

# L1TrackNTuplePlot.C Updates

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# Terminal Printouts

- Total # of tracks per event w/o pt or eta cuts

Sample: TTbar, PU=200, 1e3 events

```
# TP/event (pt > 2) = 160.403  
# TP/event (pt > 3.0) = 54.094  
# TP/event (pt > 10.0) = 5.47  
# tracks/event (pt > 2) = 167.251  
# tracks/event (pt > 3.0) = 58.86  
# tracks/event (pt > 10.0) = 6.11
```

Before

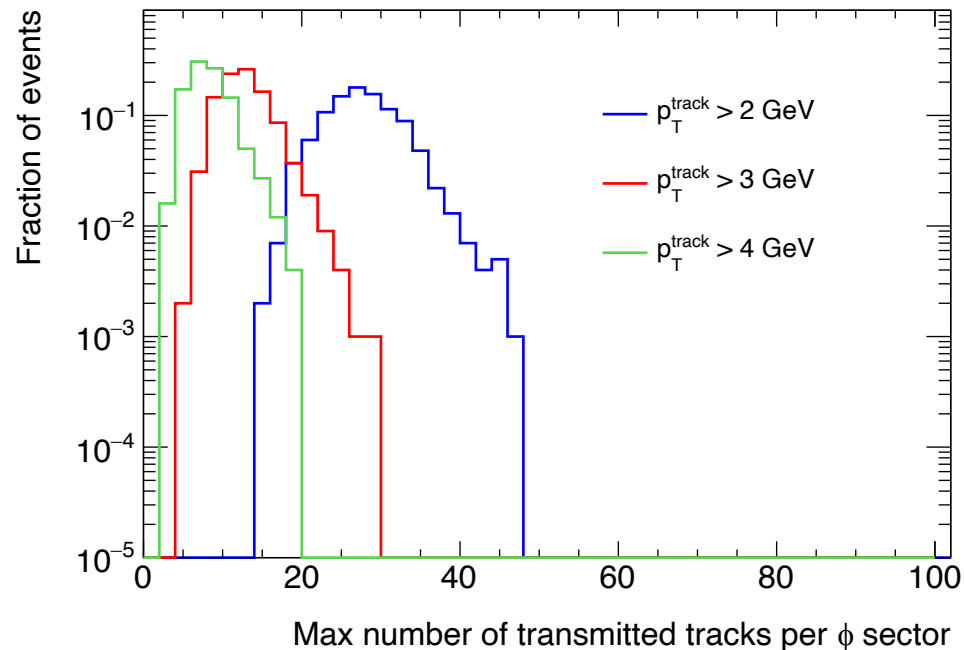
```
# TP/event (pt > 2) = 160.403  
# TP/event (pt > 3.0) = 54.094  
# TP/event (pt > 10.0) = 5.47  
# tracks/event (no pt cut)= 179.668  
# tracks/event (pt > 2) = 167.251  
# tracks/event (pt > 3.0) = 58.86  
# tracks/event (pt > 10.0) = 6.11
```

After

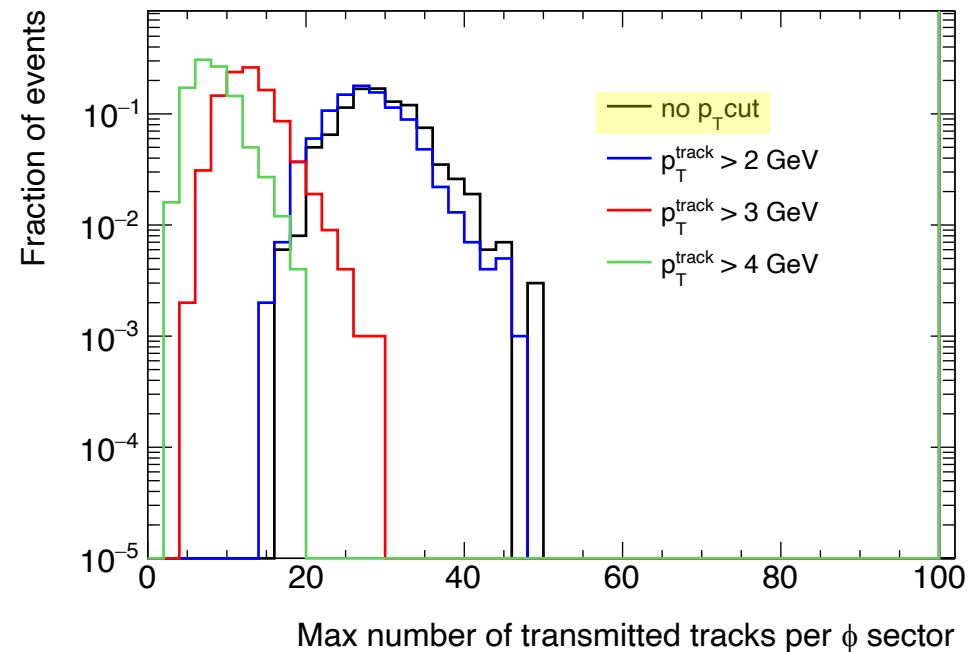
# # of Tracks per phi sector histograms

- Added new histogram/entry without pT cuts

Sample: TTbar, PU=200, 1e3 events



Before

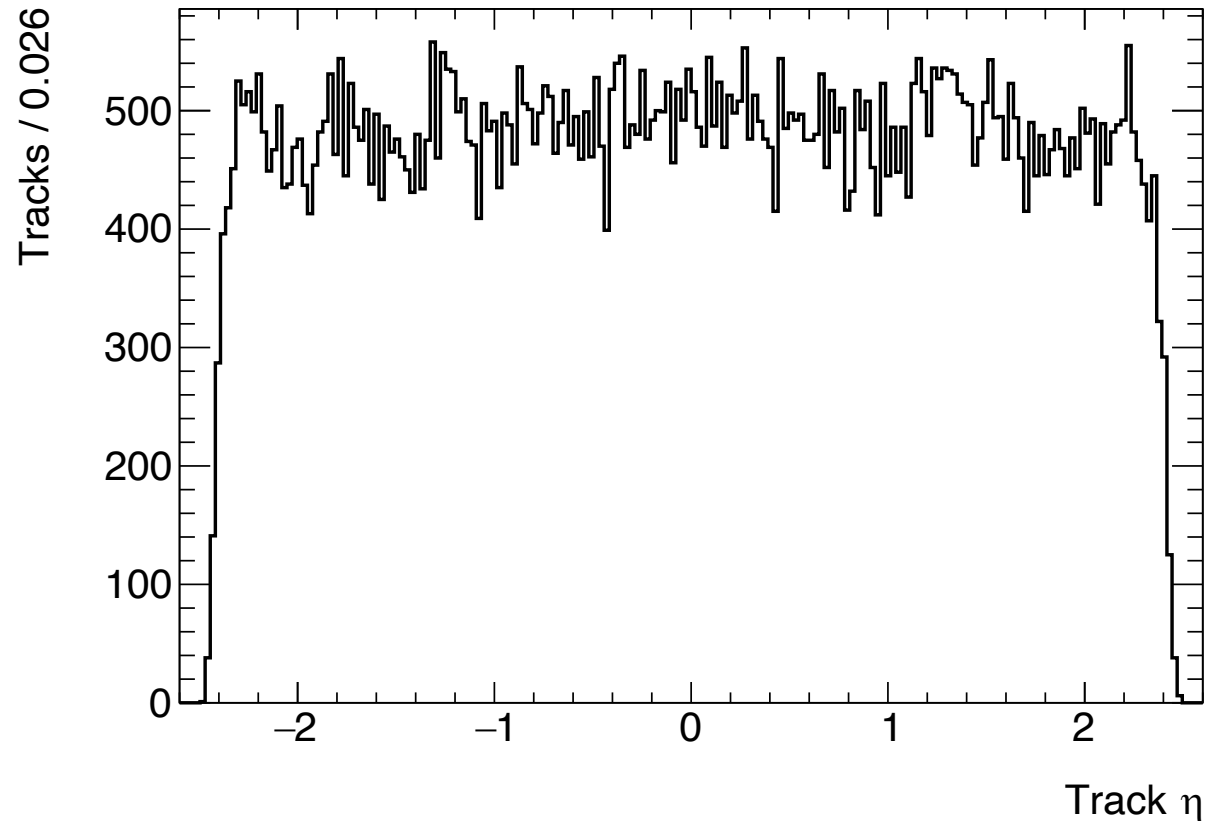


After

# DoDetailedPlots{True} additions

- Added a plot to visualize trk\_eta leaf in .root file

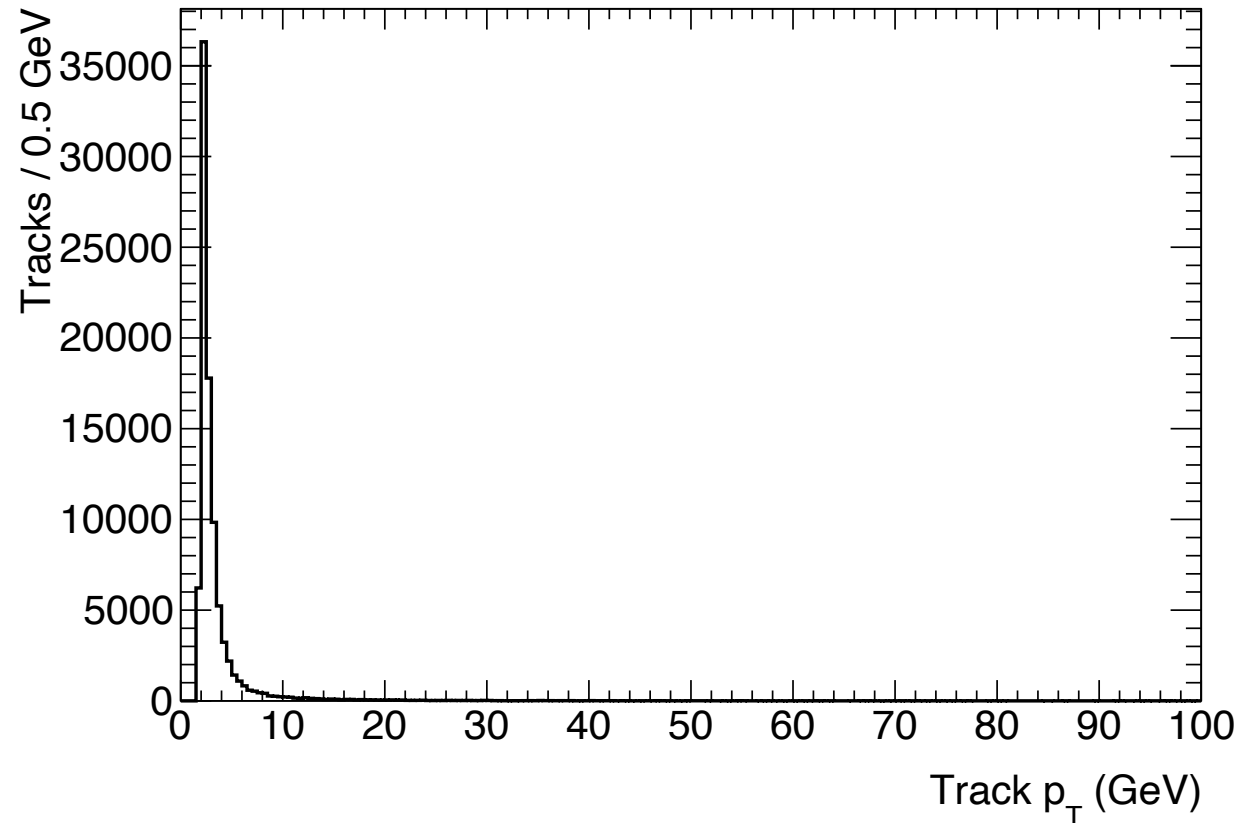
Sample: TTbar, PU=200, 1e3 events



# DoDetailedPlots{True} additions

- Added a plot to visualize trk\_pt leaf in .root file

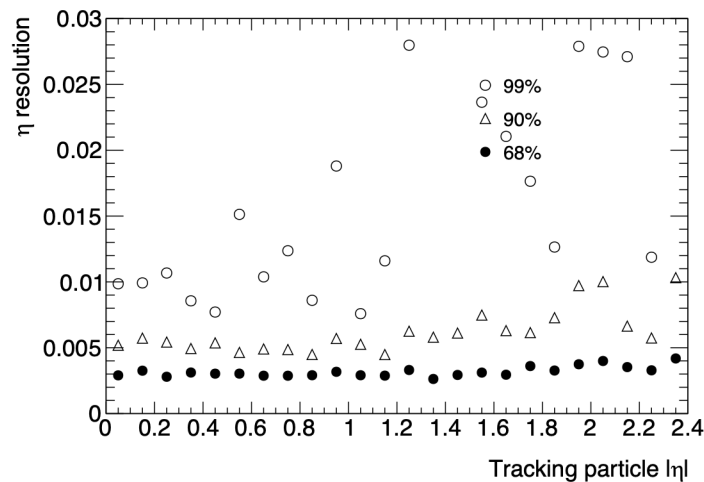
Sample: TTbar, PU=200, 1e3 events



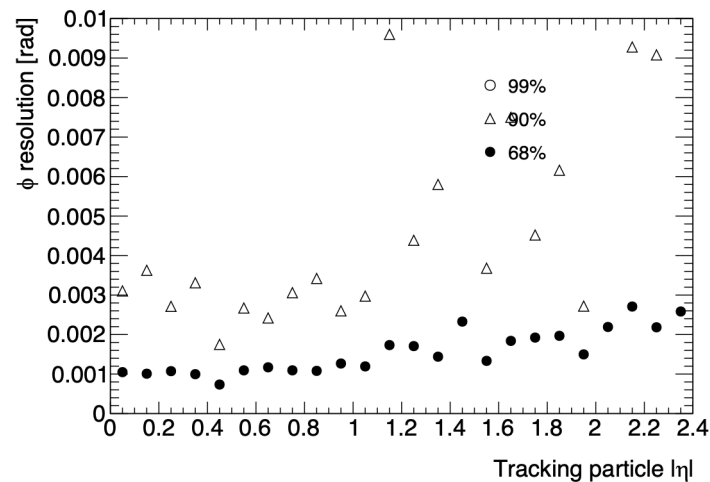
# Resolution vs. eta plots

- Added a bin to support eta  $\leq 2.5$

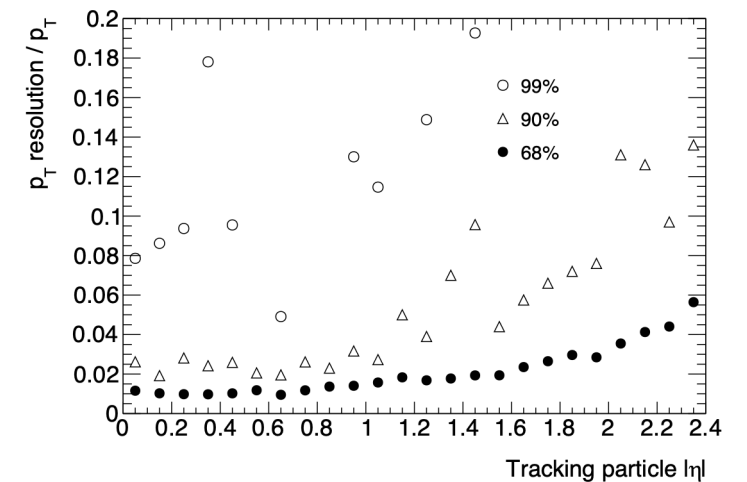
Sample: TTbar, PU=200, 1e2 events  
TP\_minPt = 1.9



resVsEta\_eta\_interval



resVsEta\_phi\_interval



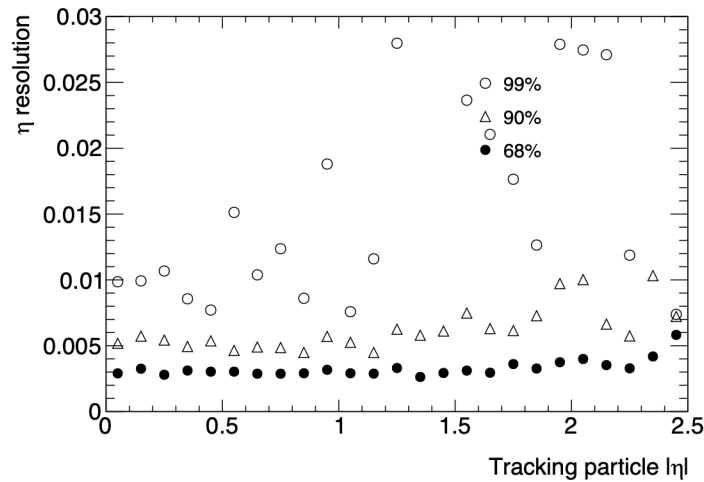
resVsEta\_ptRel\_interval

Before

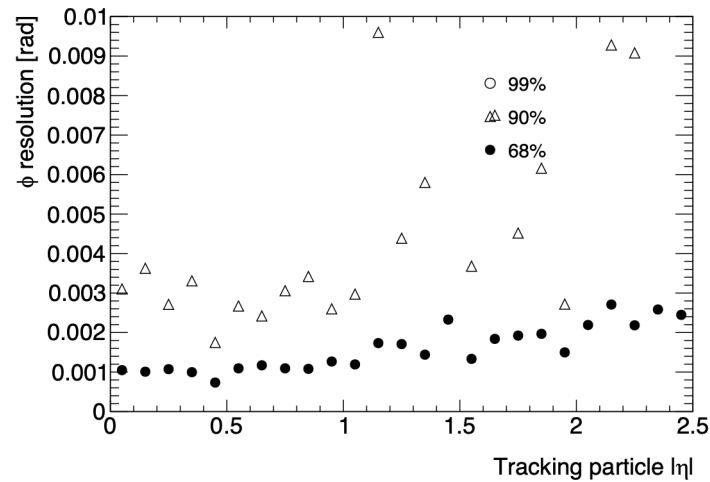
# Resolution vs. eta plots

- Added a bin to support eta  $\leq 2.5$ 
  - set via new variable: eta\_resmax = 2.5

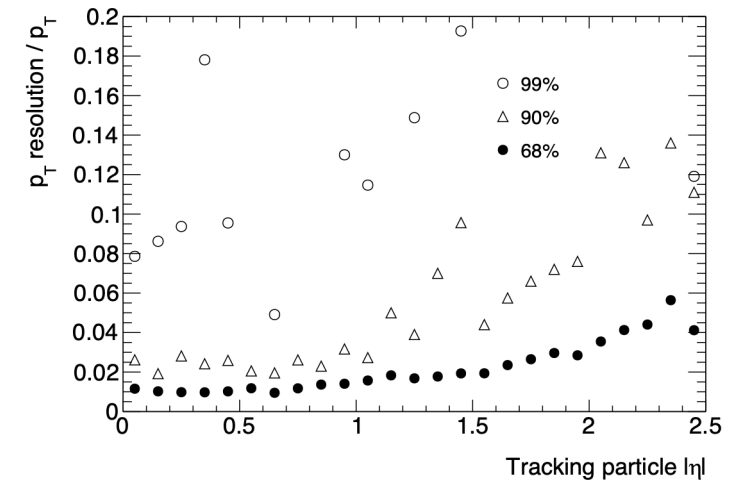
Sample: TTbar, PU=200, 1e2 events  
TP\_minPt = 1.9



resVsEta\_eta\_interval



resVsEta\_phi\_interval



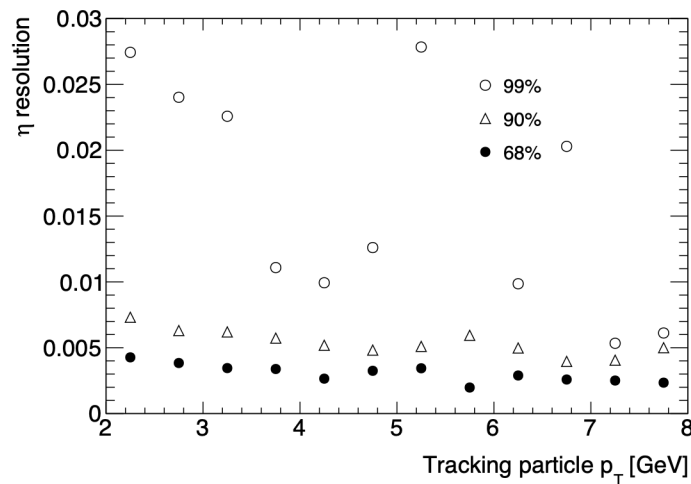
resVsEta\_ptRel\_interval

After

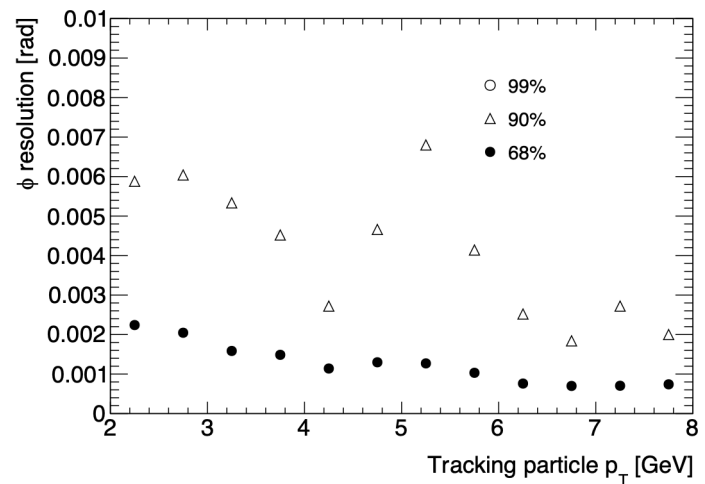
# Resolution vs. (low) pT plots

- Added a bin to support from  $p_T \geq 1.5$  GeV

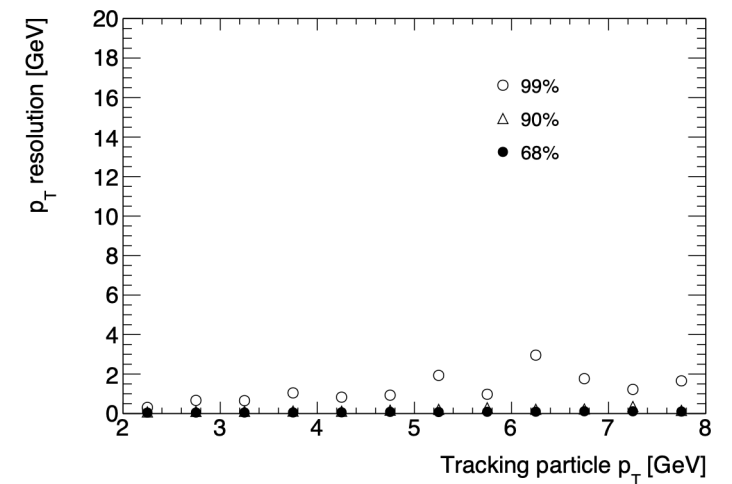
Sample: TTbar, PU=200, 1e2 events  
TP\_minPt = 1.9



resVsPt\_L\_eta\_interval



resVsPt\_L\_phi\_interval



resVsPt\_L\_pt\_interval

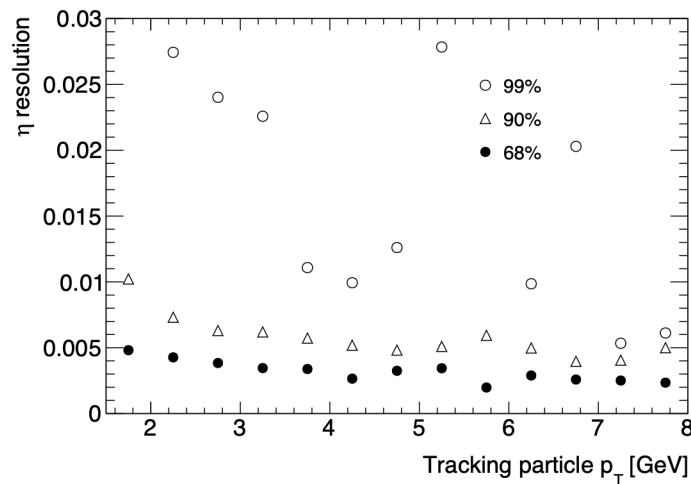
Before



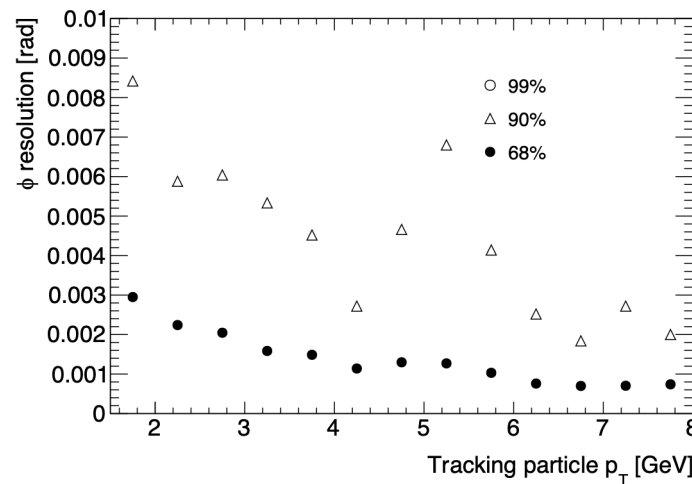
# Resolution vs. (low) pT plots

- Added a bin to support from  $p_T \geq 1.5$ 
  - set via new variable:  $pt\_resmin = 1.5$

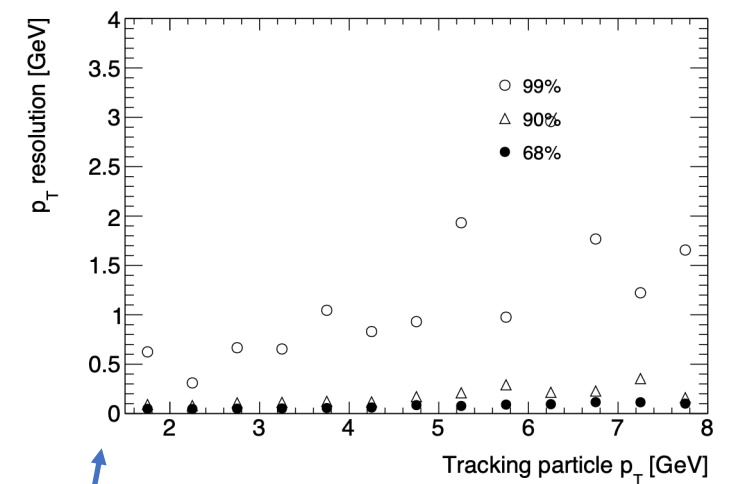
Sample: TTbar, PU=200, 1e2 events  
TP\_minPt = 1.9



resVsPt\_L\_eta\_interval



resVsPt\_L\_phi\_interval

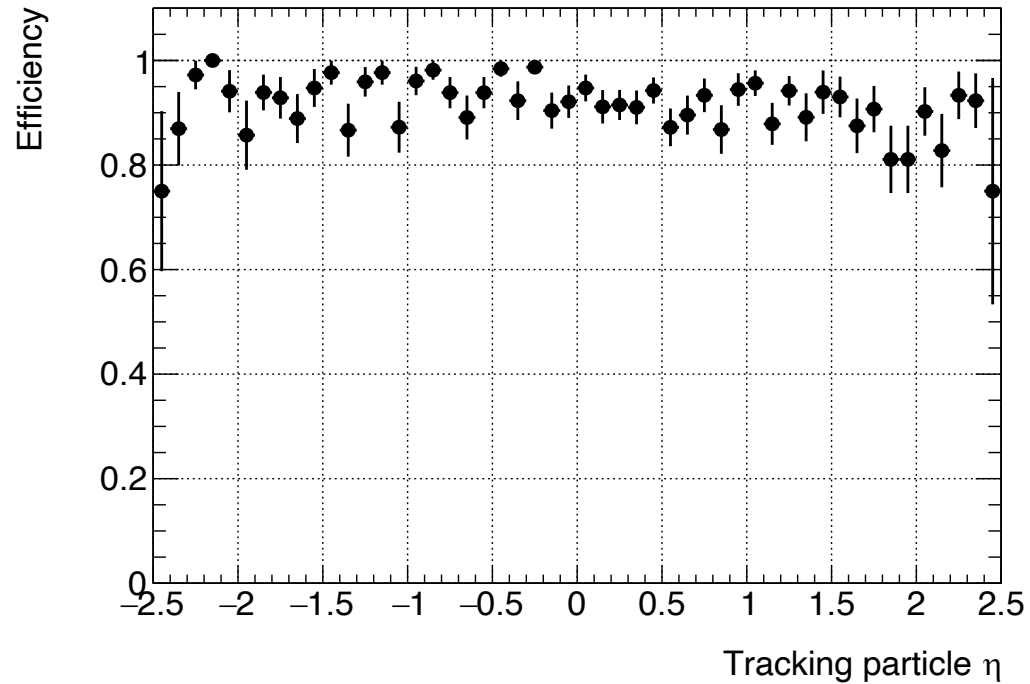


resVsPt\_L\_pt\_interval

also specifically decreased the y-axis from 0-4GeV for this plot

After

# Eta efficiency (redundant)

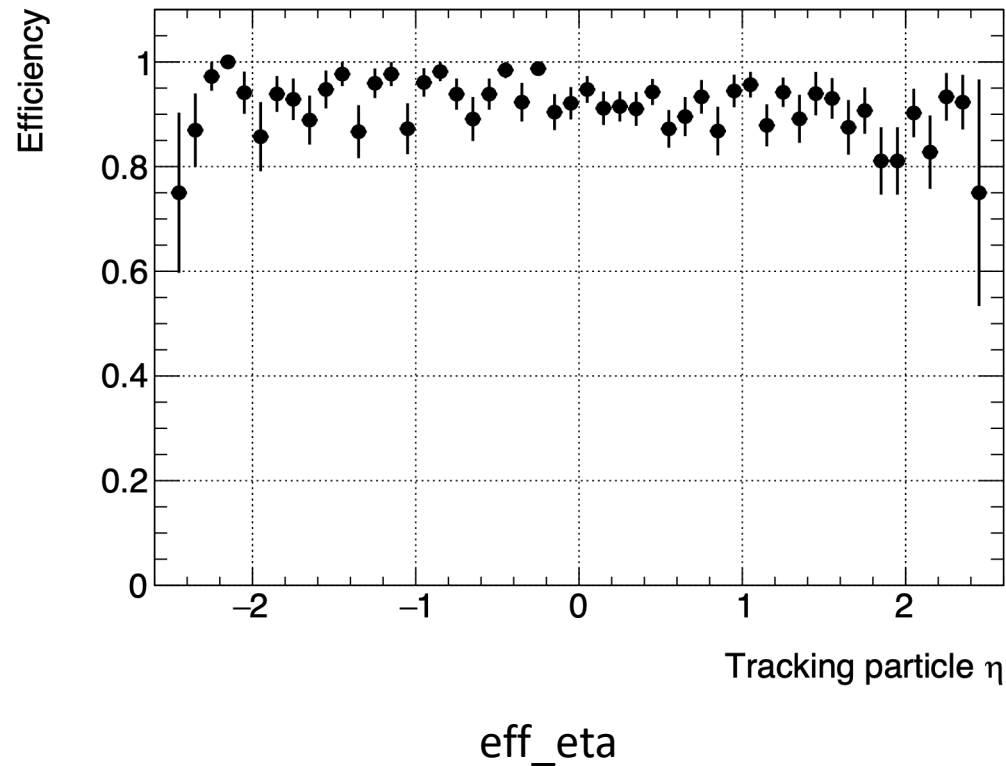


Sample: TTbar, PU=200, 1e2 events  
TP\_minPt = 1.9

eff\_eta

Before

# Eta efficiency (redundant)



After

Sample: TTbar, PU=200, 1e2 events  
TP\_minPt = 1.9, TP\_maxEta = 2.6

- even running with TP\_maxEta = 2.6 in the Python config file, no bin is generated for 2.6
- very small number of tracks generated beyond  $\eta \leq 2.5$ , not enough to populate the bin