Offline Electron Reconstruction Validation

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Introduction

- Ongoing studies[1] in HLT examine the resolution of RecHits used in GSF Tracking
- In those studies, the resolution is computed by measuring the distance between the RecHits and the extrapolated paths from ECAL super-clusters (SCs).
- For offline reconstruction, we compute residuals by comparing the position of RecHits and associated SimHits.
- Knowing these resolutions is important in choosing the size of search windows in the k

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[1] https://indico.cern.ch/event/613833/contributions/2646392/attachments/1486134/2307836/EGMHLT_PixelMatching_Jun30.pdf

Introduction

- We use Rafael Lopes de Sa's analysis setup[2] that is derived from the standard offline tracking reconstruction tool TrackingNtuple from Validation/RecoTrack.
- Source dataset:
  /DYJetsToLL_M-50_TuneCUETP8M1_13TeV-madgraphMLM-pythia8/
  PhaseIFall16DR-FlatPU28to62HcalNZSRAW_81X_upgrade2017_realistic_v26-v1/
  GEN-SIM-RAW
- Using Release CMSSW_8_1_0
- Figures in this talk use 10829 events (could be re-run with more)

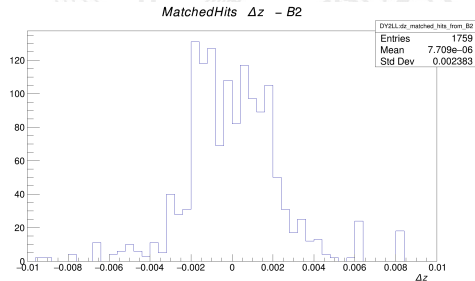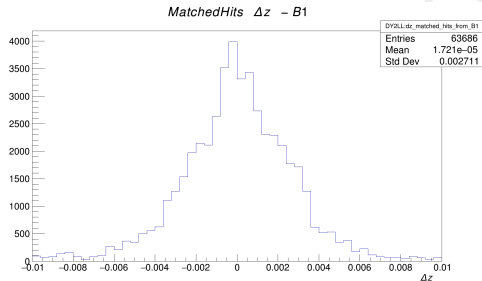---

[2]https://github.com/rafaellopesdesa/cmssw/tree/ValidationGsfTracks81X

Preliminary Results
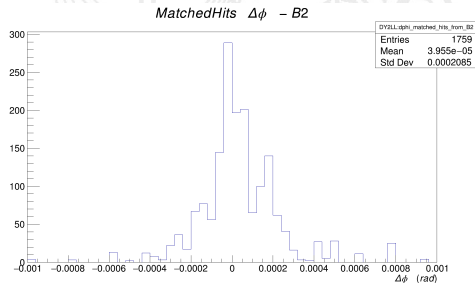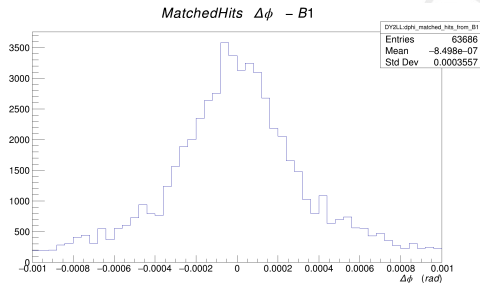
$\Delta\phi$ betwen RecHits and SimHits for innermost hits in seeds where that hit is in BPIX Layer 1/2.

Preliminary Results

Δz betwen RecHits and SimHits for innermost hits in seeds where that hit is in BPIX Layer 1/2.

Conclusions

- Code for this analysis is here:

  https://git.fangmeier.tech/caleb/EGamma_ElectronTrackingValidation

- What specific figures/measurements are of interest to experts?