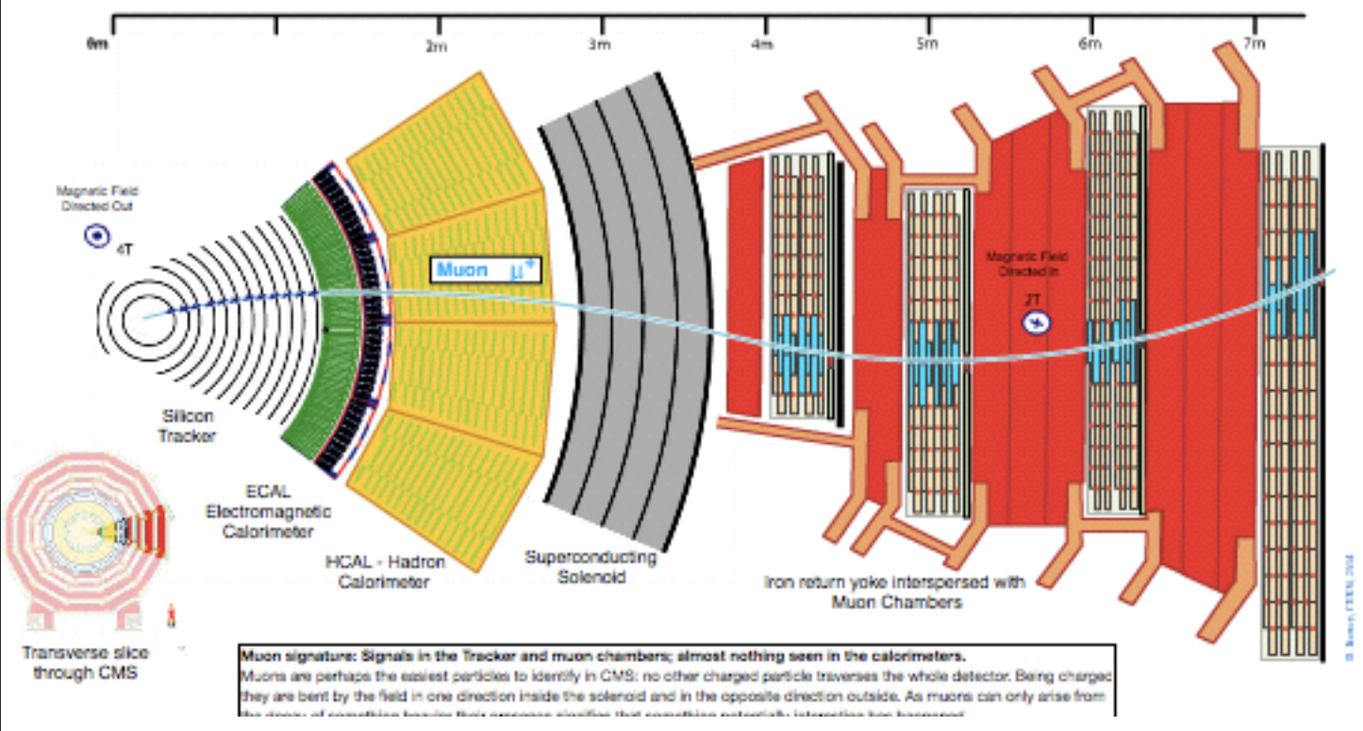
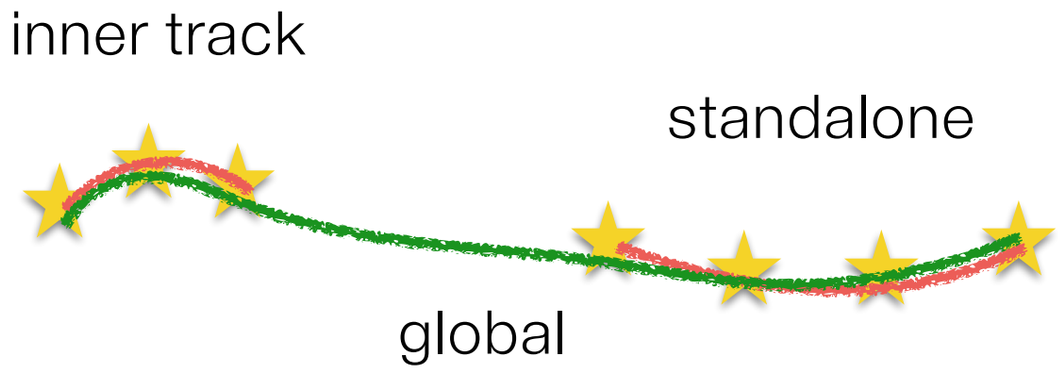
MuID & MuTrk efficiency

2014_1_28_labmeeting_KiSooLee

efficiency





- if inner track is matched to global muon, its muon identification is good(MuID efficiency)
- if standalone muon is matched to global muon, its tracking is good(tracking efficiency)

MuID efficiency

- tag: a tacker muon with quality cut and matched to double muon trigger HLT_PAL1DoubleMuOpen

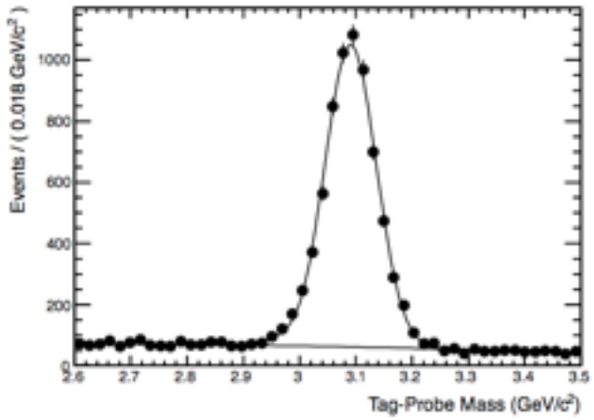
- probe: inner track of type hiGlobalPrimTrack in the acceptance

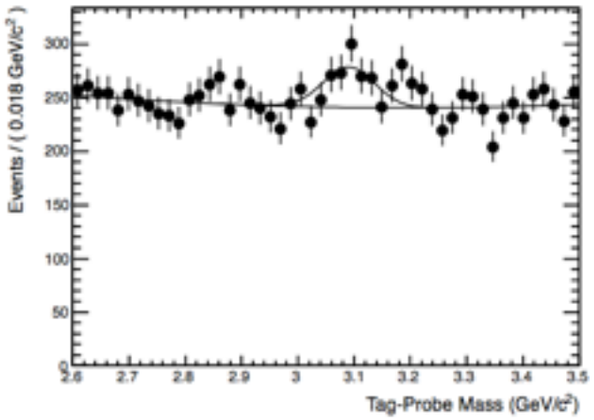
- passing probe: probe that can be matched to a tracker muon in the acceptance and fulfills all quality cuts

- only minimum bias case is used because we do not apply centrality in this analysis

MuID efficiency

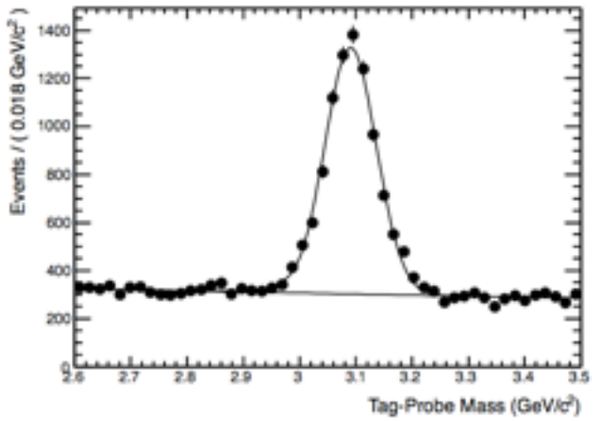
passing

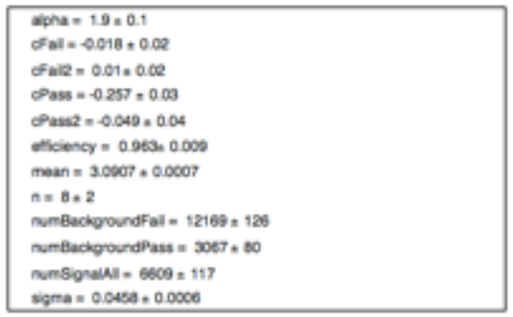




failing

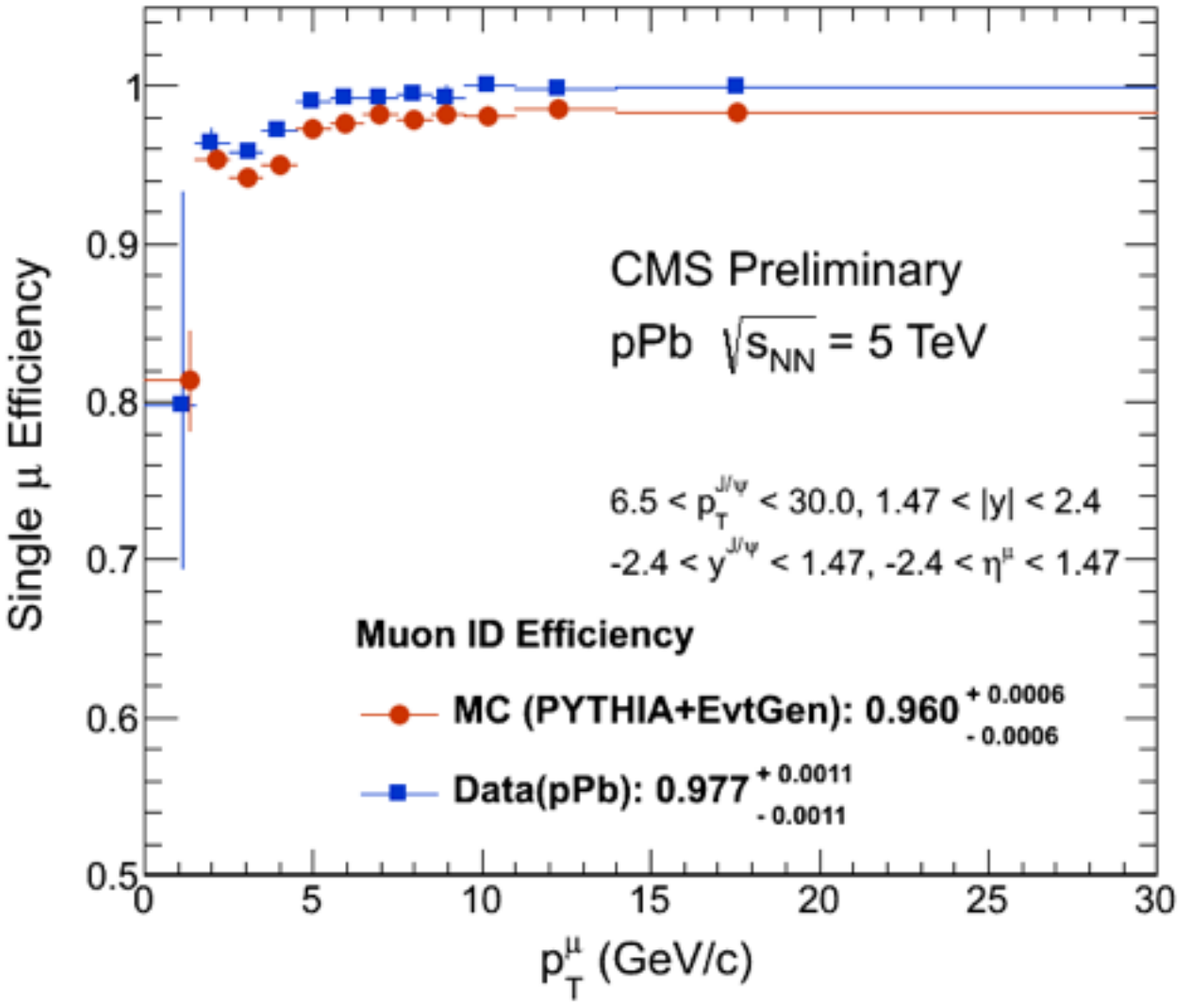
total

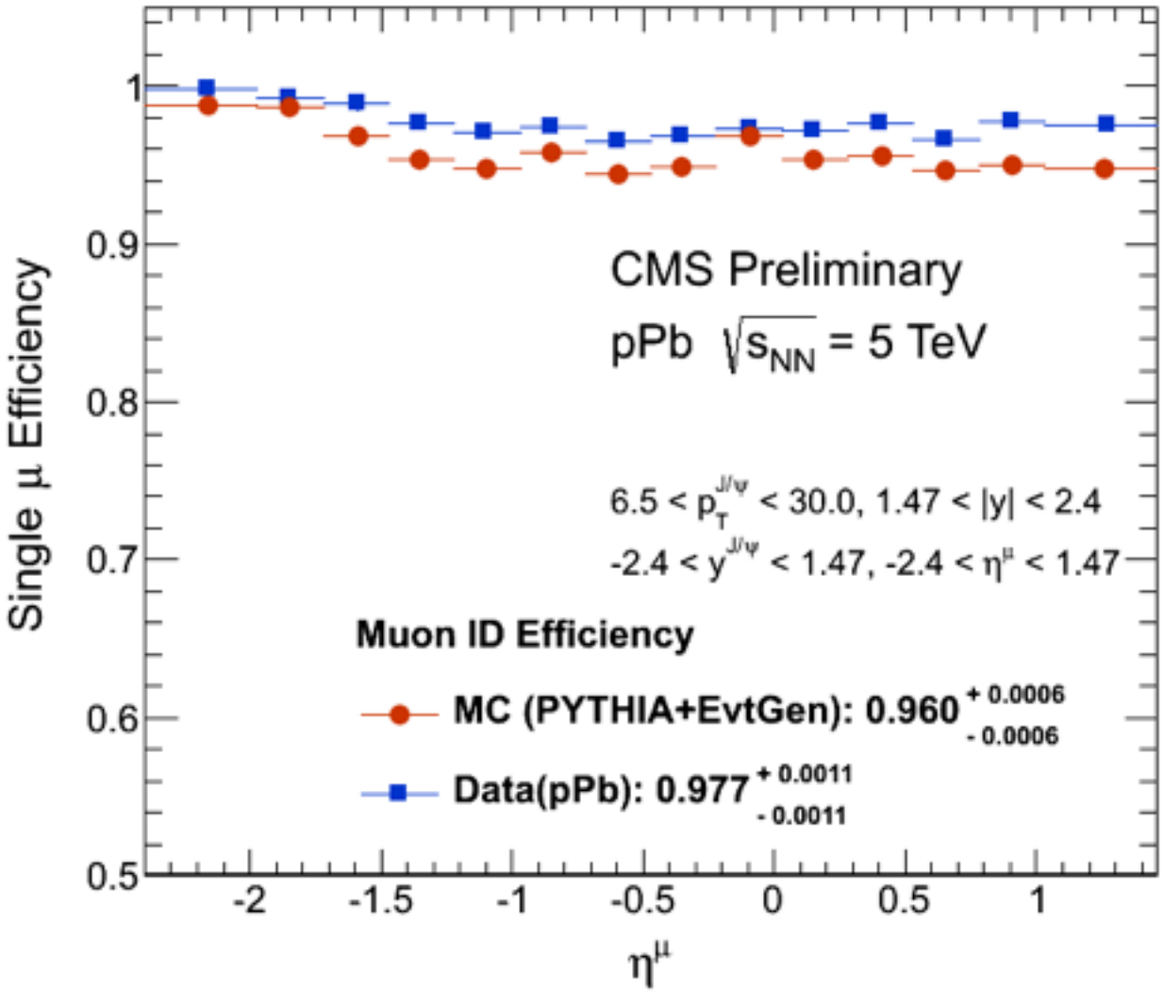


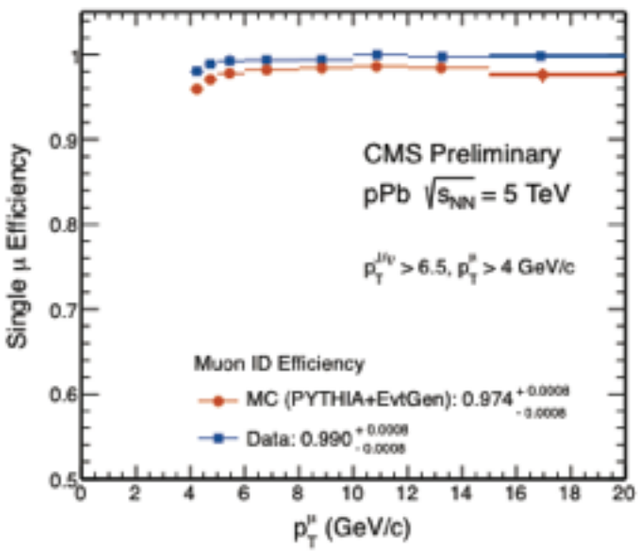


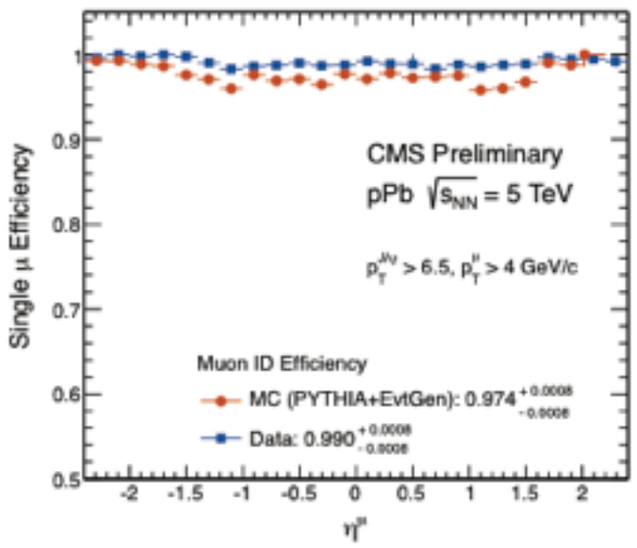
- mass distributions of tag & probe pairs
- Crystal Ball + polynomial used
- 1.5 < pt < 2.5 case
- looks matches well with fitting function

MuID efficiency









- similar result with that of Upsilon

inner track efficiency

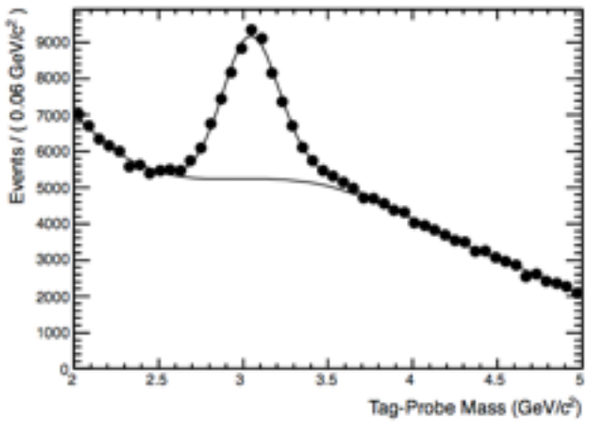
- tag: a tracker muon with quality cuts and matched to double muon trigger HLT_PAL1DoubleMuOpen

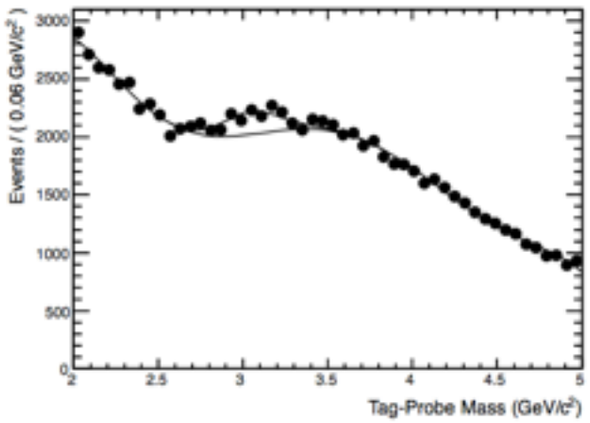
- probe: a standalone muon with at least one valid hit in the muon station

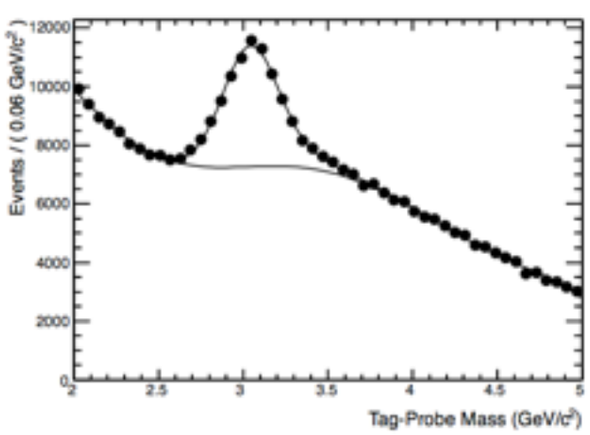
- passing probe: probe that fulfills all quality cuts

inner track efficiency

1.5 < pt < 2.5

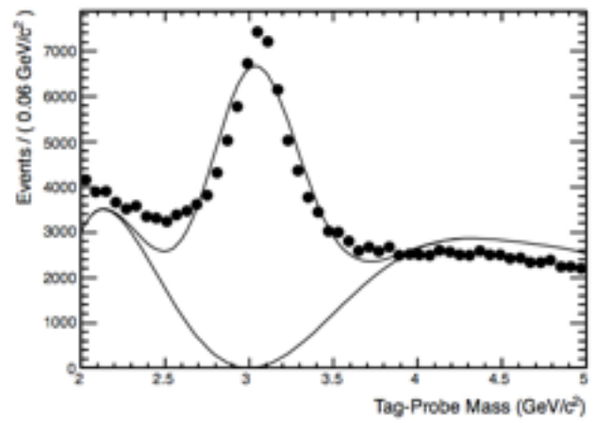


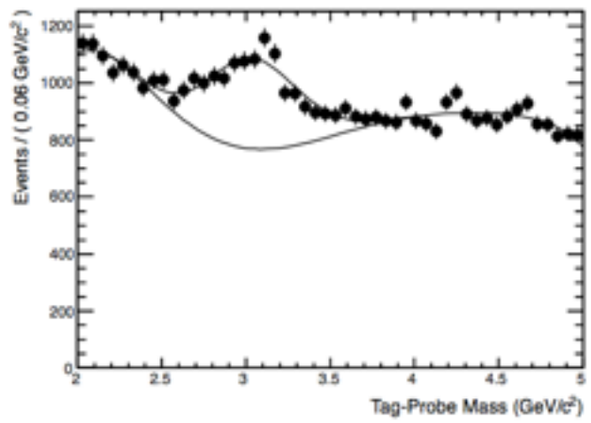


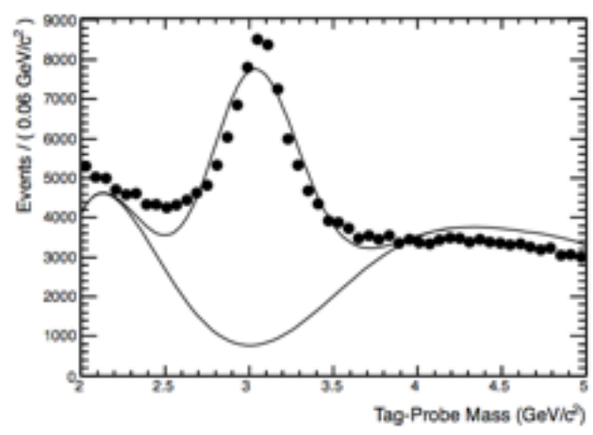


cF1 = -0.4807 ± 0.006
cF2 = -0.0288 ± 0.007
cF3 = -0.0822 ± 0.006
cF4 = 0.065 ± 0.006
cF5 = 0.013 ± 0.007
cF6 = -0.0293 ± 0.006
cP1 = -0.4899 ± 0.004
cP2 = -0.0442 ± 0.007
cP3 = -0.0635 ± 0.006
cP4 = 0.062 ± 0.006
cP5 = -0.0146 ± 0.007
cP6 = -0.0133 ± 0.005
efficiency = 0.952 ± 0.009
mean = 3.040 ± 0.004
mean2 = 3.300 ± 0.005

2.5 < pt < 3.5



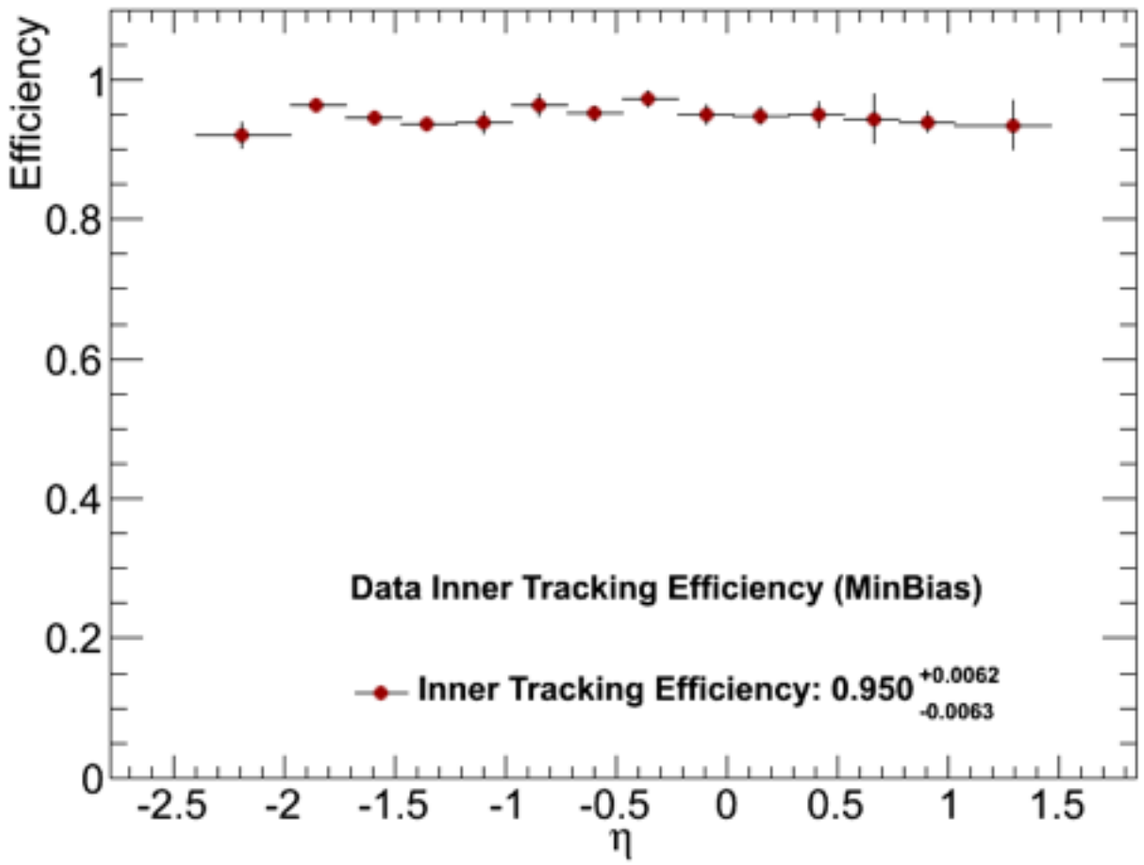


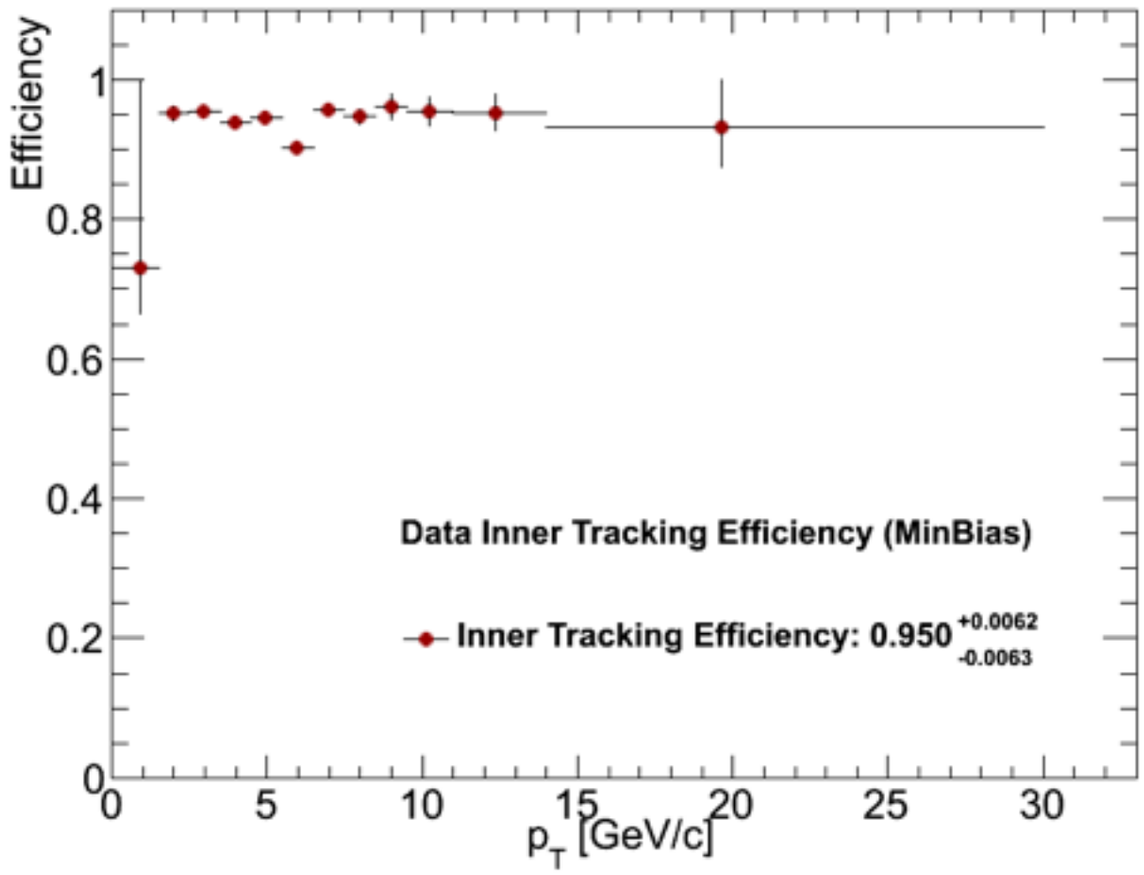


cF1 = -0.1213 ± 0.009
cF2 = 0.09 ± 0.01
cF3 = -0.0865 ± 0.009
cF4 = -0.0295 ± 0.009
cF5 = 0.03 ± 0.01
cF6 = -0.0191 ± 0.008
cP1 = 0.0524966809 ± 0.00000000005
cP2 = 0.4412769988 ± 0.0000000003
cP3 = -0.39464907755 ± 0.0000000003
cP4 = -0.11315893742 ± 0.0000000001
cP5 = 0.2400383086 ± 0.0000000002
cP6 = -0.09199691661 ± 0.00000000009
efficiency = 0.954 ± 0.004
mean = 3.000000 ± 0.000008
mean2 = 3.3000 ± 0.0004

- two gaussian + polynomial 6 used
- 1.5 < pt < 2.5 case looks matches well with fitting function
- but 2.5 < pt < 3.5 looks does not matches well
- need to try other functions

inner track efficiency





- pt distribution have dump about 6 GeV
- it could be solved when we use other fitting function

plan

- try other functions for inner tracking efficiency

- fallow TnP code and do roofit procedure that included in TnP code to solve trigger problem