

Status report

Apr 22, 2021

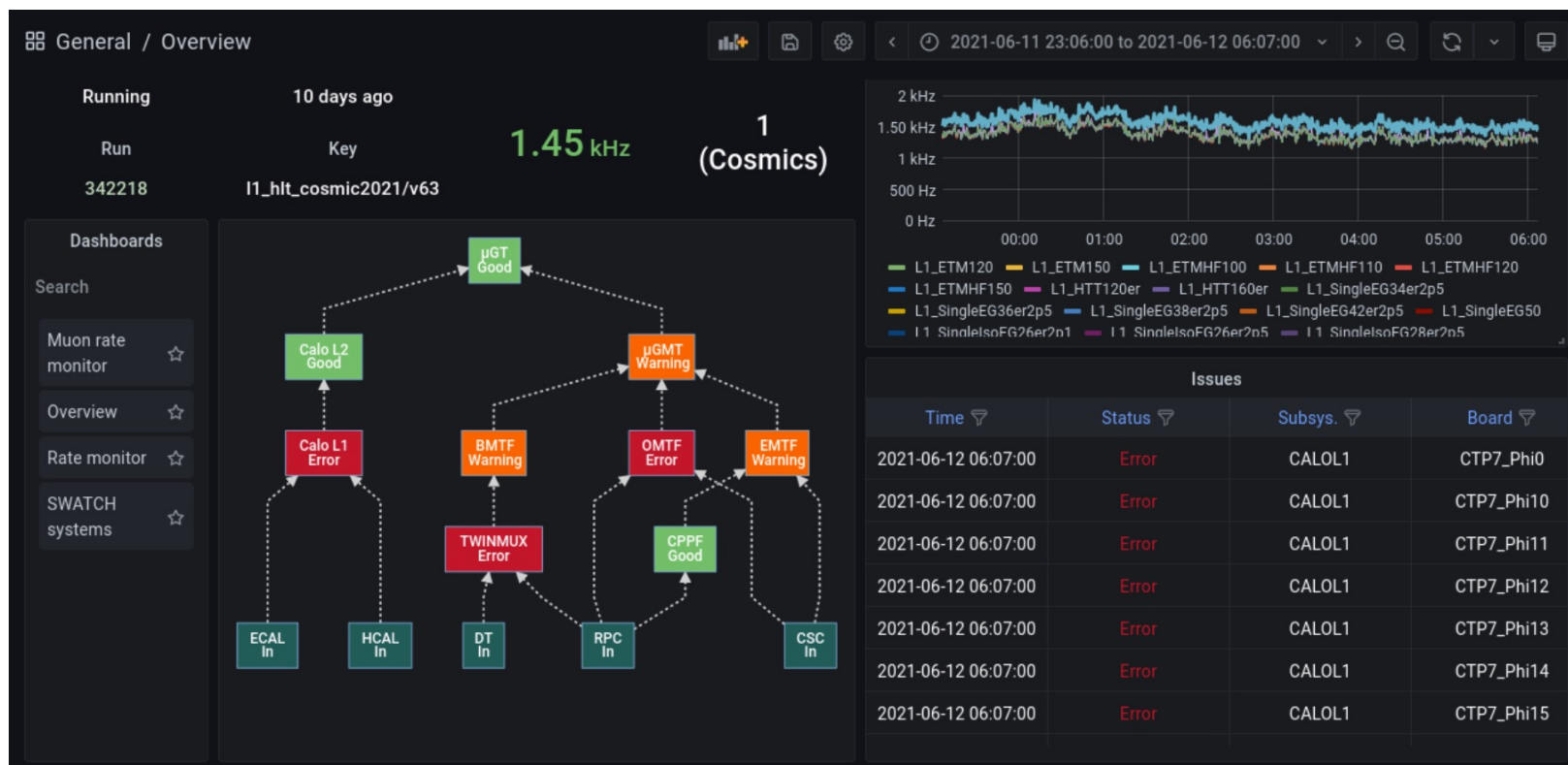
Jieun Choi

HYU / IP2I

Trigger shift training

Remote shift training

- April 19th, 20th ([elog](#)) : 15:00 ~ 23:00
- Trainer: Claire Savard
- Useful link: [DAQ Status](#), [ratemeter](#), Mattormost TRG/Commissioning, L1TGrafana, cmsoms-trigger, [elog](#), [L1T/EMU DQM](#), Quality criteria twiki ([L1T/EMU](#))
- Shift assigned on May 6~8th, May 12th, June 3~5th, 13~16th
- Is there any minimum / maximum shift credit requirement?



Trigger efficiencies: DeepCSV vs DeepJet

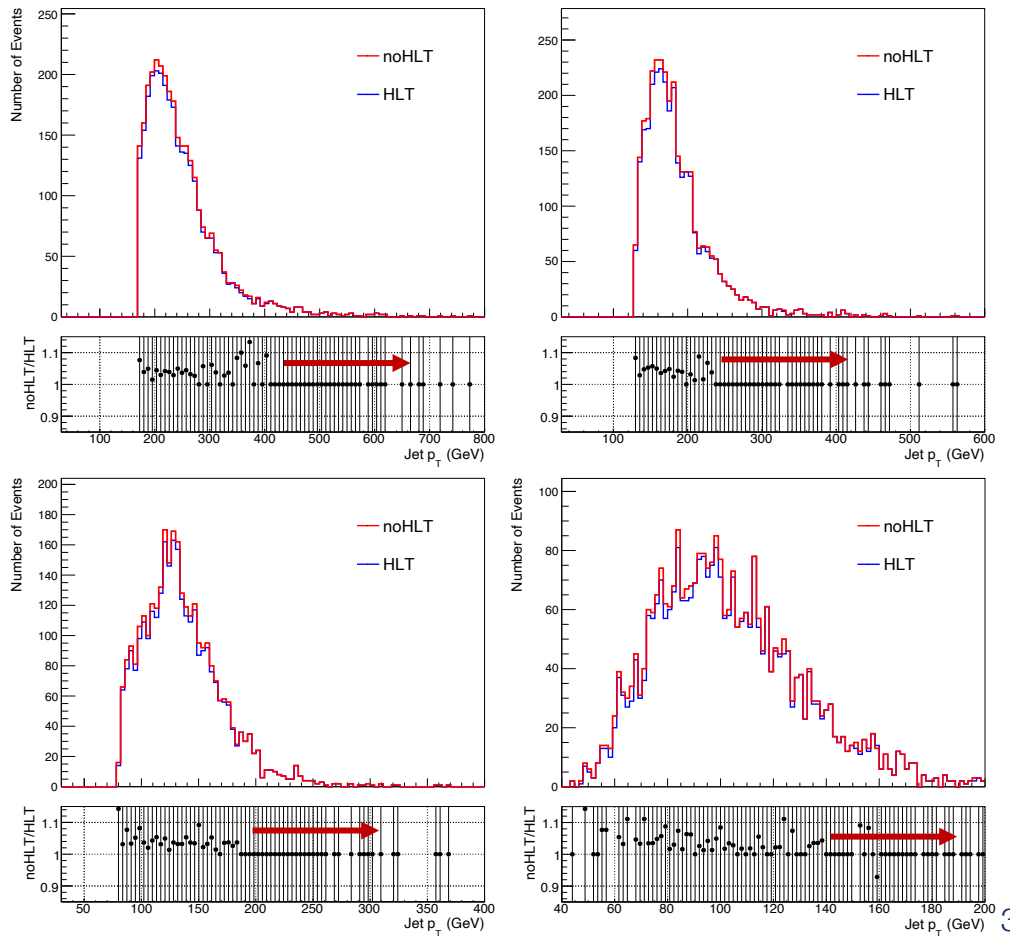
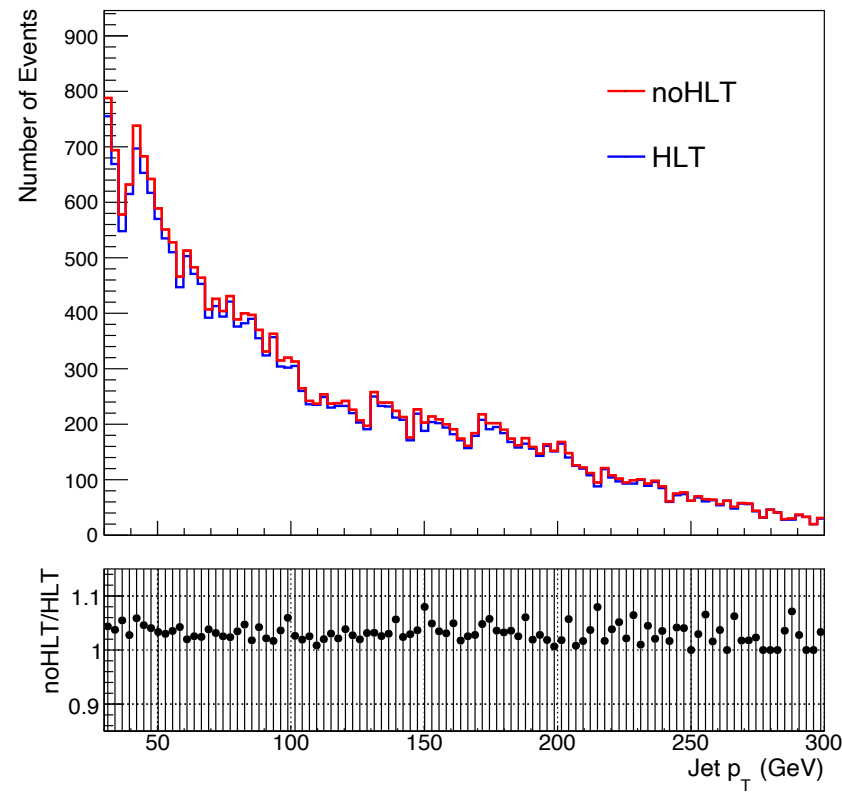
Samples

- Tprime M 700 GeV
- After Cut 0

# of MC events	DeepJet T	DeepCSV T
noHLT	5367	3098
HLT	5091	2989
Efficiencies (%)	94.8	96.5

Distribution: DeepCSV

- Jet p_T



Trigger efficiencies: DeepCSV vs DeepJet

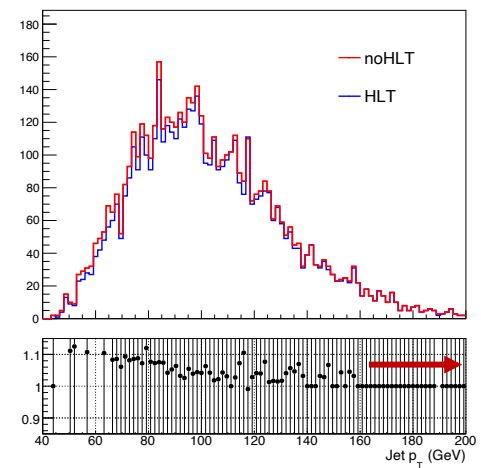
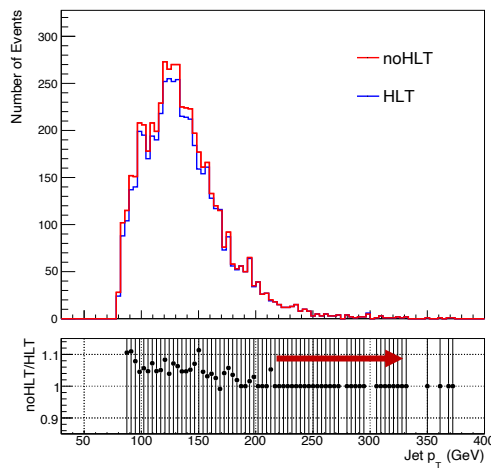
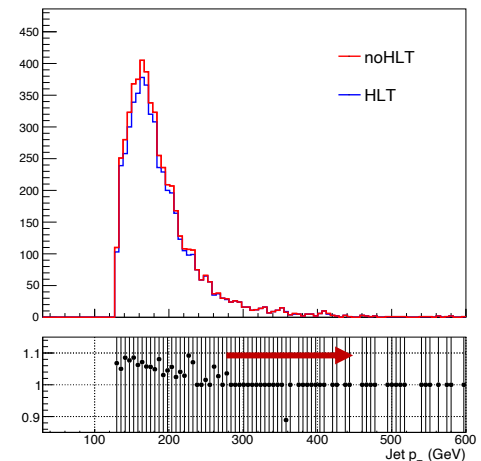
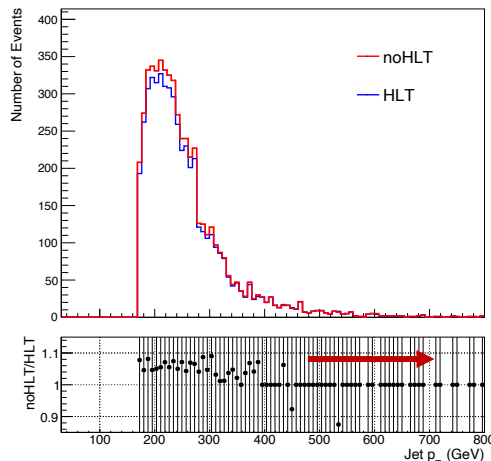
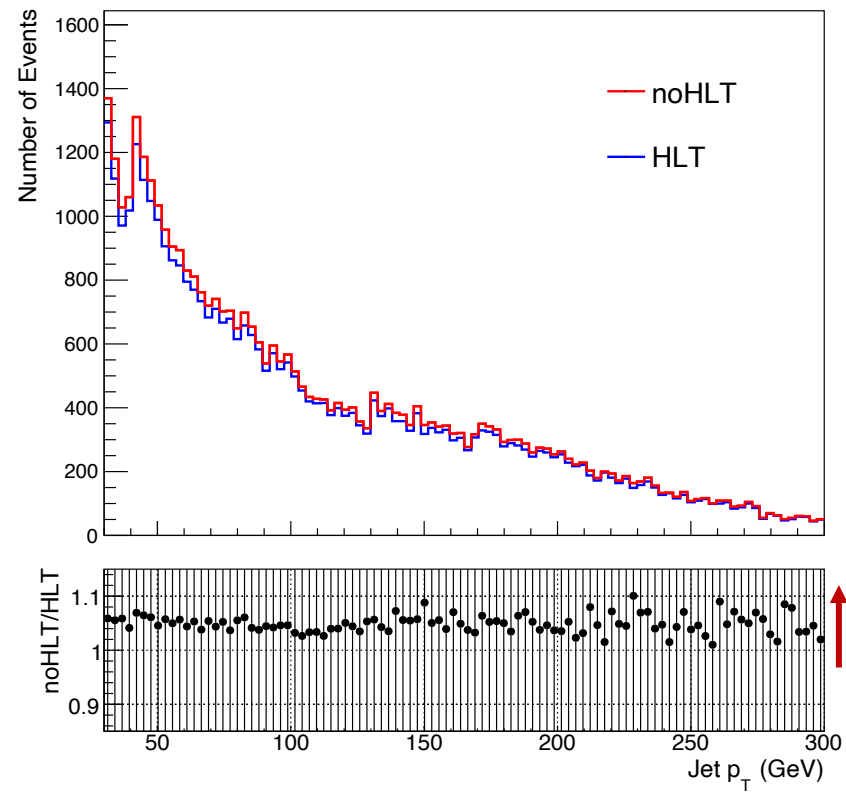
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Trigger efficiencies: DeepCSV vs DeepJet

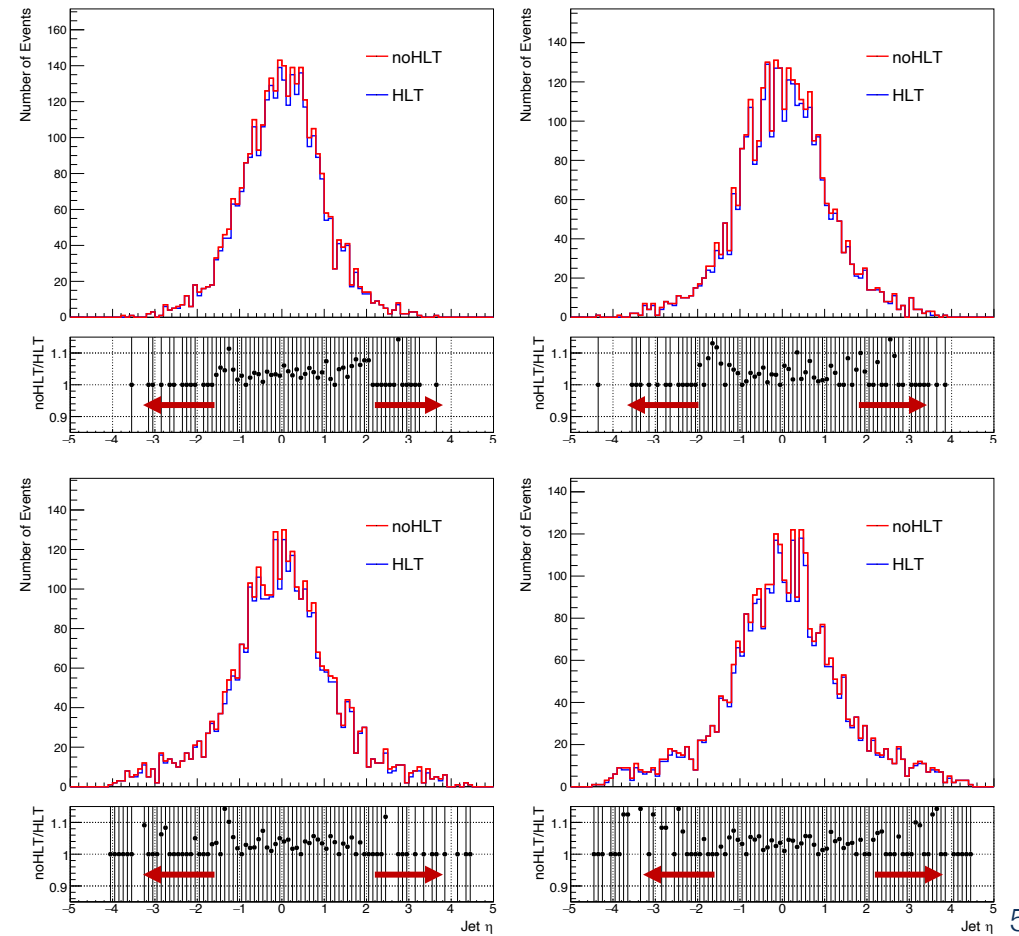
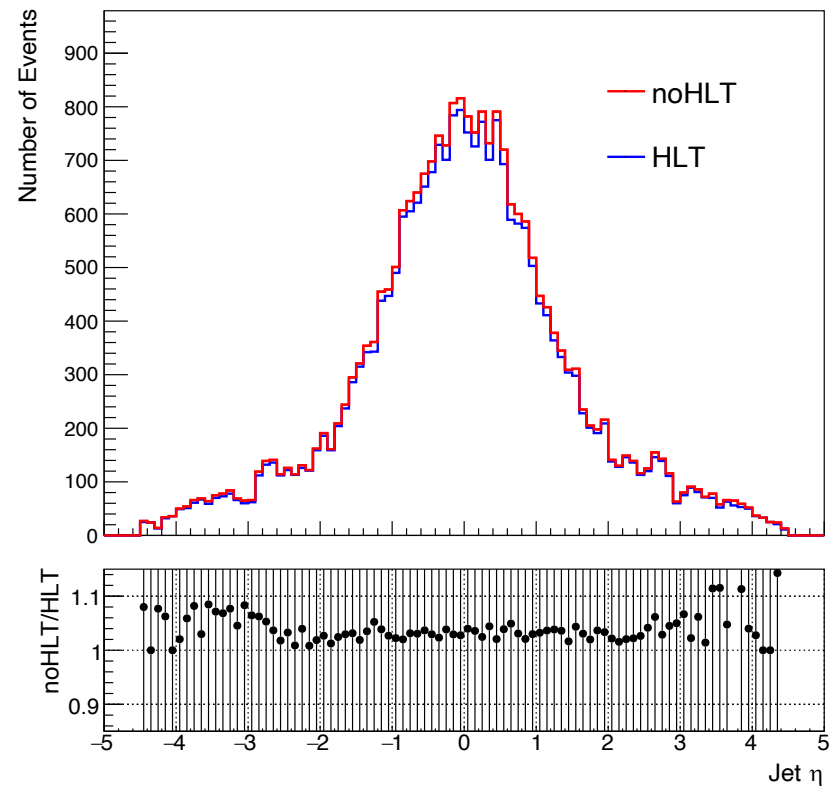
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Distribution: DeepCSV

- Jet eta



Trigger efficiencies: DeepCSV vs DeepJet

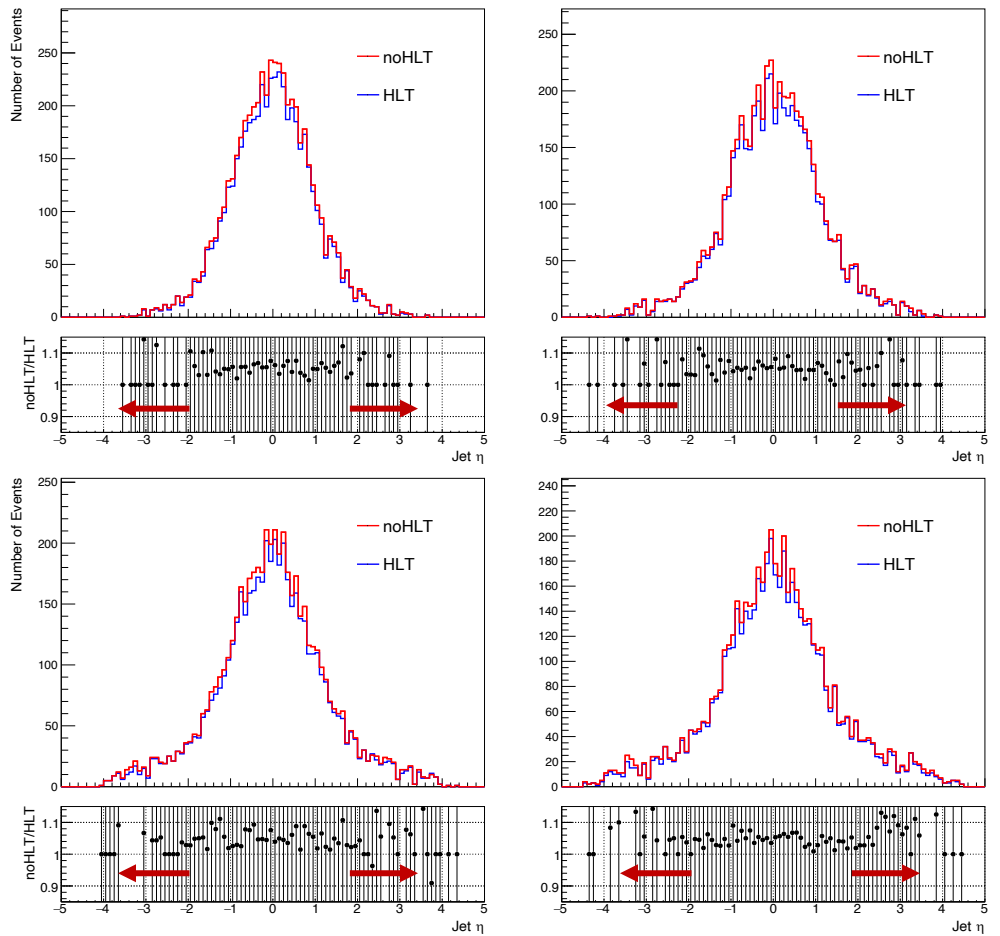
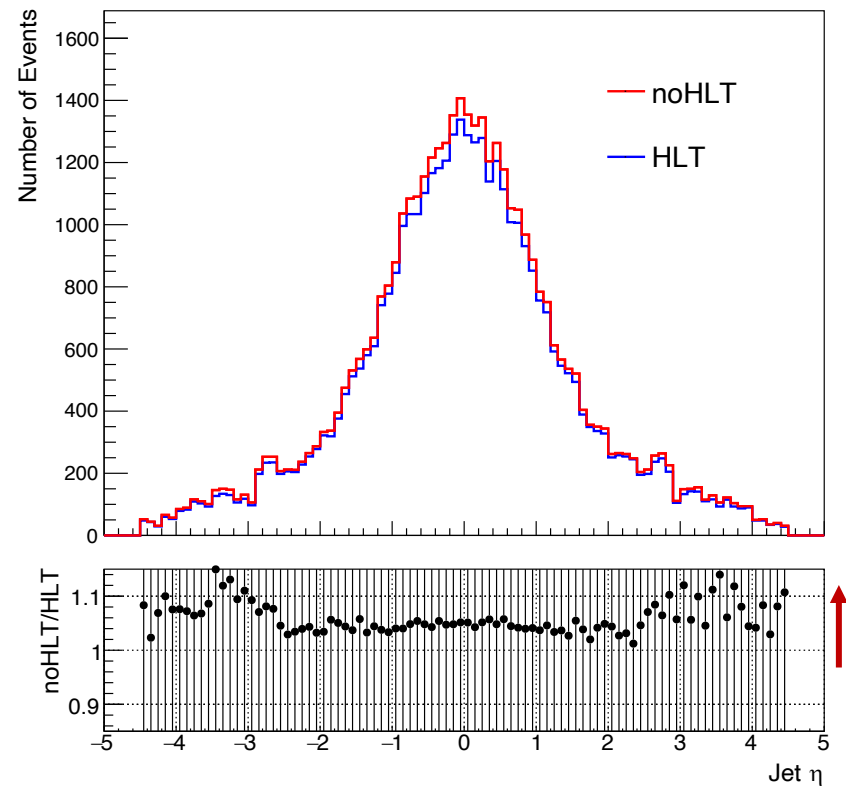
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Distribution: DeepJet

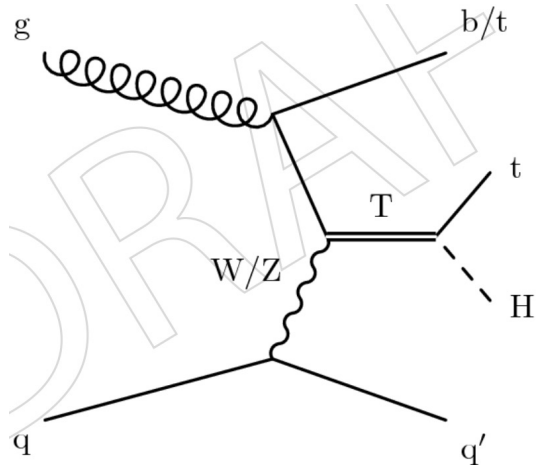
- Jet eta



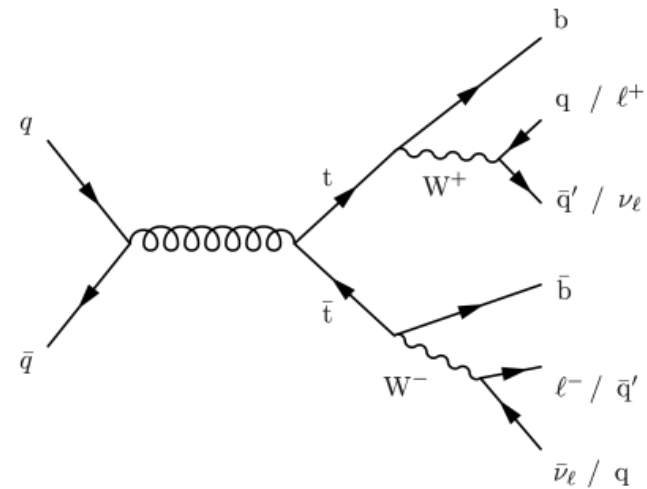
NN input features

Samples

TprimeBToTH_M-{700,1400}



TTToHadronic



Selections

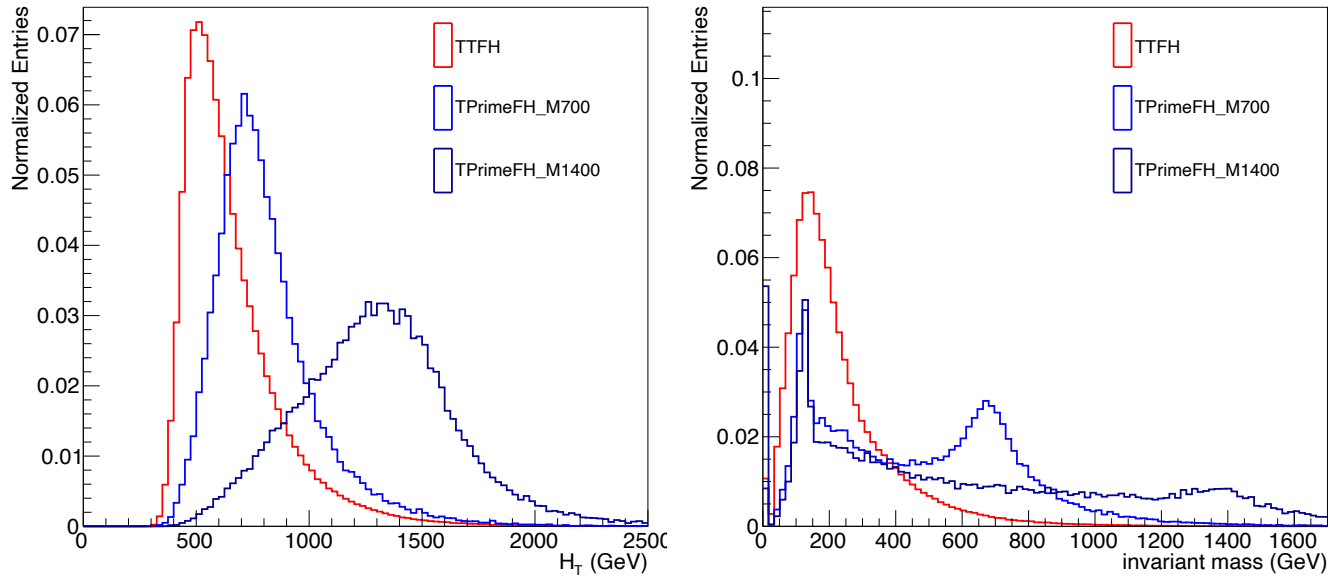
- HLT + njets ≥ 6 + nbjets ≥ 2

Input variables study

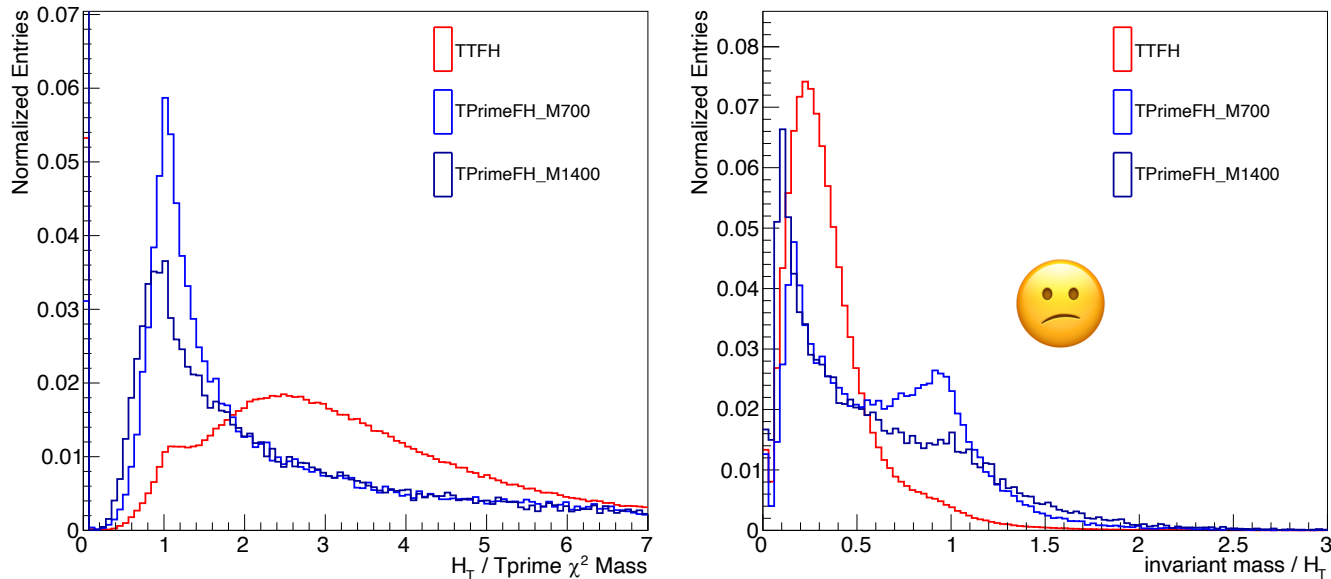
- Motivation: Having mass independent variables
 - (b-tagged) Jet pT / mass or goodHT
 - (b-tagged) Jet energy / mass or goodHT

Distributions of observables: HT / M chi2

Before normalization

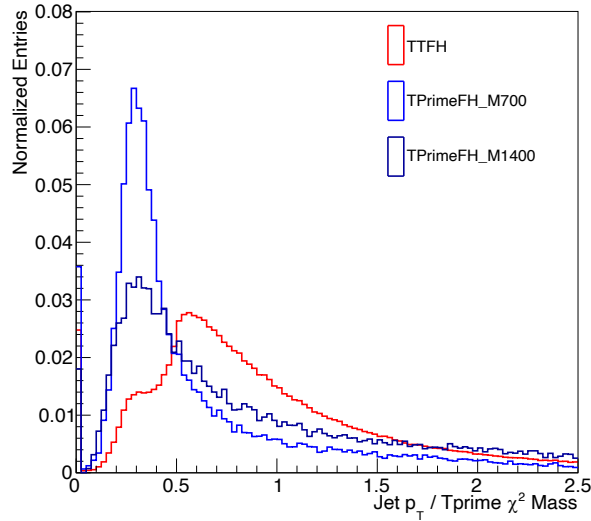


After normalization by each

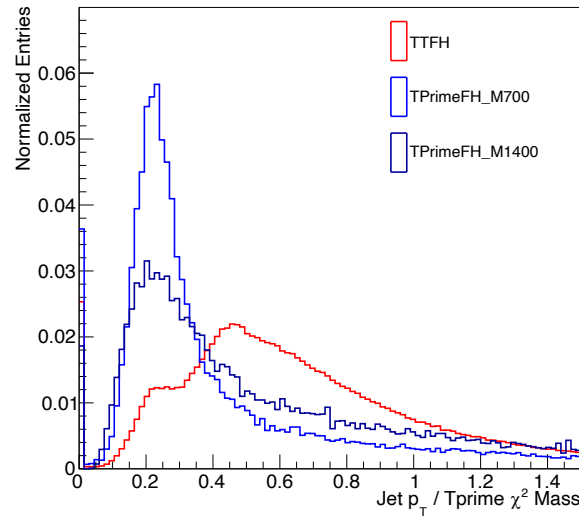


Distributions of observables: Jet pT / mass

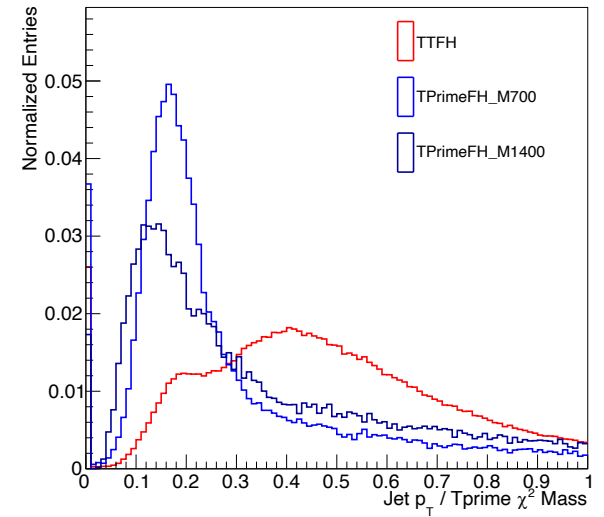
1st Jet



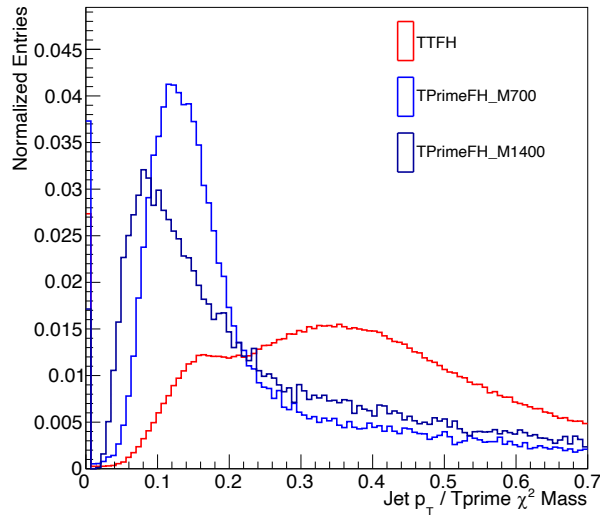
2nd Jet



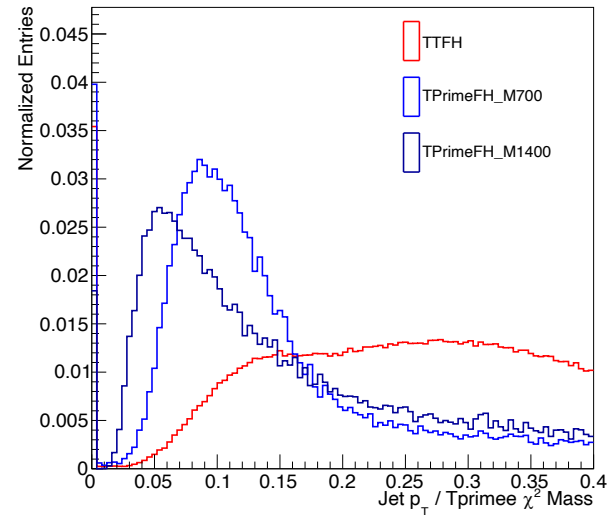
3rd Jet



4th Jet

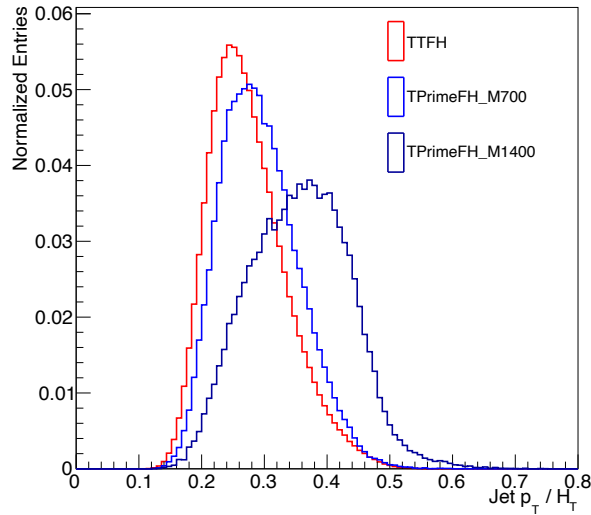


5th Jet

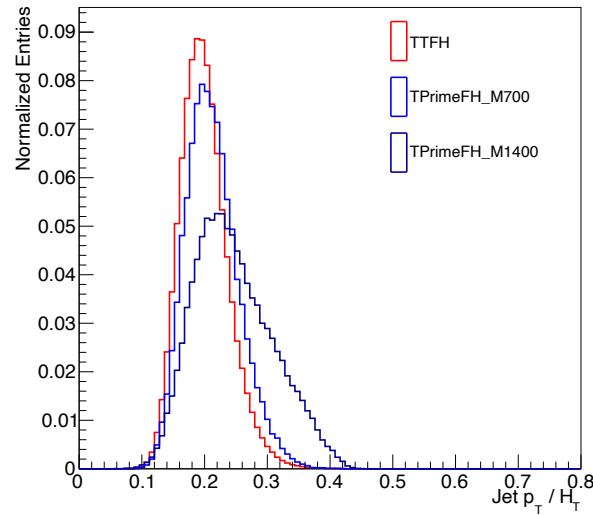


Distributions of observables: Jet p_T / H_T

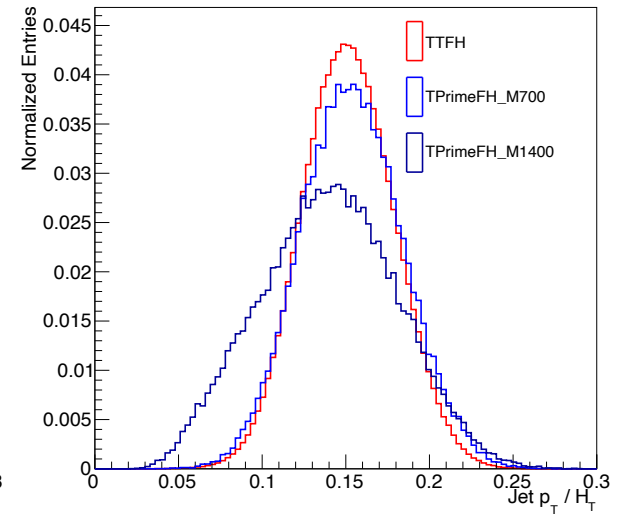
1st Jet



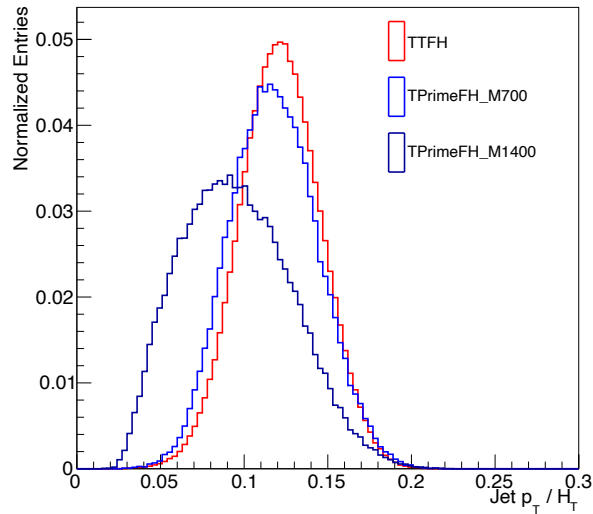
2nd Jet



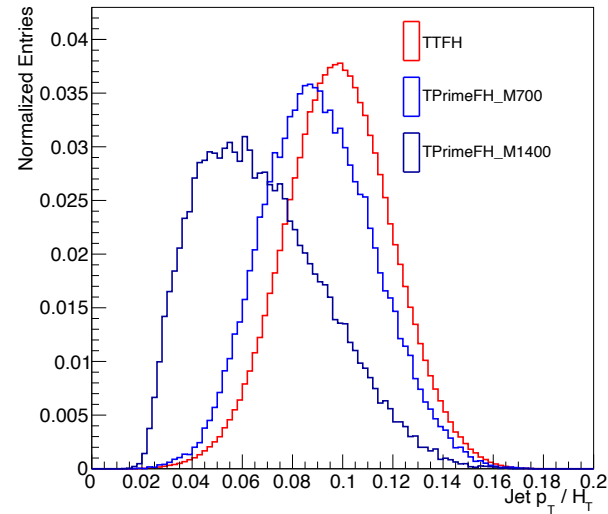
3rd Jet



4th Jet

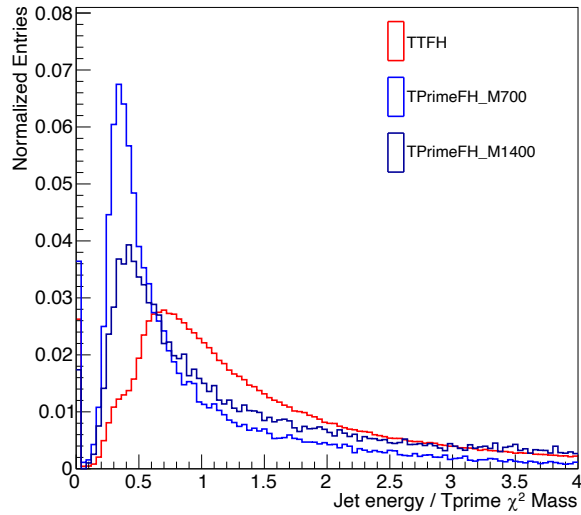


5th Jet

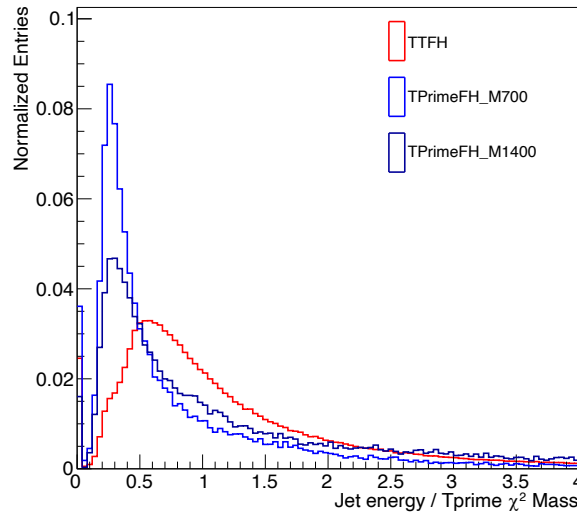


Distributions of observables: Jet E / Mass

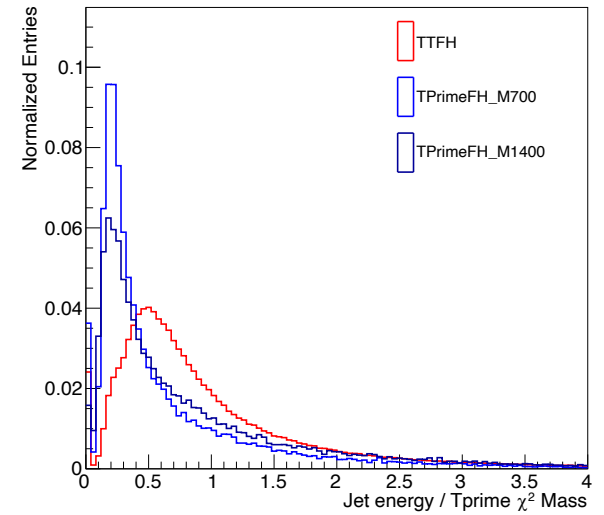
1st Jet



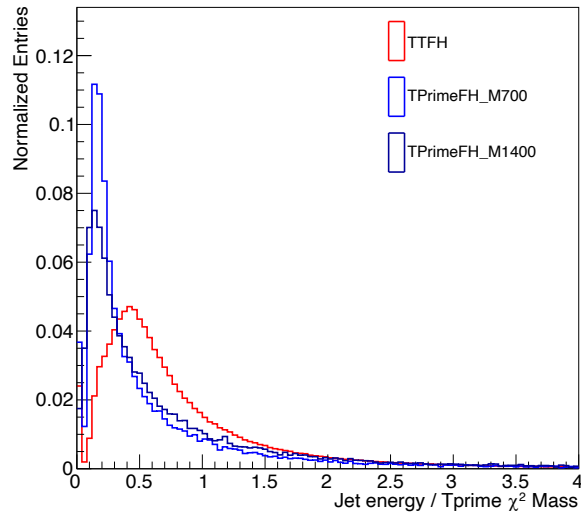
2nd Jet



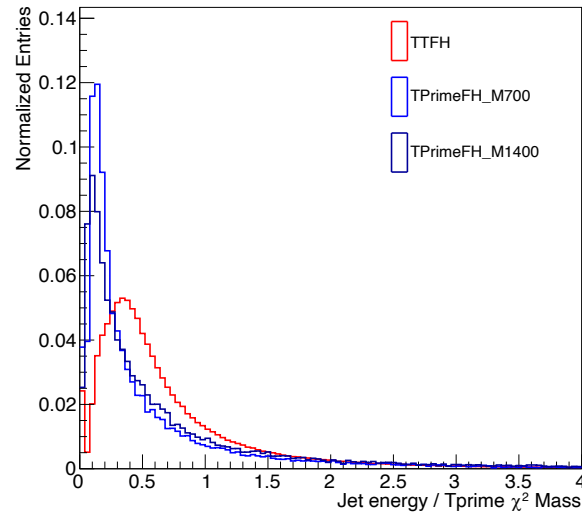
3rd Jet



4th Jet

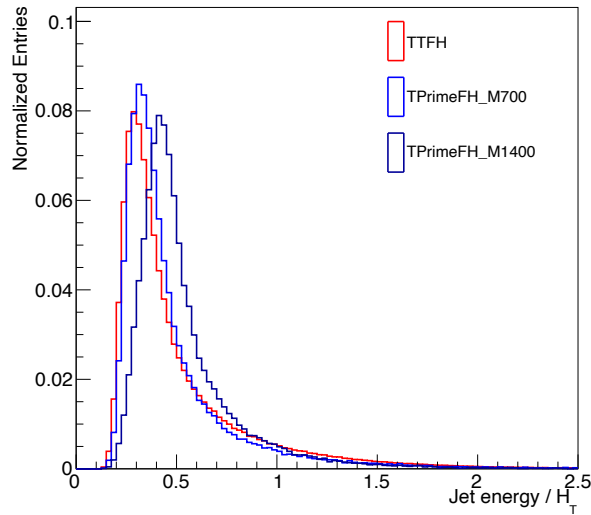


5th Jet

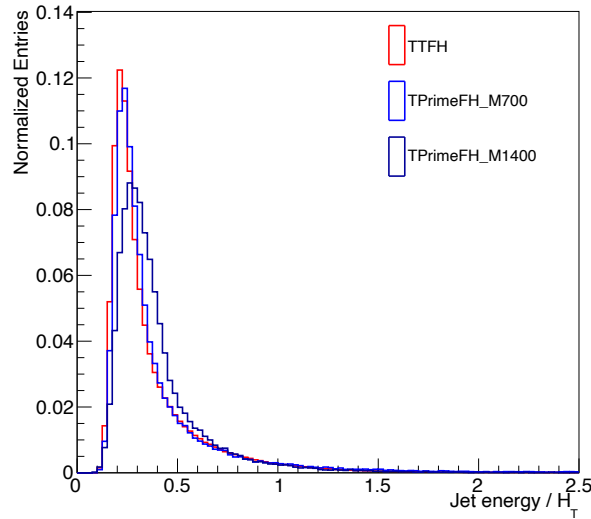


Distributions of observables: Jet E / HT

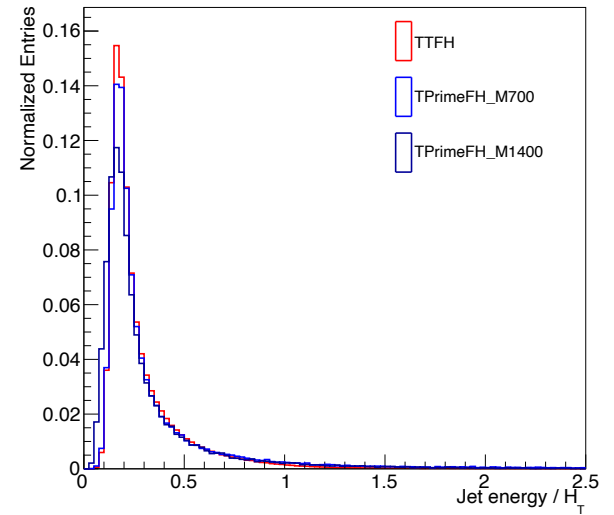
1st Jet



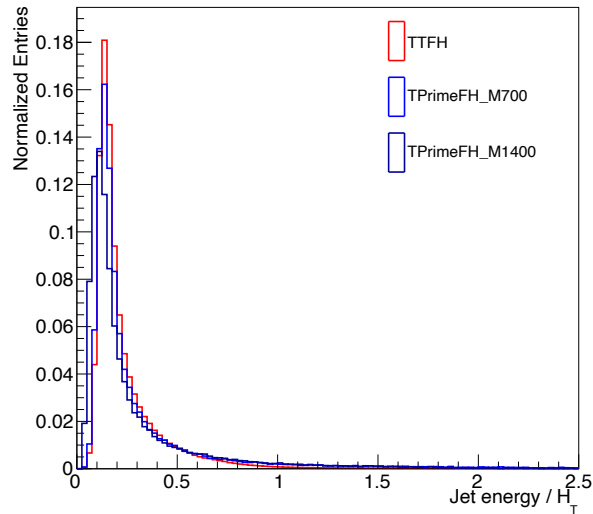
2nd Jet



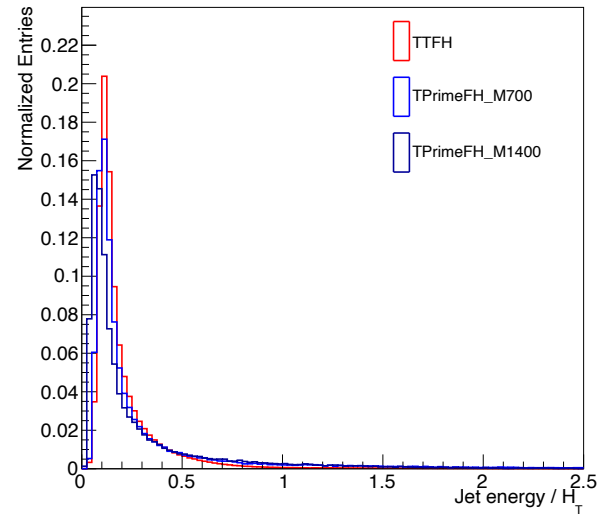
3rd Jet



4th Jet



5th Jet

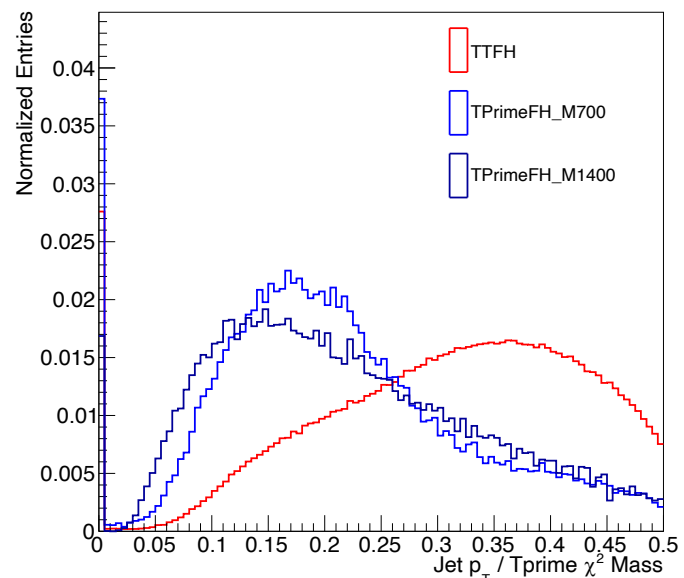
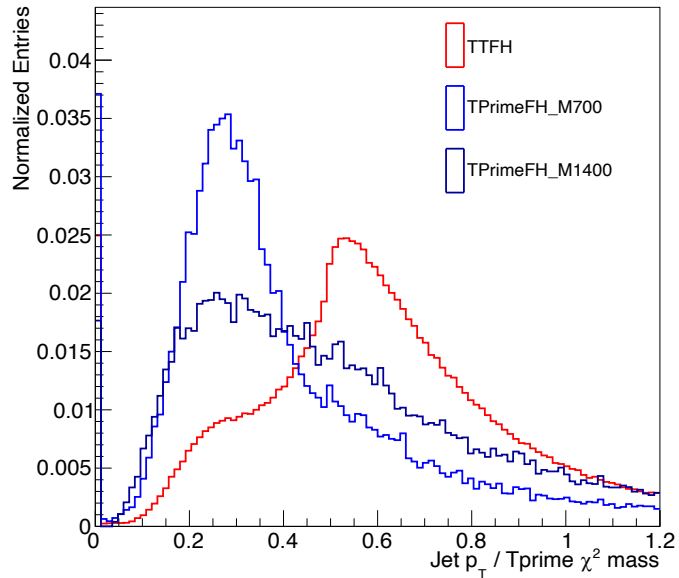
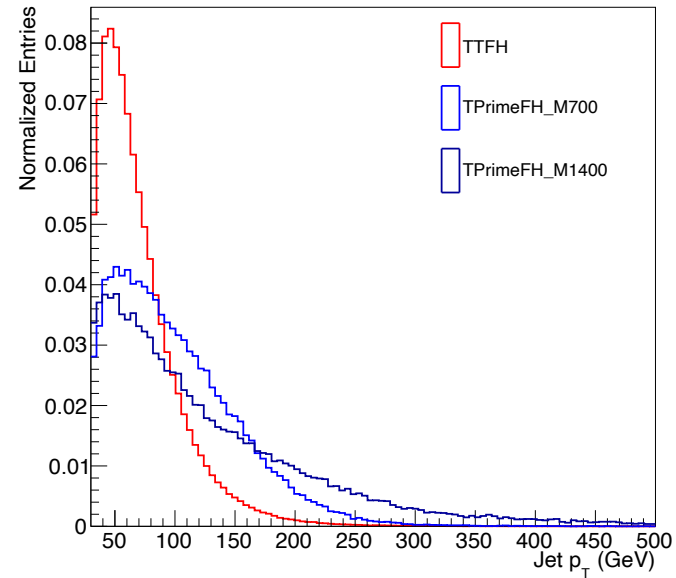
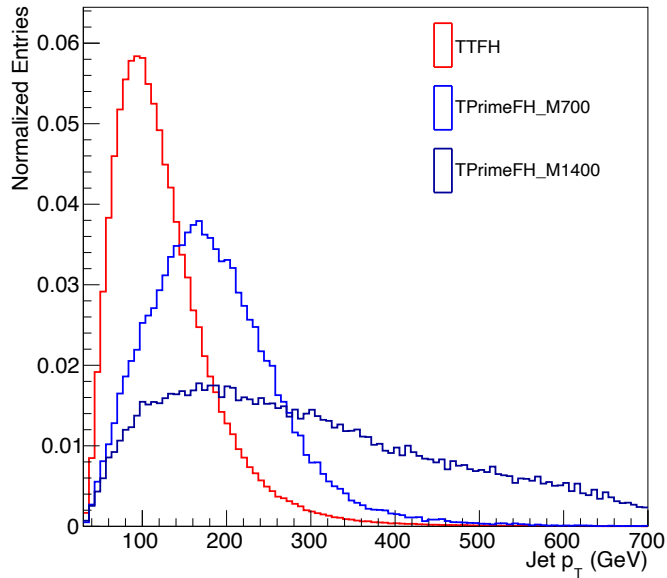


Distributions of observables: b-Jet pT / Mass

pT order

1st b-tagged Jet

2nd b-tagged Jet



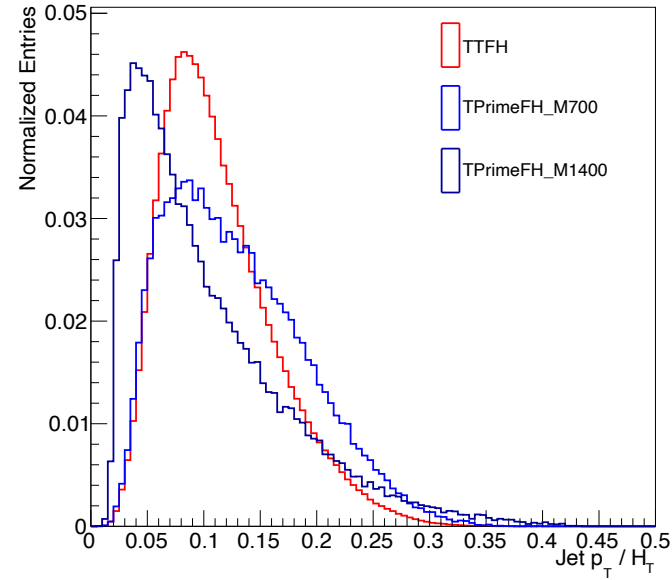
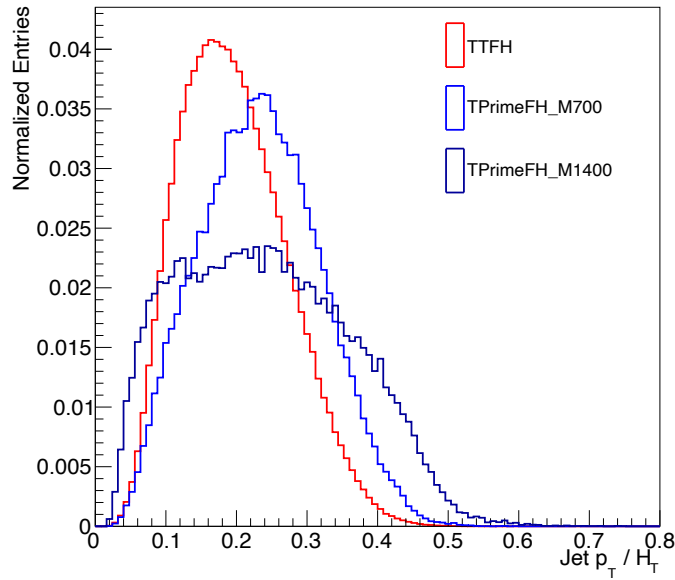
Distributions of observables: b-Jet p_T / HT

p_T order

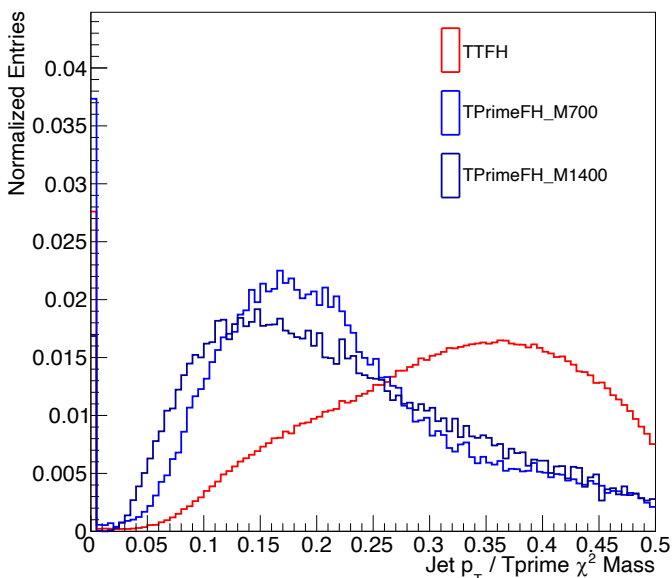
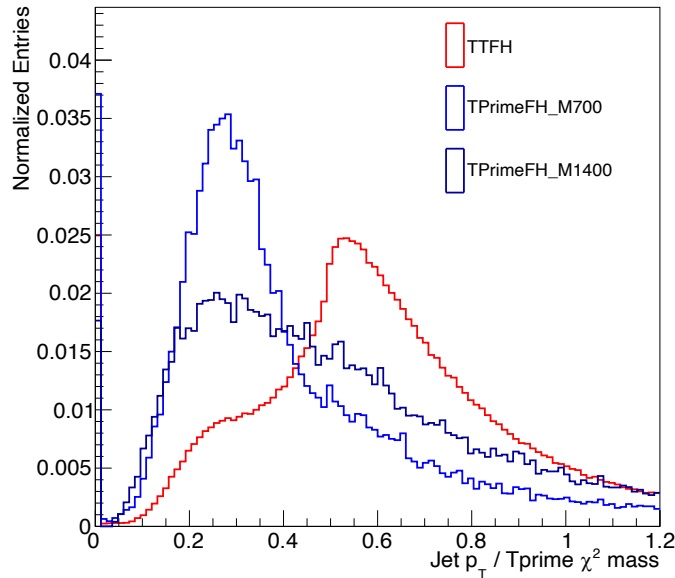
1st b-tagged Jet

2nd b-tagged Jet

HT norm



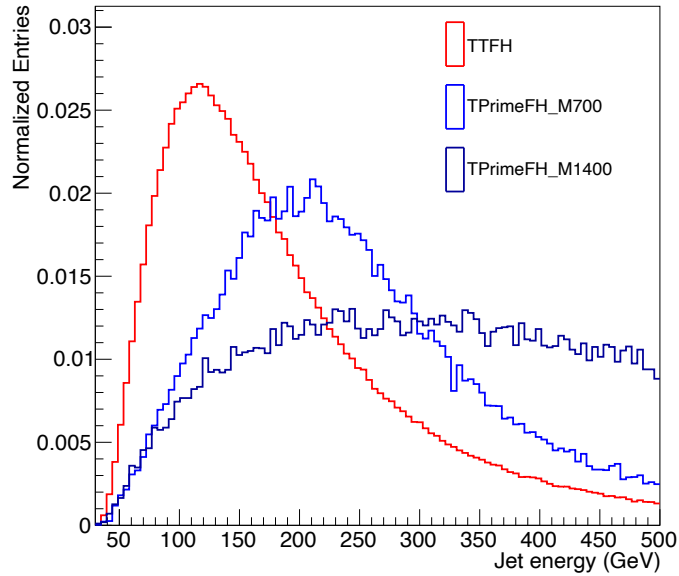
M norm



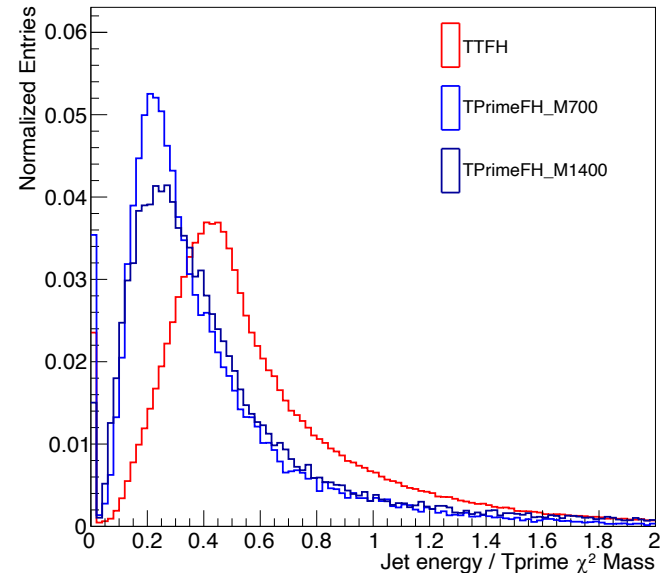
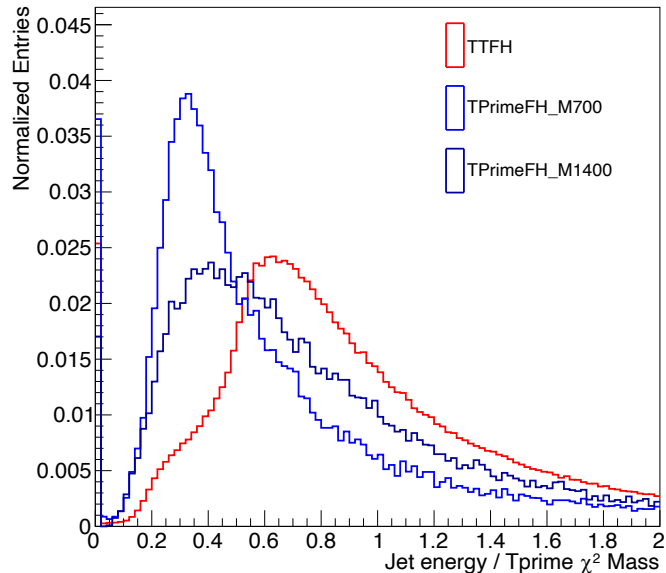
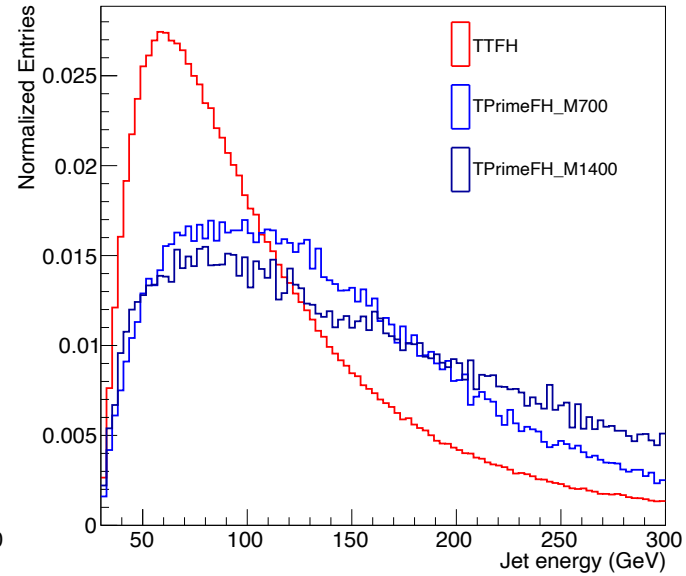
Distributions of observables: b-Jet E / Mass

pT order

1st b-tagged Jet



2nd b-tagged Jet



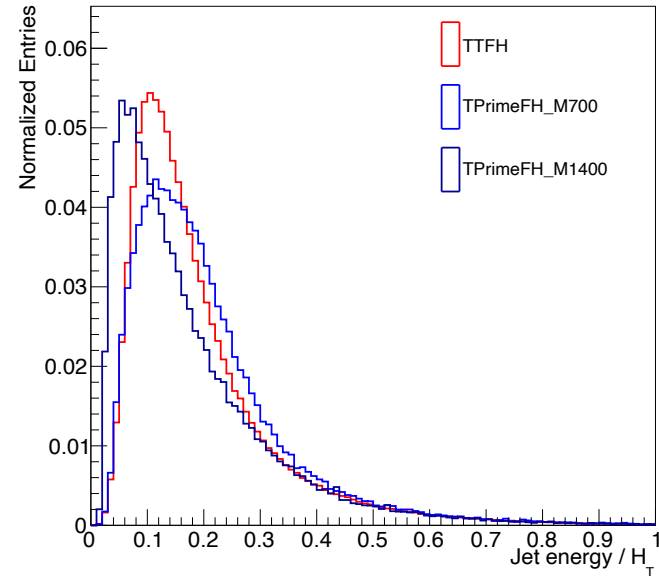
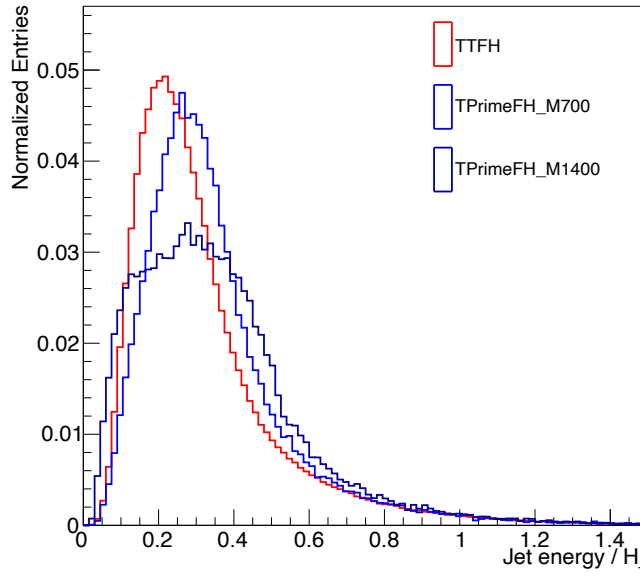
Distributions of observables: b-Jet E / HT

pT order

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2nd b-tagged Jet

HT norm



Dividing by Chi2 mass has better discrimination

M norm

