Efficiency Comparison

EMTF Working Meeting

Wei Shi

Basics

- Remove Bias
  - HLT_IsoMu27 or HLT_Mu50
  - Only use RECO muons
    - nRecoMuonsTrig >=2
    - nRecoMuonsTrig ==1 && nRecoMuonsTrigCen ==1 && reco_trig_ID", ireco < 0
- 2018 Emulator
  - dTh4: 1,067,602 events
  - dTh6: 1,160,597 events
  - dTh8: 1,492,124 events
- 2017
  - 1,776,324 events

Muon Quality

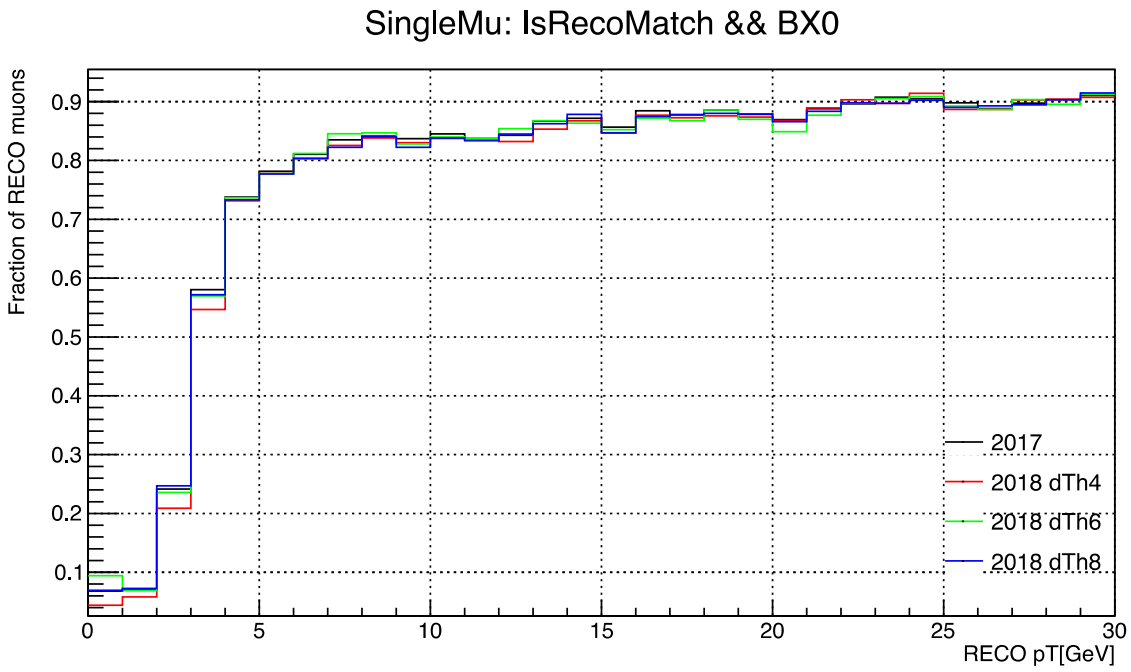
- SingleMu Quality (Q>=12)
  - EMTF mode 15, 14, 13, 11
- DoubleMu Quality (Q>=8)
  - EMTF mode 12, 10, 7
  - EMTF mode 15, 14, 13, 11
- MuOpen Quality (Q>=4)
  - EMTF mode 9, 6, 5, 3
  - EMTF mode 9, 10, 7
  - EMTF mode 15, 14, 13, 11

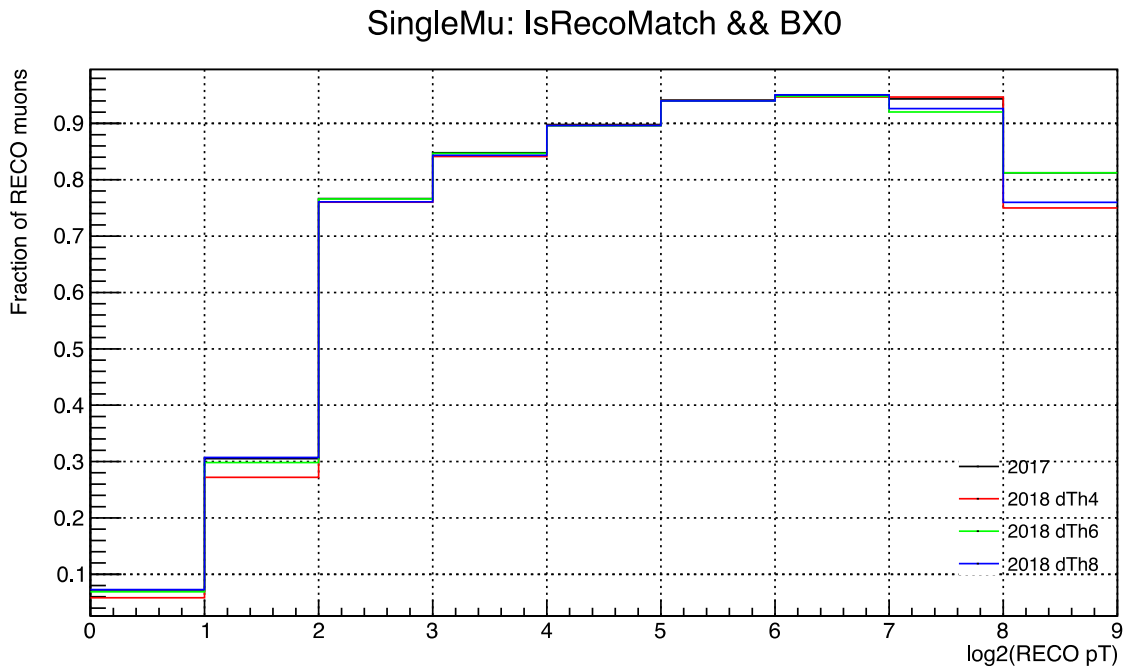
2017 Emulator

- SingleMu Quality (Q>=12)
  - EMTF mode 15, 14, 13, 11
- DoubleMu Quality (Q>=8)
  - EMTF mode 9, 10, 7
  - EMTF mode 15, 14, 13, 11
- MuOpen Quality (Q>=4)
  - EMTF mode 12, 6, 5, 3
  - EMTF mode 9, 10, 7
  - EMTF mode 15, 14, 13, 11

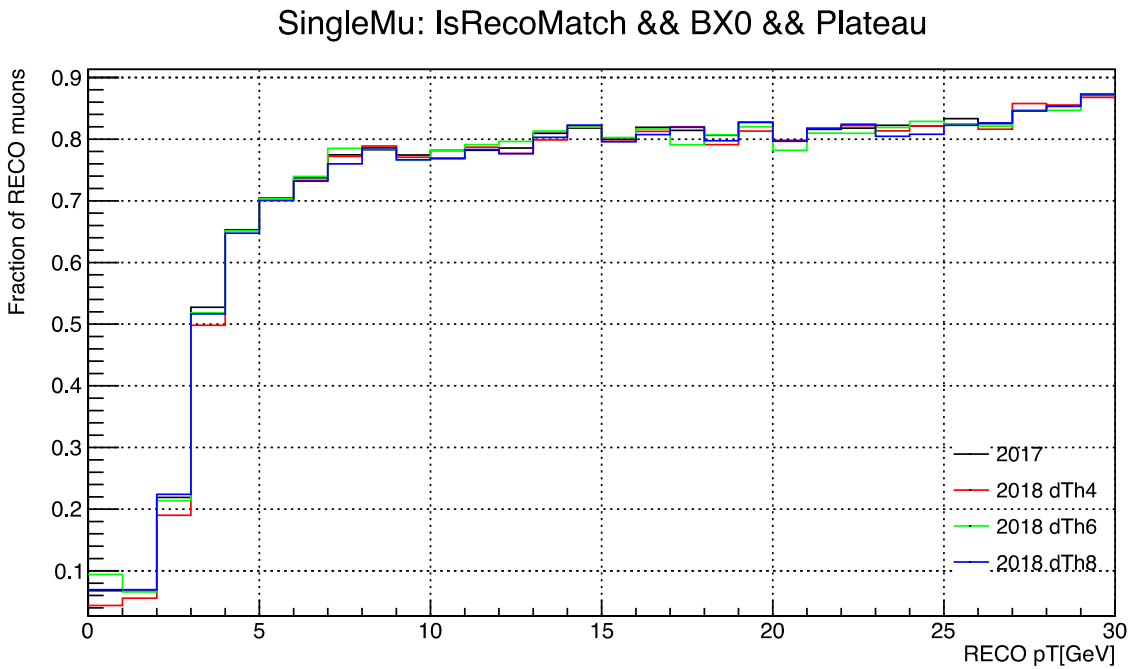
2018 Emulator

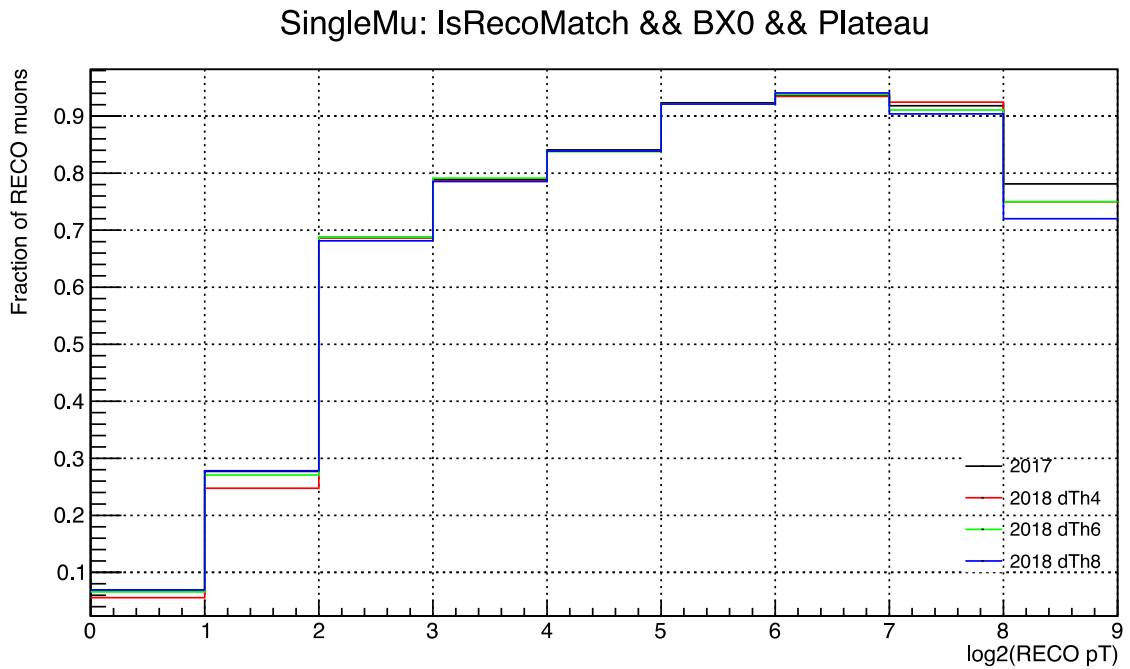
SingleMu


SingleMu: IsRecoMatch && BX0
Fraction of RECO muons
RECO pT[GeV]
2017
2018 dTh4
2018 dTh6
2018 dTh8

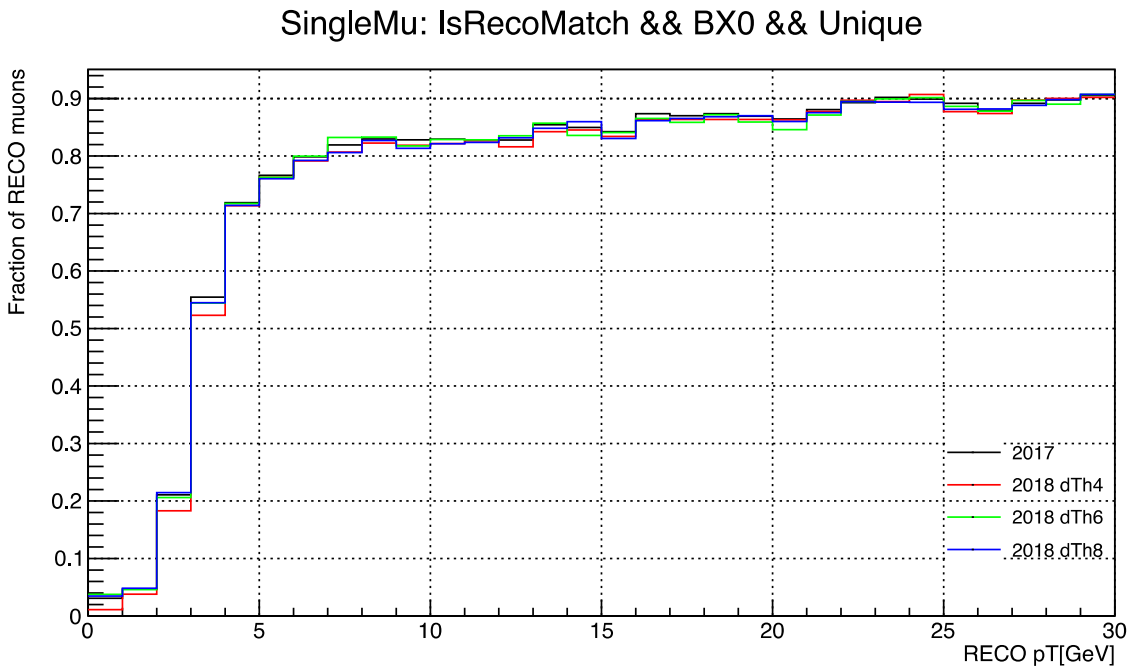

SingleMu: IsRecoMatch && BX0
Fraction of RECO muons
log2(RECO pT)
2017
2018 dTh4
2018 dTh6
2018 dTh8

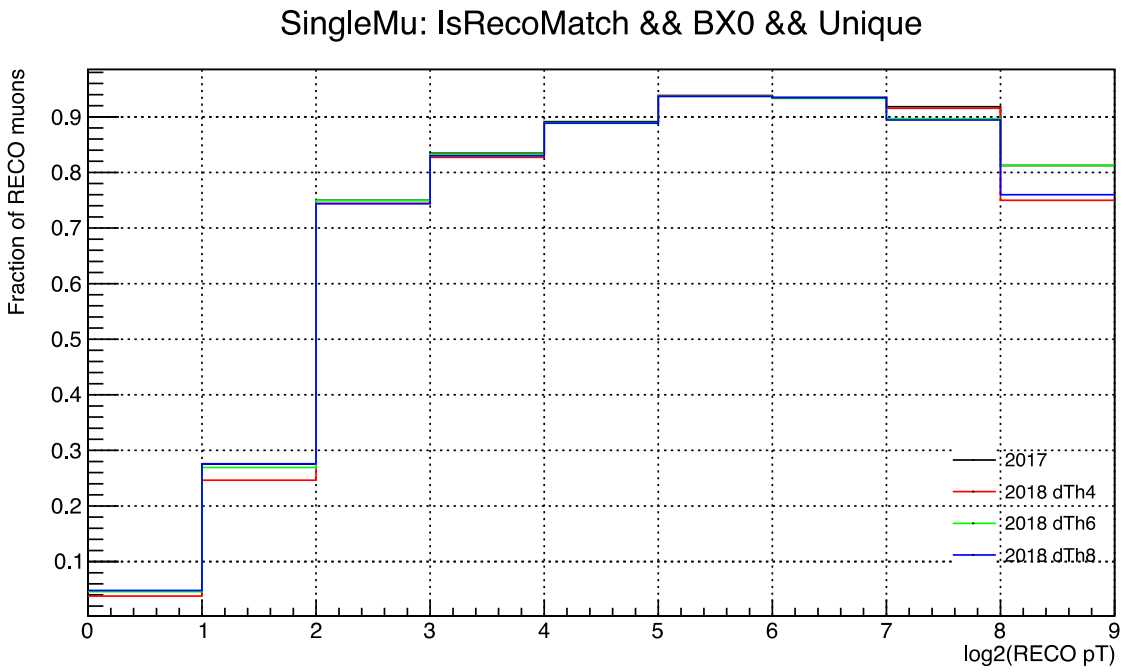
SingleMu


SingleMu: IsRecoMatch && BX0 && Plateau
Fraction of RECO muons
RECO pT[GeV]
2017
2018 dTh4
2018 dTh6
2018 dTh8

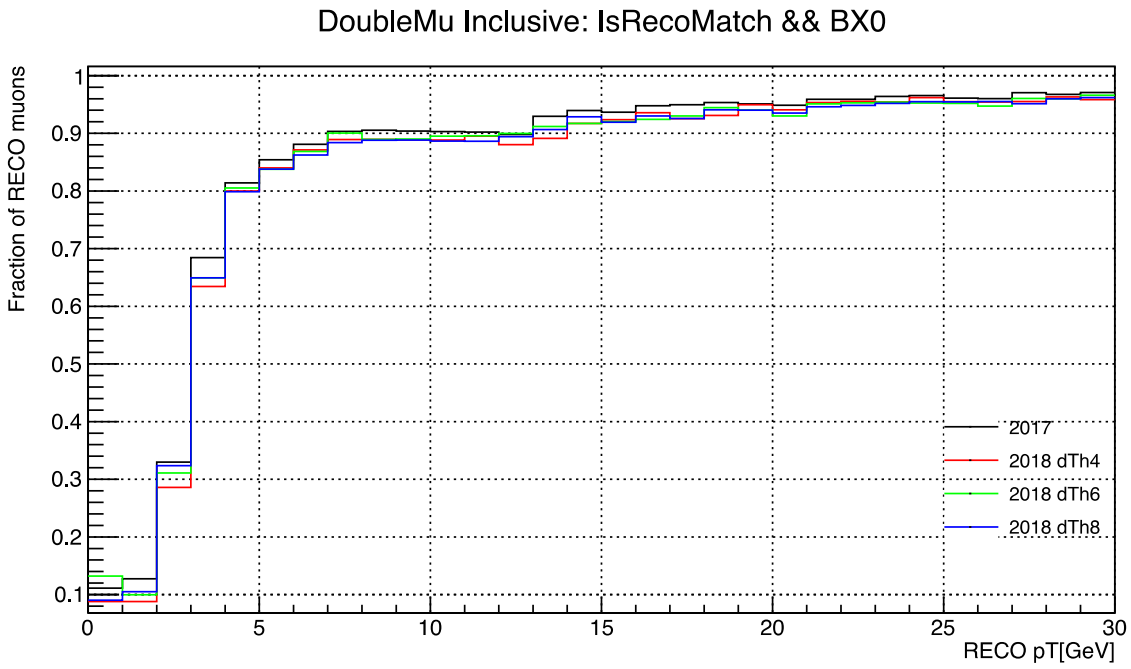

SingleMu: IsRecoMatch && BX0 && Plateau
Fraction of RECO muons
log2(RECO pT)
2017
2018 dTh4
2018 dTh6
2018 dTh8

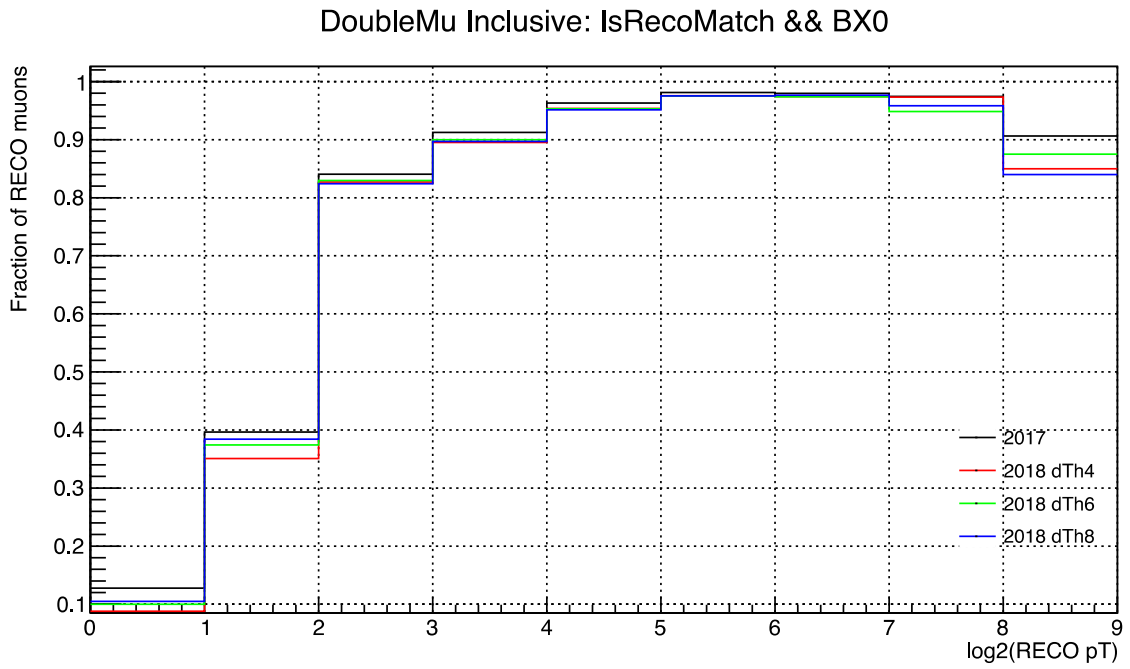
SingleMu


SingleMu: IsRecoMatch && BX0 && Unique
Fraction of RECO muons
RECO pT[GeV]
2017
2018 dTh4
2018 dTh6
2018 dTh8

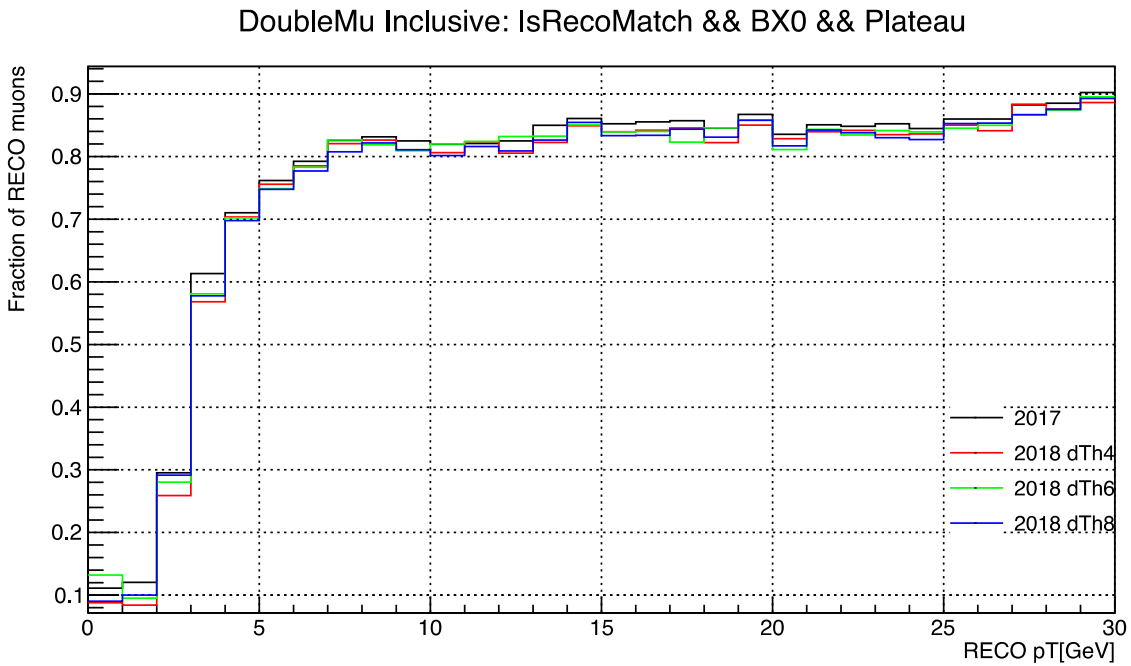

SingleMu: IsRecoMatch && BX0 && Unique
Fraction of RECO muons
log2(RECO pT)
2017
2018 dTh4
2018 dTh6
2018 dTh8

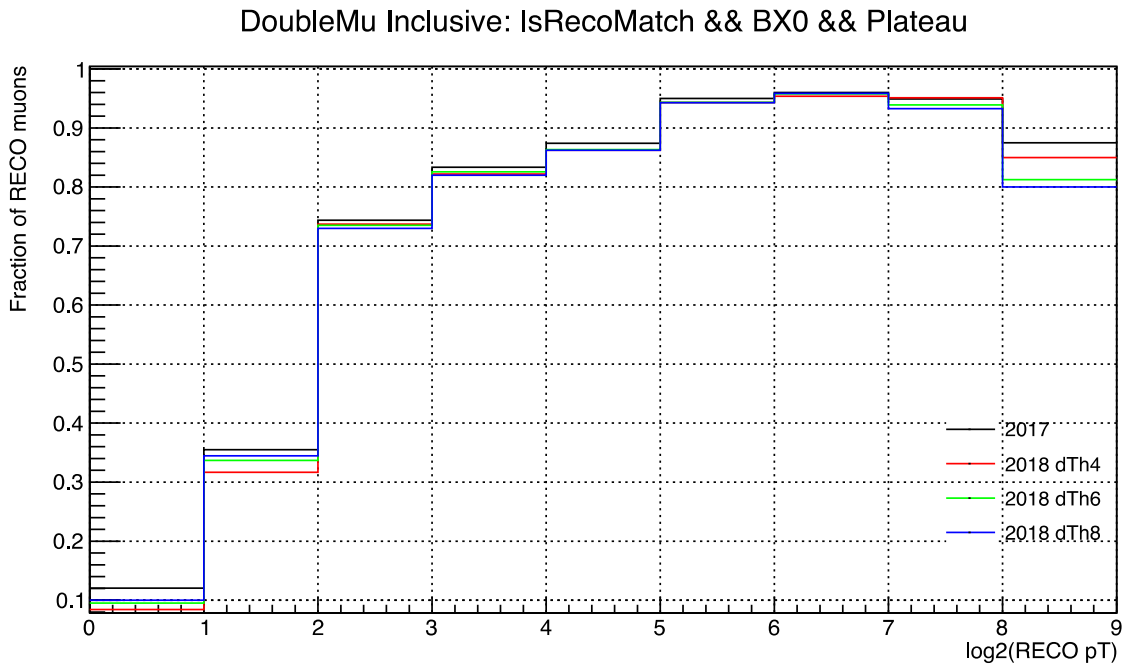
DoubleMu Inclusive



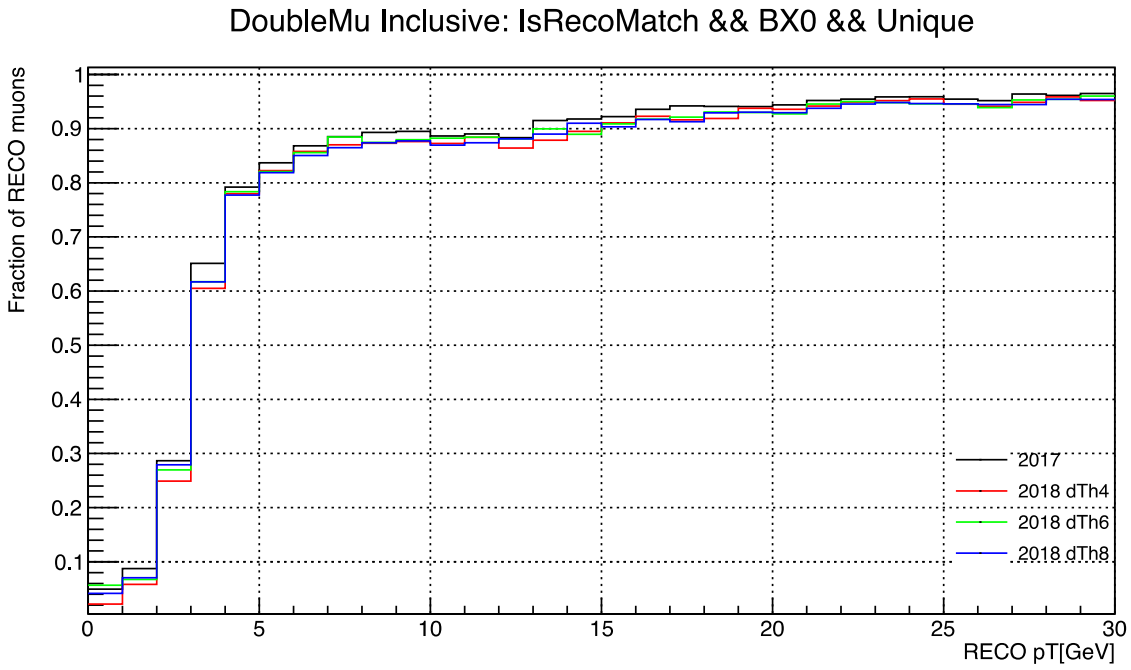


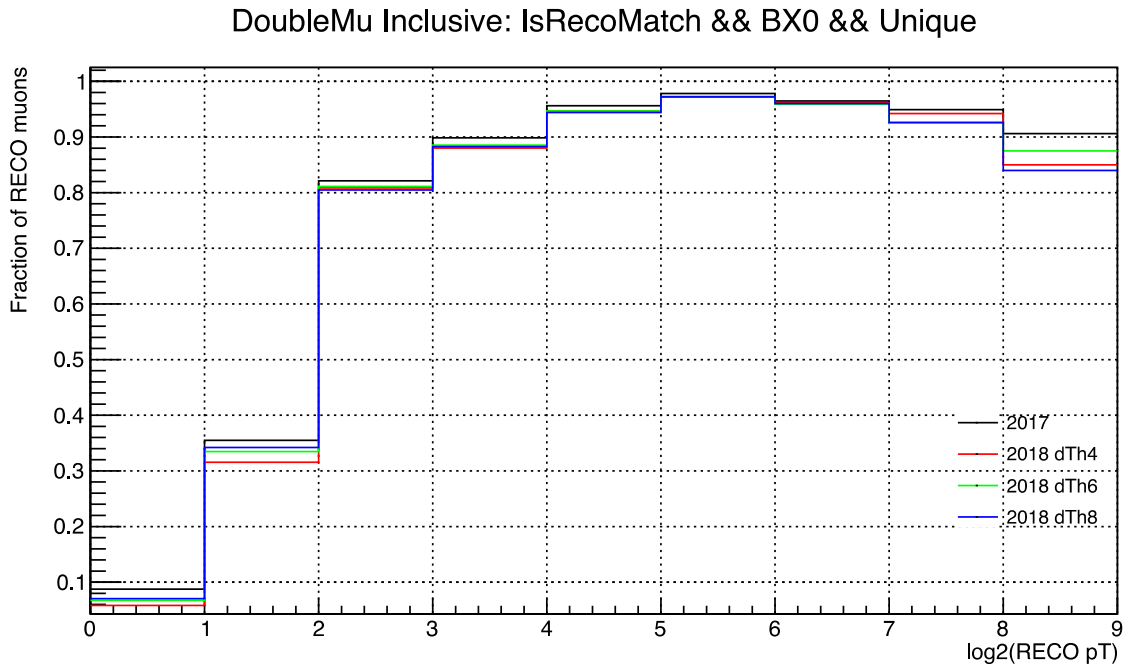
DoubleMu Inclusive



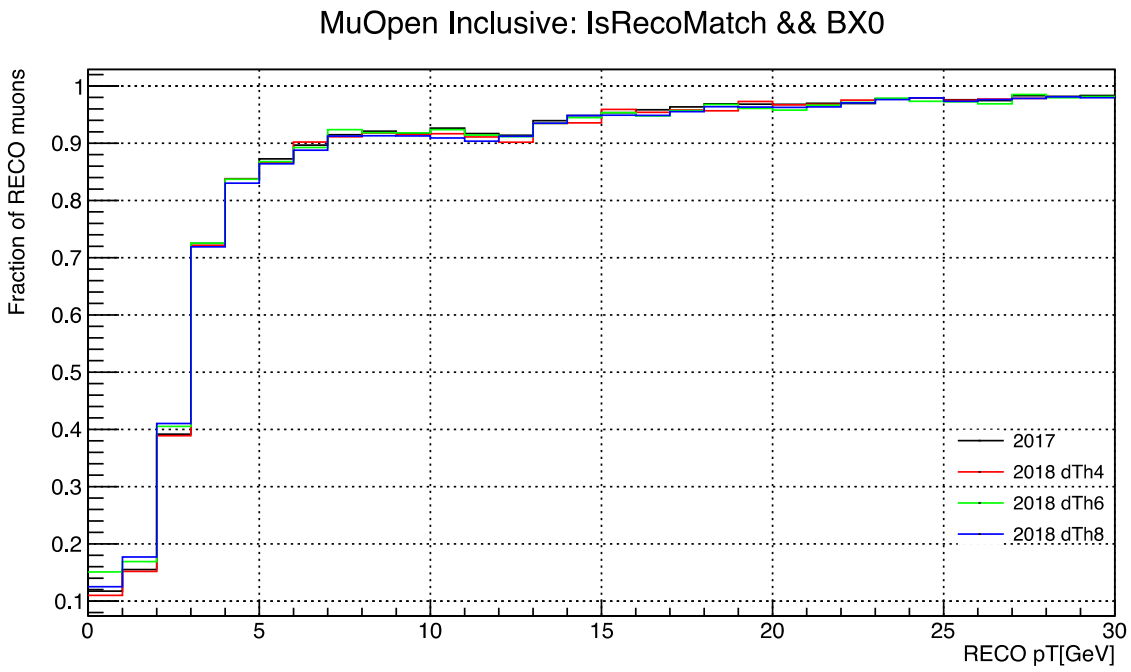


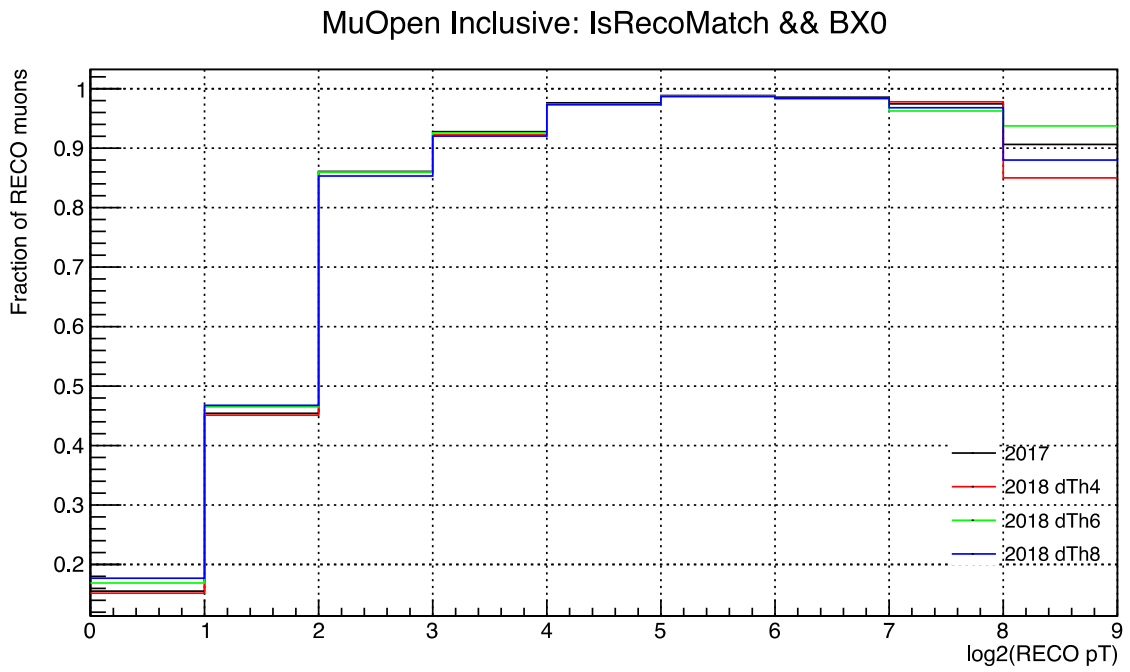
DoubleMu Inclusive



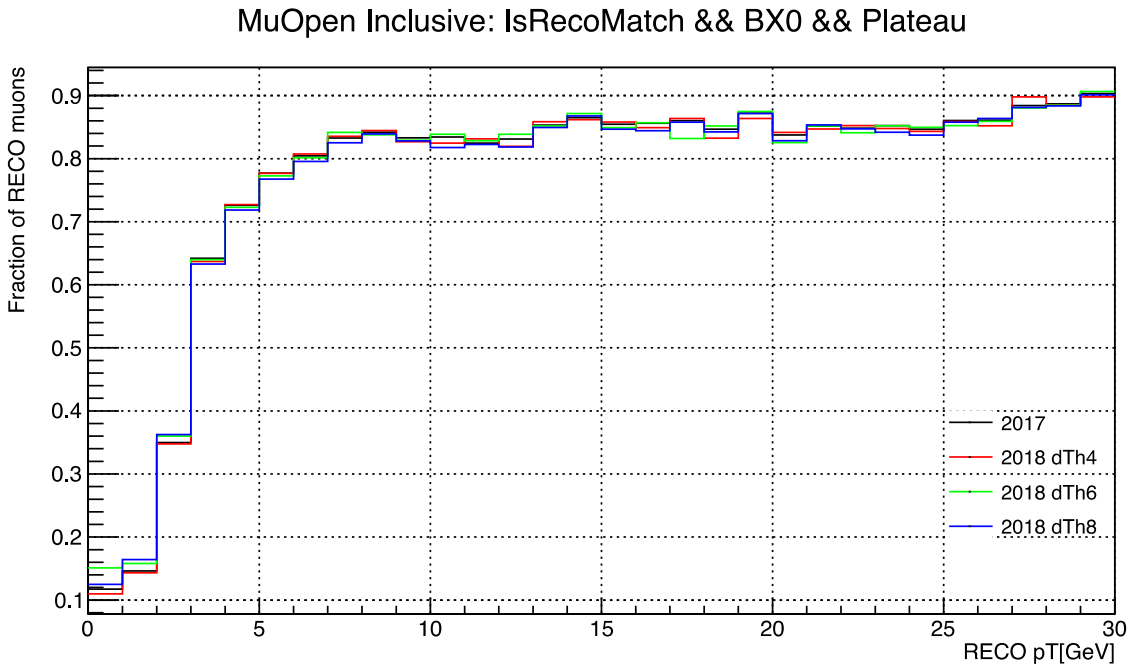


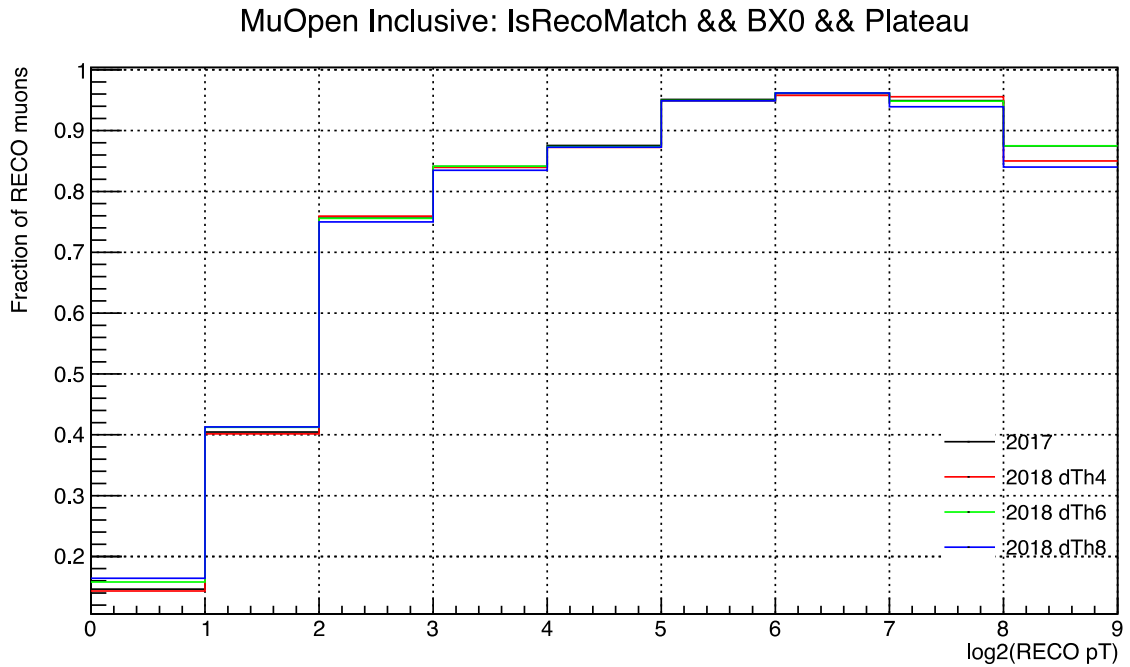
MuOpen Inclusive



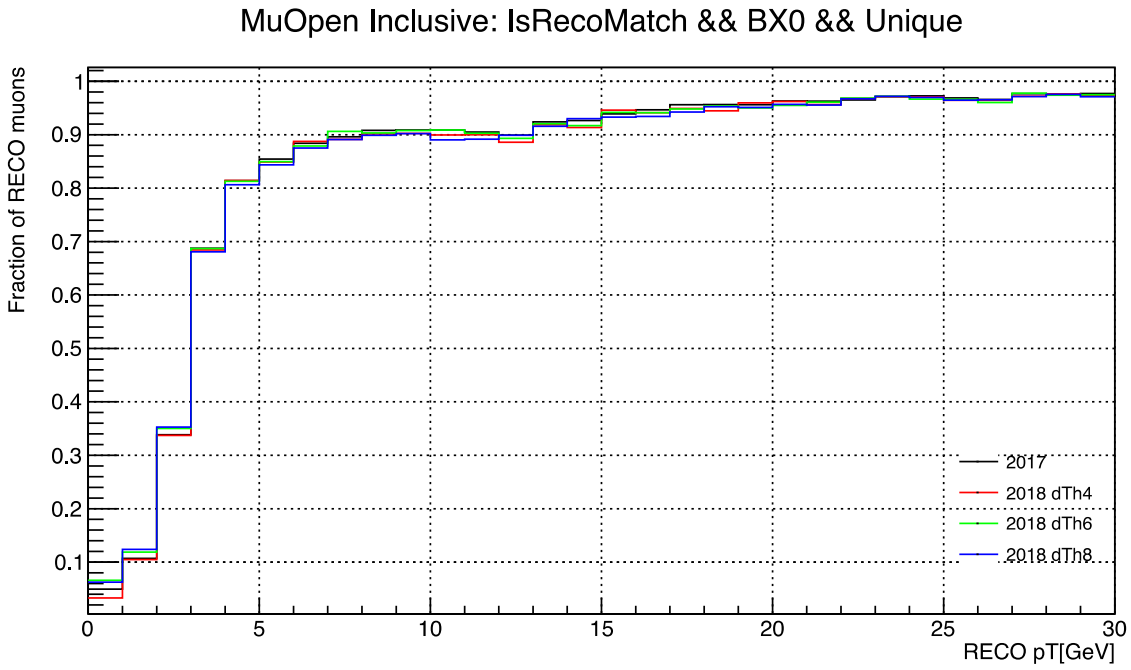


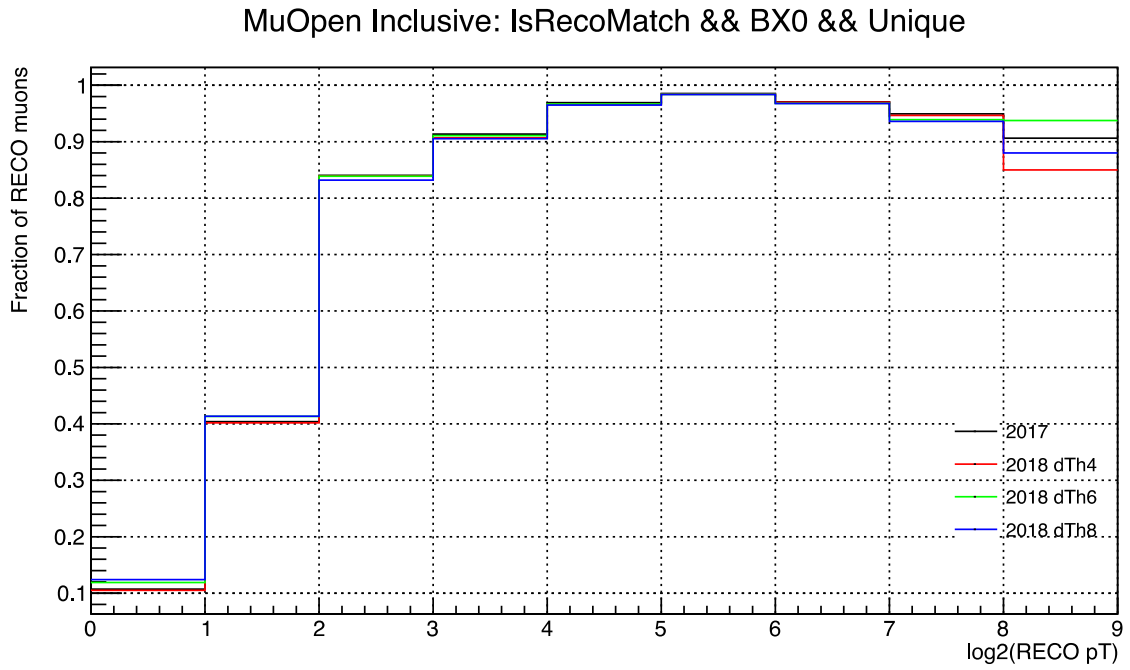
MuOpen Inclusive





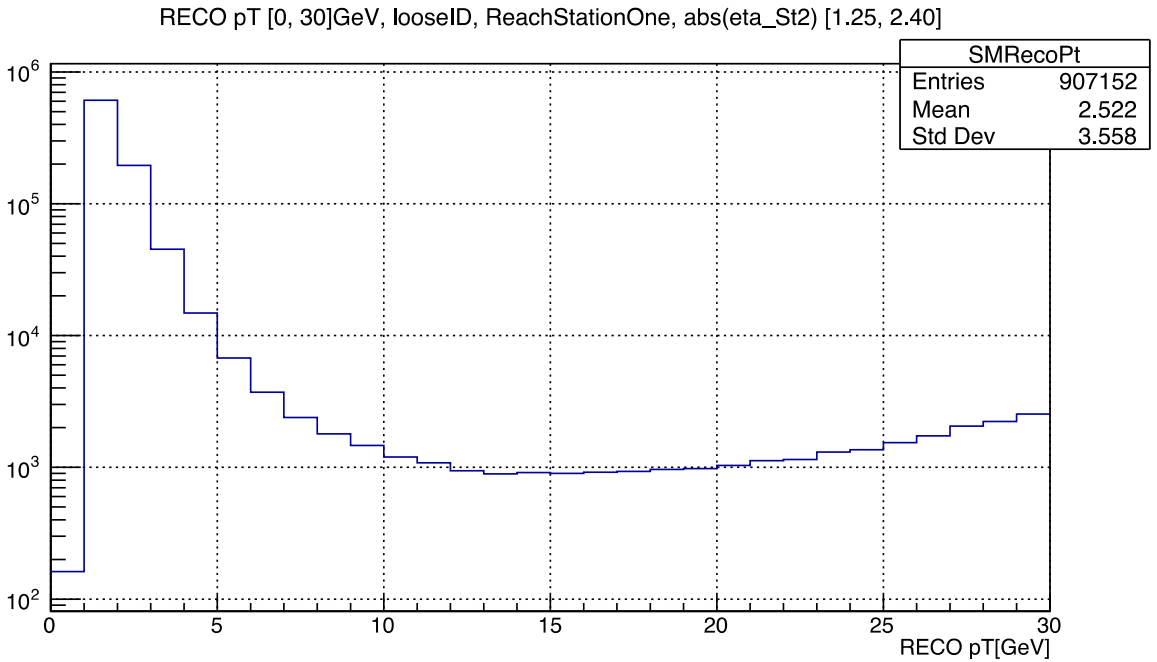
MuOpen Inclusive

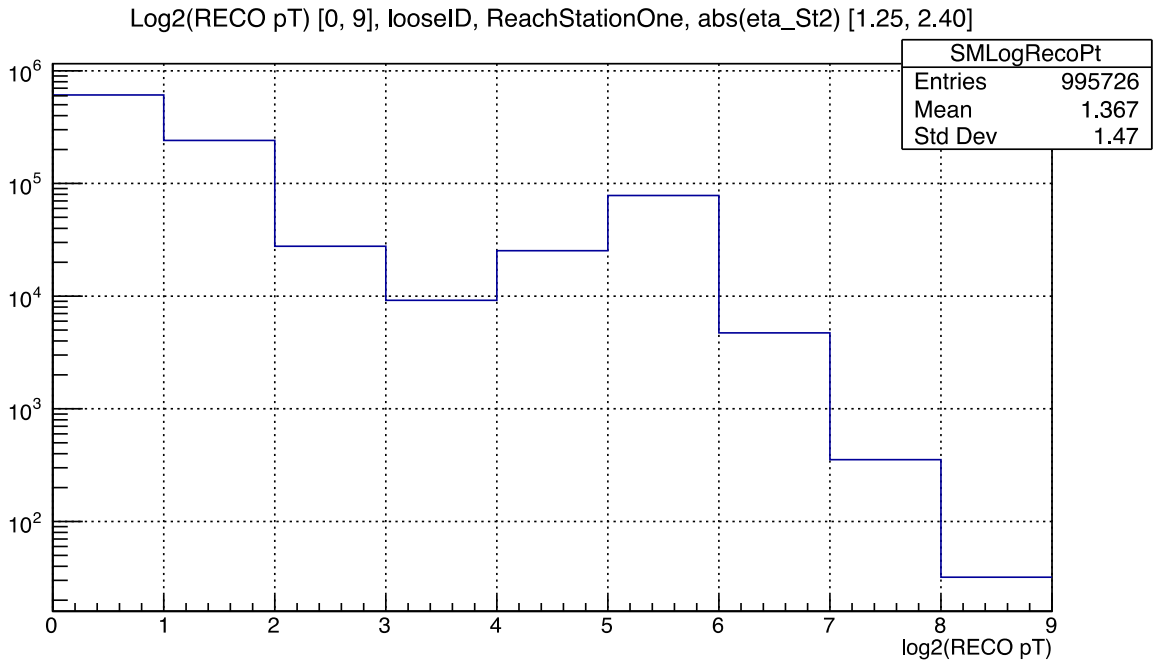




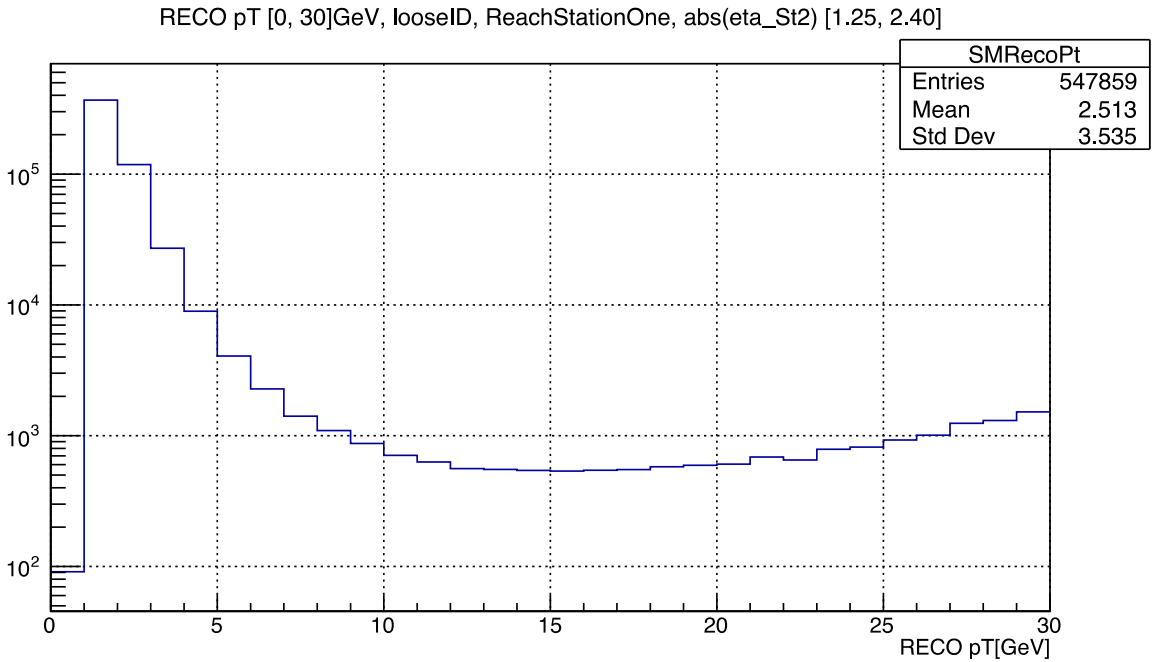
Back Up

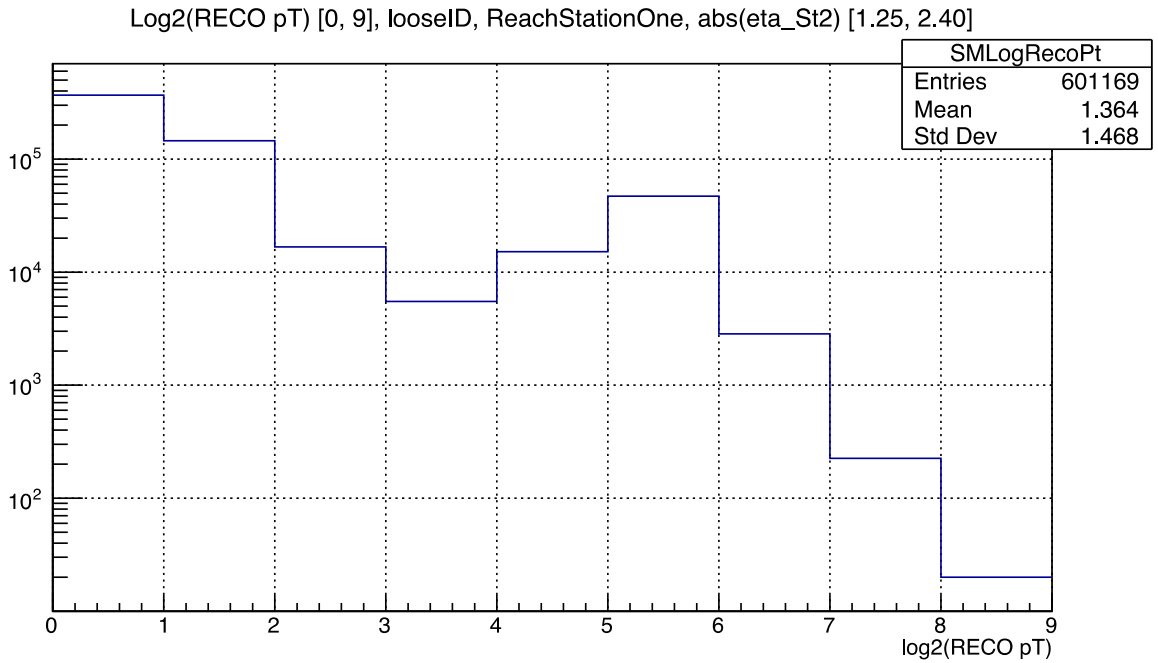
RECO pT: 2017


RECO pT [0, 30]GeV, looseID, ReachStationOne, abs(eta_St2) [1.25, 2.40]
SMRecoPt
Entries 907152
Mean 2.522
Std Dev 3.558
RECO pT[GeV]

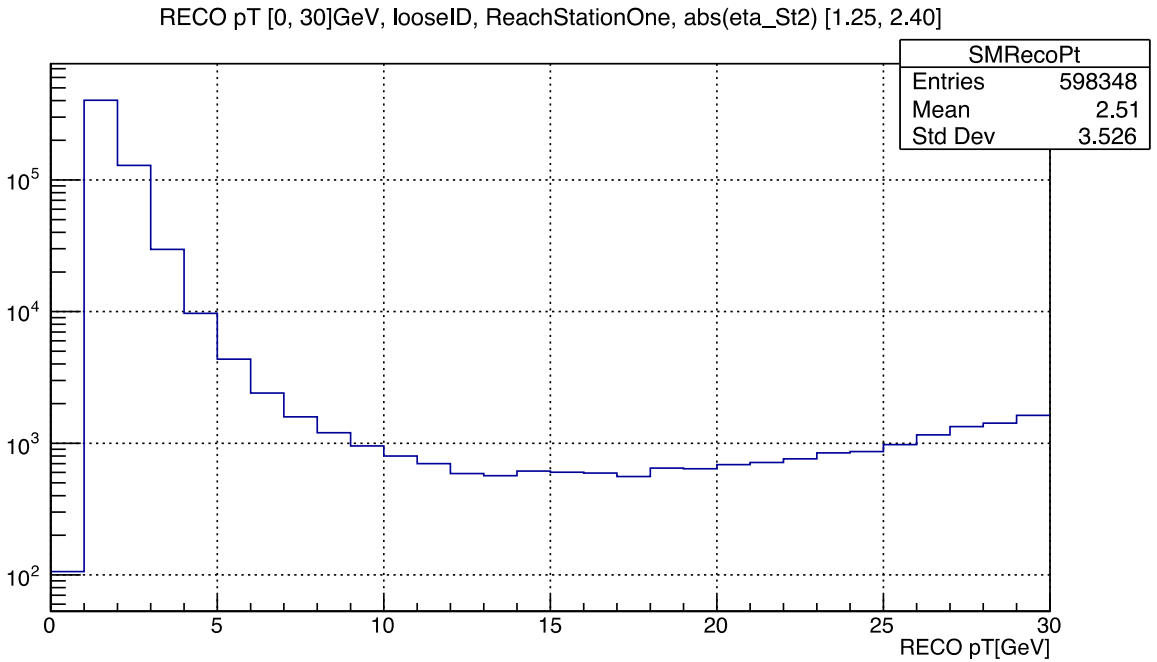

Log2(RECO pT) [0, 9], looseID, ReachStationOne, abs(eta_St2) [1.25, 2.40]
SMLogRecoPt
Entries 995726
Mean 1.367
Std Dev 1.47
log2(RECO pT)

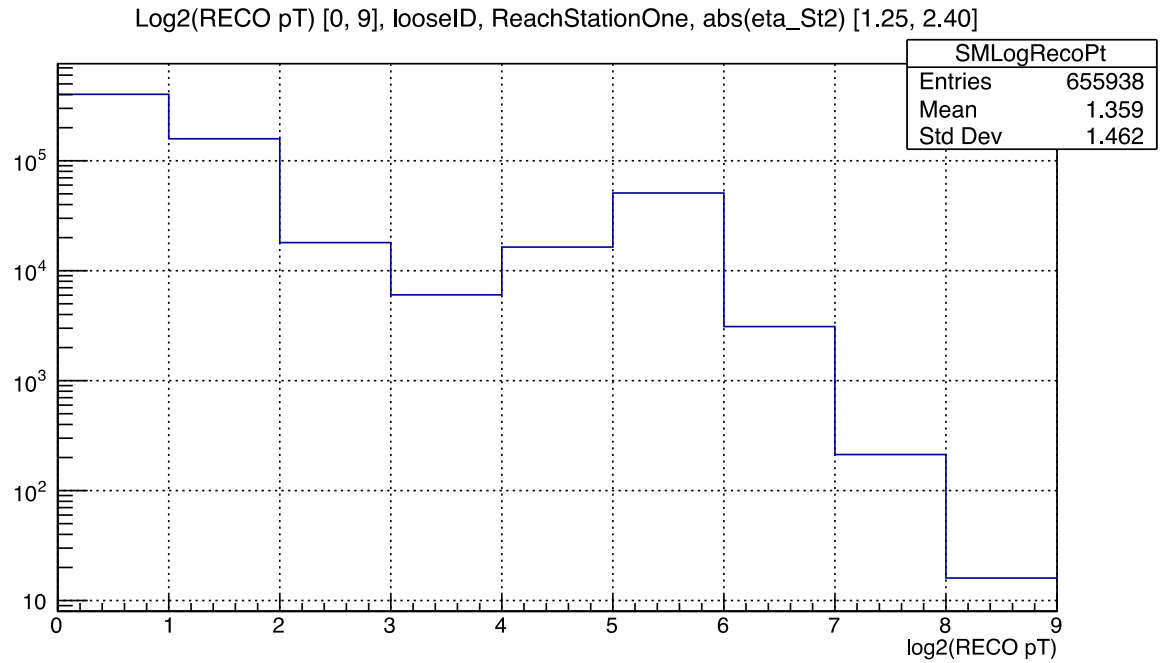
RECO pT: 2018 dTh4



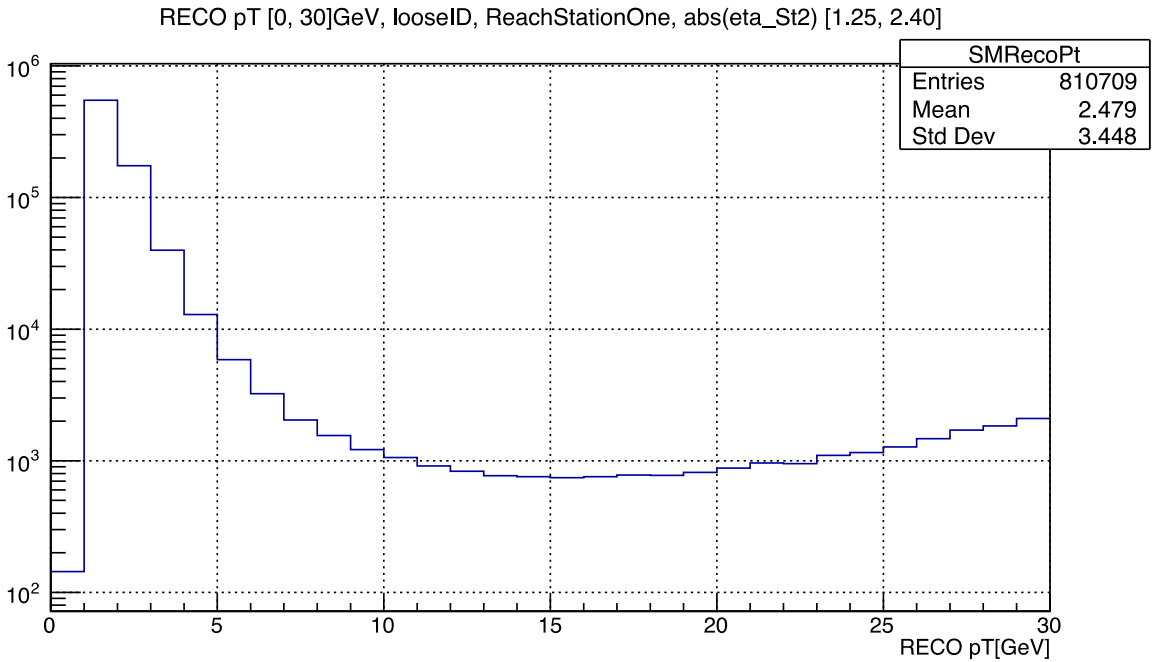


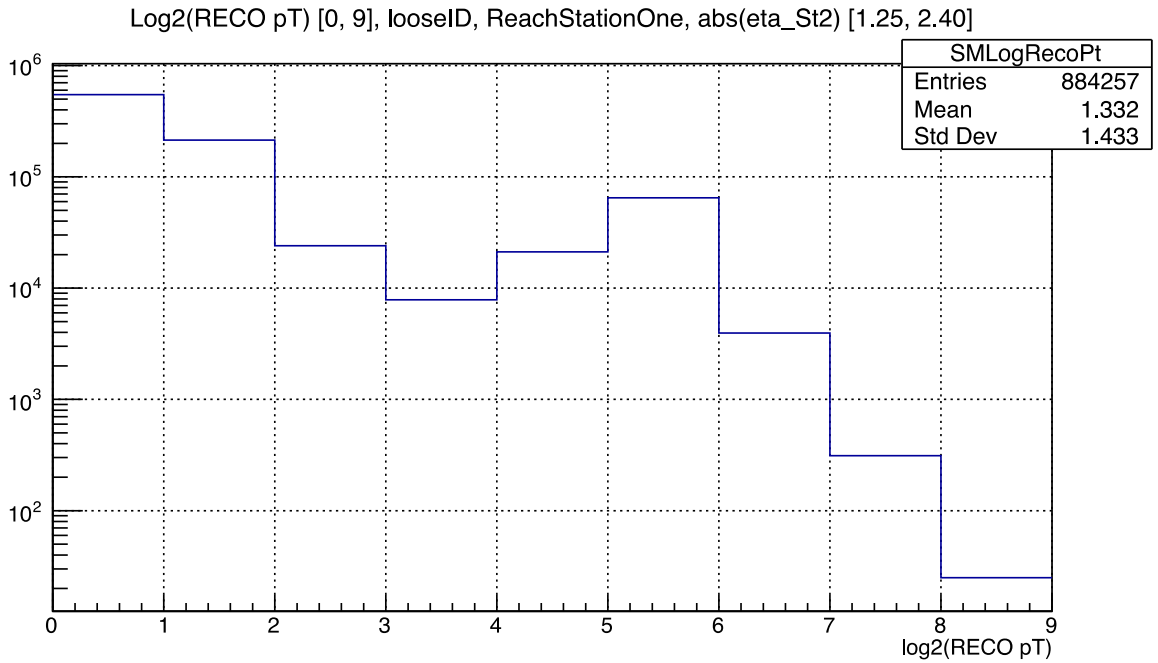
RECO pT: 2018 dTh6





RECO pT: 2018 dTh8





Track Modes vs Stations

Mode #	Definition	Stations
15	1+2+4+8	1,2,3,4
14	2+4+8	1,2,3
13	1+4+8	1,2,4
12	4+8	1,2
11	1+2+8	1,3,4
10	2+8	1,3
9	1+8	1,4
7	1+2+4	2,3,4
6	2+4	2,3
5	1+4	2,4
3	1+2	3,4

Data Files

root://eoscms.cern.ch//store/user/abrinke1/EMTF/Emulator/ntuples/HADD/

- 2017
  - NTuple_SingleMuon_FlatNtuple_Run_306154_2018_05_01_SingleMu_2017_emul.root
- 2018
  - NTuple_SingleMuon_FlatNtuple_Run_306154_2018_05_01_SingleMu_2018_emul_dTh4.root
  - NTuple_SingleMuon_FlatNtuple_Run_306154_2018_05_01_SingleMu_2018_emul_dTh6.root
  - NTuple_SingleMuon_FlatNtuple_Run_306154_2018_05_01_SingleMu_2018_emul_dTh8.root