HT ratio study in 0 lepton channel

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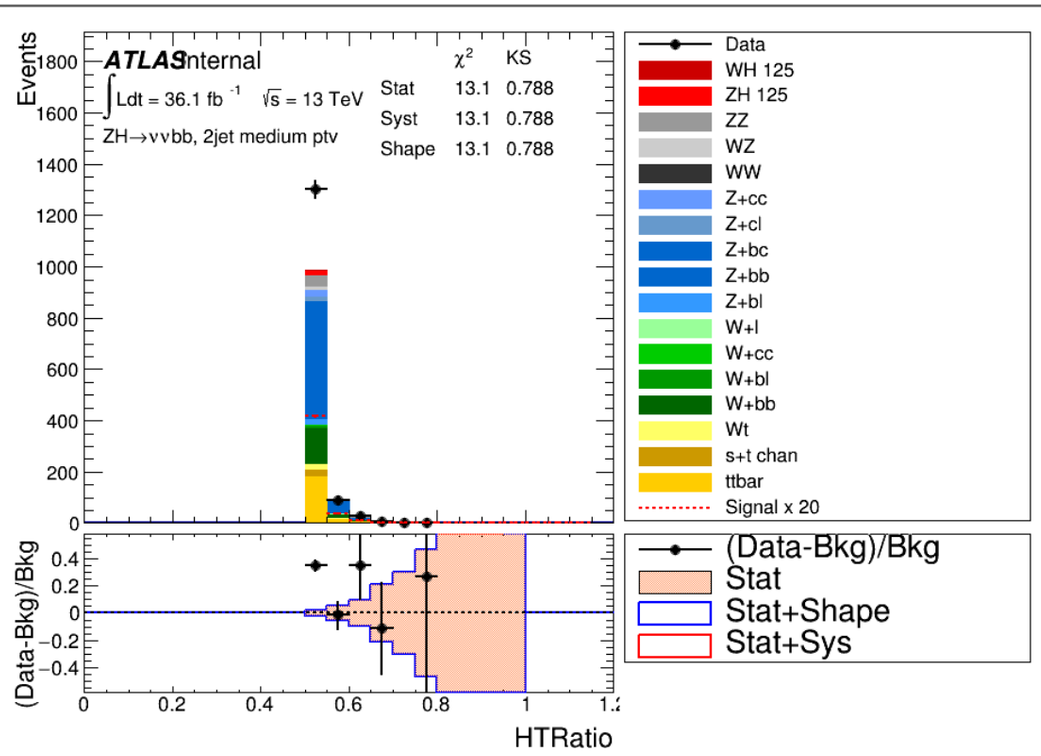
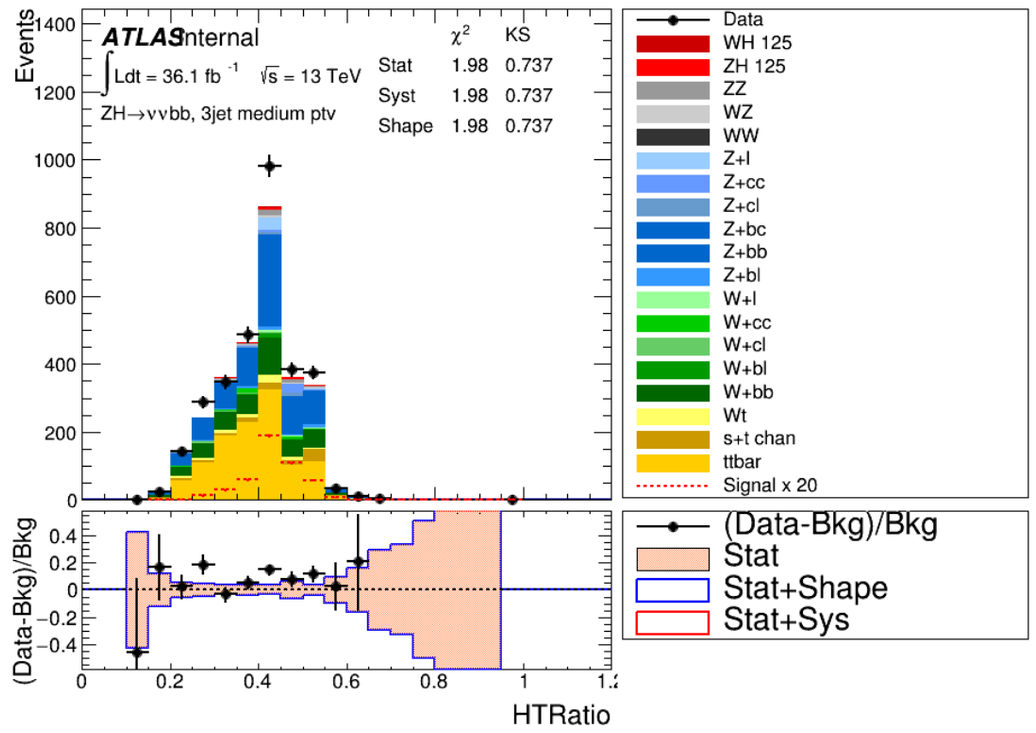
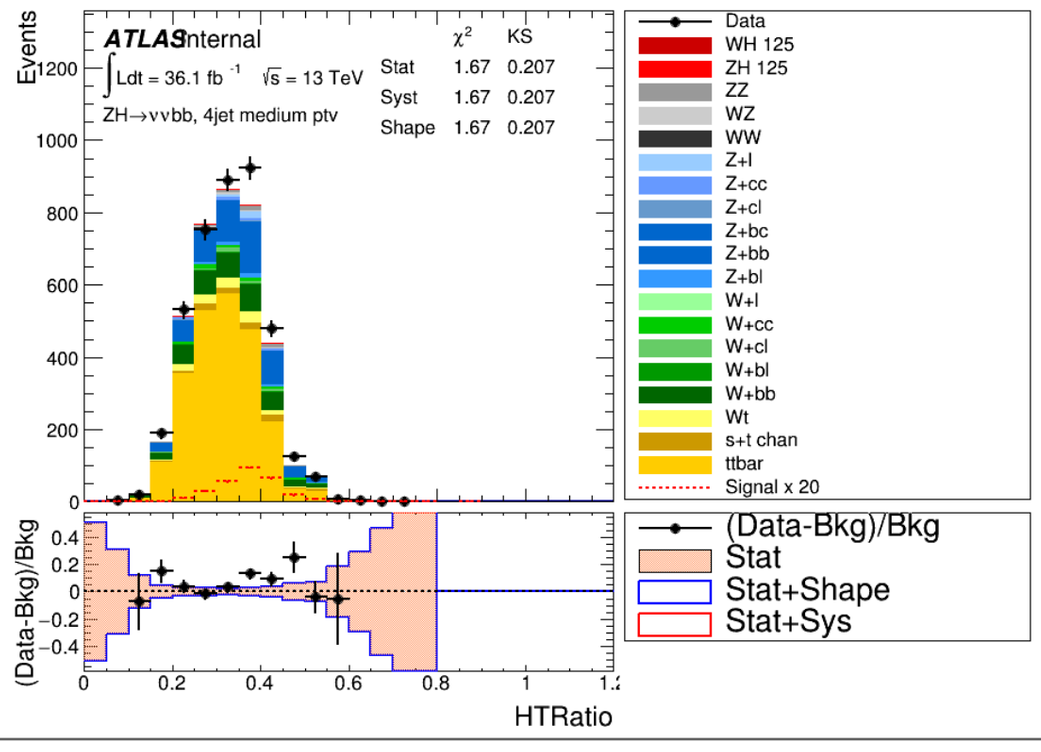
Introduction

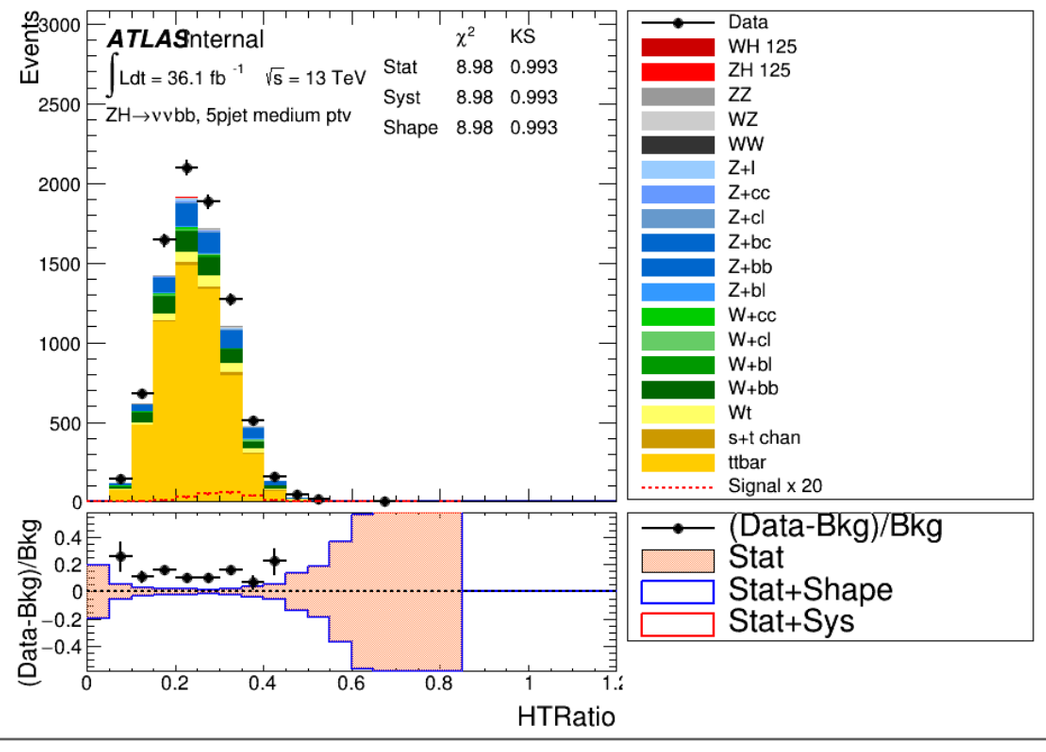
- Follow the study in 1lepton performed by Yanhui
  - Link
  - supporting note of the MonoH analysis
- Perform the preliminary study in 0 lepton channel
  - Using CxAOD28 production (R20)
  - **Cut based selection**
  - Medium PTV: 150-200 GeV
  - High PTV: > 200 GeV
  - HT calculation = scalar sum of two b-tagger jets / sum of jets
    - two b-tagger jets: applied with muInjet / Ptreco correction
    - the jets in denominator are **not** applied the above correction
  - btaggingCDIfilename = 2016-20_7-13TeV-MC15-CDI-2017-06-07_v2
  - All the samples are applied **direct tagging**
- HT ratio is shown in 2/3/4/5p jets regions

Medium PTV region

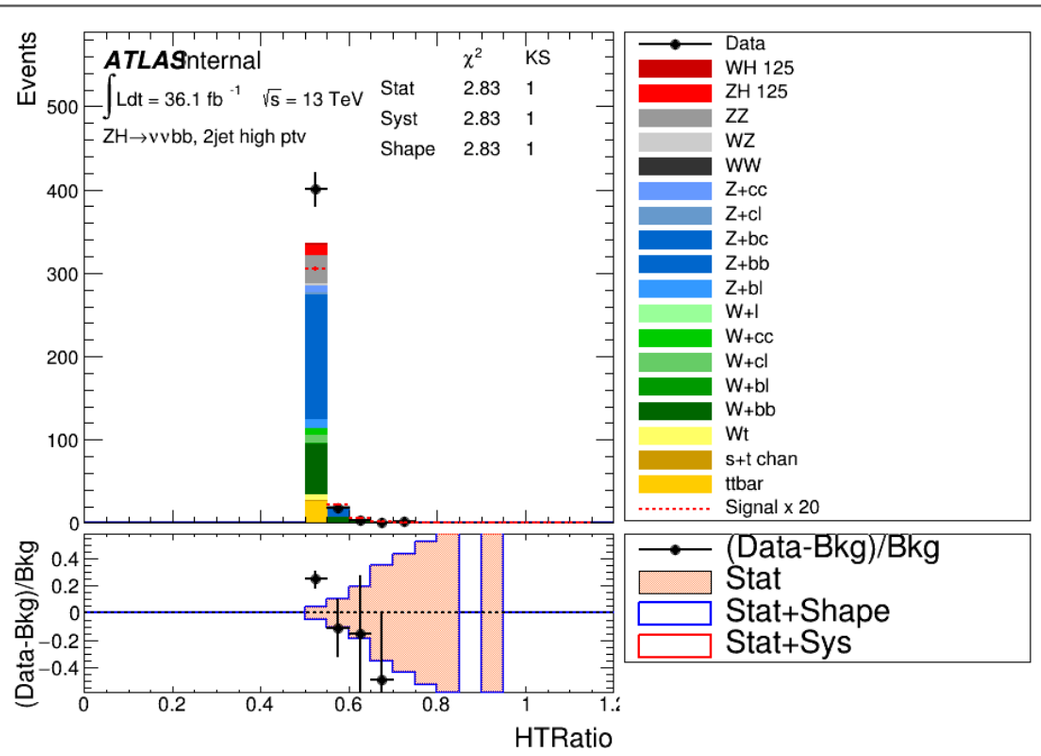


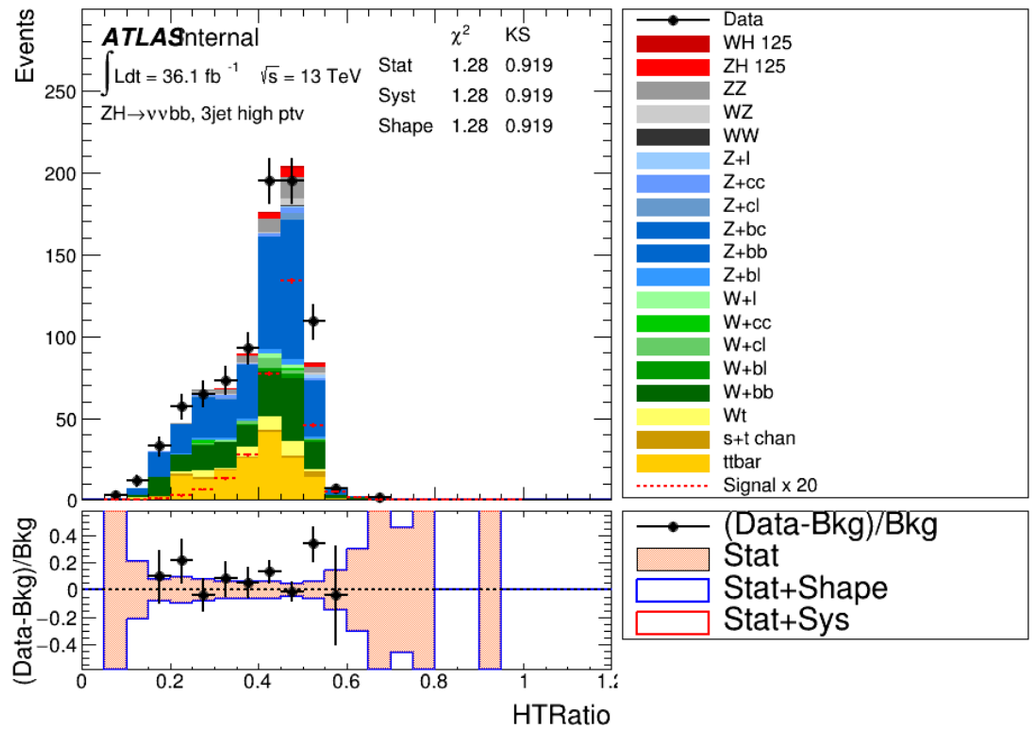


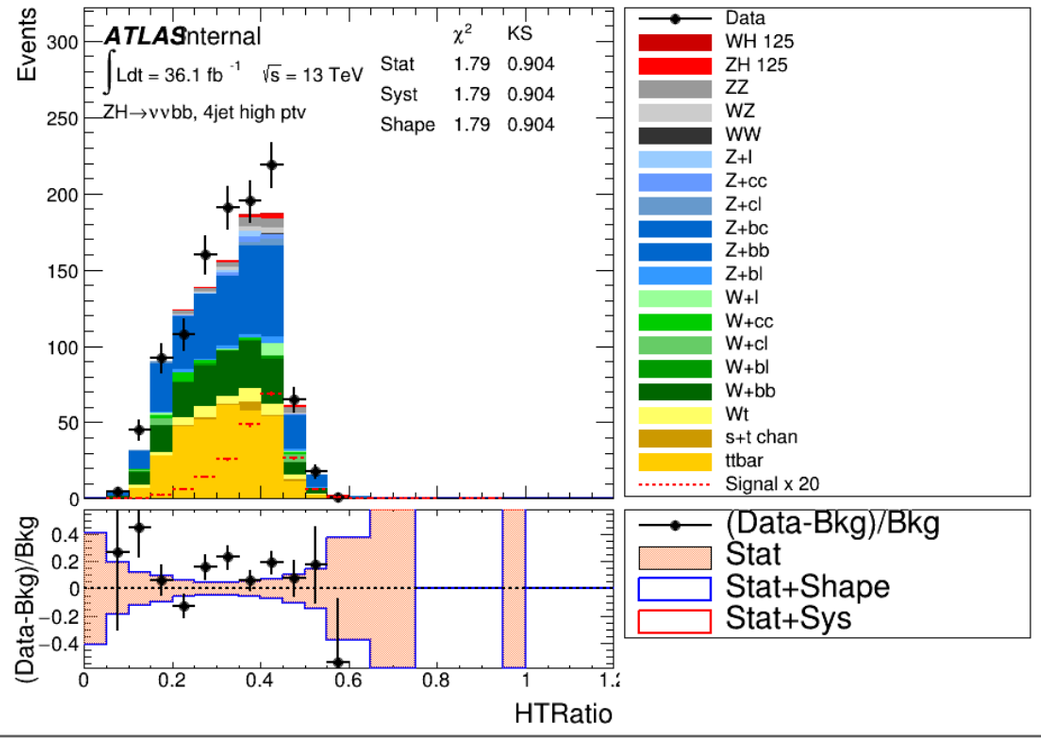


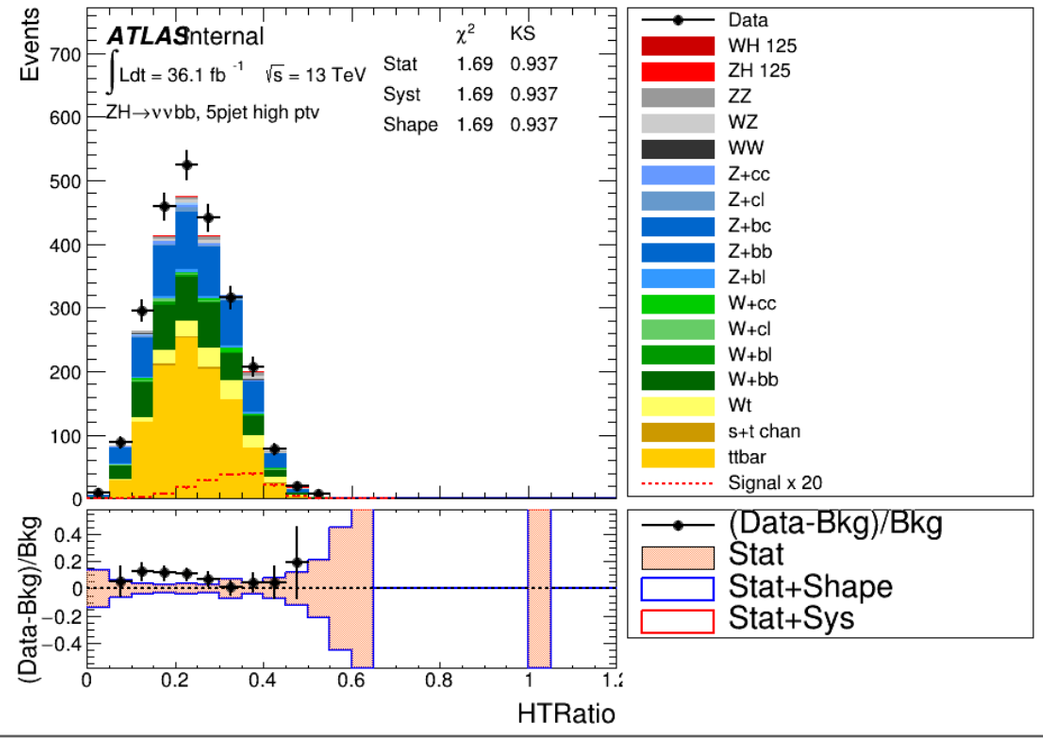


High PTV region









Conclusion and Plan

- Conclusion
  - From these preliminary plots, clearly, HT ratio will show the discriminating power in 3/4/5p jet region
- Plan
  - Calculate the significance gain with the 3pjet region w.r.t 3jets only as the baseline
  - Perform the cut scan on the HT ratio in the 3pjet region.
  - For the MVA analysis, test the BDT training with HT ratio.
    - Already correlate with other training variables?
    - How much gain in ROC with HT ration in training?

Backup