

# HLT for 2018 in NanoAOD

## Progress Report on Tau Final States of TTTT

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# Outline

# Dataset

- 2016 data
  - ▶ B-Ver1: [272760, 272760]
  - ▶ B\_ver2: [272760, 275376]
  - ▶ C: [275656, 276283]
  - ▶ D: [276315, 276811]
  - ▶ E: [276831, 277420]
  - ▶ F HIPM: [277932, 278807]
  - ▶ F non\_HIPM:[278769, 278808]
  - ▶ G: [278820, 280385]
  - ▶ H: [281613, 284044]
  - ▶ NanoAOD: 2016postVFP MC [272758,272758]
- 2018 data
  - ▶ A: [315257, 316995]
  - ▶ B: [317080, 319310]
  - ▶ C: [319337, 320065]
  - ▶ D: [320500, 325172]
  - ▶ different dataset can have different runs, but the ranges are within the same range

# HLT Choosing

- Some HLT in 2018 is a bit tricky, some triggers are switched during data taking
- The point in find trigger for now is: choose **unprescaled and similar** triggers that are **similar**

# HLT with Their Runs

- HLT\_PFHT1050 : [297050, 306460] 41.54, [315257, 325172] 59.96
- HLT\_PFHT330PT30\_QuadPFJet\_75\_60\_45\_40\_TriplePFBTagDeepCSV\_4p5: 59.96 59.96 315257 325172;
- Possible trigger combination:
  - ▶ HLT\_PFHT380\_SixPFJet32\_DoublePFBTagCSV\_2p2 [5.30 5.30 315257 315973]
  - ▶ HLT\_PFHT380\_SixPFJet32\_DoublePFBTagDeepCSV\_2p2 17.68 17.68 315257 317488
  - ▶ HLT\_PFHT400\_SixPFJet32\_DoublePFBTagDeepCSV\_2p94 42.28 42.28 317527 325172
  - ▶ gapping between 317488 and 317527, tbb using 317509
  - ▶ HLT\_PFHT430\_SixPFJet40\_PFBTagCSV\_1p5 5.30 5.30 315257 315973
  - ▶ HLT\_PFHT430\_SixPFJet40\_PFBTagDeepCSV\_1p5 12.38 12.38 315974 317488
  - ▶ HLT\_PFHT450\_SixPFJet36\_PFBTagDeepCSV\_1p59 42.28 42.28 317527 325172

# Complicated situation with NanoAOD

- We decide our 2018 data in 3 parts with 2 run break points, 315973 and 317509
- 3 parts: [315257,325173]; (325173,315973]; (315973,325173]
- The problem with nanoAOD file is: they have some files with runs crossing break points! which means they have the HLT values for runs that don't have the HLT!
- the value for HLT that shouldn't exit for the run is 0
- Be very careful with the reading of HLT! must consider run for the event before using HLT!!!
- MC lack some triggers present in data
  - ▶ HLT\_PFHHT430\_SixPFJet40\_PFBTagCSV\_1p5
  - ▶ HLT\_PFHHT430\_SixPFJet40\_PFBTagDeepCSV\_1p5
  - ▶ HLT\_PFHHT380\_SixPFJet32\_DoublePFBTagDeepCSV\_2p2

# Questions HLT

- do our MC files have exact the same HLT trigger as data in different runs?
  - ▶ no at least for 2018
- it seems different nanoAOD files can have the overlapping run range