

# Alignment and Heavy Flavor

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Weekly Meeting  
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# Overview

- Alignment related studies and plan
- Heavy flavor measurement status



# Cosmic Alignment

- Working on producing cosmic cluster DSTs which can then be skimmed
- Cosmic Hit DSTs are not feasible to work with even as an input to skimming
- Production has some hang ups that I am working through with Thomas
  - Requires inputs from all detectors which isnt feasible for all cosmic segments
- Infrastructure is ready to run over output



# On going tests

- Comparisons of ana494, ana495, ana494 - MVTX refit
- Tests include: pointing as a function of  $p_T/\phi$
- Two track dca as a function of: track 1  $\phi$ ,  $\Delta\phi$ ,  $p$ ,  $p_T$

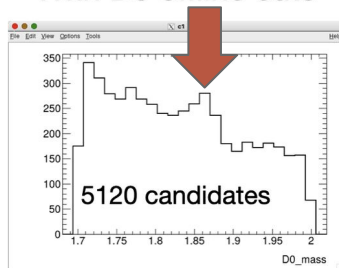
Sample	ana494	ana495	ana494-mvtx refit
navigator	direct	default	Direct + direct
Seeds	ana494	ana494	ana494 matched to tracks/ mvtx only



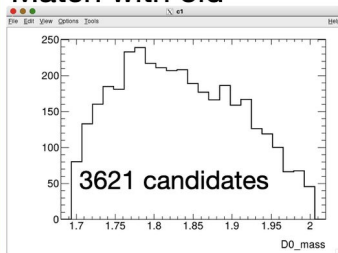
# D meson searches

- Xudong and I have come up with studies that point to the difference between ana475 (QM) and ana495 with “Matched D0 candidate” in one bin

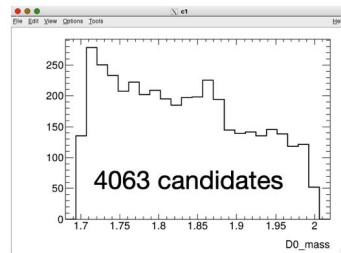
Old production  
With D0 offline cuts



New production  
Without D0 offline cuts  
Match with old

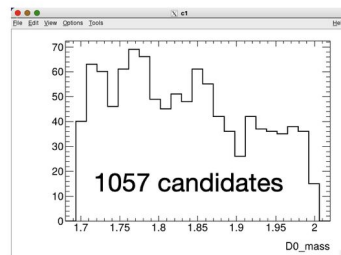


Old production  
Matched with new



Matching criteria:  
runNumber, eventNumber, bunch\_crossing  
momentum  $\pm 20\%$   
 $V_z \pm 20\%$

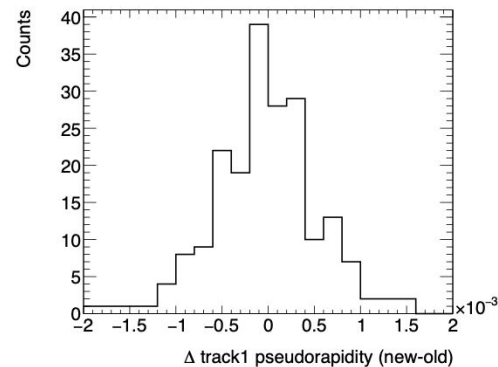
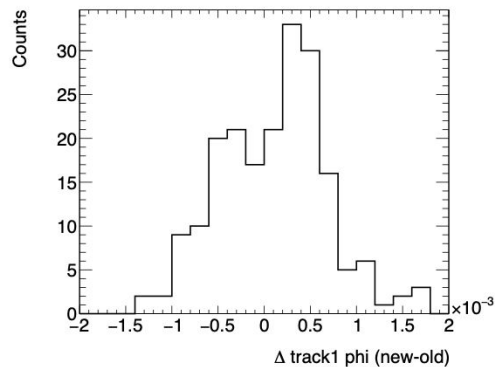
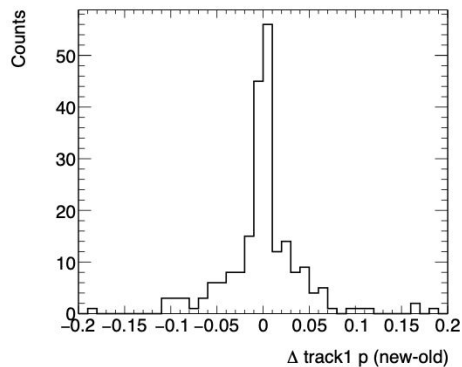
Old production  
unmatched with new



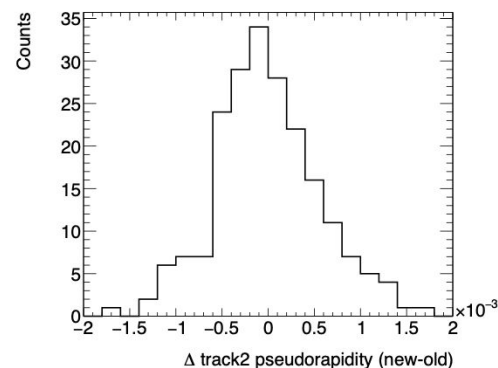
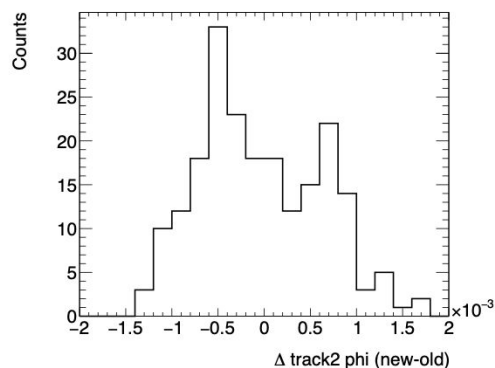
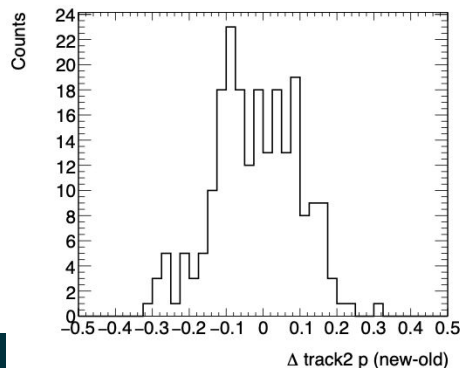
# D meson searches

- What changed between productions?

Pion

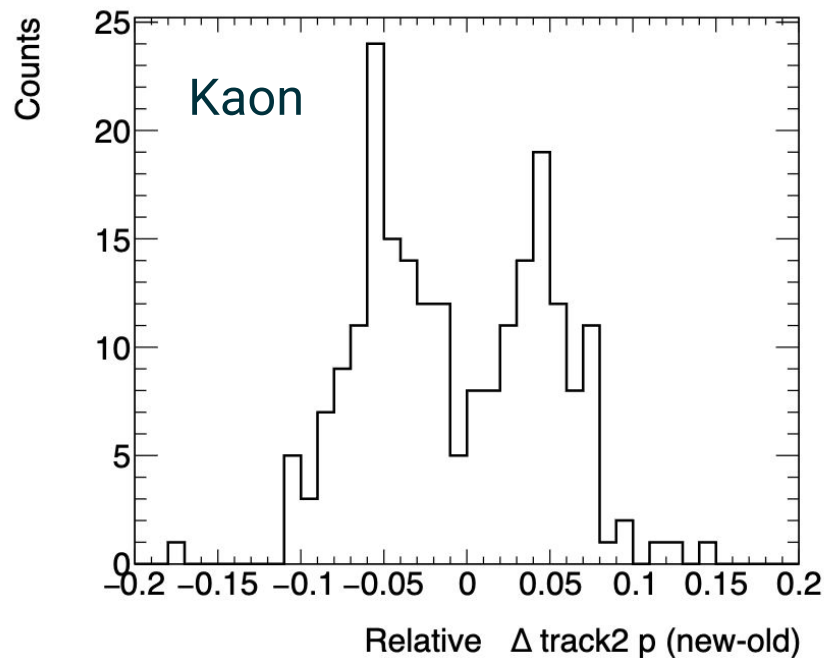
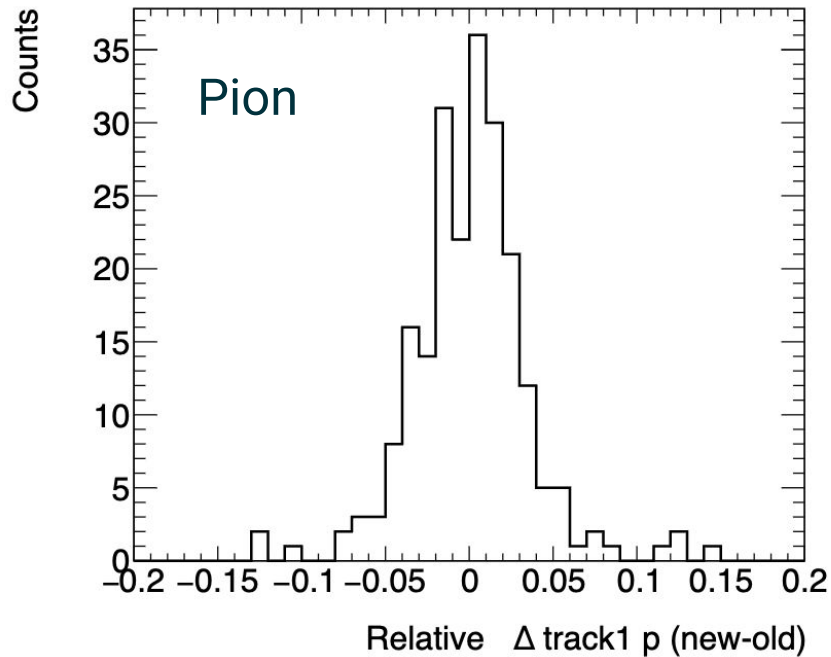


Kaon



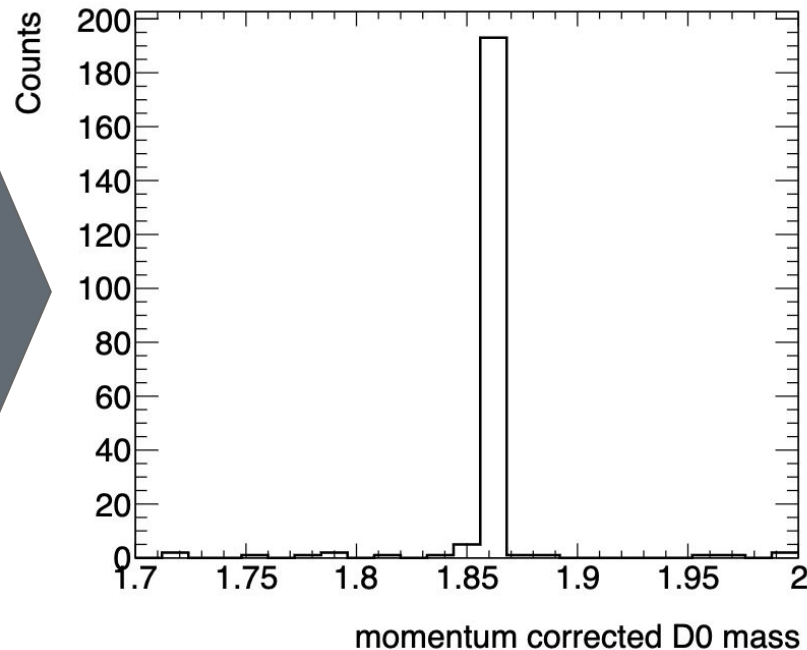
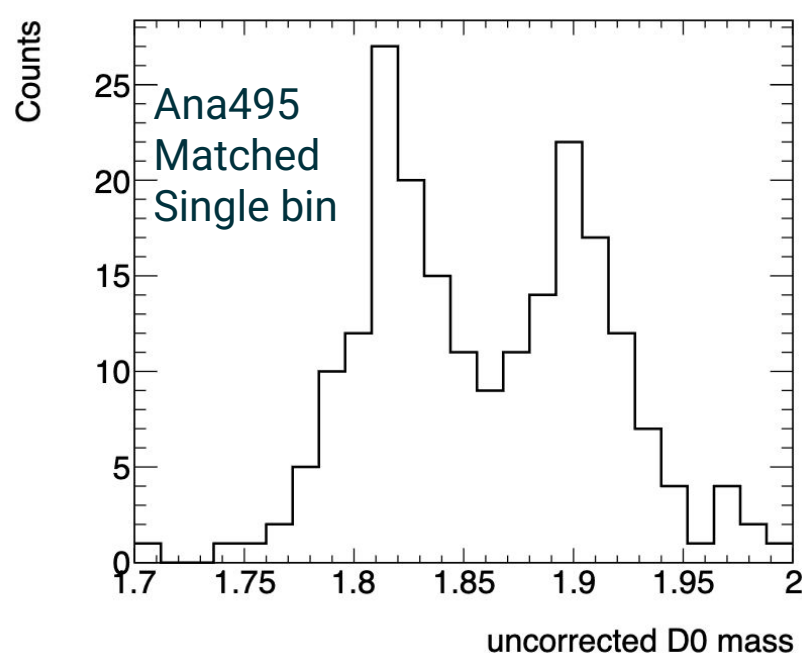
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# D meson searches

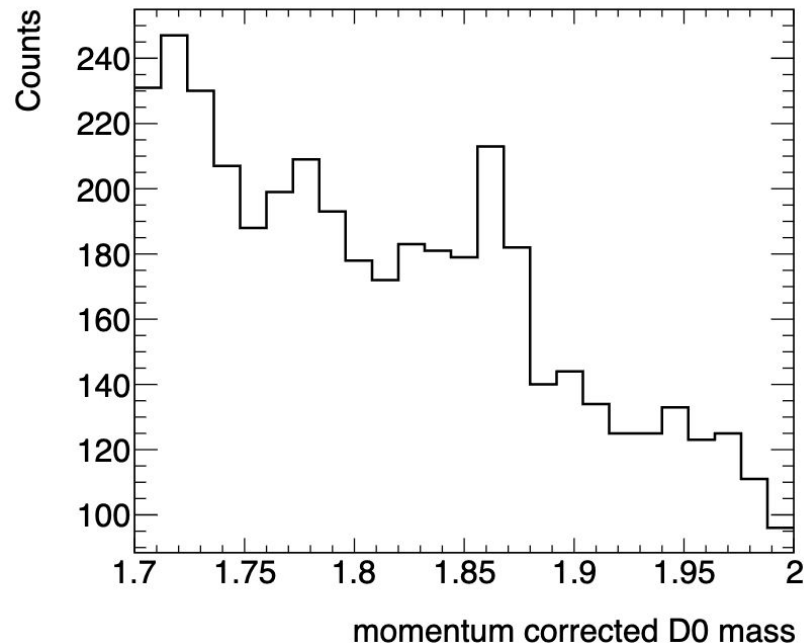
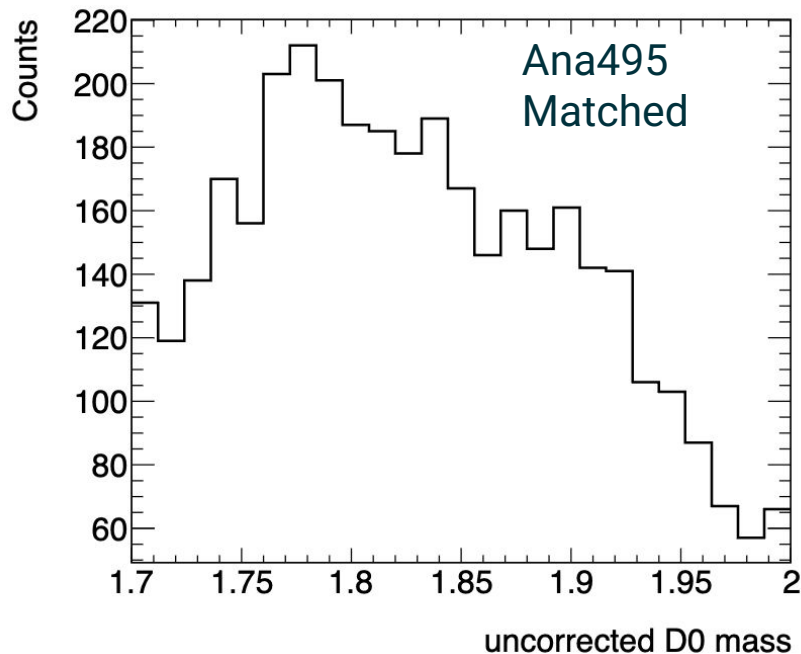
- What if we rescale the momentum of ana495 by ana475?





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# Conclusions/Next steps

- Check  $dE/dX$  (Michael)
- Fit  $D0$  with KShortReco module (Tony, custom  $D0$  fit) in ana495
- Check if tracks are already modified in p before KFP (Greg)

