



हैदराबाद विश्वविद्यालय
University of Hyderabad

My Progress

MonoHiggs to $b\bar{b}$

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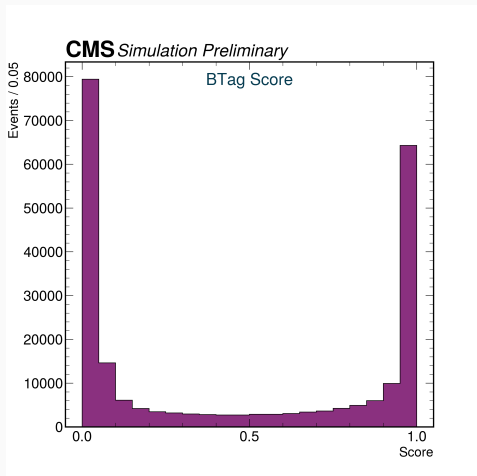
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1. Thu, 5th October 2023

Basic kinematic plots (Without any scale factors or corrections)

Basic kinematic plots

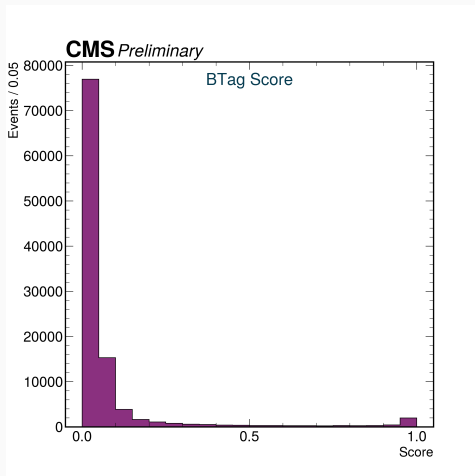
BTag Scores : MC



- Btagger used :
btagDeepFlavB
- Sample used:
MonoHTobb_ZpBaryonic
- Lots of bjets in Signal
MC

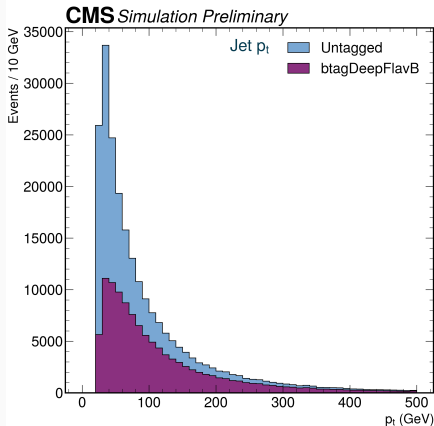
Figure 1: BTag score for signal MC sample

BTag Scores : Data



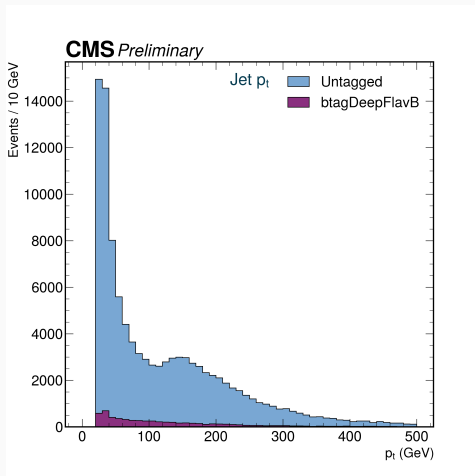
- Btagger used :
btagDeepFlavB
- Sample used:
Run2018A/MET
- Less number of bjets in
Data

Figure 2: BTag score for Data samples



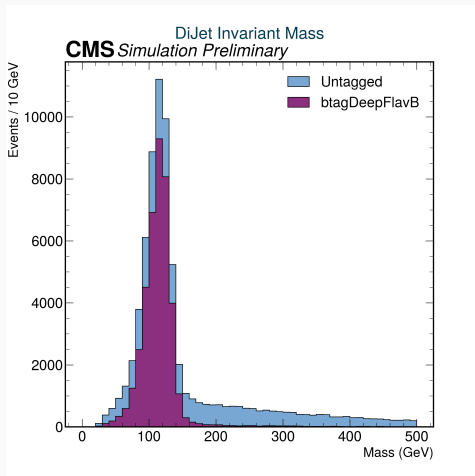
- Basic selections :
 $p_t > 25 \text{ GeV}$ and
 $|\eta| < 2.5$
- Btagger used :
btagDeepFlavB
- Sample used:
MonoHTobb_ZpBaryonic
- Medium Weight
Parameter used for
ak4bjets : 0.3040

Figure 3: Jet p_t of signal MC samples



- Basic selections :
 $p_t > 25 \text{ GeV}$ and
 $|\eta| < 2.5$
- Btagger used :
btagDeepFlavB
- Sample used:
Run2018A/MET
- Medium Weight
Parameter used for
ak4bjets : 0.3040
- Not as predictable as
signal MC

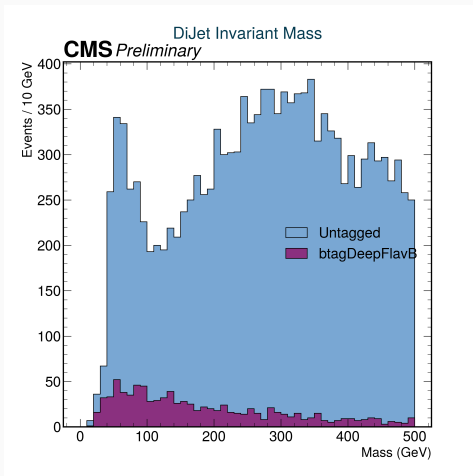
Figure 4: Jet p_t of Data samples



- Basic selections :
 $p_t > 25\text{ GeV}$ and
 $|\eta| < 2.5$ for each jet
- Btagger used :
btagDeepFlavB
- Sample used:
MonoHTobb_ZpBaryonic
- Medium Weight
Parameter used for
ak4bjets selection :
0.3040
- Peaks around SM Higgs
mass

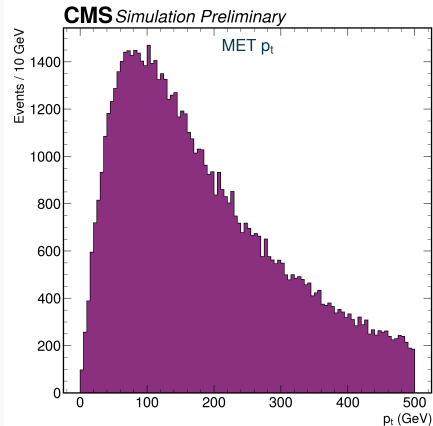
Figure 5: DiJet mass of signal MC samples

DiJet mass : Data



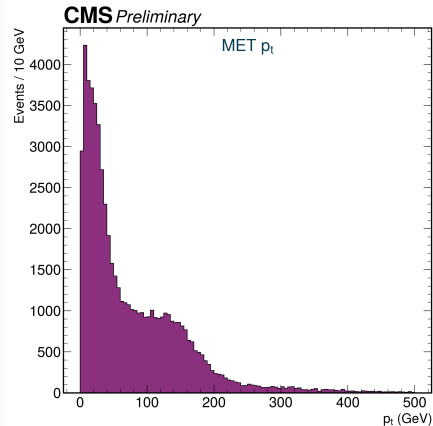
- Basic selections :
 $p_t > 25 \text{ GeV}$ and
 $|\eta| < 2.5$ for each jet
- Btagger used :
btagDeepFlavB
- Sample used:
Run2018A/MET
- Medium Weight
Parameter used for
ak4bjets selection :
0.3040
- Lot of noise, no clear
structure

Figure 6: DiJet mass of Data samples



- No filters or Trigger applied

Figure 7: MET p_t for signal MC samples



- No filters or Trigger applied
- Looks similar to the Jet data

Figure 8: MET p_t for Data samples

