

# Pixel Tracking Efficiency and Fake Rate for Phase1 upgrade

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# Information

- ❑ I used the root files from:
  - `digittdileppx_X_0_0_0.root` (X=1-5)
  - `digittdileppx_X_70_2_0.root`
  - `digittdileppx_X_140_2_0.root`
- ❑ I tried two options:
  - `addRemainingTriplets = False` (default) and `True`
- ❑ I kept the following parameters:

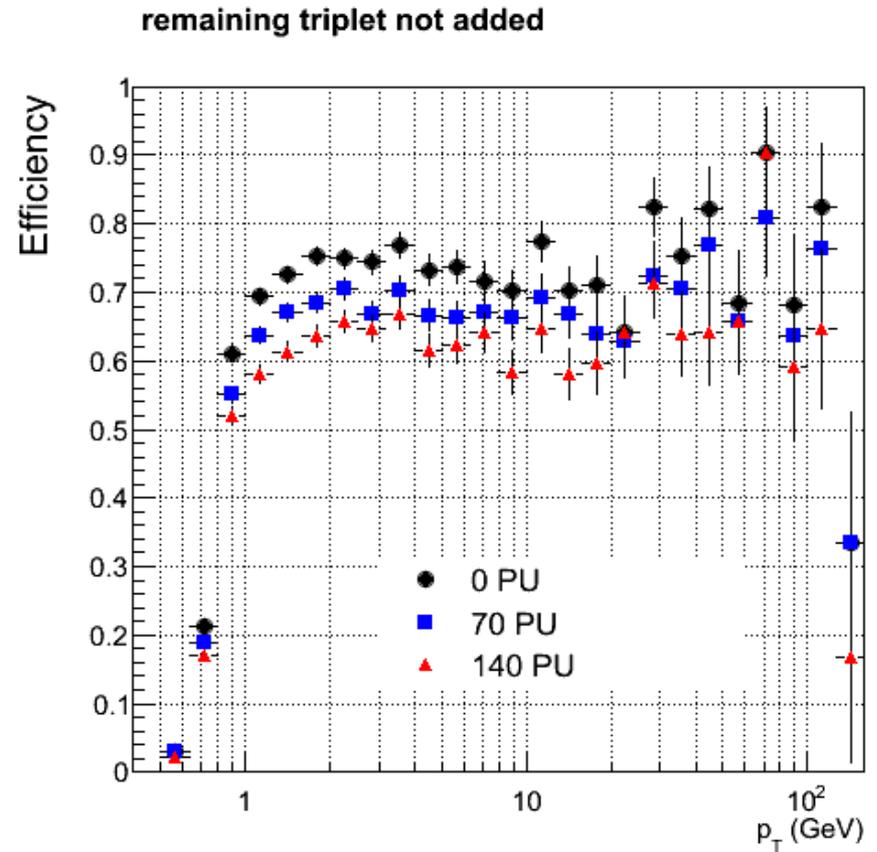
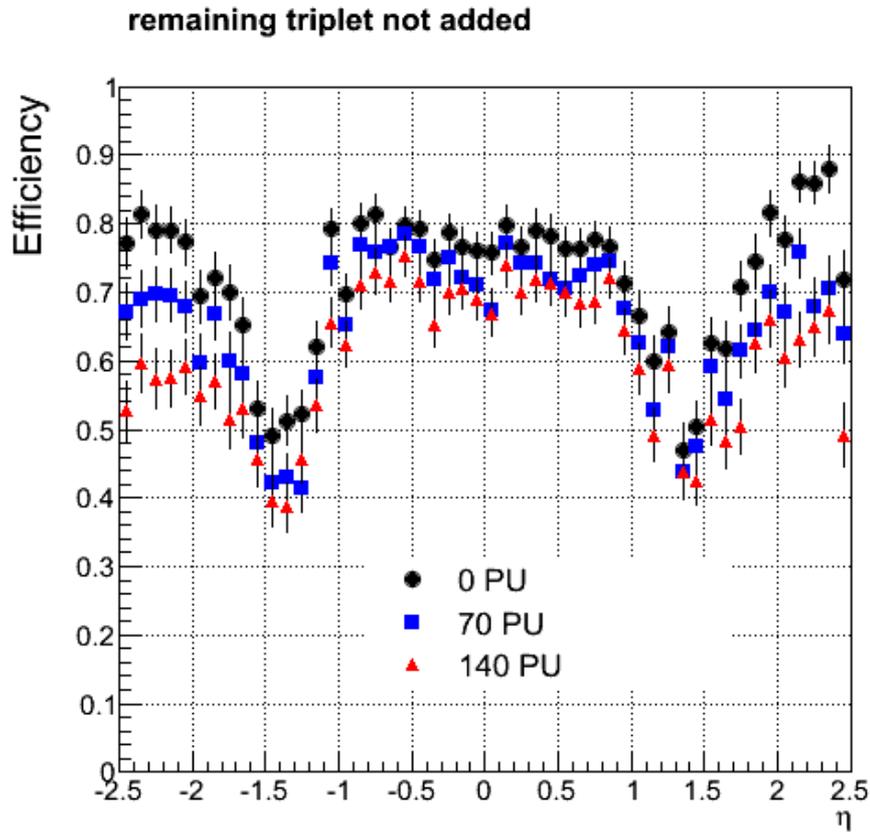
```
process.pixelTracks.FilterPSet.chi2 = cms.double(50.0)
process.pixelTracks.FilterPSet.tipMax = cms.double(0.05)
process.pixelTracks.RegionFactoryPSet.RegionPSet.originRadius = cms.double(0.02)
```

**Problem:** The following plots are done with only one file each (200 events)  
I realized that one can not add the 5 files (with hadd) for efficiency histograms.

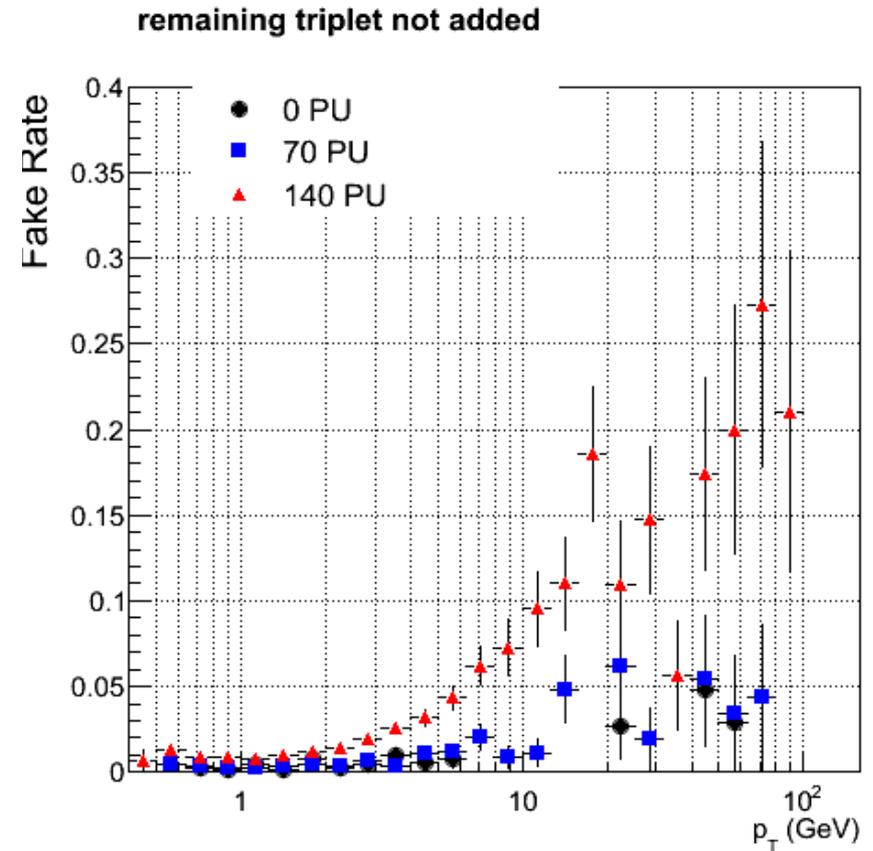
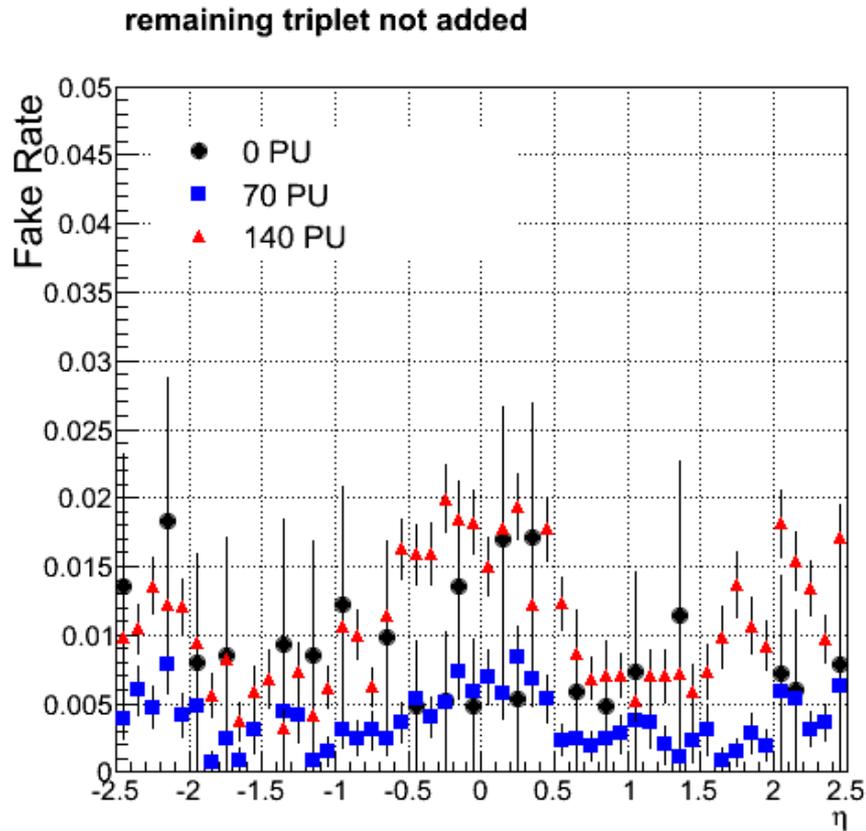
**Is there any way to do it?**

Else I plan to take the harvesting step out of the config file (currently I had everything in one file) – and merge these step N-1 root files and then run harvesting on it.

# pixel-tracking Efficiency vs $\eta$ , $p_T$



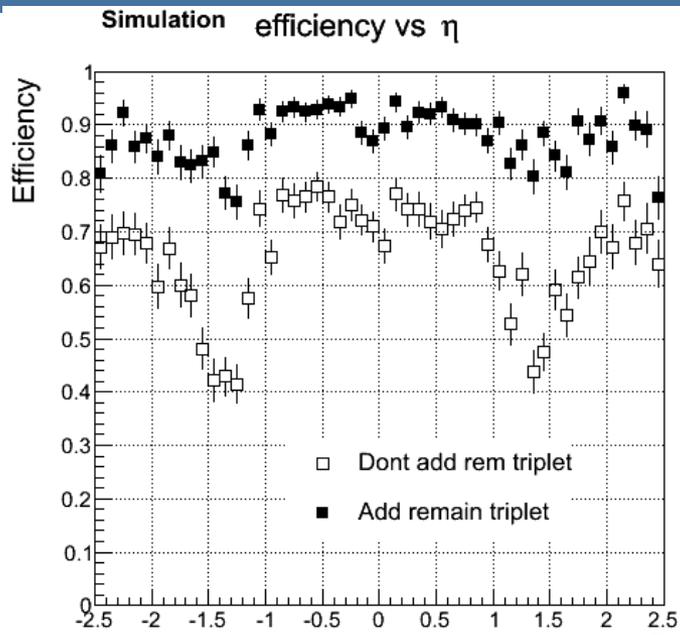
# pixel-tracking Fake rate vs $\eta$ , $p_T$



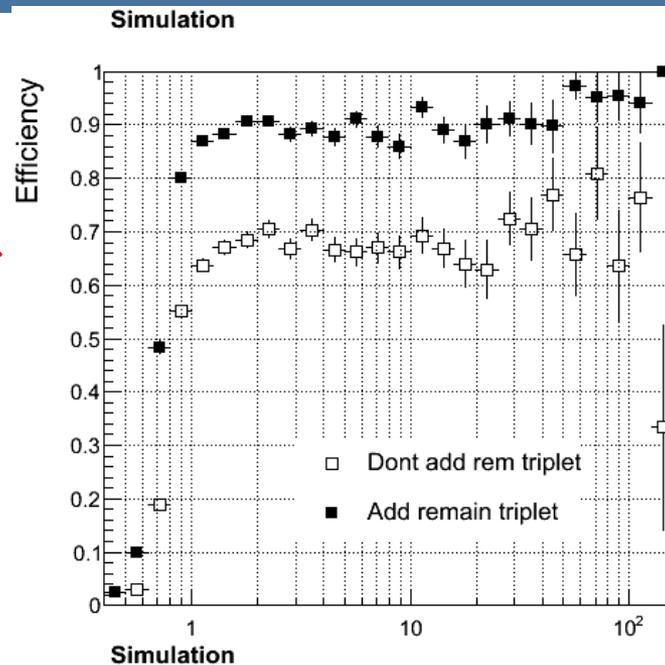


# Efficiency, Fake rate for 70 PU

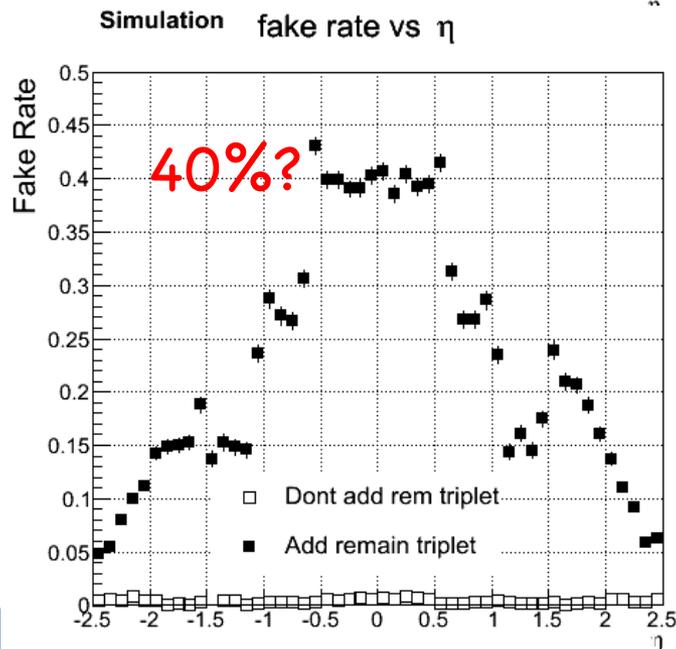
increase  
in efficiency 10-15%



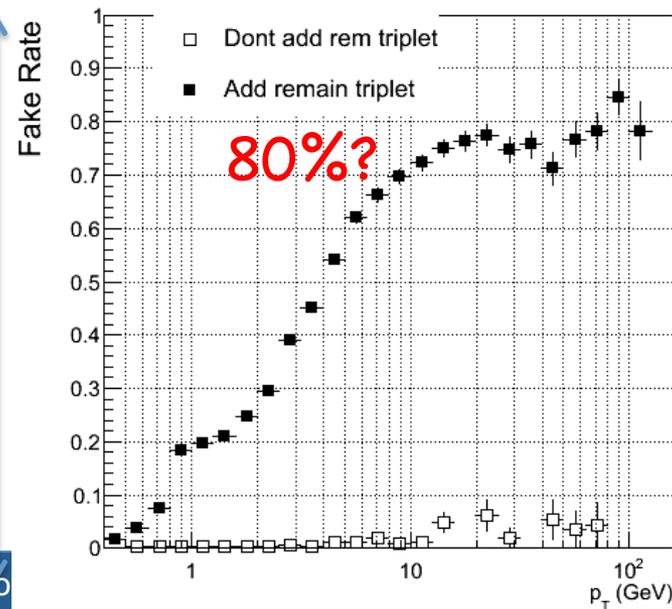
increase  
in efficiency 20%



0.5



1.0



deep Bo