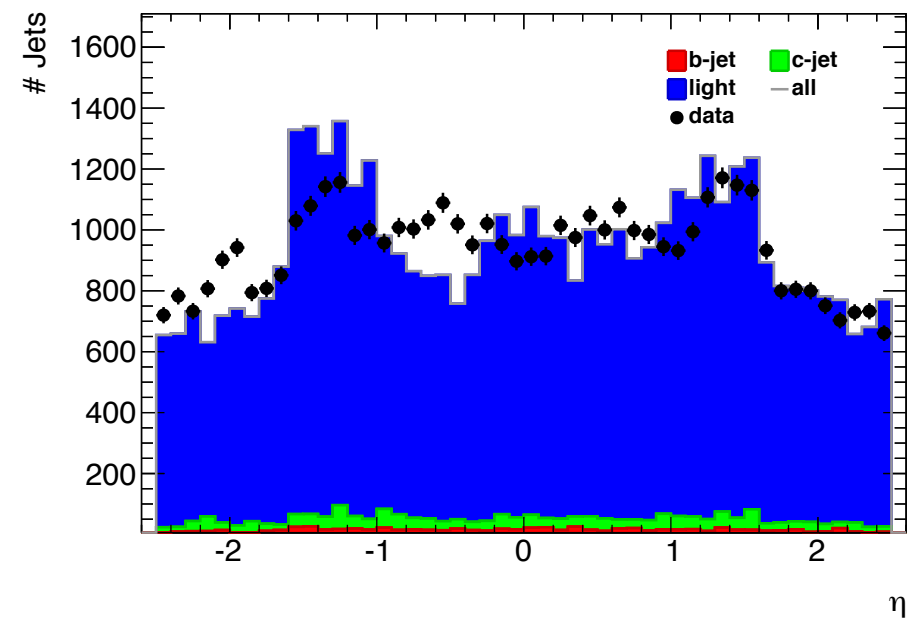
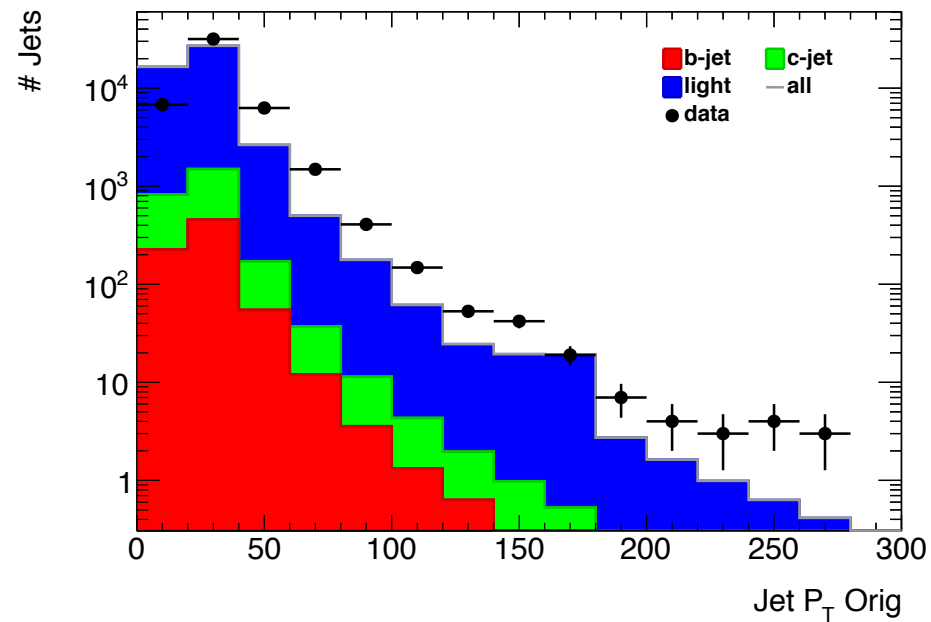
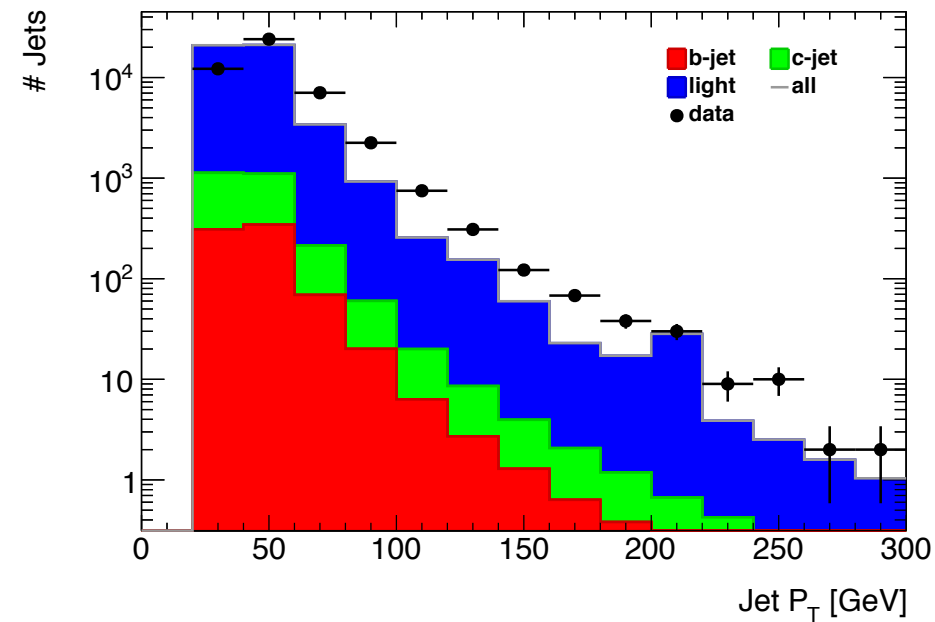


>> No selections on tracks when running track-jet association

>> Tight Track-PV association required

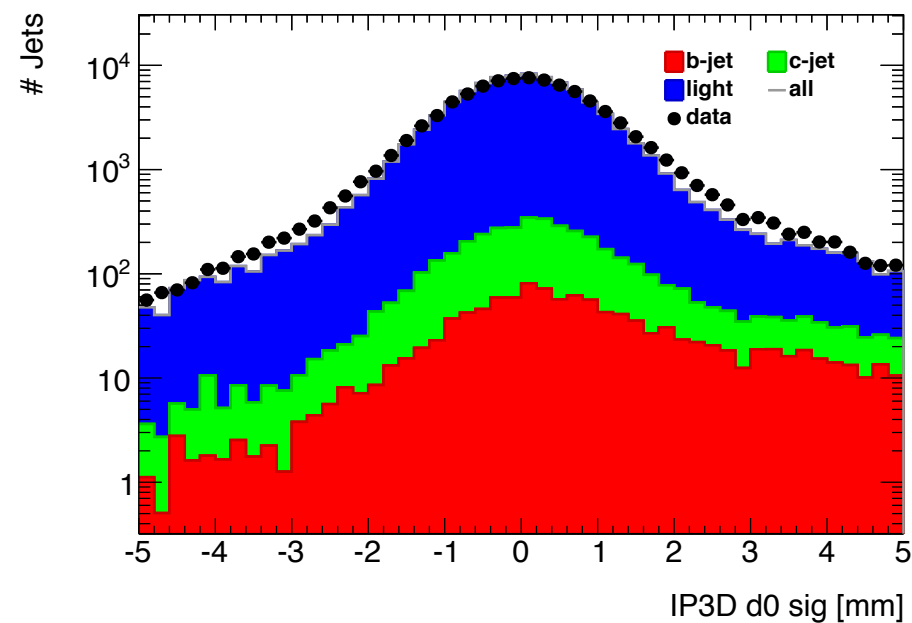
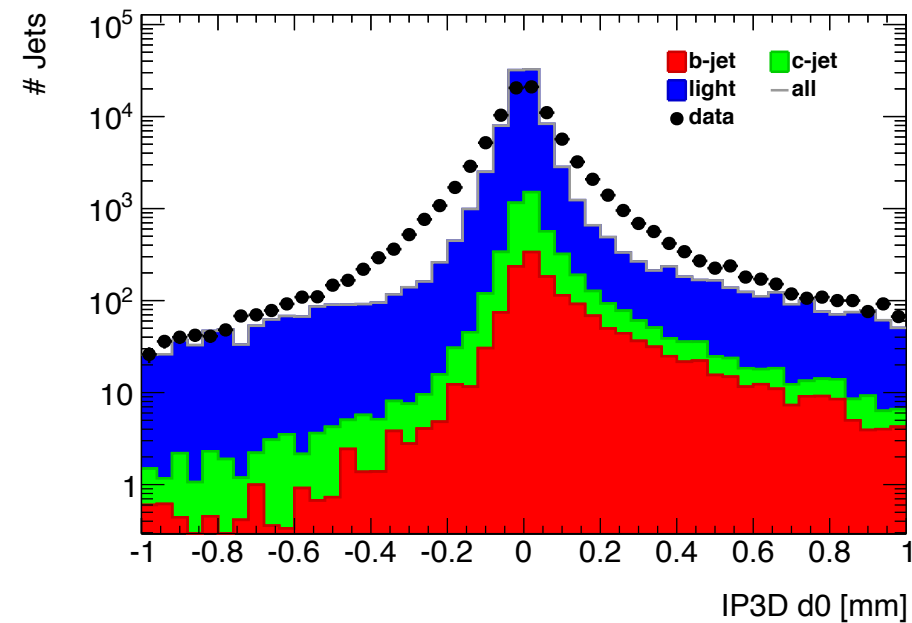


5 Jet Kinematic Distributions



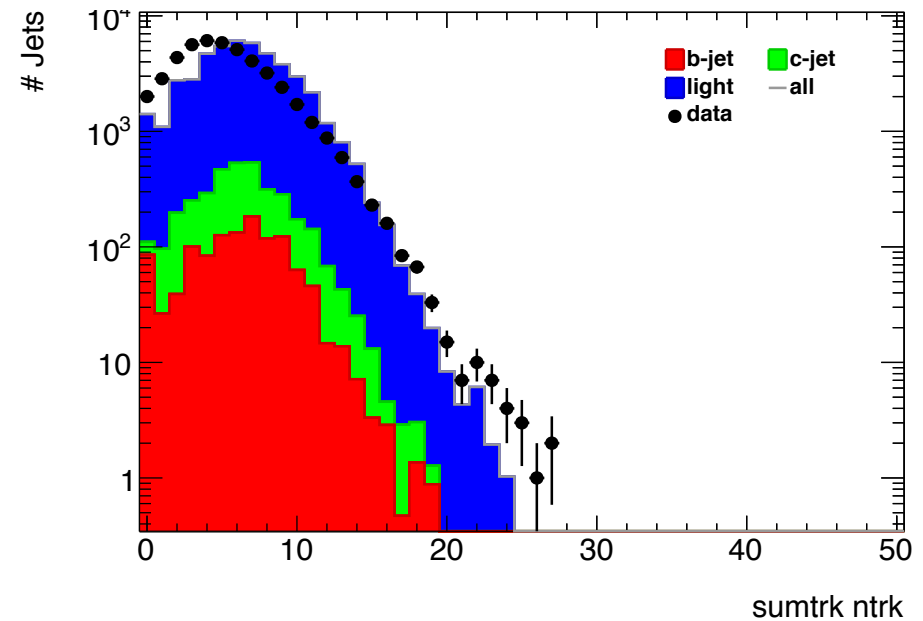
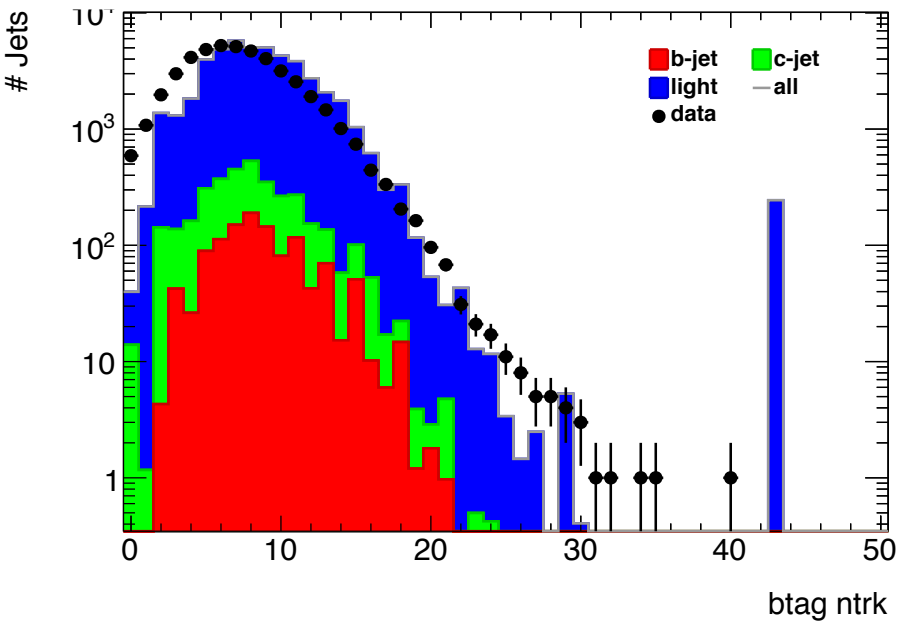
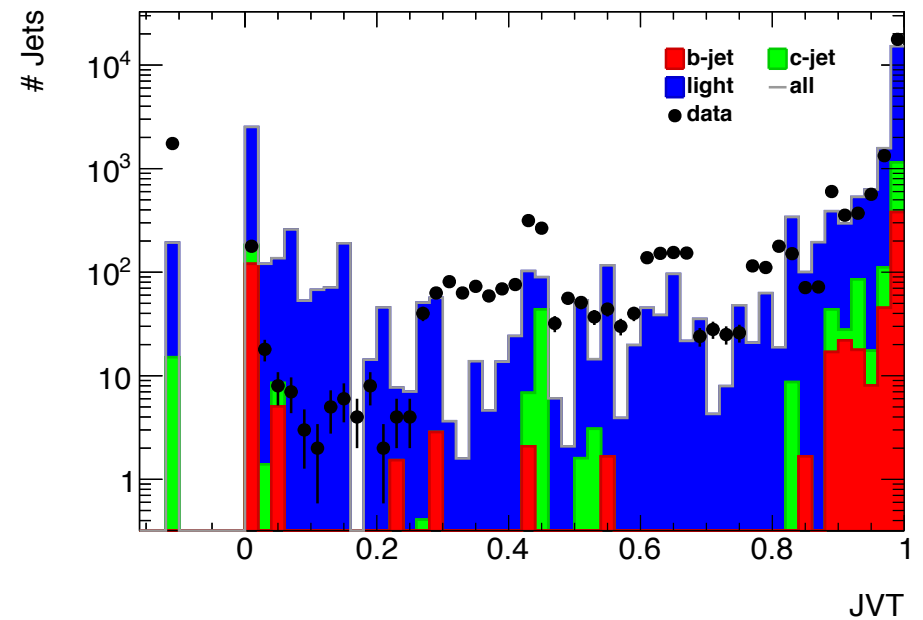
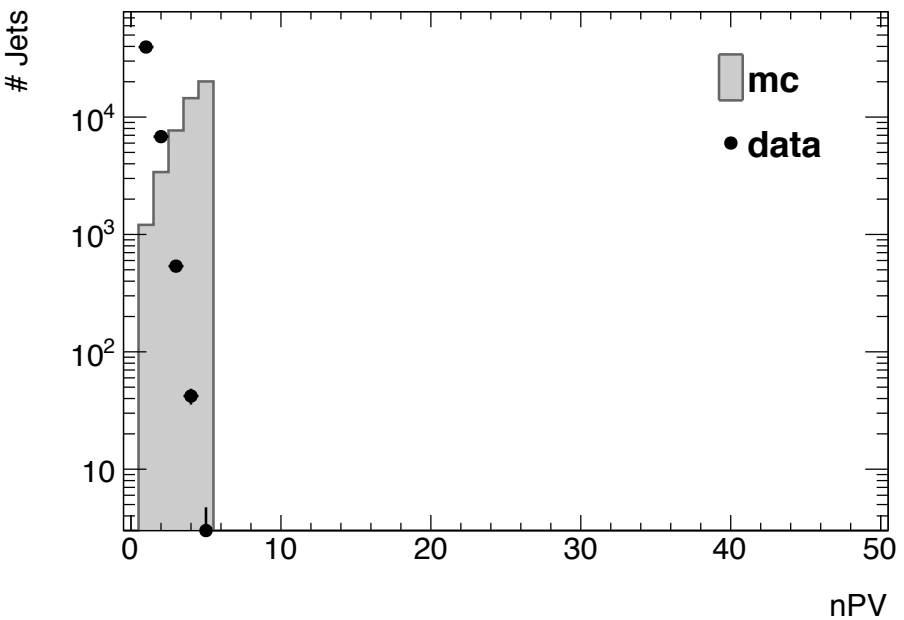


6 Jet Kinematic Distributions



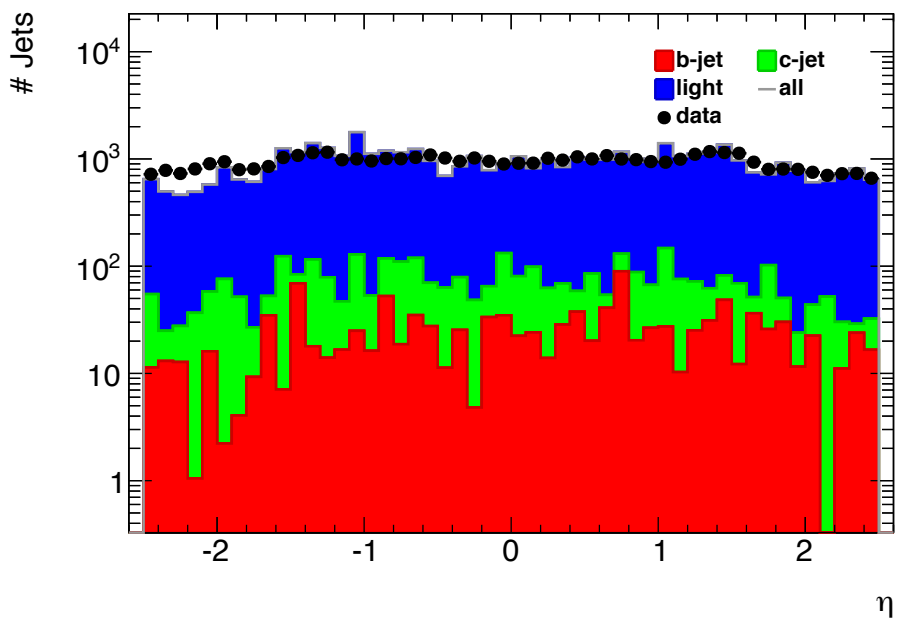
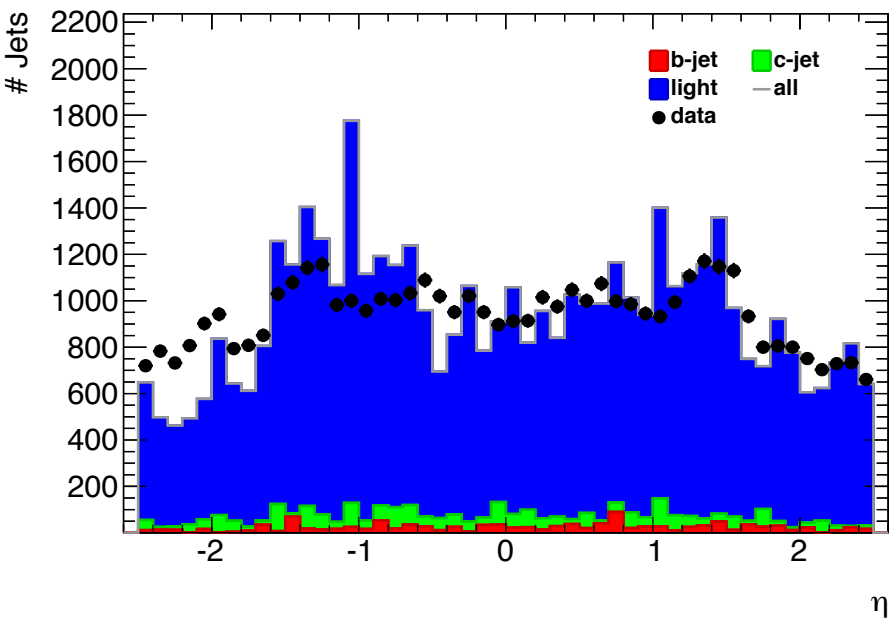
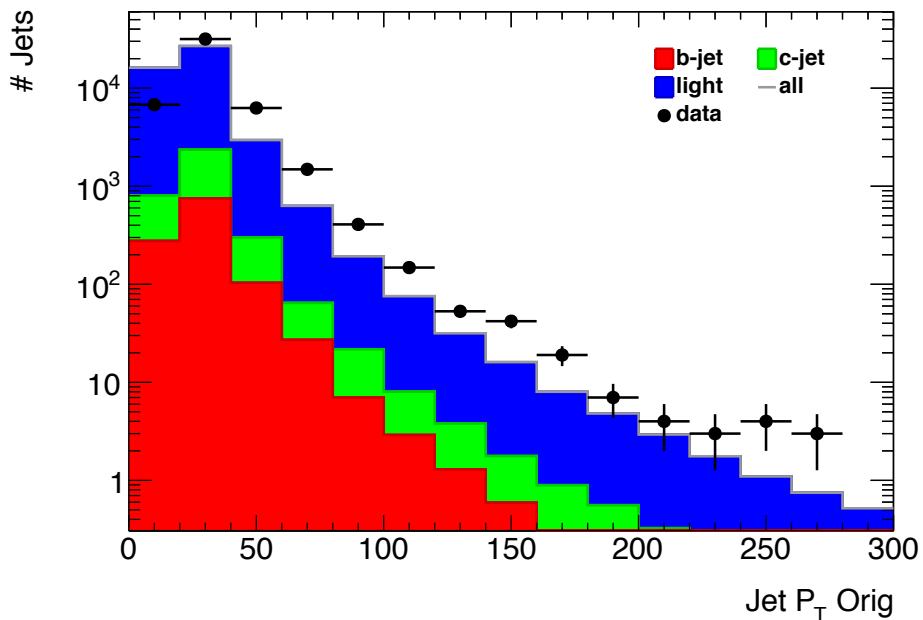
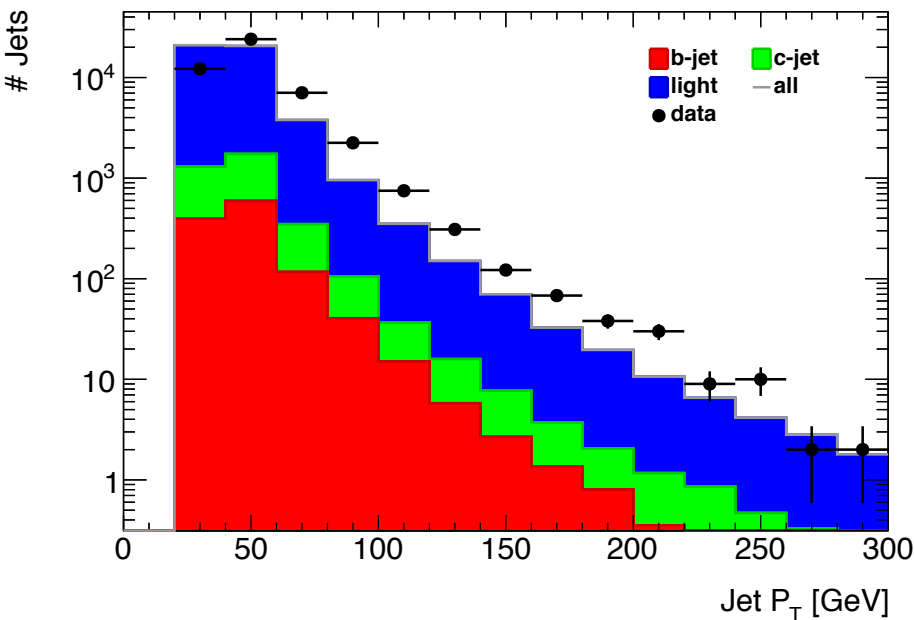


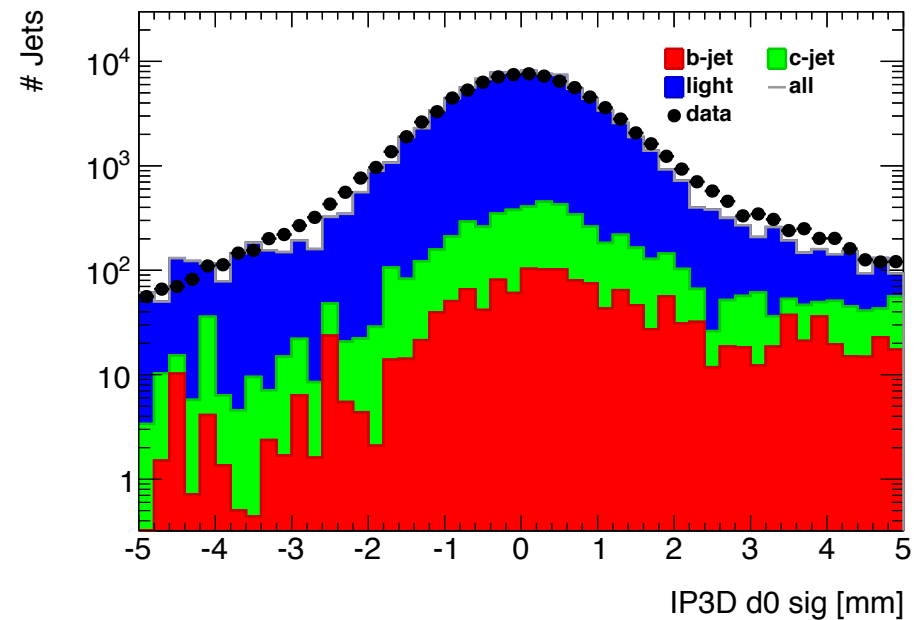
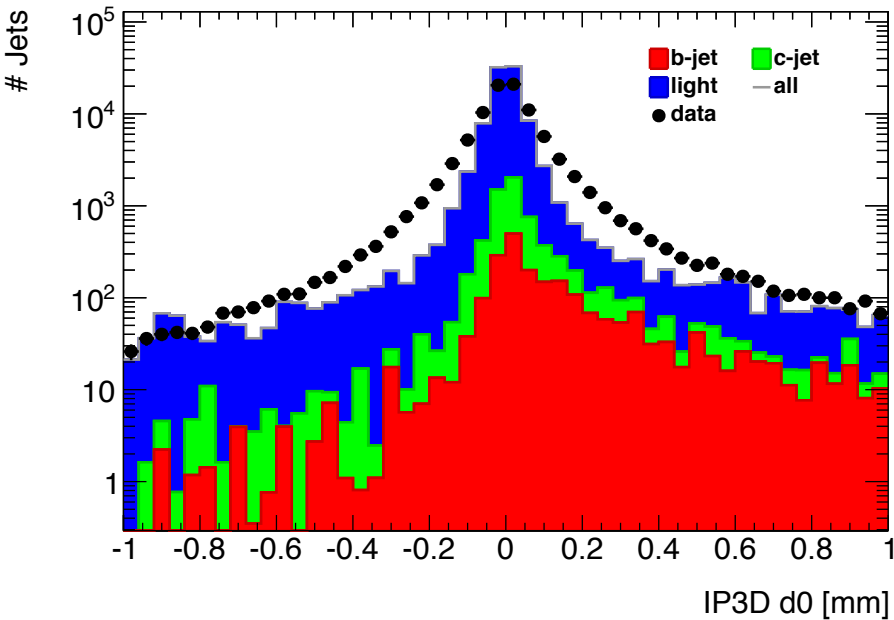
7 Jet Kinematic Distributions - $nPV < 6$

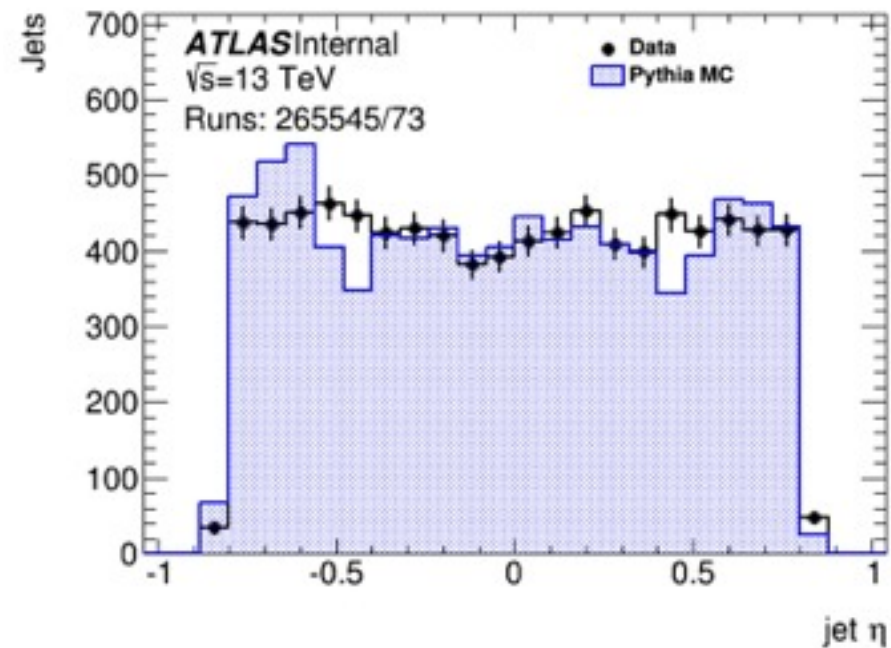
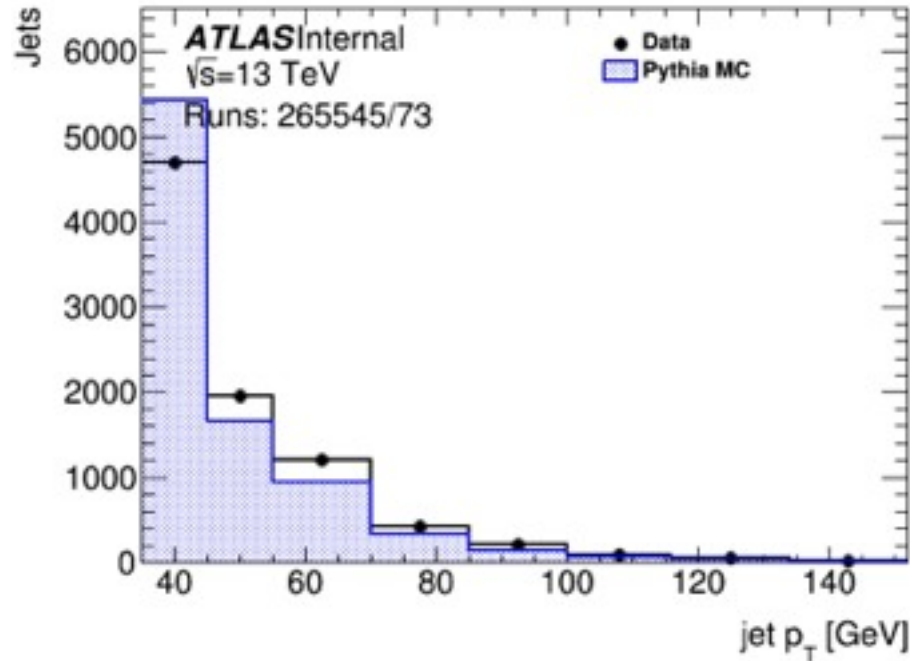


>> No selections on tracks when running track-jet association

>> Tight Track-PV association required







AB 2.3.12

xAODAnaHelpers (git, svn) + DijetResonanceAlgo (TWiki)

- JES config: JES_MC15Prerecommendation_April2015.config
- jet $p_T > 35$ GeV, $|\eta| < 0.8$
- Run I MediumBad cleaning cuts
- NPV ≤ 5 (MC only)

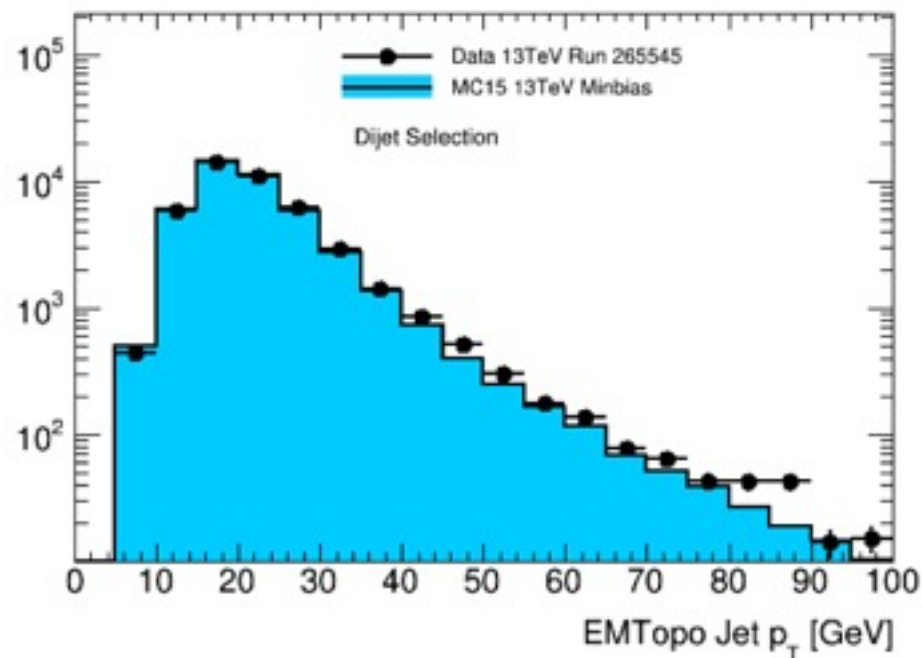
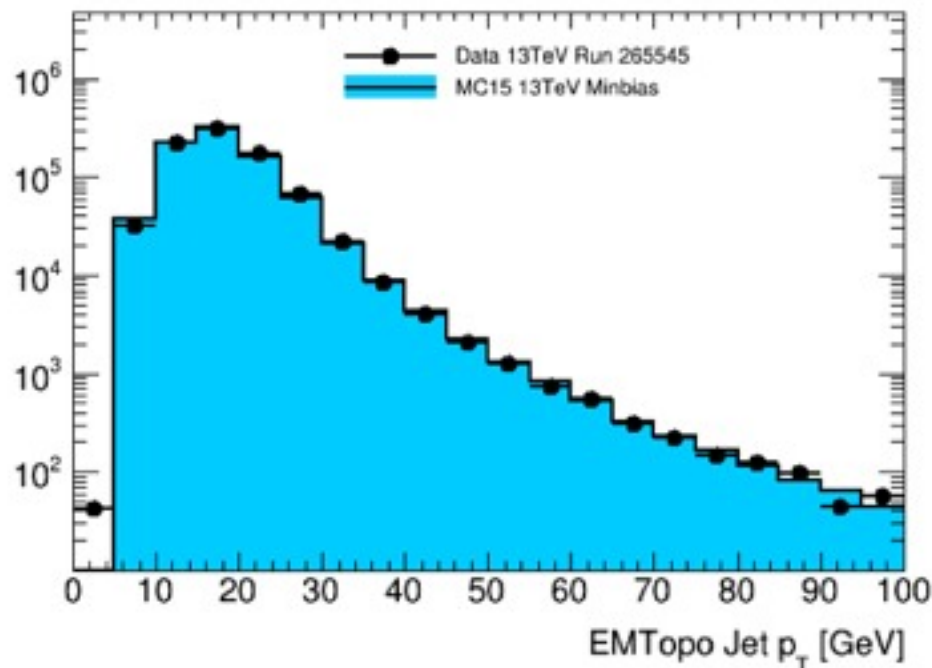
(standard) Basic event selection:

- `eventInfo->errorState(xAOD::EventInfo::LAr)==xAOD::EventInfo::Error`
- `eventInfo->errorState(xAOD::EventInfo::Tile)==xAOD::EventInfo::Error`
- `eventInfo->isEventFlagBitSet(xAOD::EventInfo::Core, 18)`
- At least 1 PV with 2 tracks

L1_MBTS_1_1 (data only) Reject events with $113 \leq \text{Lumi Block} \leq 118$ in run 265545 (Ref)
 MC scaled to data integral in each distribution

G. Facini - Exotic Dijets Group

We should try and replicate these



- Basic event cleaning applied
 - $\text{larError} < 2, \text{tileError} \neq 2, (\text{coreFlags} \& 0x40000) \neq 0$
- Trigger L1_MBTS_1_1 required in all plots
- No lower pT cut on jets
- All plots show variables from Antikt4EMTopo Jets
- Dijet Selection
 - ≥ 2 jets
 - $\Delta\phi_{\text{jet1}, \text{jet2}} > 3.0$
 - $(p_{T, \text{jet1}} - p_{T, \text{jet2}}) / (p_{T, \text{jet1}} + p_{T, \text{jet2}}) < 0.3$