My Progress

MonoHiggs to $b\bar{b}$

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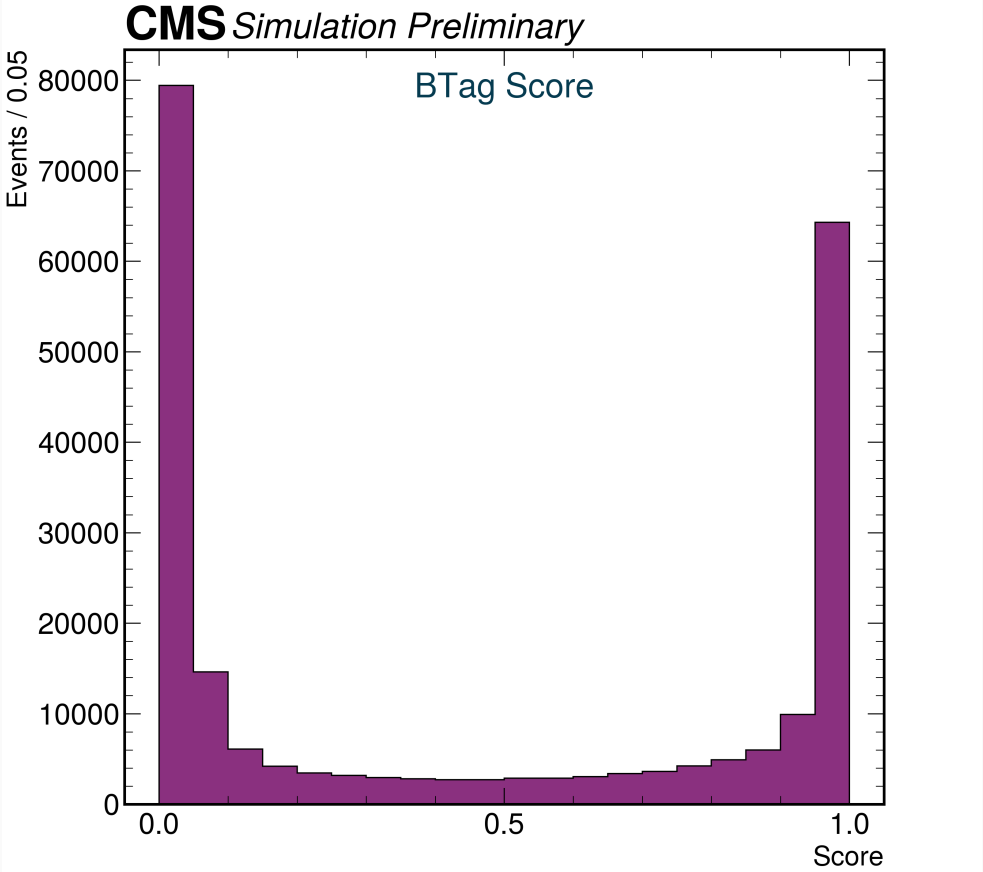
1. Thu, 5^{th} October 2023

Basic kinematic plots (Without any scale factors or corrections)

Basic kinematic plots

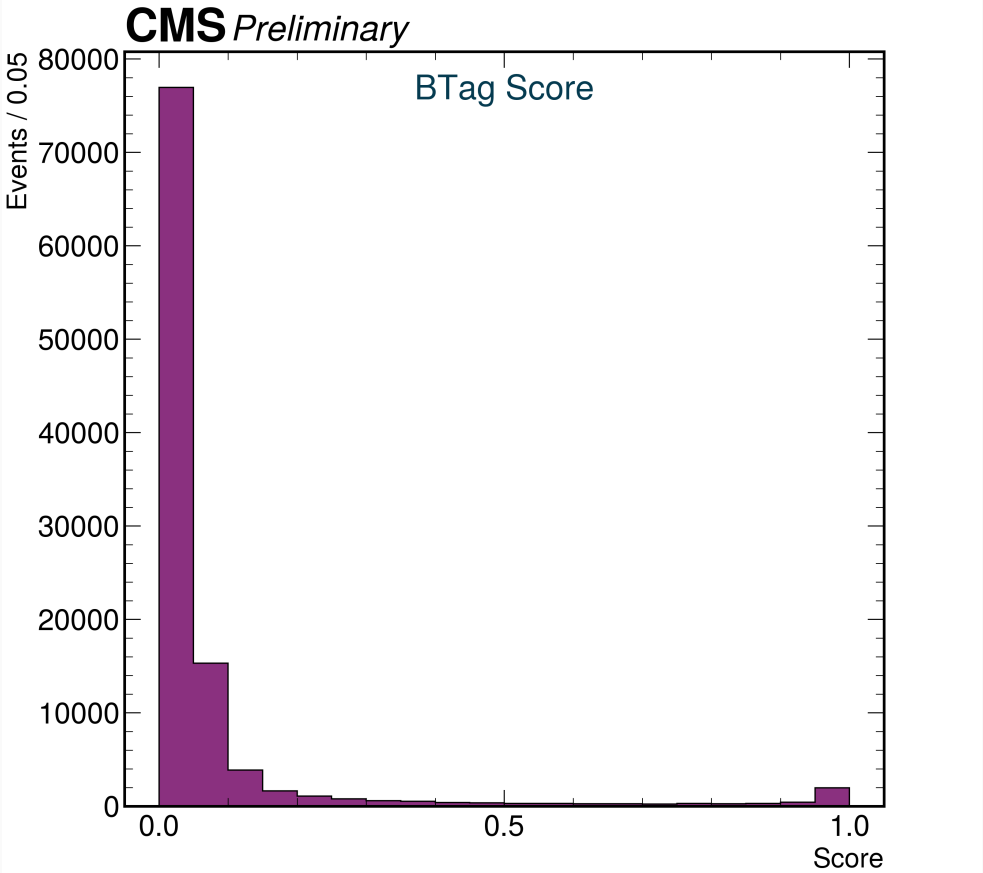
BTag Scores : MC



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

Figure 1: BTag score for signal MC sample

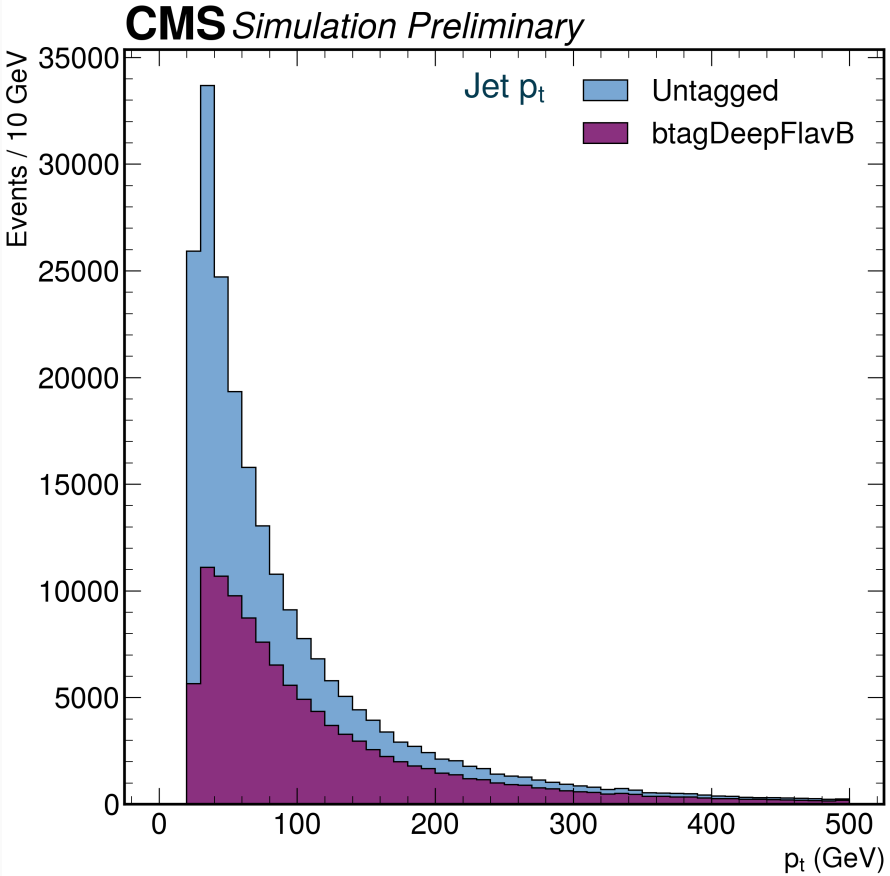
BTag Scores : Data



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

Figure 2: BTag score for Data samples

Jet p_t : MC



- Basic selections : $p_t > 25GeV$ 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

Jet p_t : Data

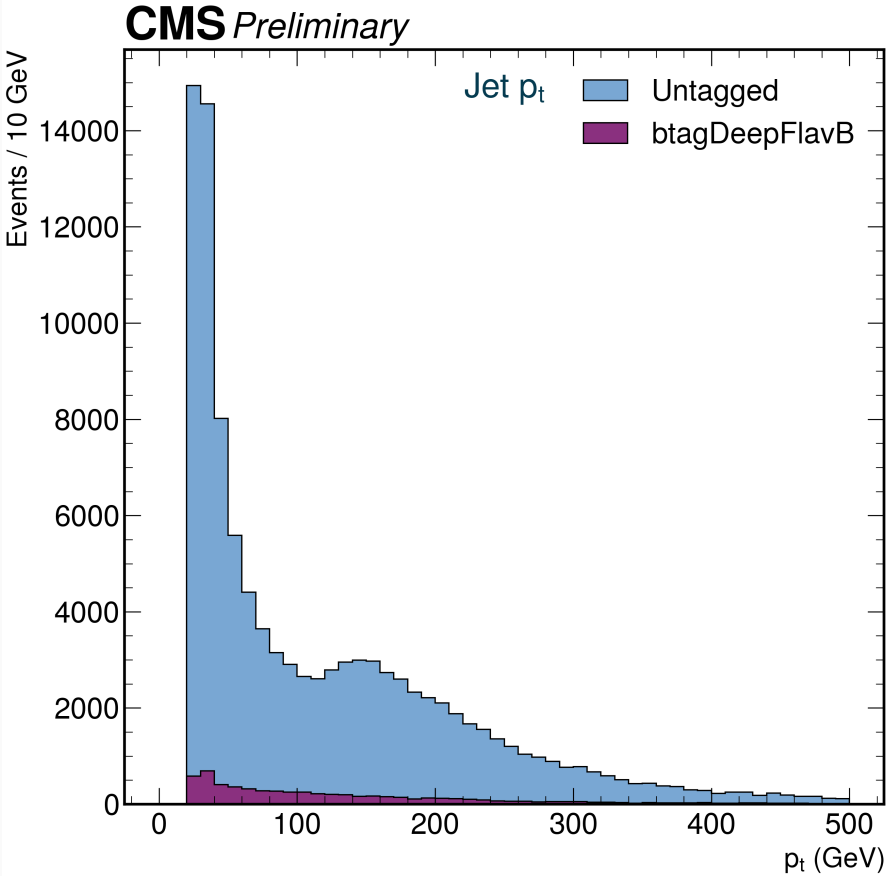
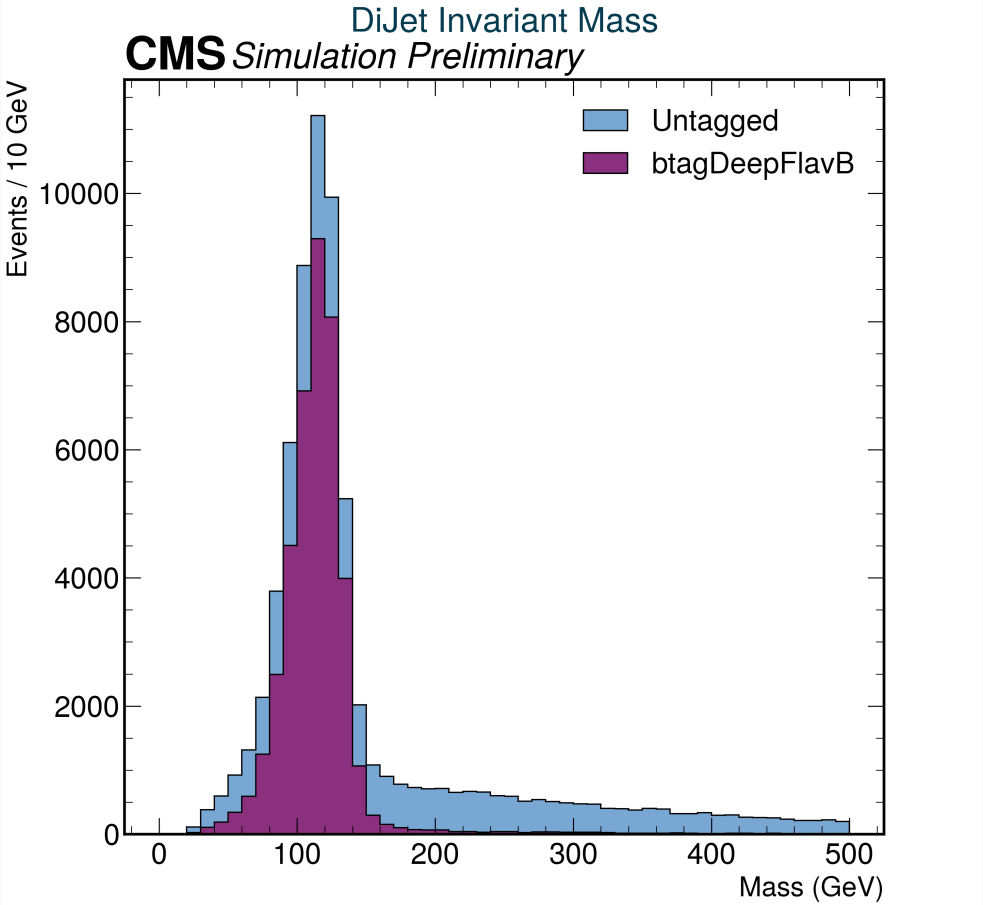


Figure 4: Jet p_t of Data samples

- Basic selections : $p_t > 25GeV$ 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

DiJet mass : MC



- Basic selections : $p_t > 25GeV$ 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

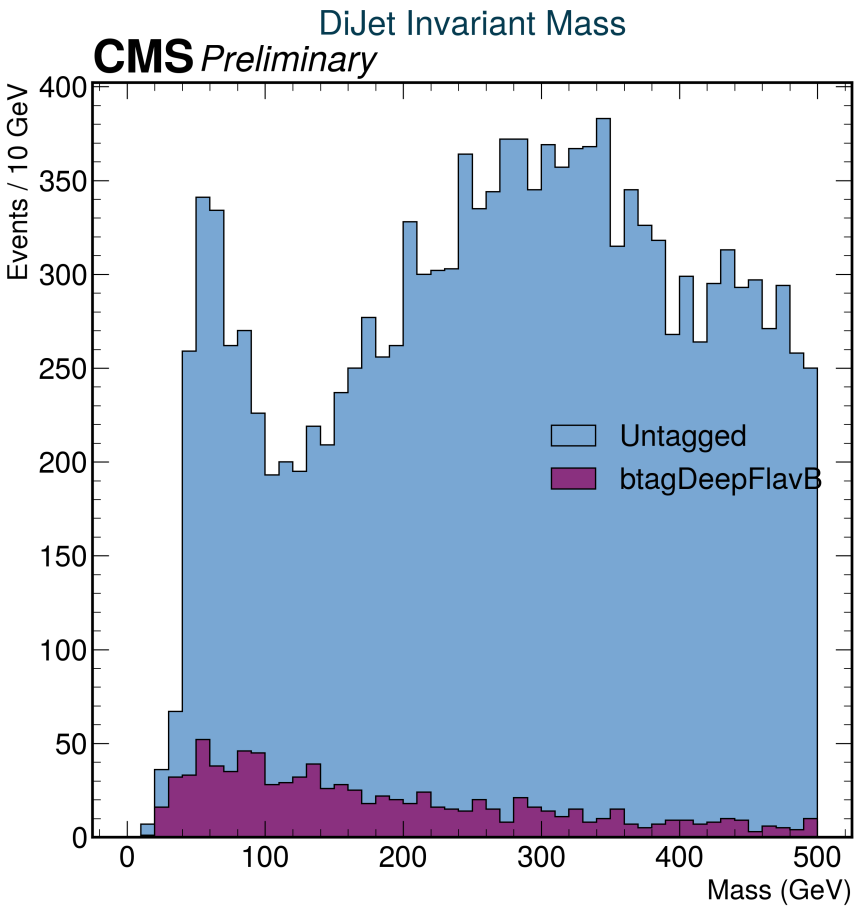
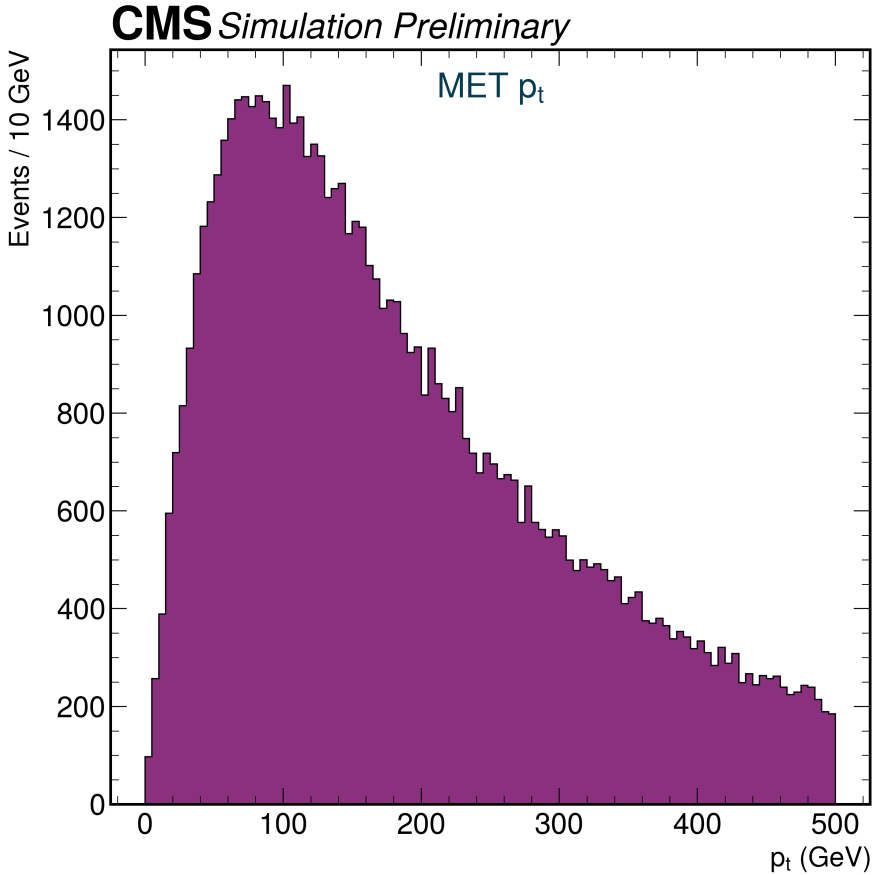


Figure 6: DiJet mass of Data samples

- Basic selections : $p_t > 25GeV$ 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

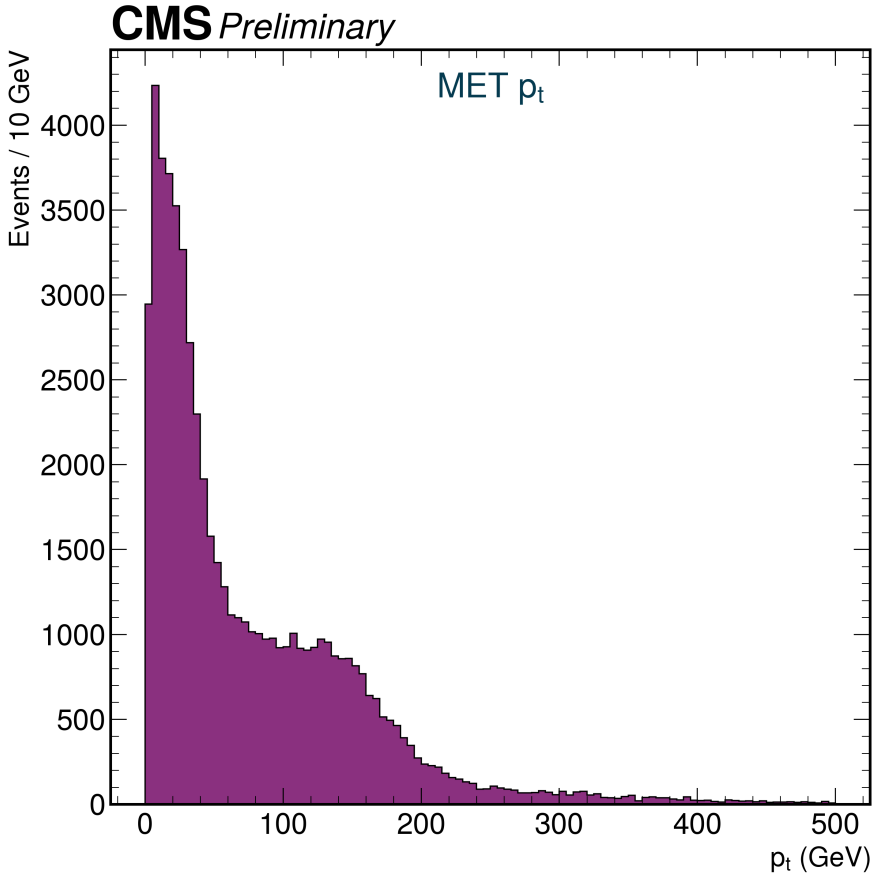
MET p_t : MC



- No filters or Trigger applied

Figure 7: MET p_t for signal MC samples

MET p_t : Data



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

Figure 8: MET p_t for Data samples

References i