

Muon trigger validation efficiency plots

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Some details

HLT trigger efficiencies computed for:

- ✓ different muon qualities;
- ✓ different isolation working points;
- ✓ with IP cuts;
- ✓ $|\eta| < 2.4$ cut.

Analysis Framework: T&P, V013

MC sample:

- ✓ valid1.147407.PowhegPythia8_AZNLO_Zmumu.recon.AOD.e3099_s2578_r7297;

Isolations:

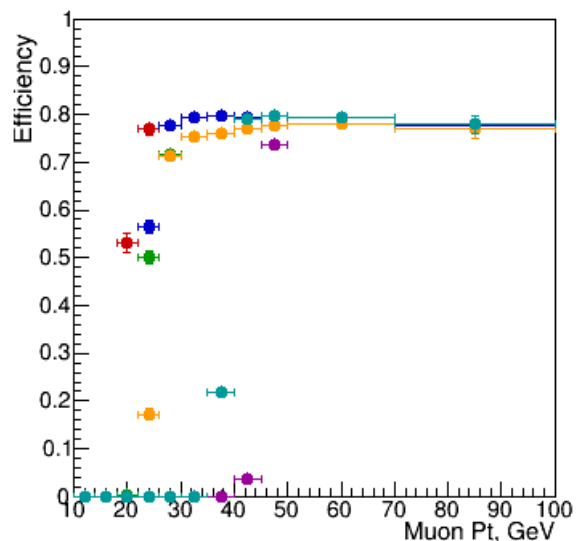
- ✓ NoIsolation;
- ✓ IsoLooseTrackOnly;
- ✓ IsoLoose;
- ✓ IsoGradientLoose;
- ✓ FixedCutLoose;
- ✓ IsoTight;
- ✓ IsoGradient;
- ✓ FixedCutTightTrackOnly.

Considered triggers:

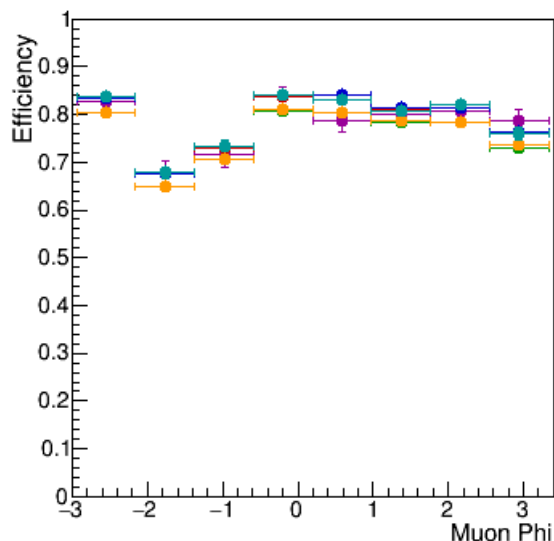
- ✓ HLT_mu20_loose_L1MU15
- ✓ HLT_mu24_loose_L1MU15
- ✓ HLT_mu24_imedium
- ✓ HLT_mu26_imedium
- ✓ HLT_mu40
- ✓ HLT_mu50

Loose muons

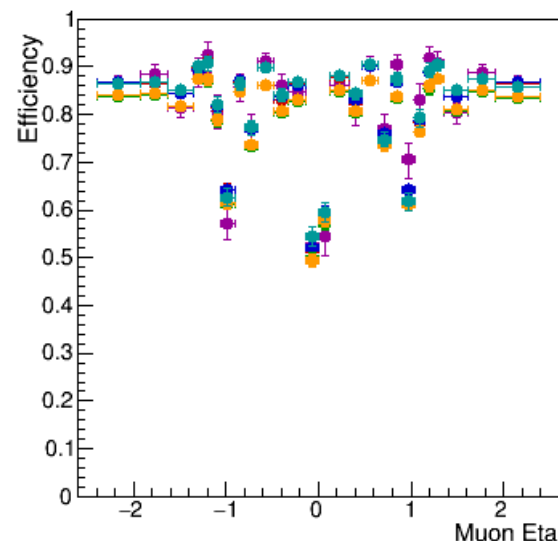
BARREL, Pt dependence



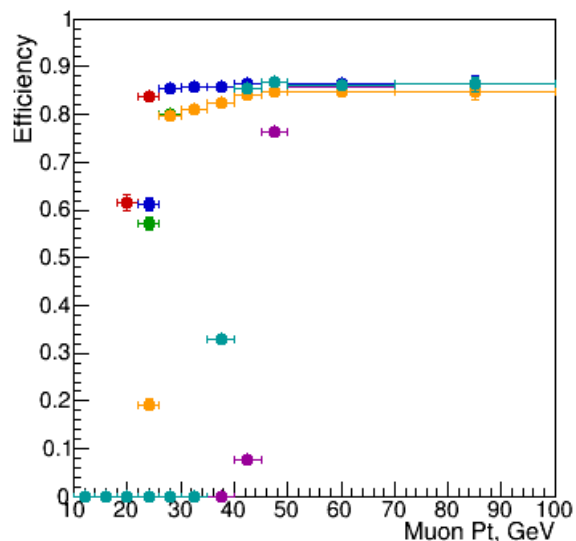
BARREL, Phi dependence



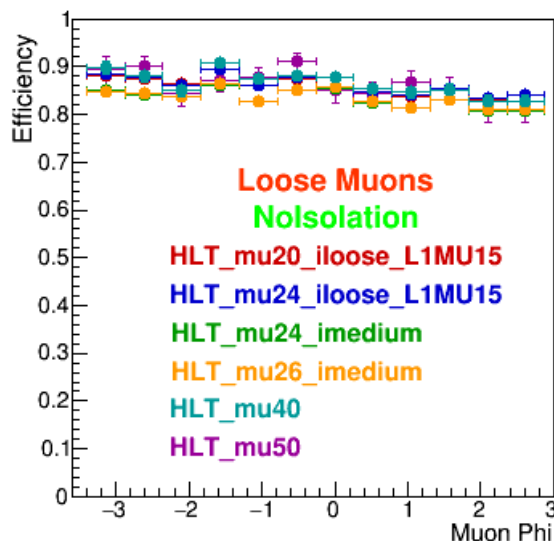
WHOLE DETECTOR, Eta dependence



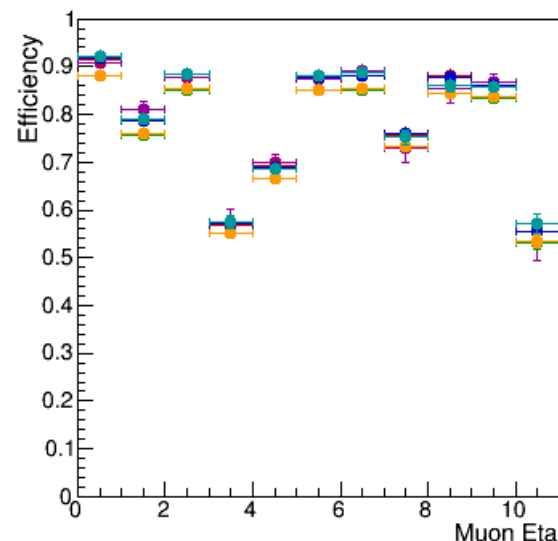
ENDCAP, Pt dependence



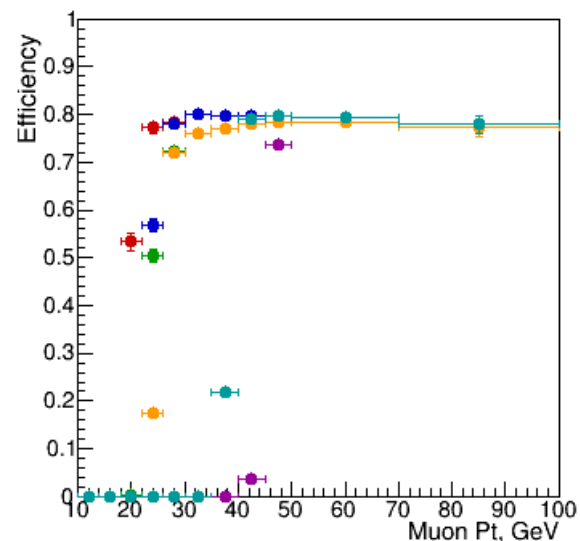
ENDCAP, Phi dependence



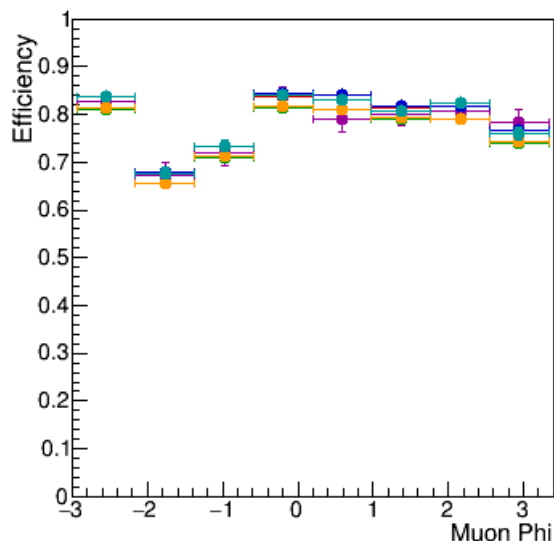
DETECTOR REGIONS



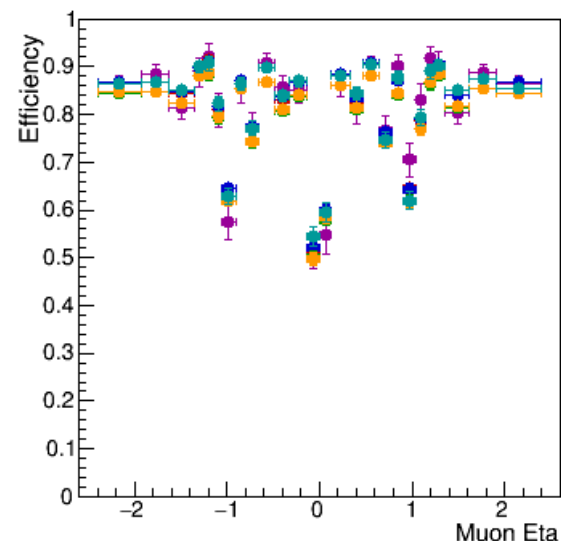
BARREL, Pt dependence



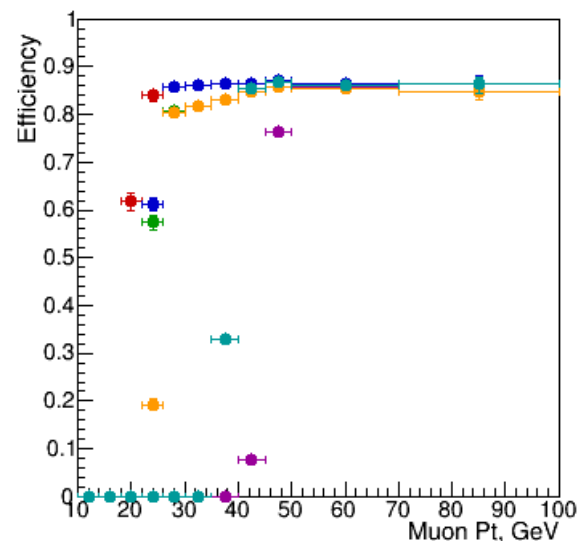
BARREL, Phi dependence



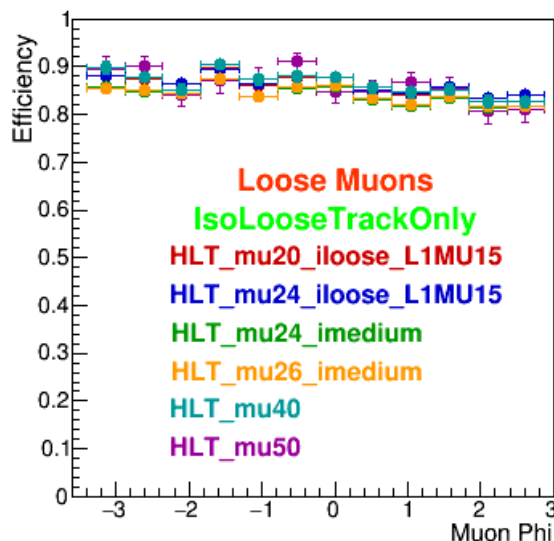
WHOLE DETECTOR, Eta dependence



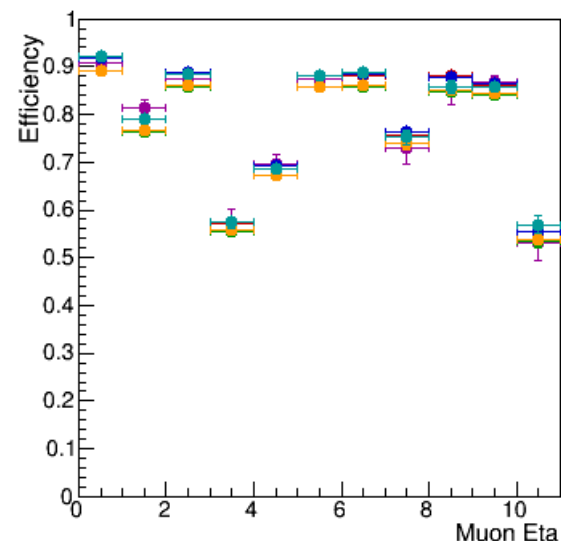
ENDCAP, Pt dependence



ENDCAP, Phi dependence

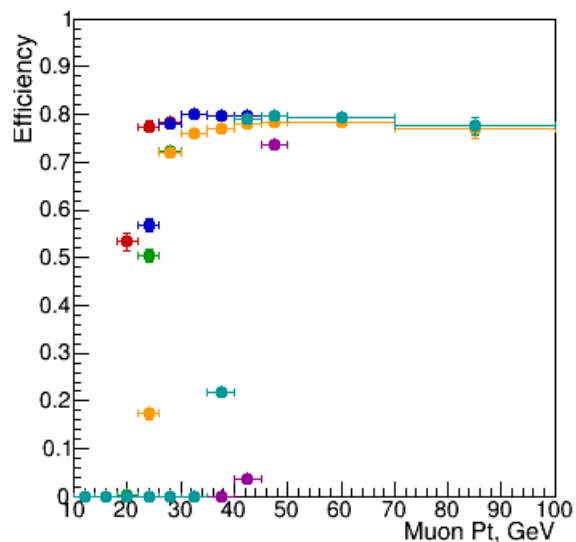


DETECTOR REGIONS

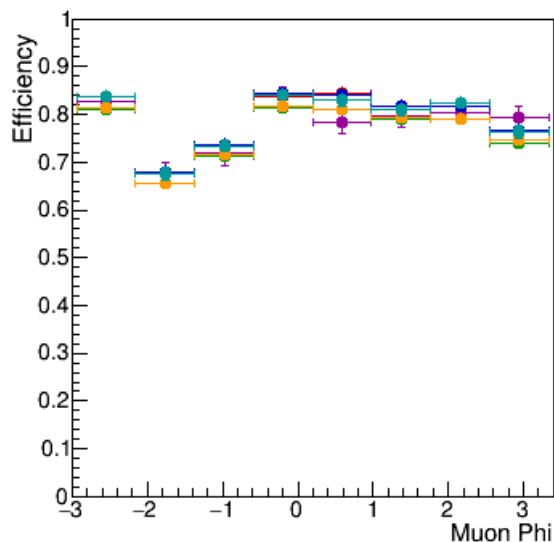


Loose Muons
 IsoLooseTrackOnly
 HLT_mu20_iloose_L1MU15
 HLT_mu24_iloose_L1MU15
 HLT_mu24_imedium
 HLT_mu26_imedium
 HLT_mu40
 HLT_mu50

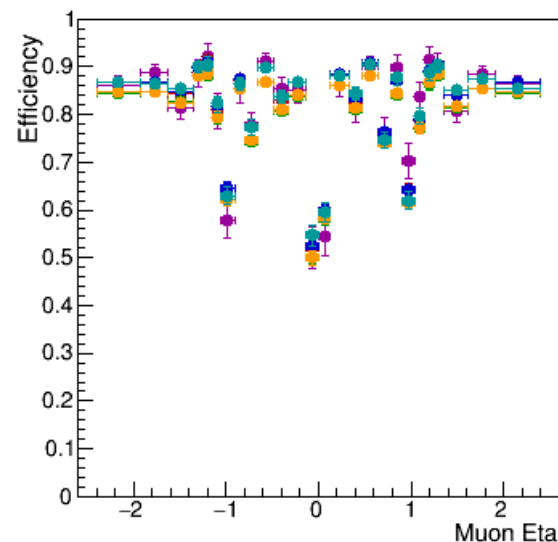
BARREL, Pt dependence



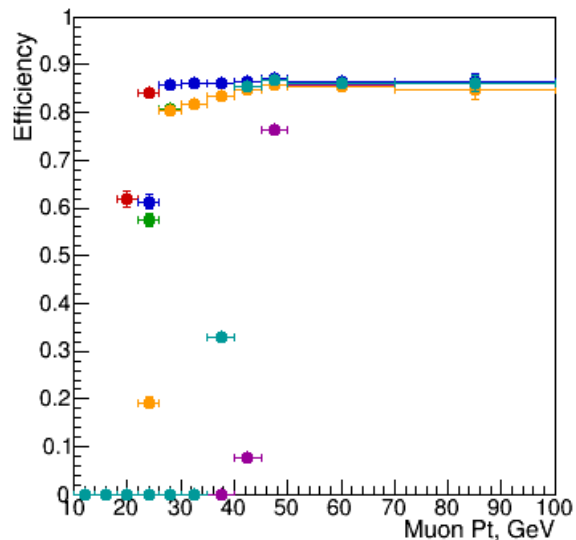
BARREL, Phi dependence



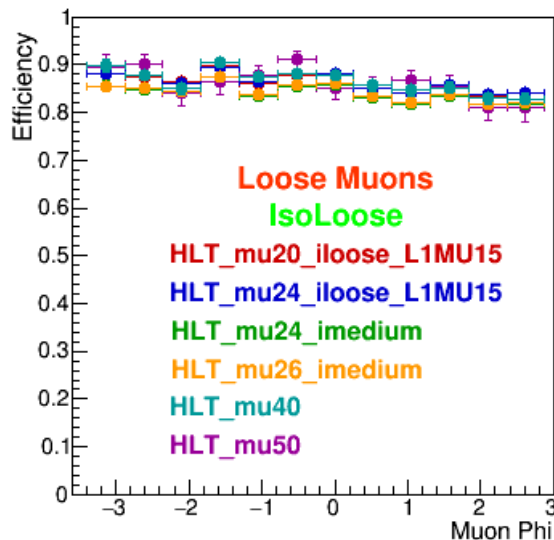
WHOLE DETECTOR, Eta dependence



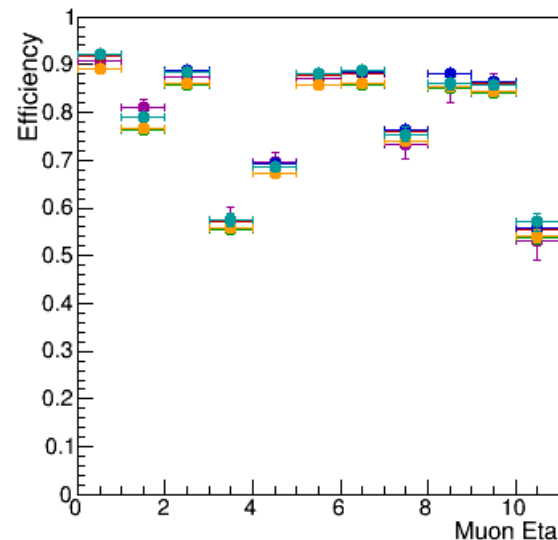
ENDCAP, Pt dependence



ENDCAP, Phi dependence



DETECTOR REGIONS



Loose Muons

IsoLoose

HLT_mu20_iloose_L1MU15

HLT_mu24_iloose_L1MU15

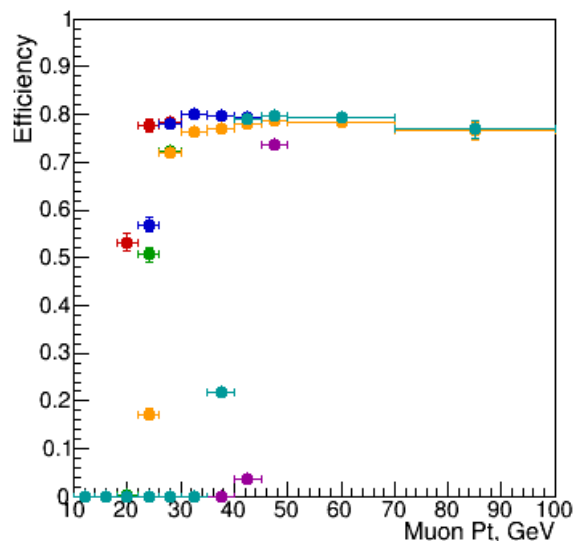
HLT_mu24_imedium

HLT_mu26_imedium

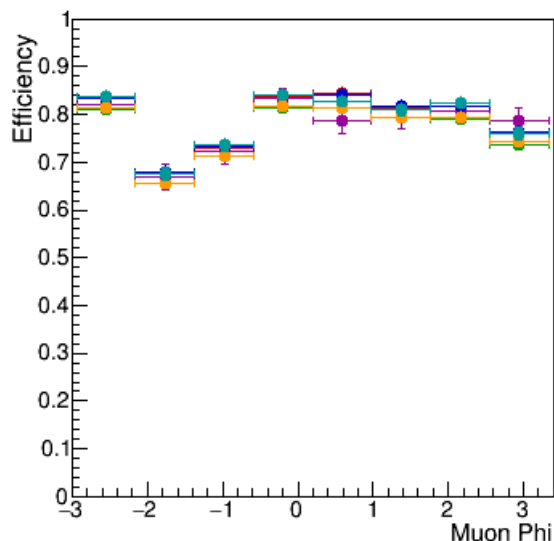
HLT_mu40

HLT_mu50

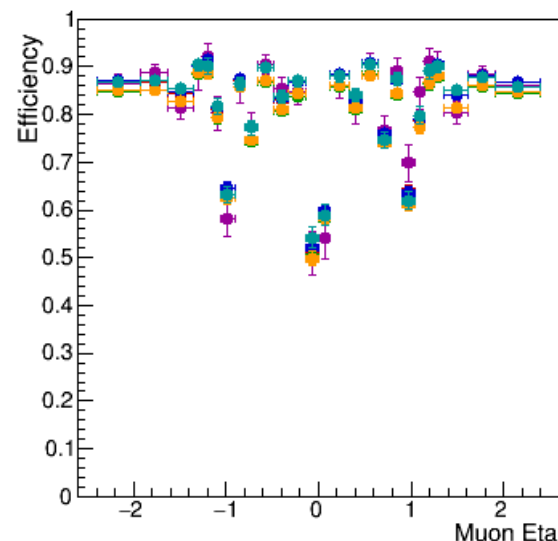
BARREL, Pt dependence



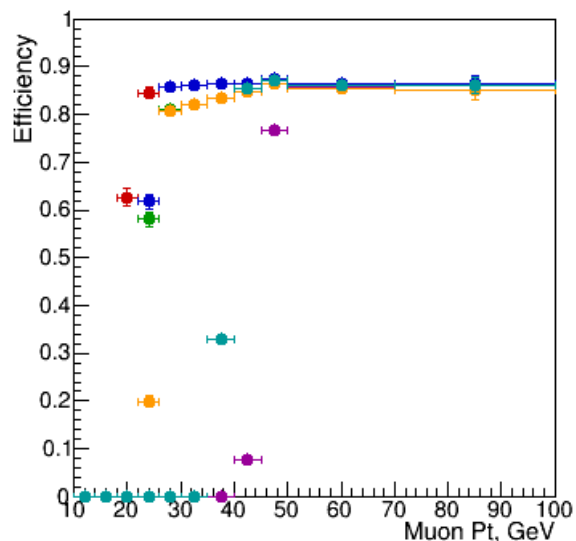
BARREL, Phi dependence



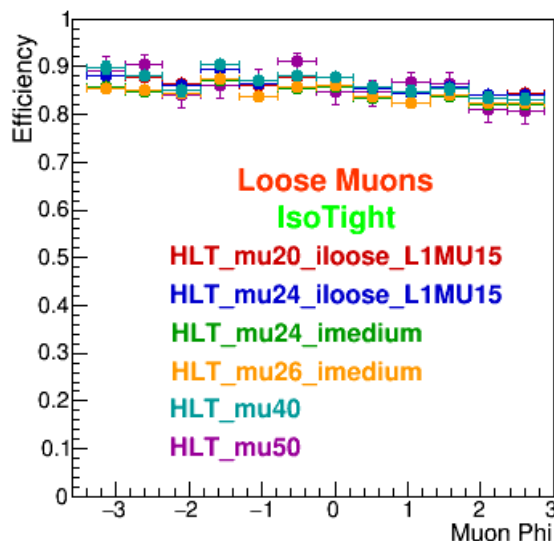
WHOLE DETECTOR, Eta dependence



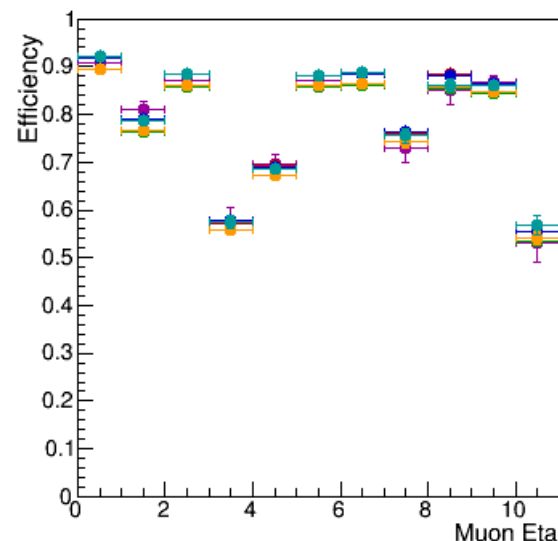
ENDCAP, Pt dependence



ENDCAP, Phi dependence



DETECTOR REGIONS



Loose Muons

IsoTight

HLT_mu20_loose_L1MU15

HLT_mu24_loose_L1MU15

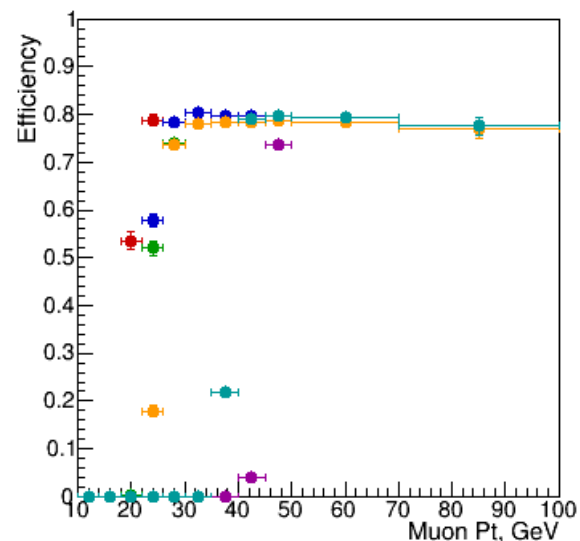
HLT_mu24_Imedium

HLT_mu26_Imedium

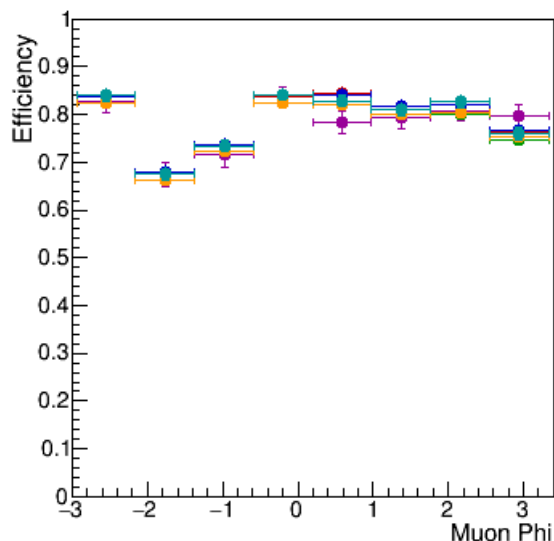
HLT_mu40

HLT_mu50

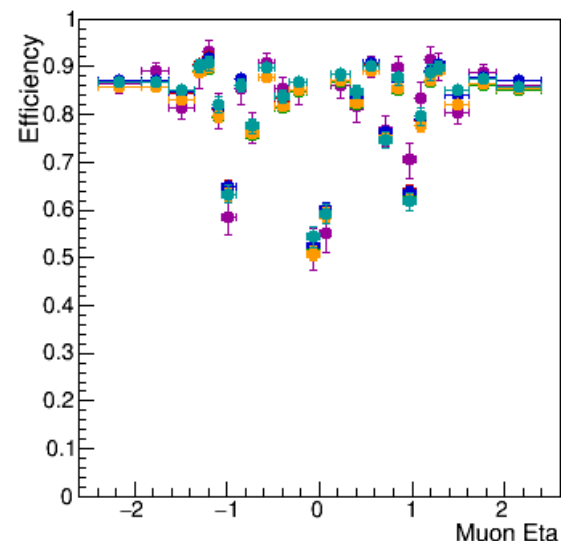
BARREL, Pt dependence



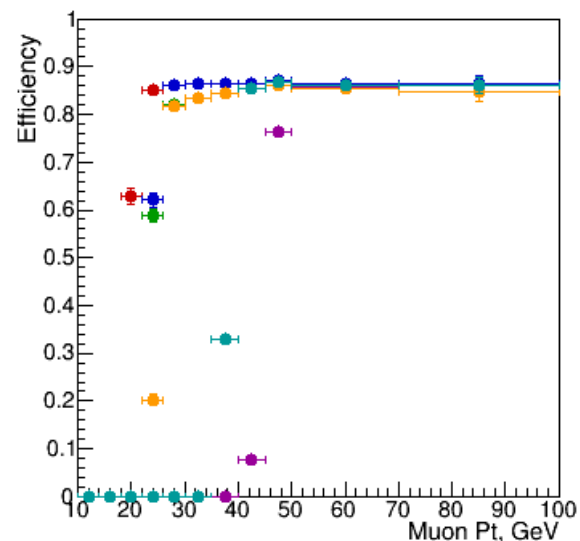
BARREL, Phi dependence



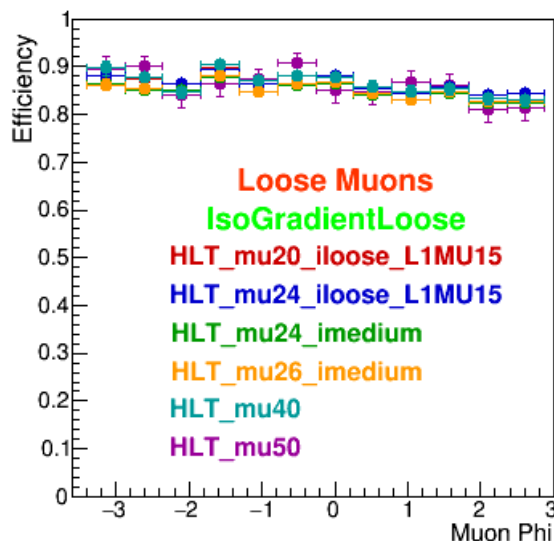
WHOLE DETECTOR, Eta dependence



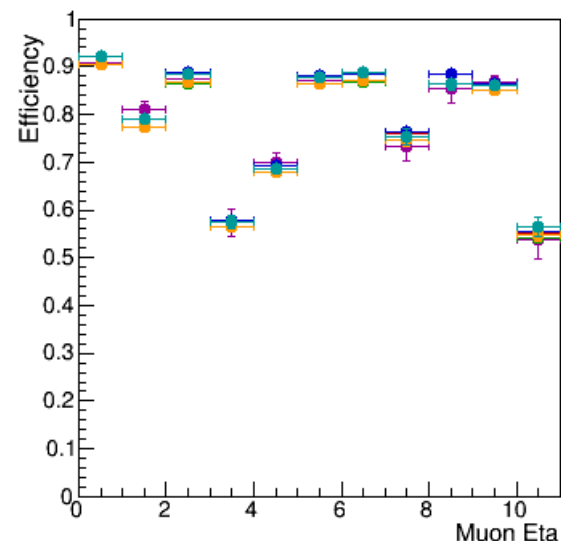
ENDCAP, Pt dependence



ENDCAP, Phi dependence

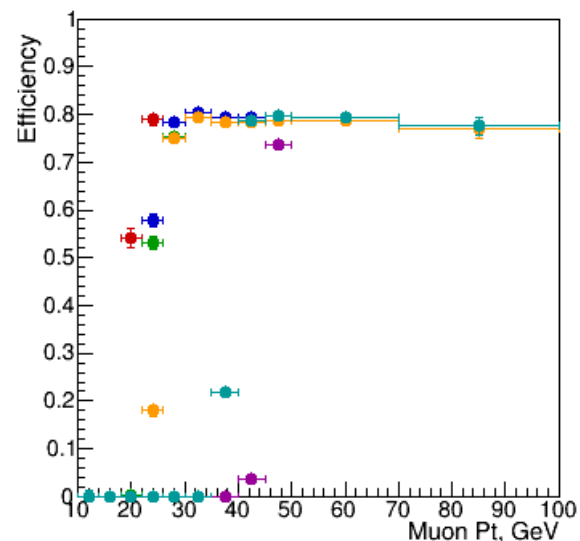


DETECTOR REGIONS

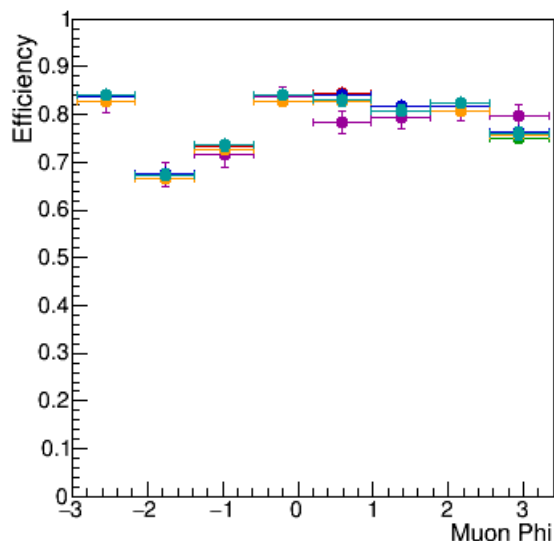


Loose Muons
 IsoGradientLoose
 HLT_mu20_loose_L1MU15
 HLT_mu24_loose_L1MU15
 HLT_mu24_Imedium
 HLT_mu26_Imedium
 HLT_mu40
 HLT_mu50

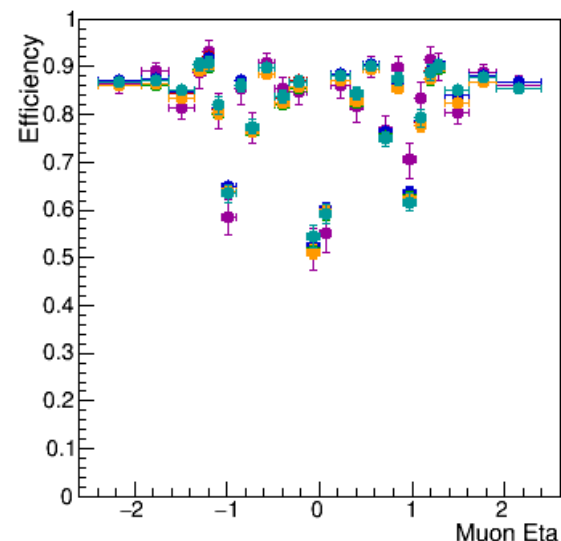
BARREL, Pt dependence



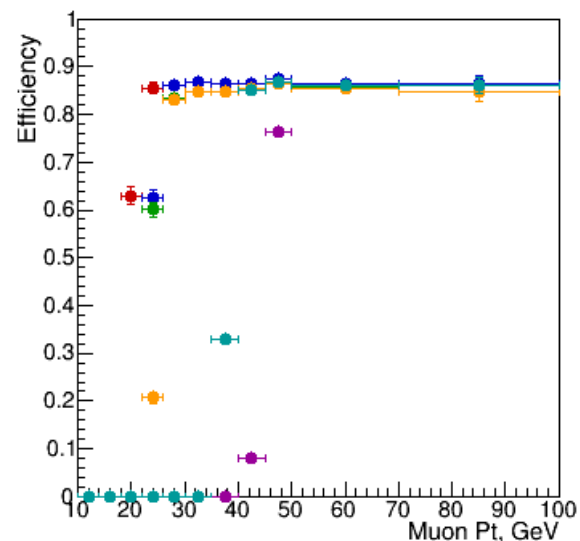
BARREL, Phi dependence



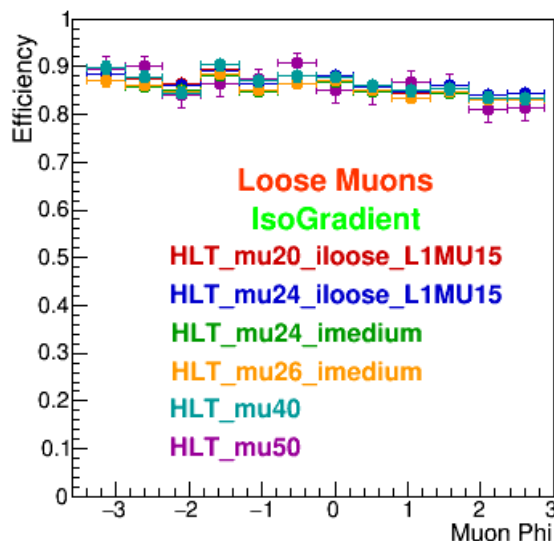
WHOLE DETECTOR, Eta dependence



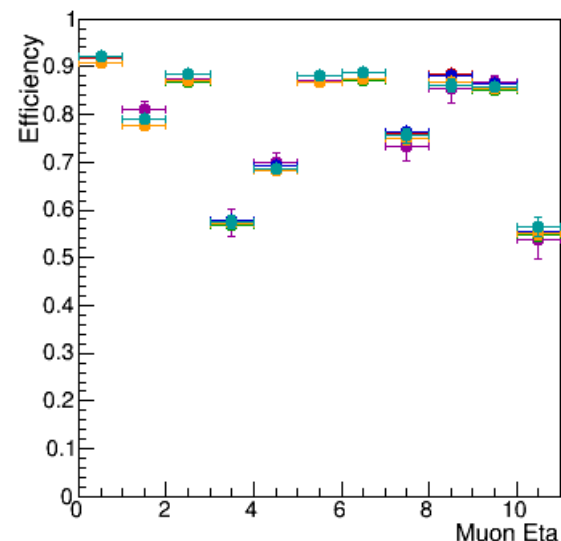
ENDCAP, Pt dependence



ENDCAP, Phi dependence



DETECTOR REGIONS



Loose Muons

IsoGradient

HLT_mu20_loose_L1MU15

HLT_mu24_loose_L1MU15

HLT_mu24_Imedium

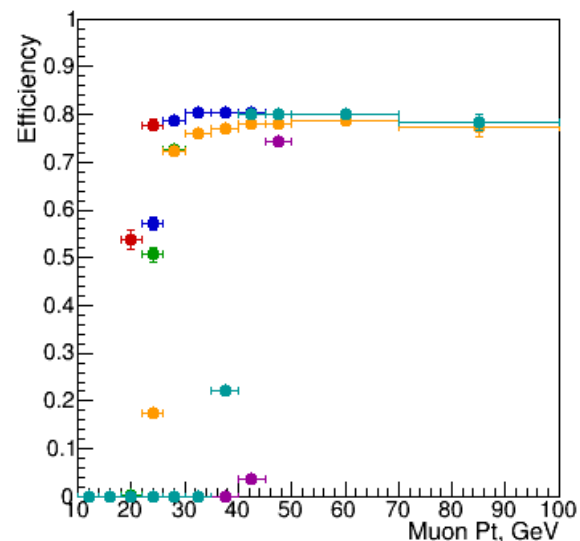
HLT_mu26_Imedium

HLT_mu40

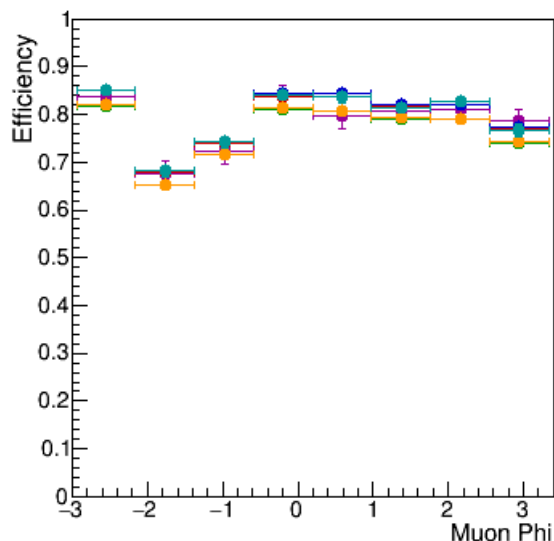
HLT_mu50

Medium muons

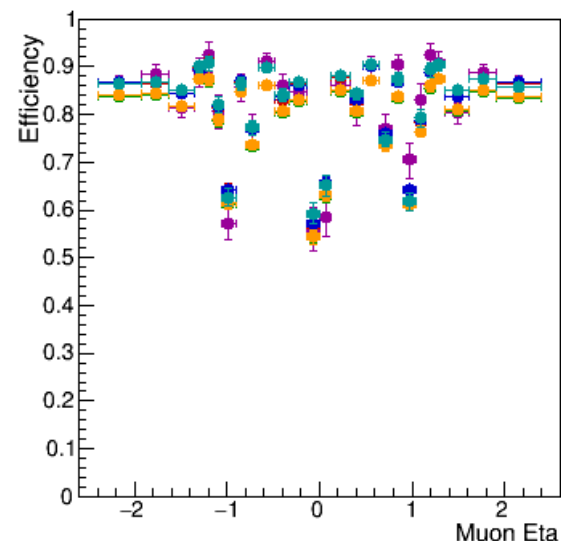
BARREL, Pt dependence



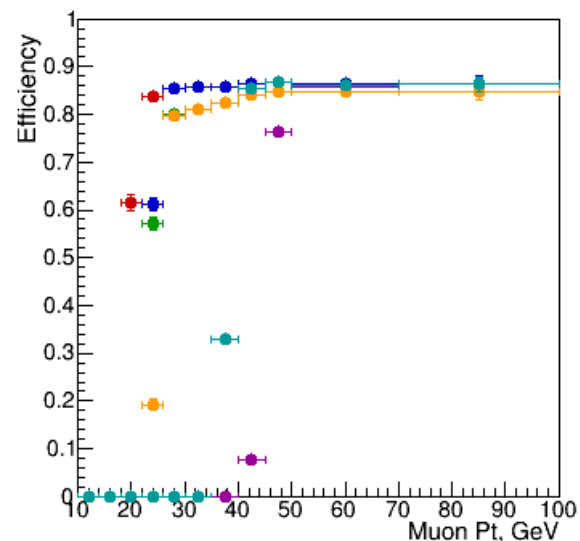
BARREL, Phi dependence



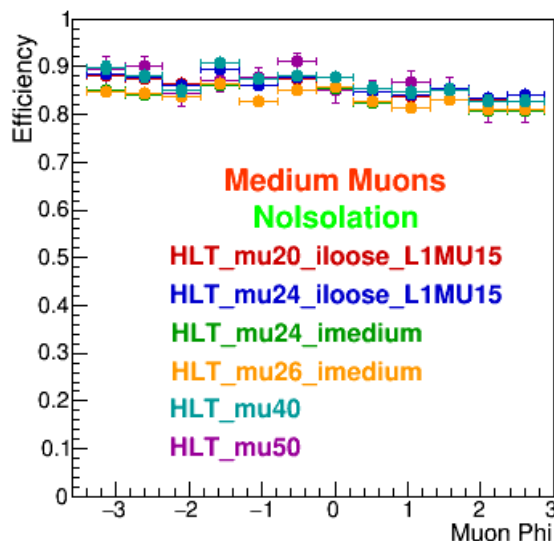
WHOLE DETECTOR, Eta dependence



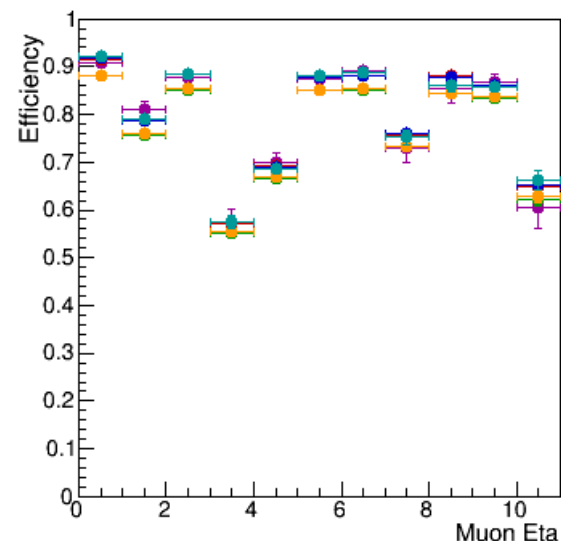
ENDCAP, Pt dependence



ENDCAP, Phi dependence



DETECTOR REGIONS



Medium Muons

Noisolation

HLT_mu20_loose_L1MU15

HLT_mu24_loose_L1MU15

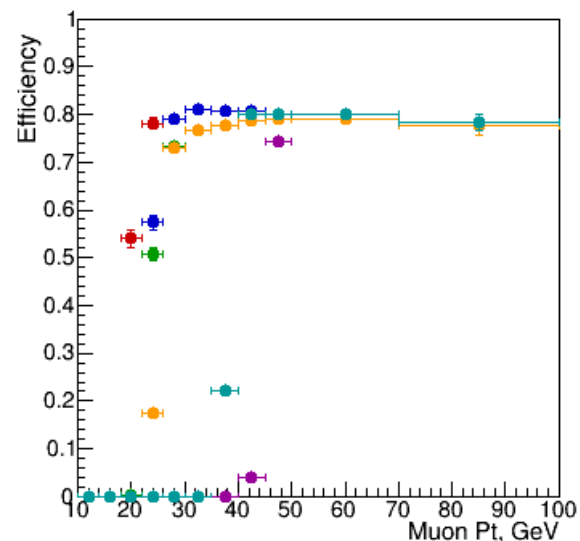
HLT_mu24_imedium

HLT_mu26_imedium

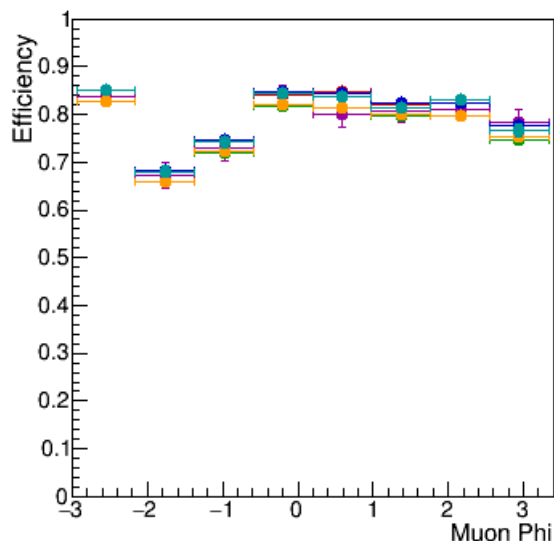
HLT_mu40

HLT_mu50

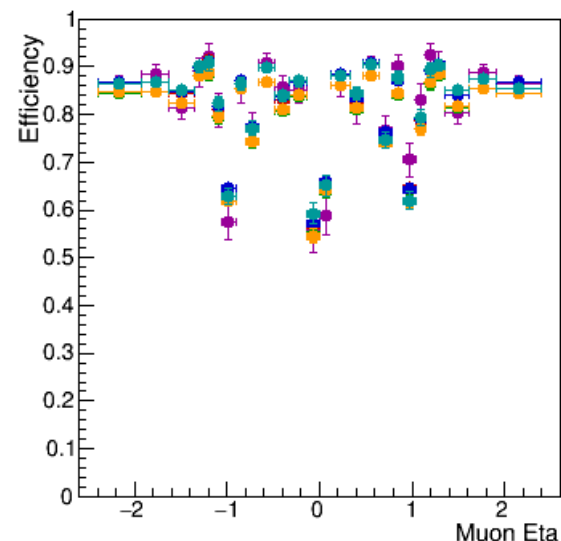
BARREL, Pt dependence



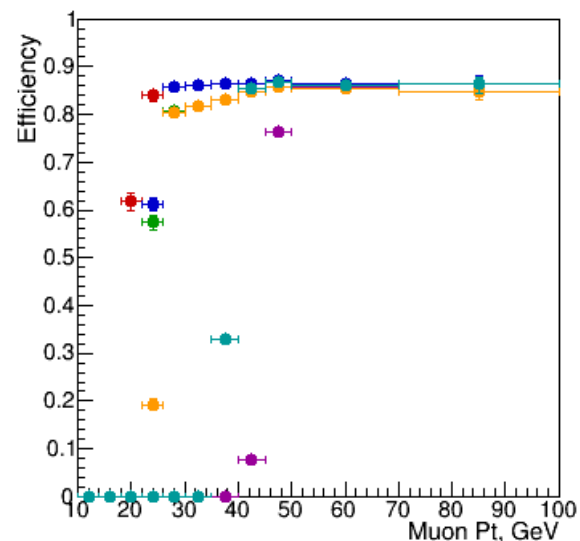
BARREL, Phi dependence



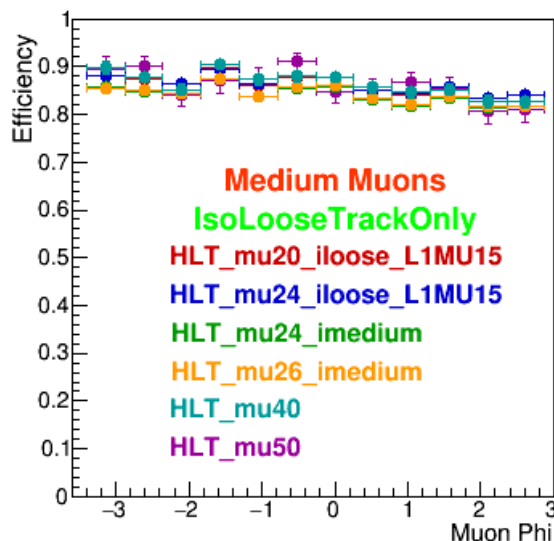
WHOLE DETECTOR, Eta dependence



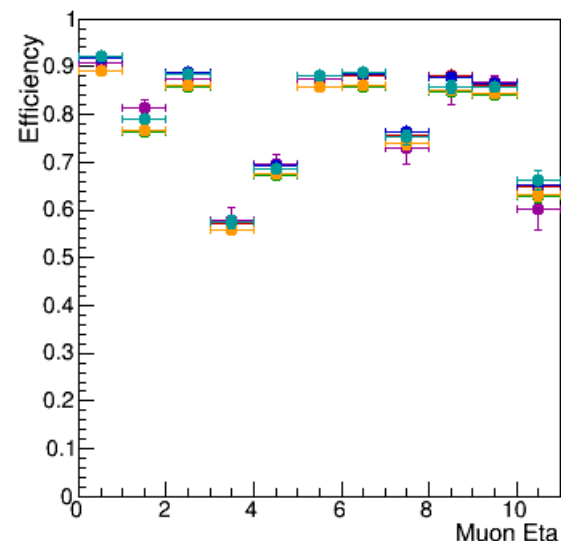
ENDCAP, Pt dependence



ENDCAP, Phi dependence

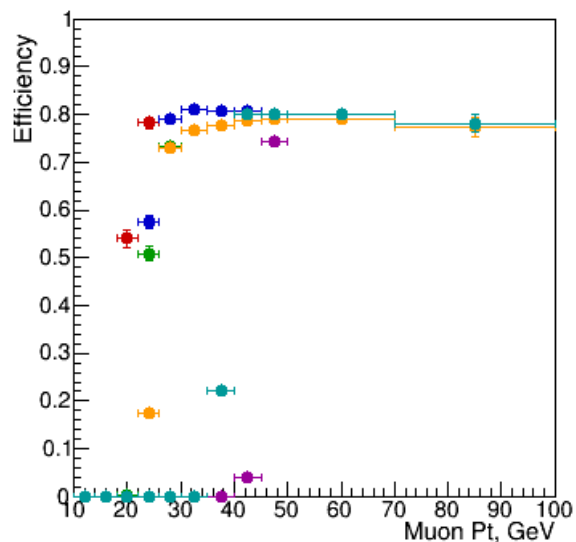


DETECTOR REGIONS

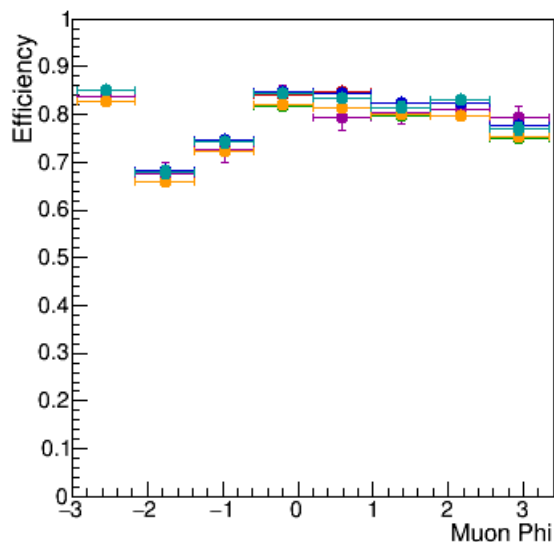


Medium Muons
 IsoLooseTrackOnly
 HLT_mu20_iloose_L1MU15
 HLT_mu24_iloose_L1MU15
 HLT_mu24_imedium
 HLT_mu26_imedium
 HLT_mu40
 HLT_mu50

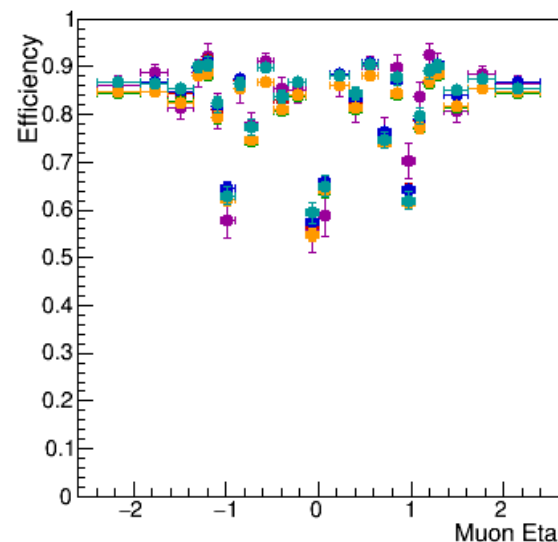
BARREL, Pt dependence



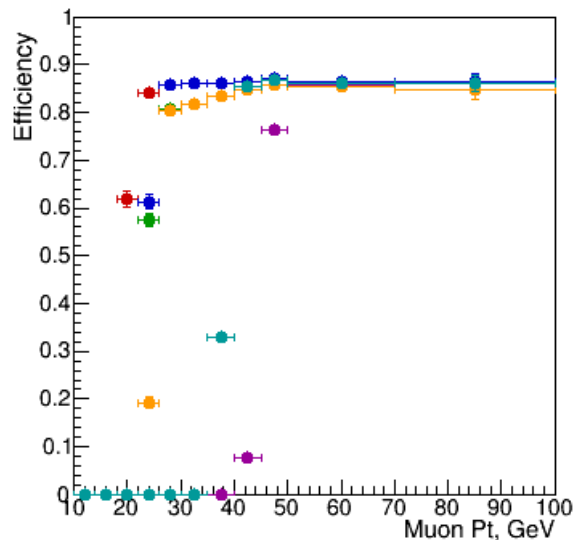
BARREL, Phi dependence



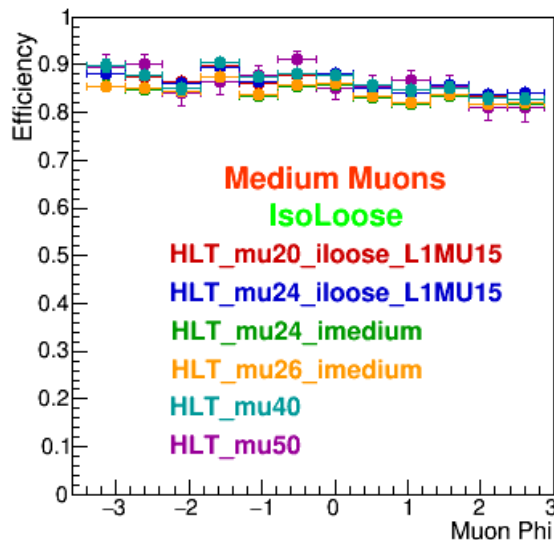
WHOLE DETECTOR, Eta dependence



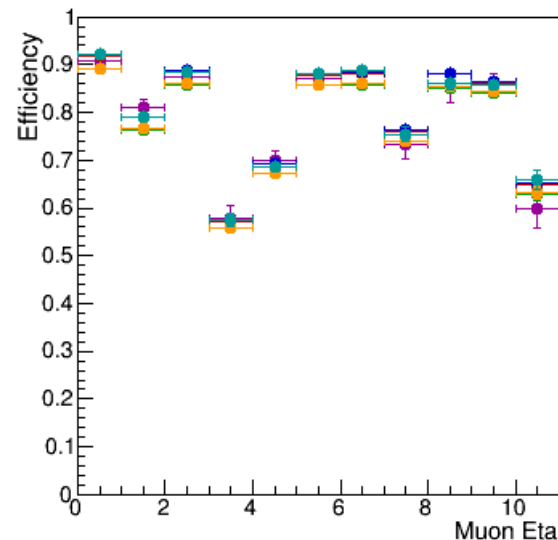
ENDCAP, Pt dependence



ENDCAP, Phi dependence



DETECTOR REGIONS



Medium Muons

IsoLoose

HLT_mu20_iloose_L1MU15

HLT_mu24_iloose_L1MU15

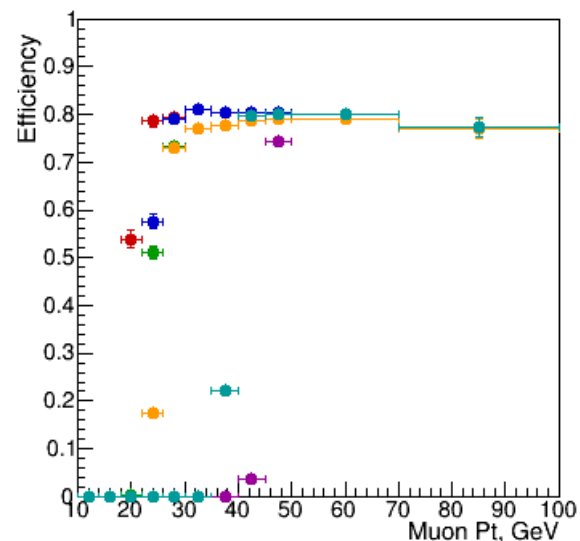
HLT_mu24_imedium

HLT_mu26_imedium

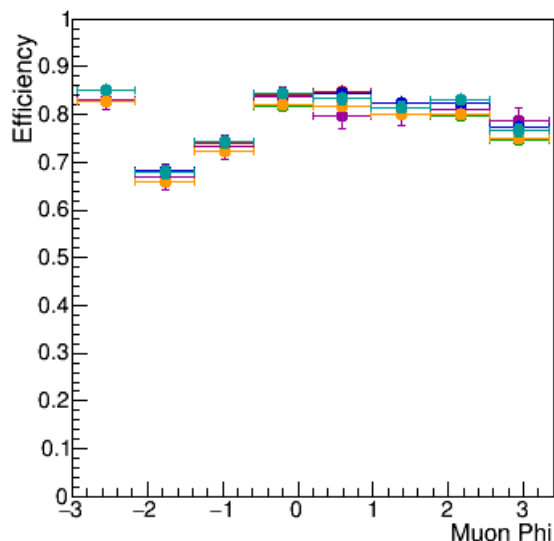
HLT_mu40

HLT_mu50

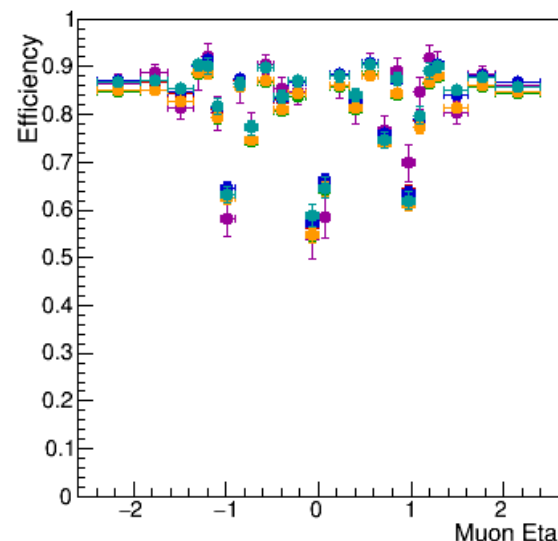
BARREL, Pt dependence



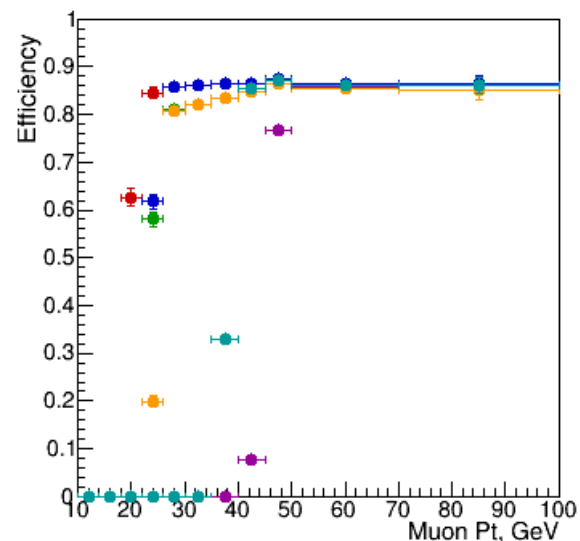
BARREL, Phi dependence



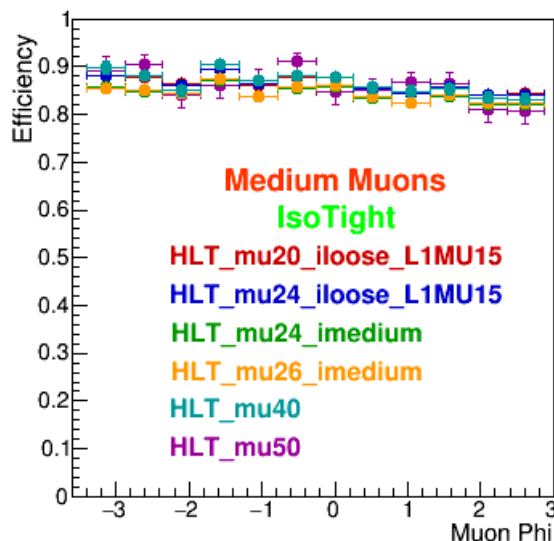
WHOLE DETECTOR, Eta dependence



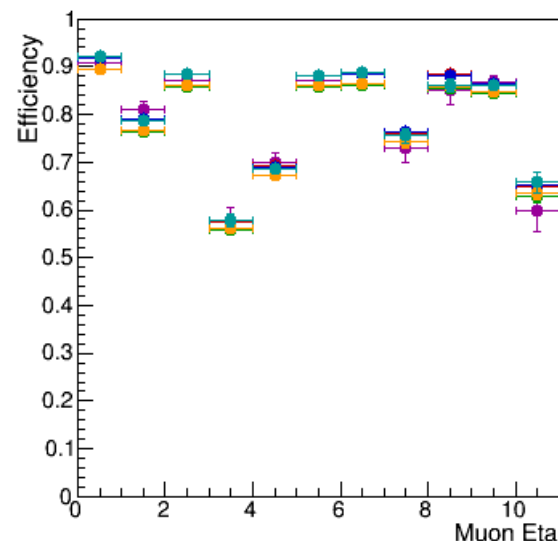
ENDCAP, Pt dependence



ENDCAP, Phi dependence



DETECTOR REGIONS



Medium Muons

IsoTight

HLT_mu20_loose_L1MU15

HLT_mu24_loose_L1MU15

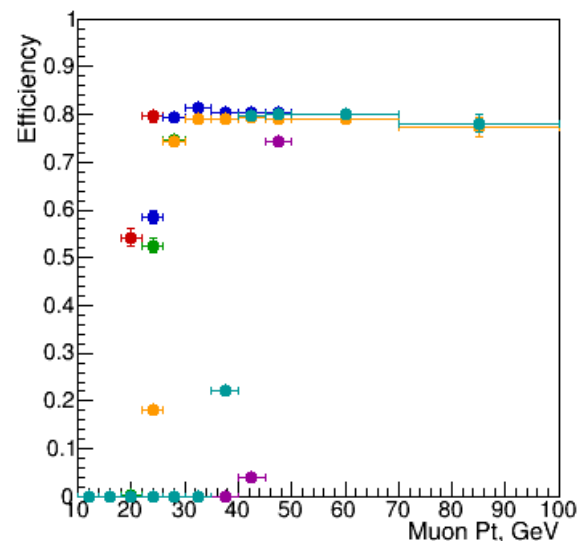
HLT_mu24_imedium

HLT_mu26_imedium

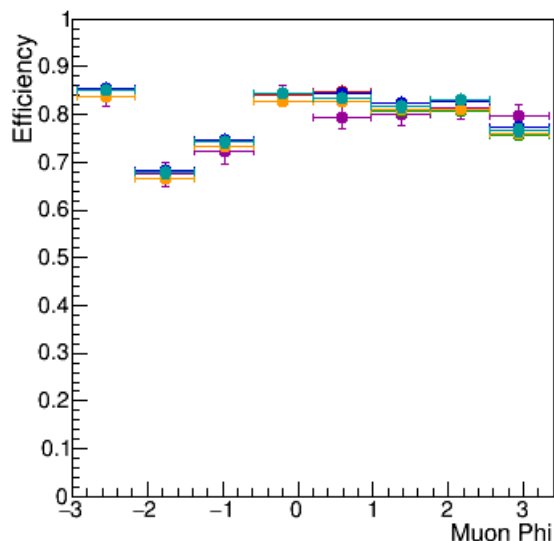
HLT_mu40

HLT_mu50

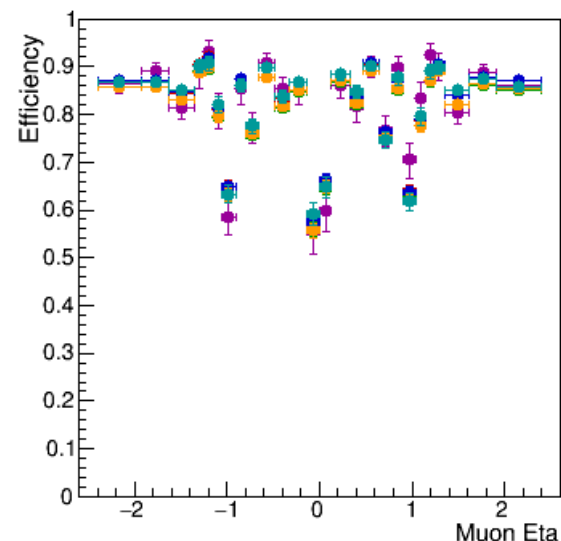
BARREL, Pt dependence



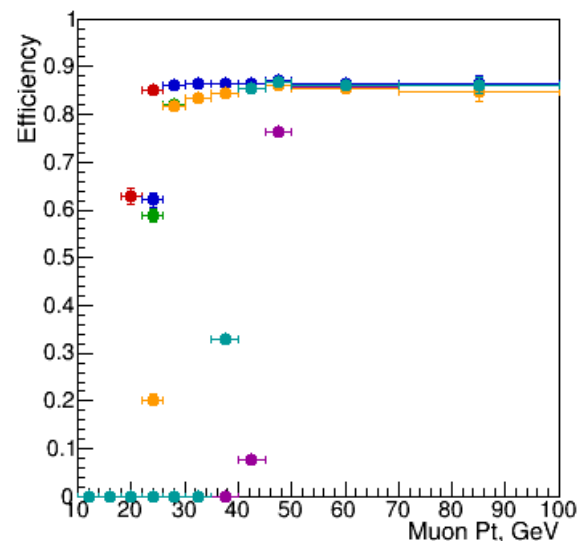
BARREL, Phi dependence



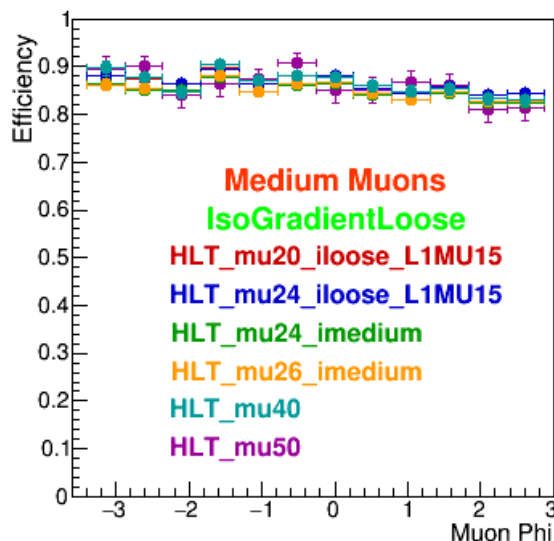
WHOLE DETECTOR, Eta dependence



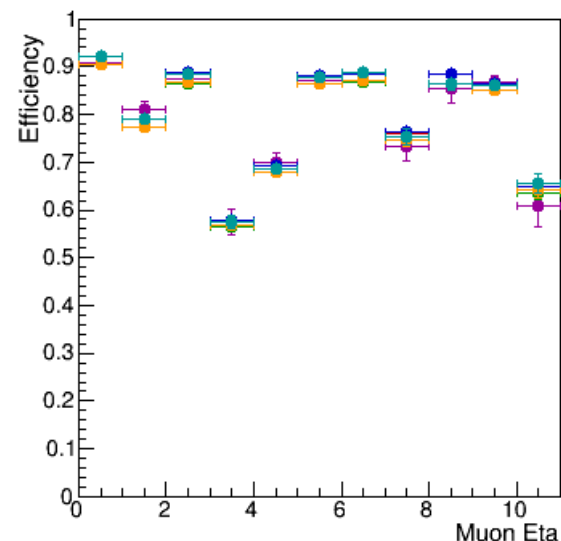
ENDCAP, Pt dependence



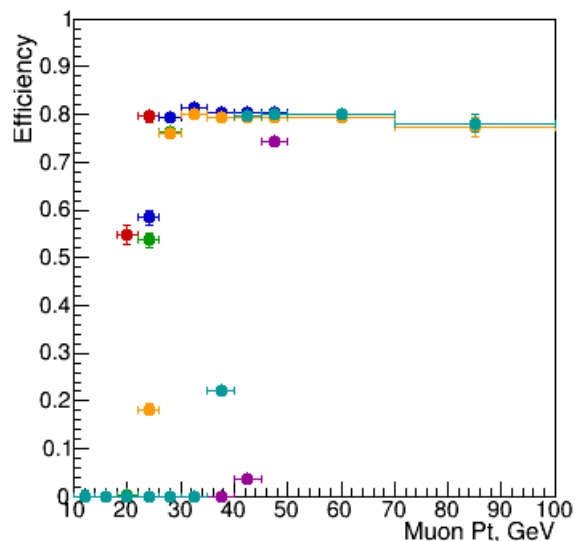
ENDCAP, Phi dependence



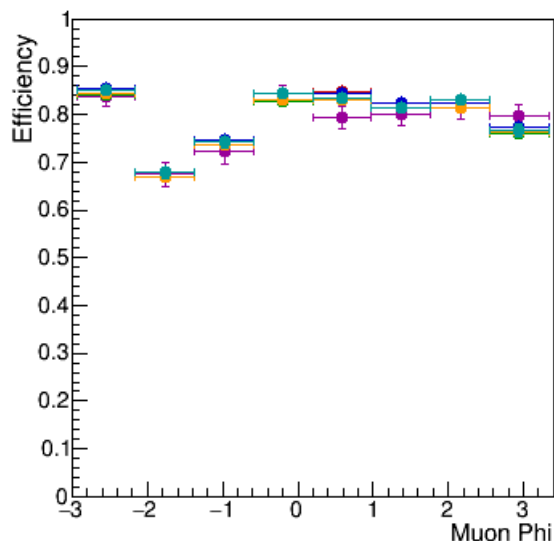
DETECTOR REGIONS



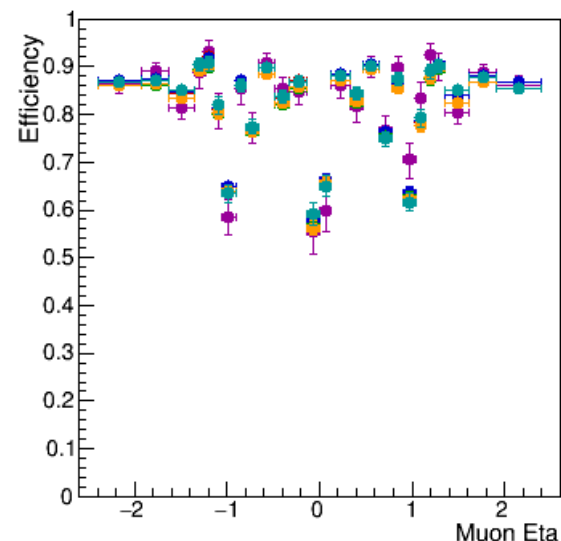
BARREL, Pt dependence



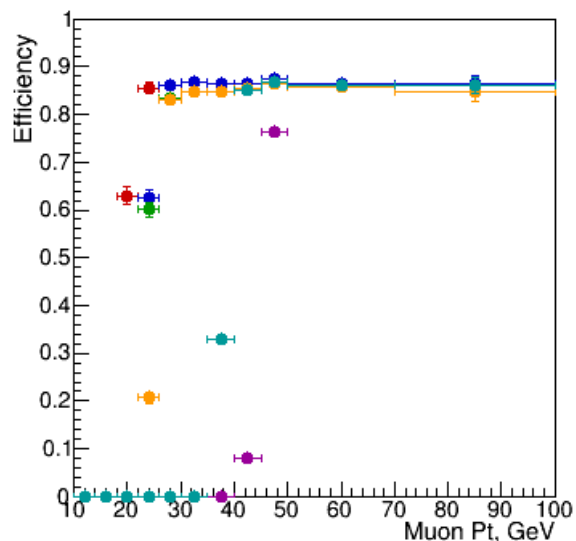
BARREL, Phi dependence



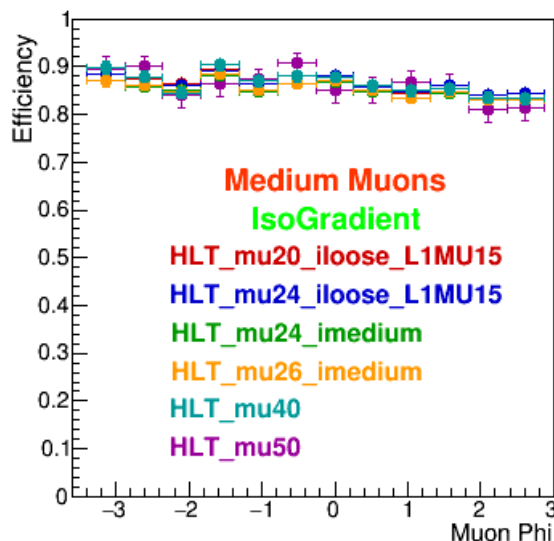
WHOLE DETECTOR, Eta dependence



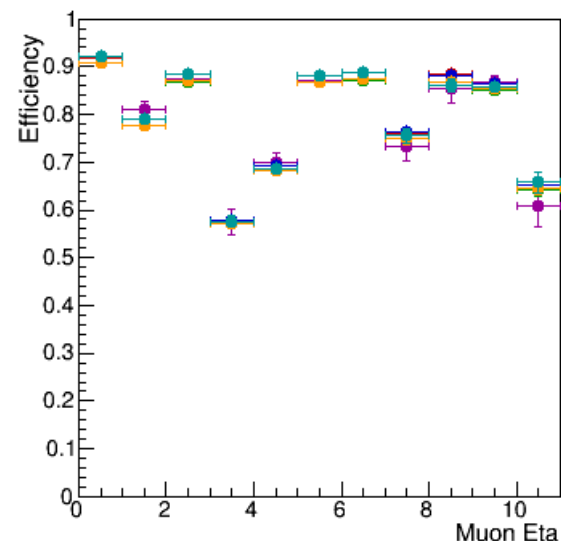
ENDCAP, Pt dependence



ENDCAP, Phi dependence



DETECTOR REGIONS



Medium Muons

IsoGradient

HLT_mu20_loose_L1MU15

HLT_mu24_loose_L1MU15

HLT_mu24_Imedium

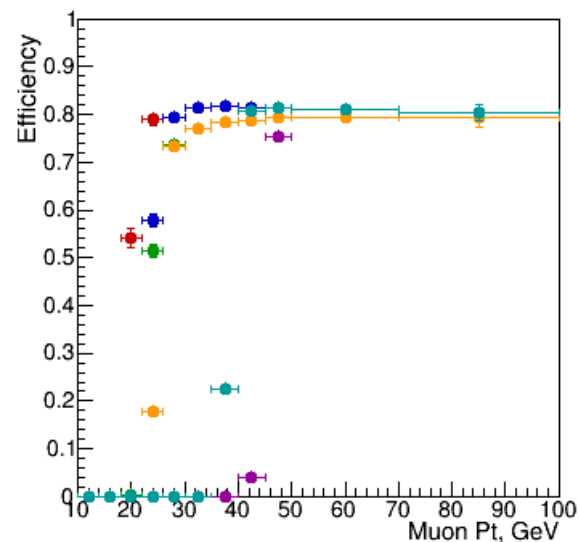
HLT_mu26_Imedium

HLT_mu40

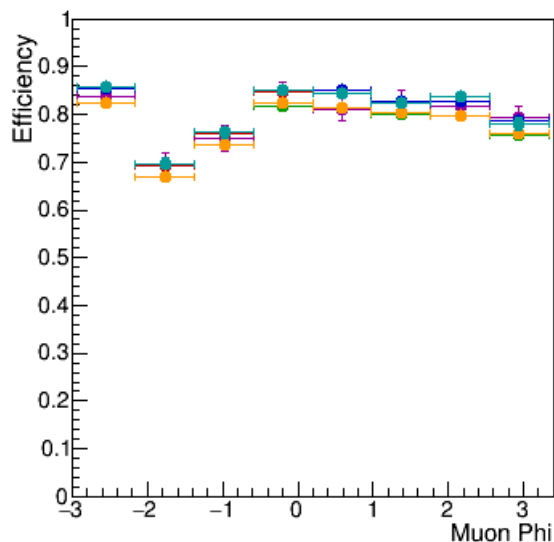
HLT_mu50

Tight muons

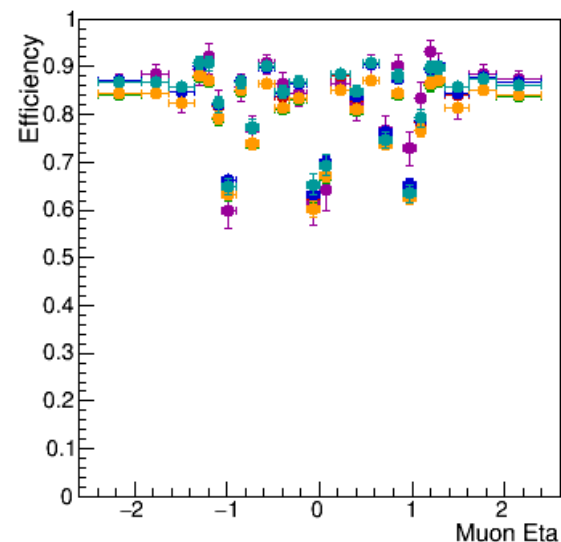
BARREL, Pt dependence



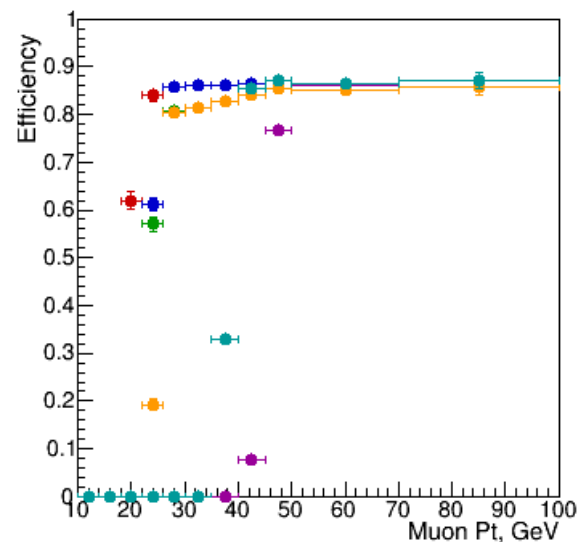
BARREL, Phi dependence



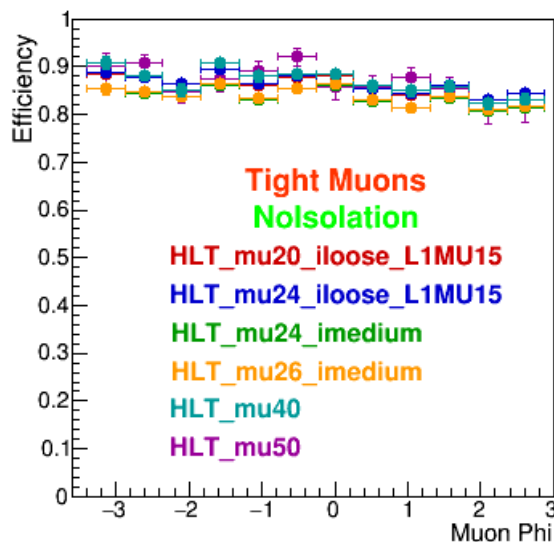
WHOLE DETECTOR, Eta dependence



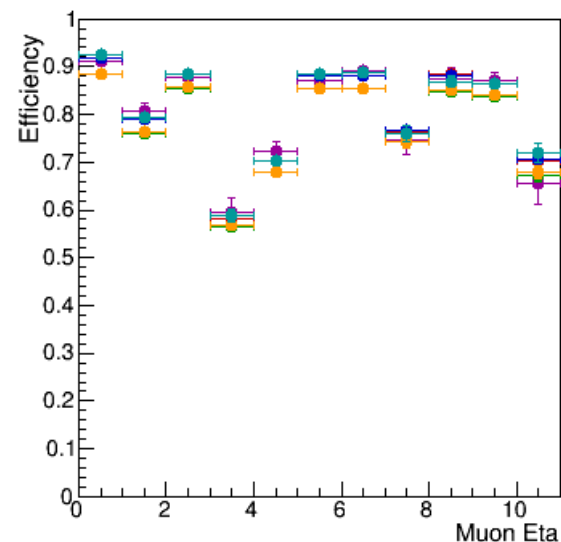
ENDCAP, Pt dependence



ENDCAP, Phi dependence



DETECTOR REGIONS



Tight Muons

Noisolation

HLT_mu20_loose_L1MU15

HLT_mu24_loose_L1MU15

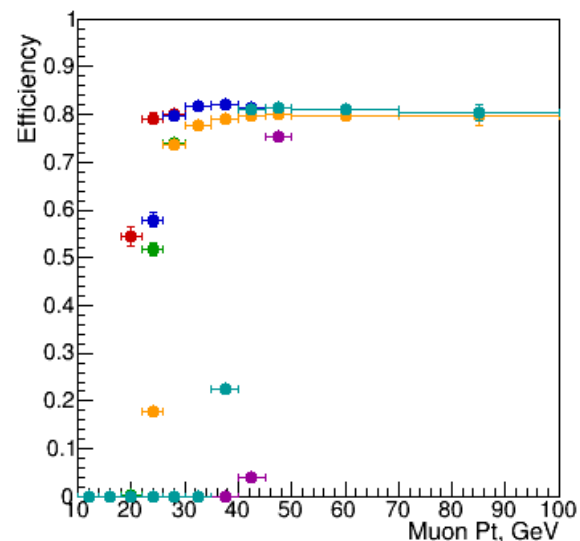
HLT_mu24_imedium

HLT_mu26_imedium

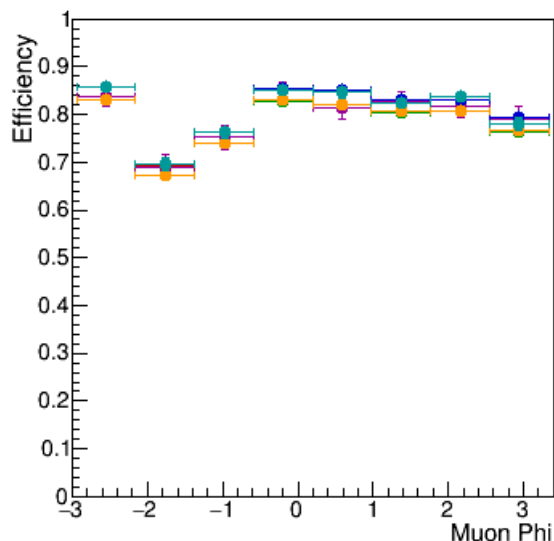
HLT_mu40

HLT_mu50

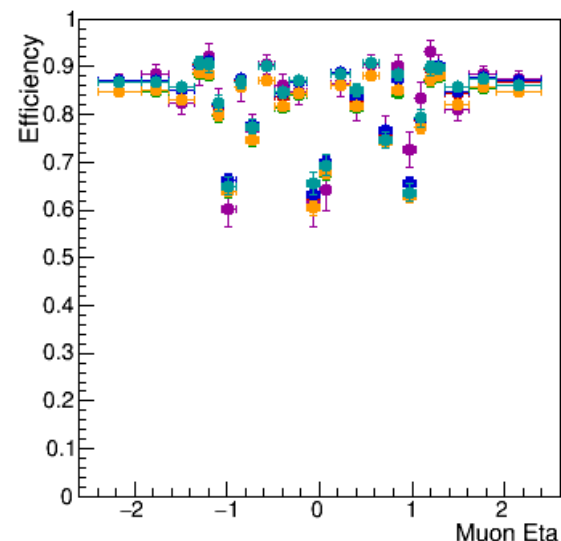
BARREL, Pt dependence



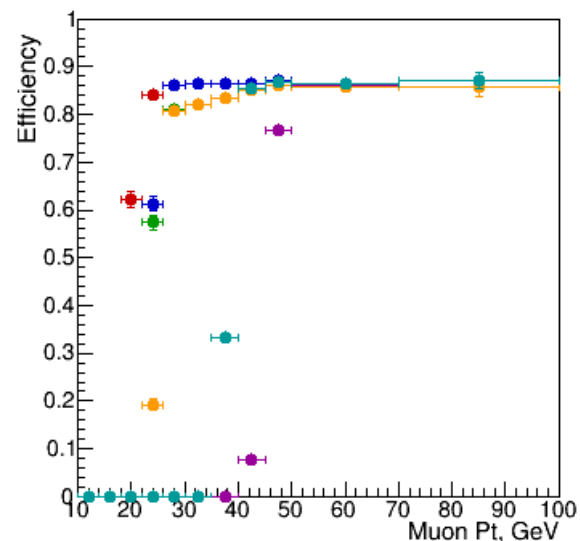
BARREL, Phi dependence



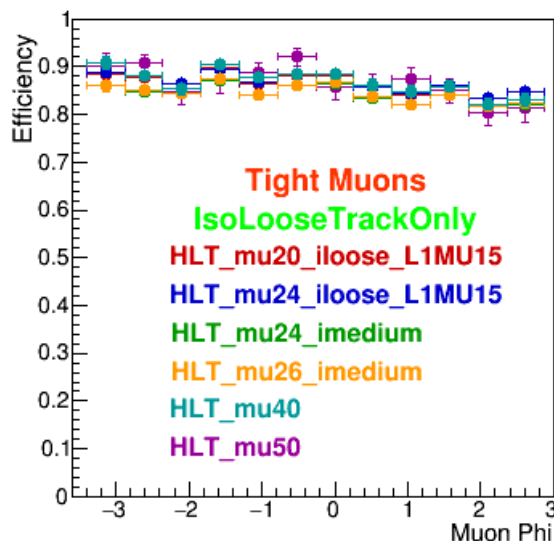
WHOLE DETECTOR, Eta dependence



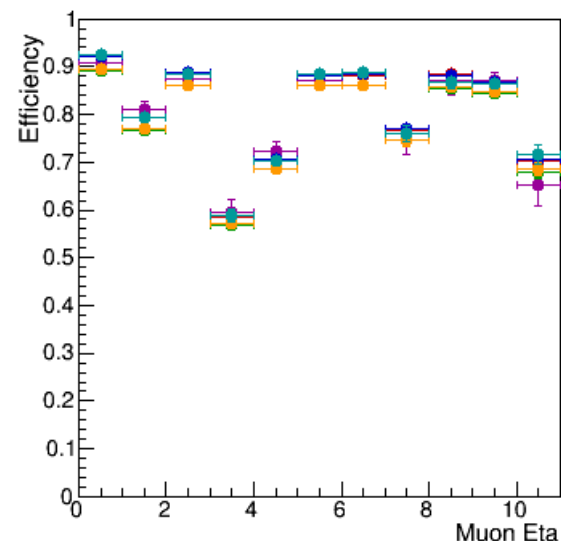
ENDCAP, Pt dependence



ENDCAP, Phi dependence

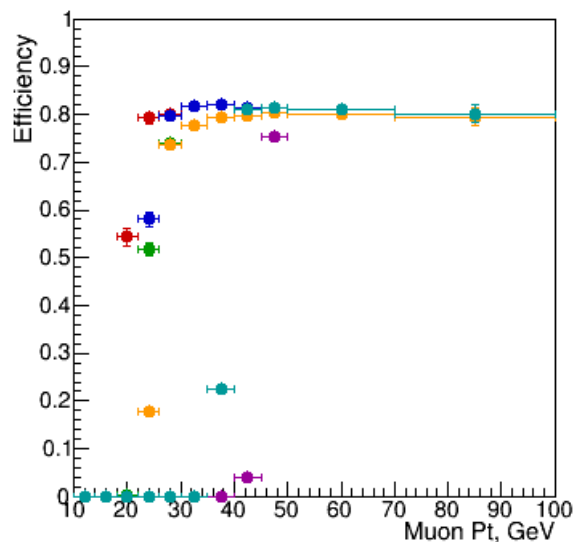


DETECTOR REGIONS

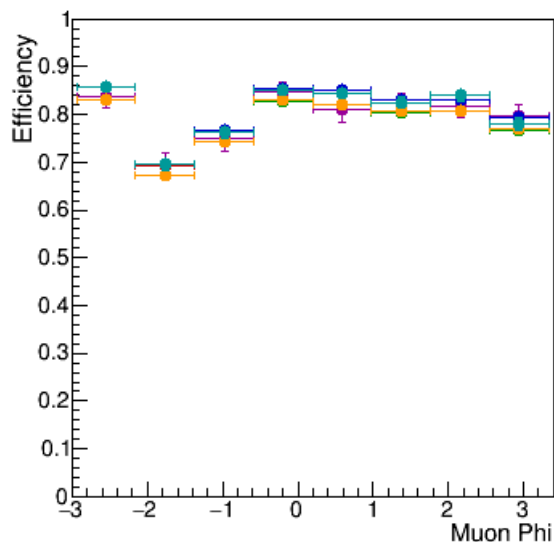


Tight Muons
 IsoLooseTrackOnly
 HLT_mu20_loose_L1MU15
 HLT_mu24_loose_L1MU15
 HLT_mu24_Imedium
 HLT_mu26_Imedium
 HLT_mu40
 HLT_mu50

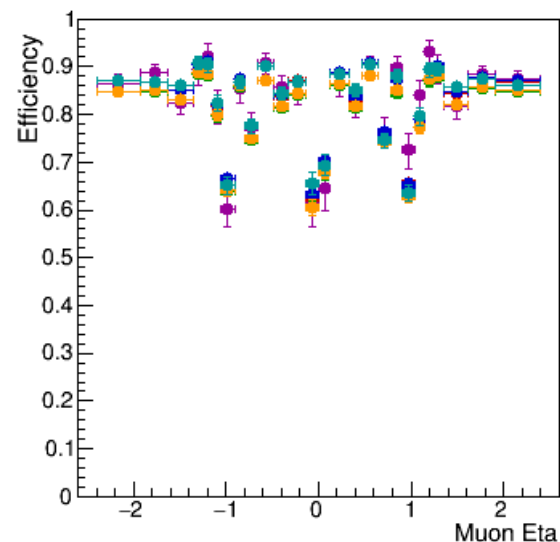
BARREL, Pt dependence



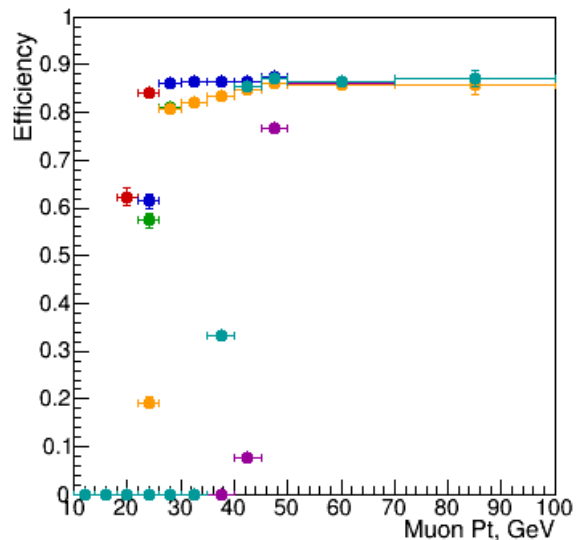
BARREL, Phi dependence



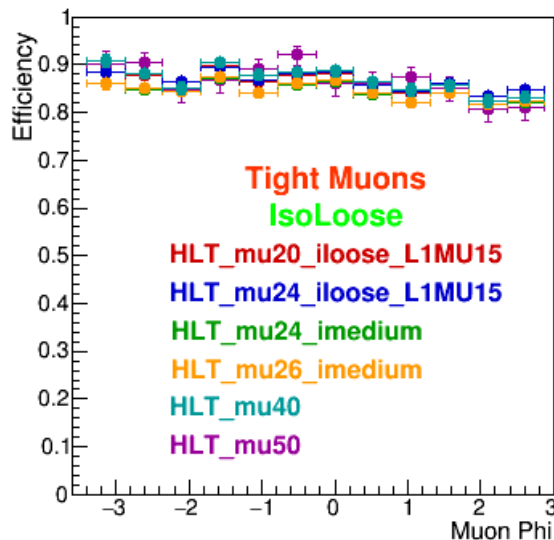
WHOLE DETECTOR, Eta dependence



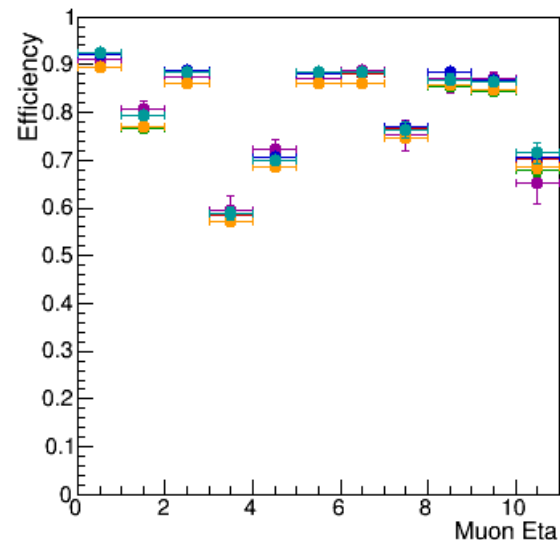
ENDCAP, Pt dependence



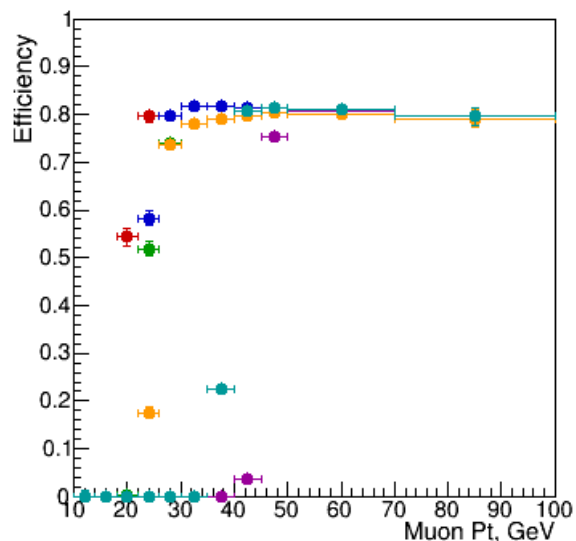
ENDCAP, Phi dependence



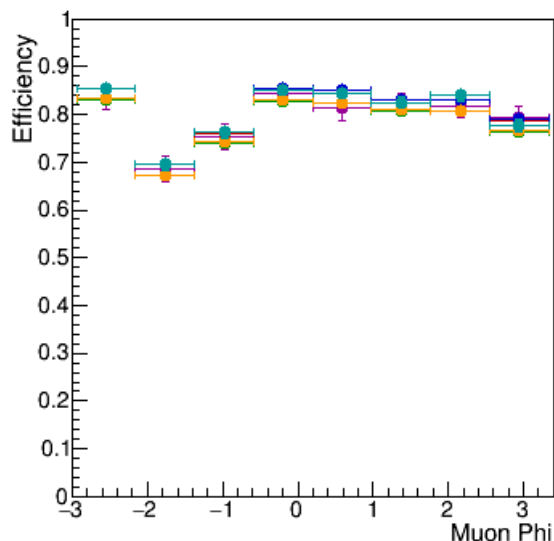
DETECTOR REGIONS



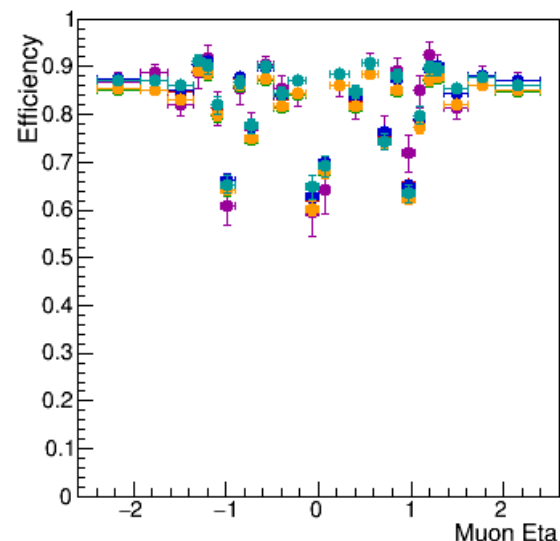
BARREL, Pt dependence



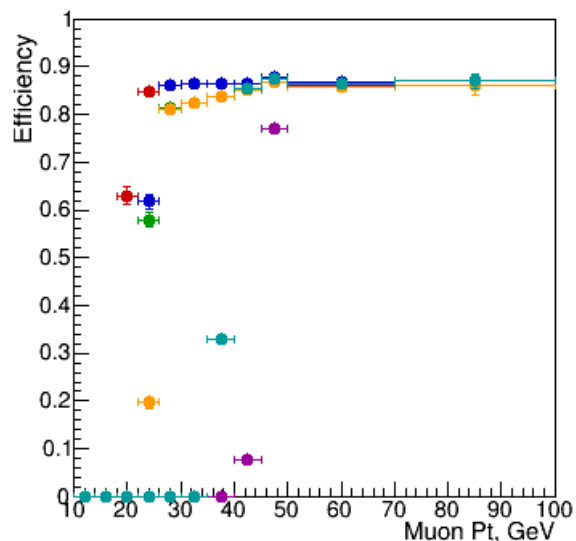
BARREL, Phi dependence



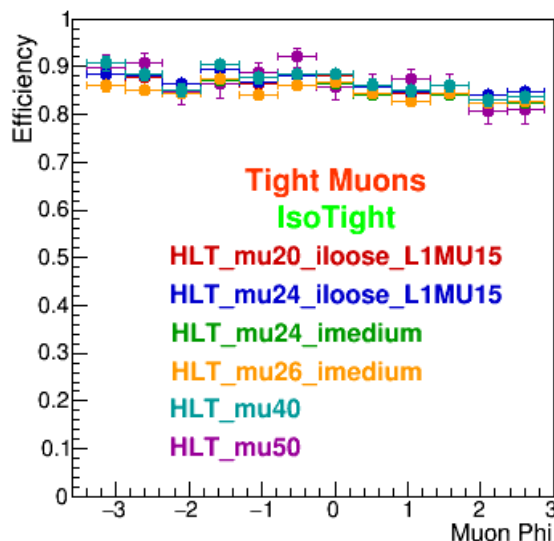
WHOLE DETECTOR, Eta dependence



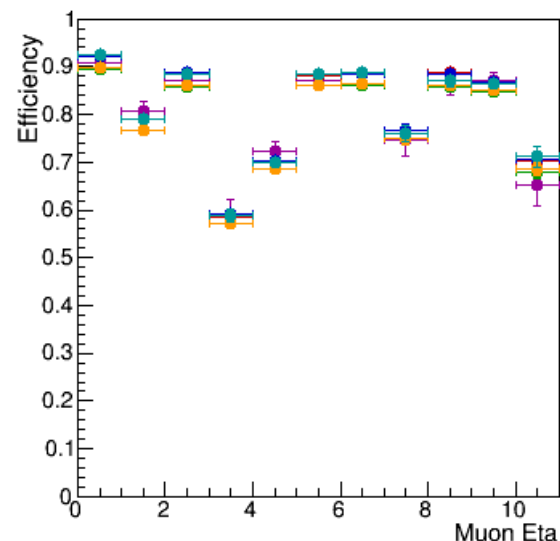
ENDCAP, Pt dependence



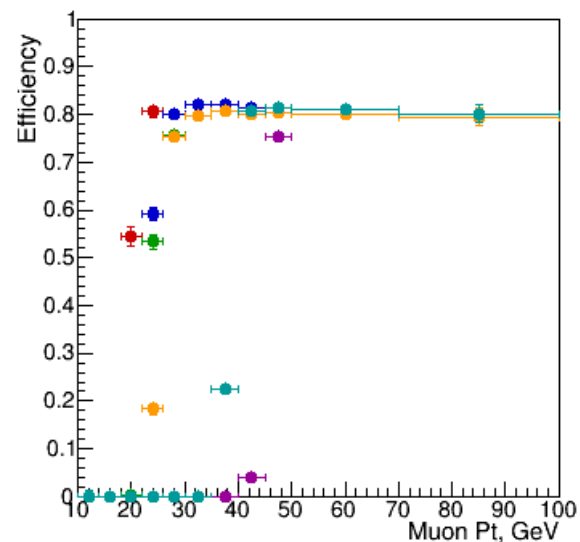
ENDCAP, Phi dependence



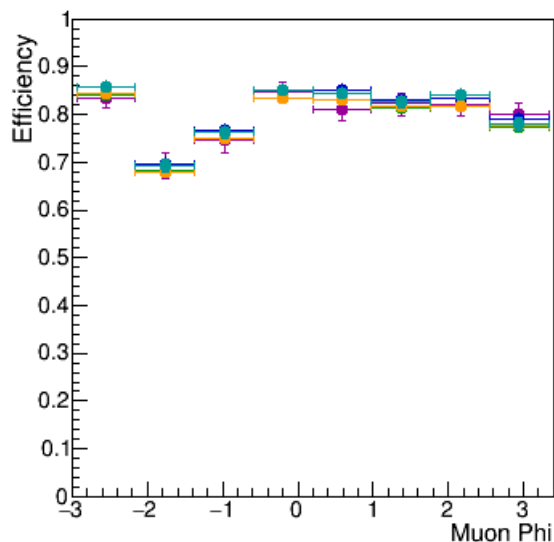
DETECTOR REGIONS



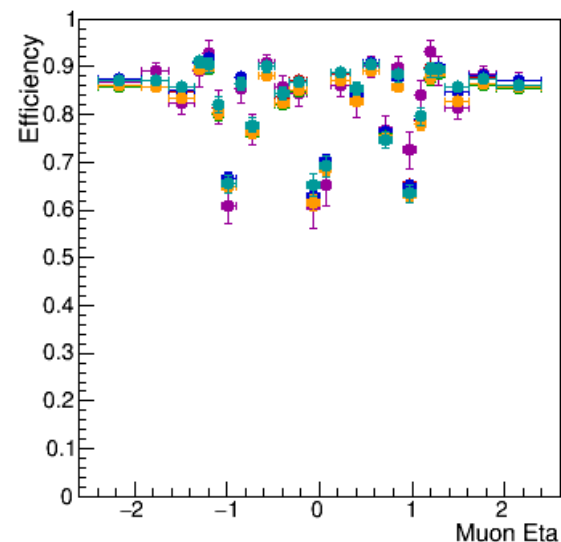
BARREL, Pt dependence



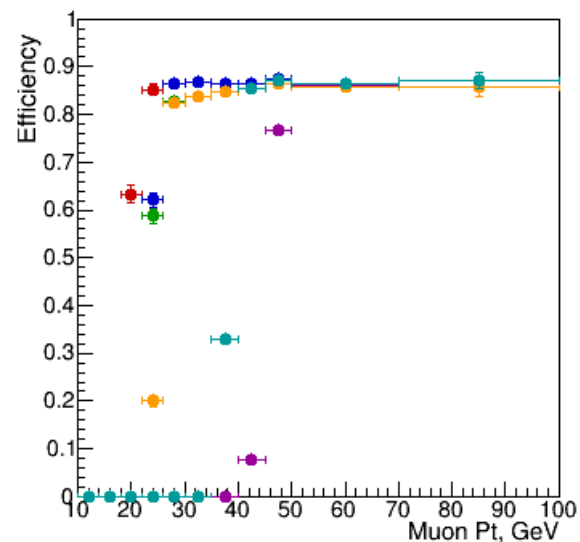
BARREL, Phi dependence



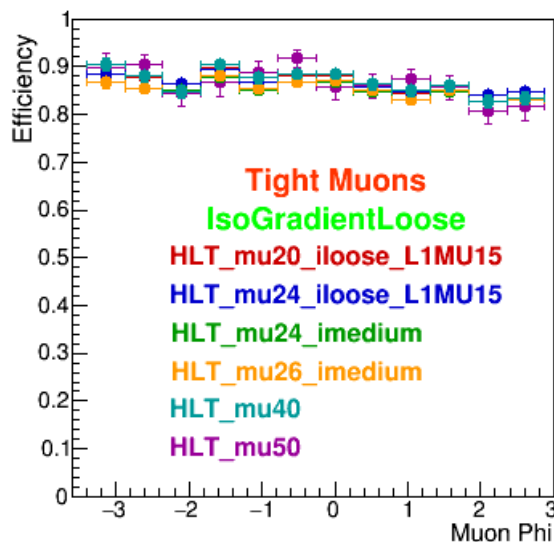
WHOLE DETECTOR, Eta dependence



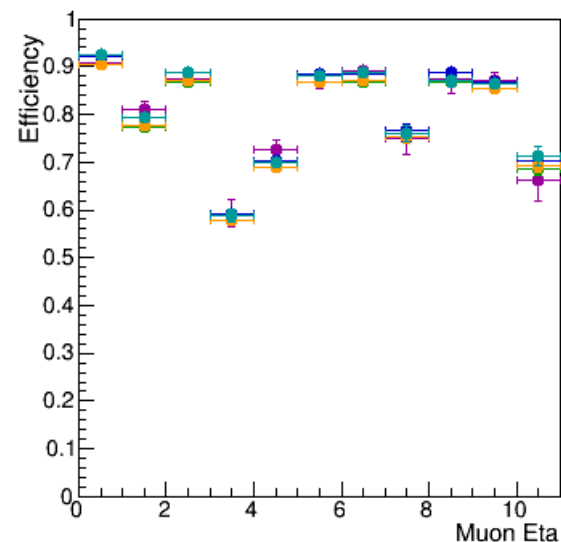
ENDCAP, Pt dependence



ENDCAP, Phi dependence

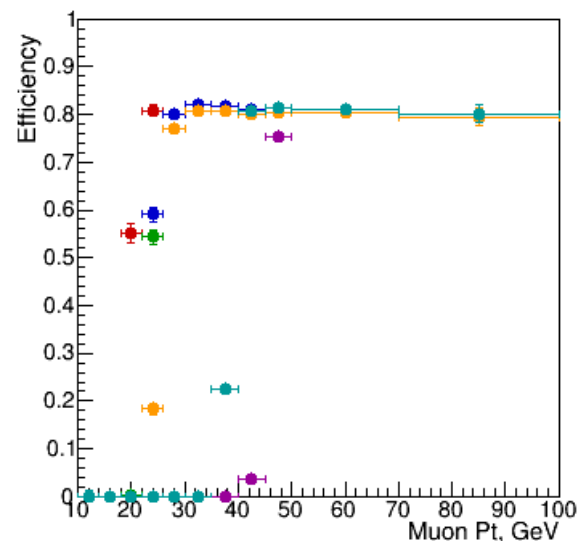


DETECTOR REGIONS

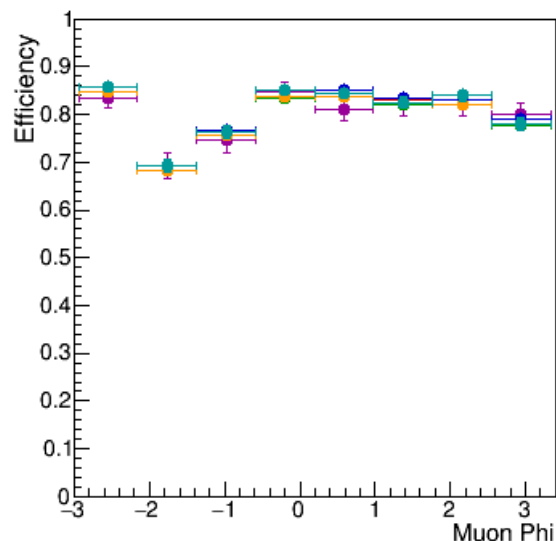


Tight Muons
 IsoGradientLoose
 HLT_mu20_loose_L1MU15
 HLT_mu24_loose_L1MU15
 HLT_mu24_Imedium
 HLT_mu26_Imedium
 HLT_mu40
 HLT_mu50

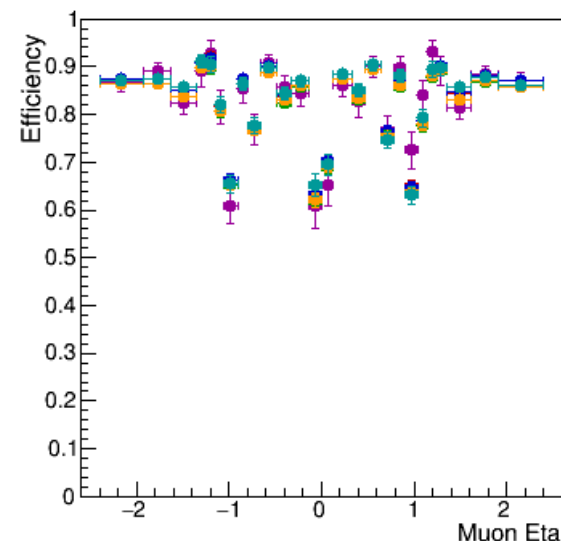
BARREL, Pt dependence



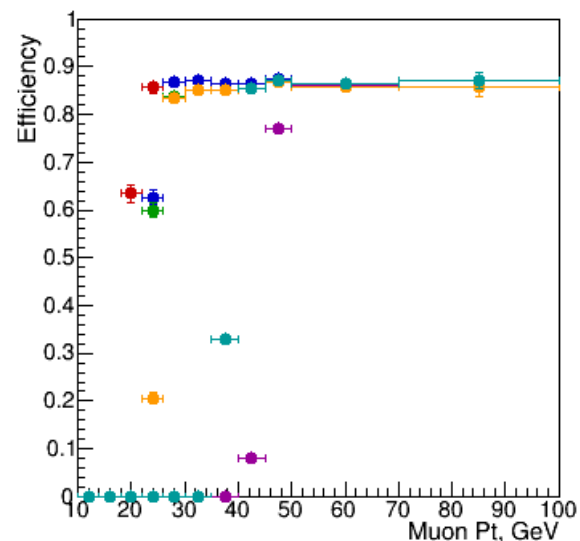
BARREL, Phi dependence



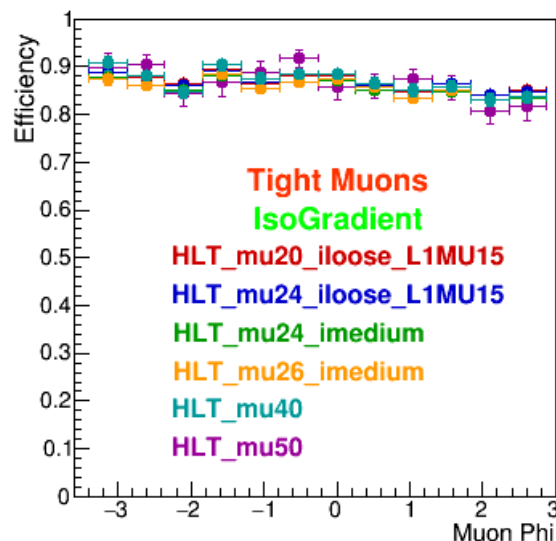
WHOLE DETECTOR, Eta dependence



ENDCAP, Pt dependence



ENDCAP, Phi dependence



DETECTOR REGIONS

