ePIC Progress Report

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Updates for 10/2/23

- LAGD Updates

  - May have found an alternative method for finding ideal X offset

  - New Iavinsky method compares the size of Average Tracker dist and LAGD angular dist and seems to have worked!

  - Finally outputs numbers more comparable to beam spot location

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Last week's observations

- Using the picture of the hit in sector 1, I roughly calculated the hit location to be (27,8) using the picture with the hit location
- I plotted the angular distributions to see how they line up
  - Showed the trackers moving as expected
- decided to try a new idea
  - compare the size of the average tracker angle dist and the LAGD angular dist
  - Take the difference of the std devs and find where theyre equivalent
- This method, when a line is fit to the data, gives an X offset of 30ish!

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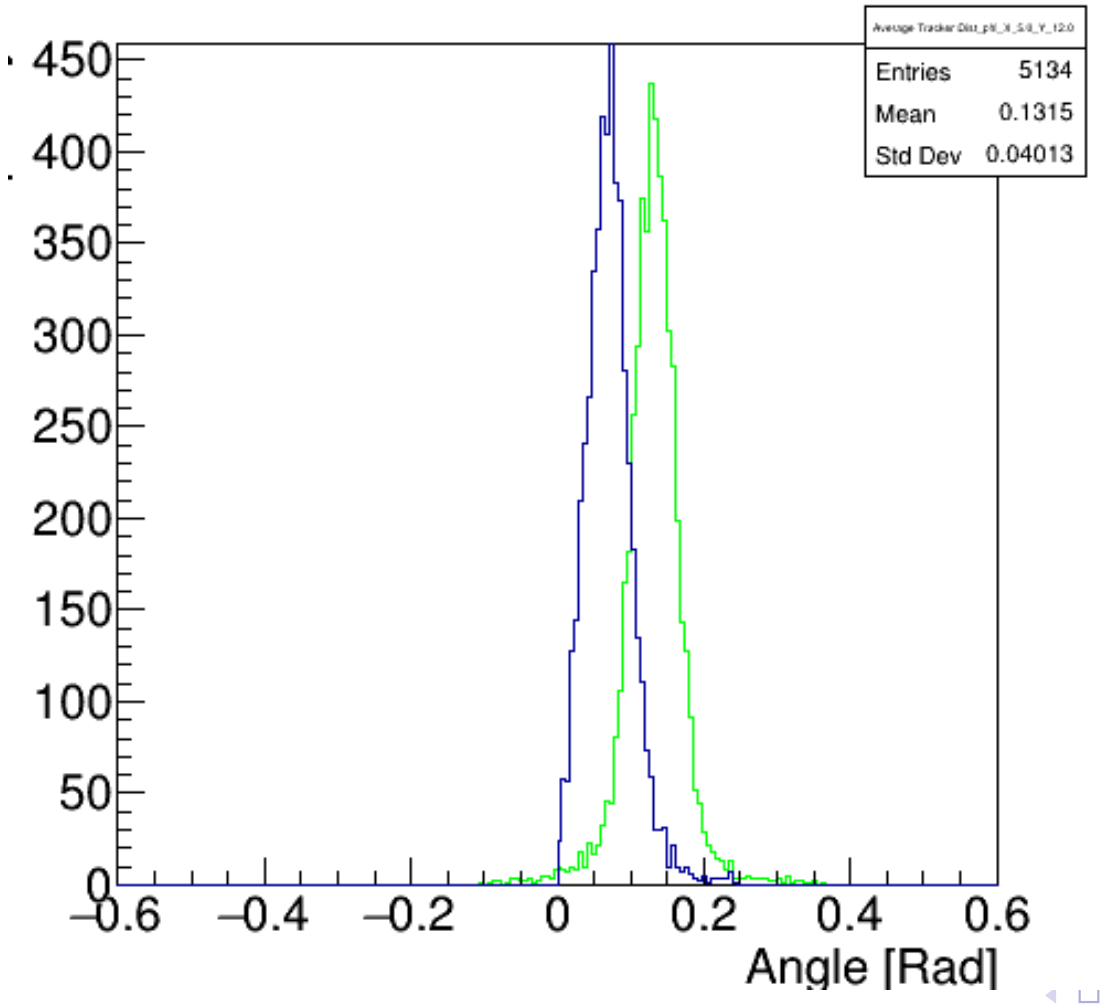
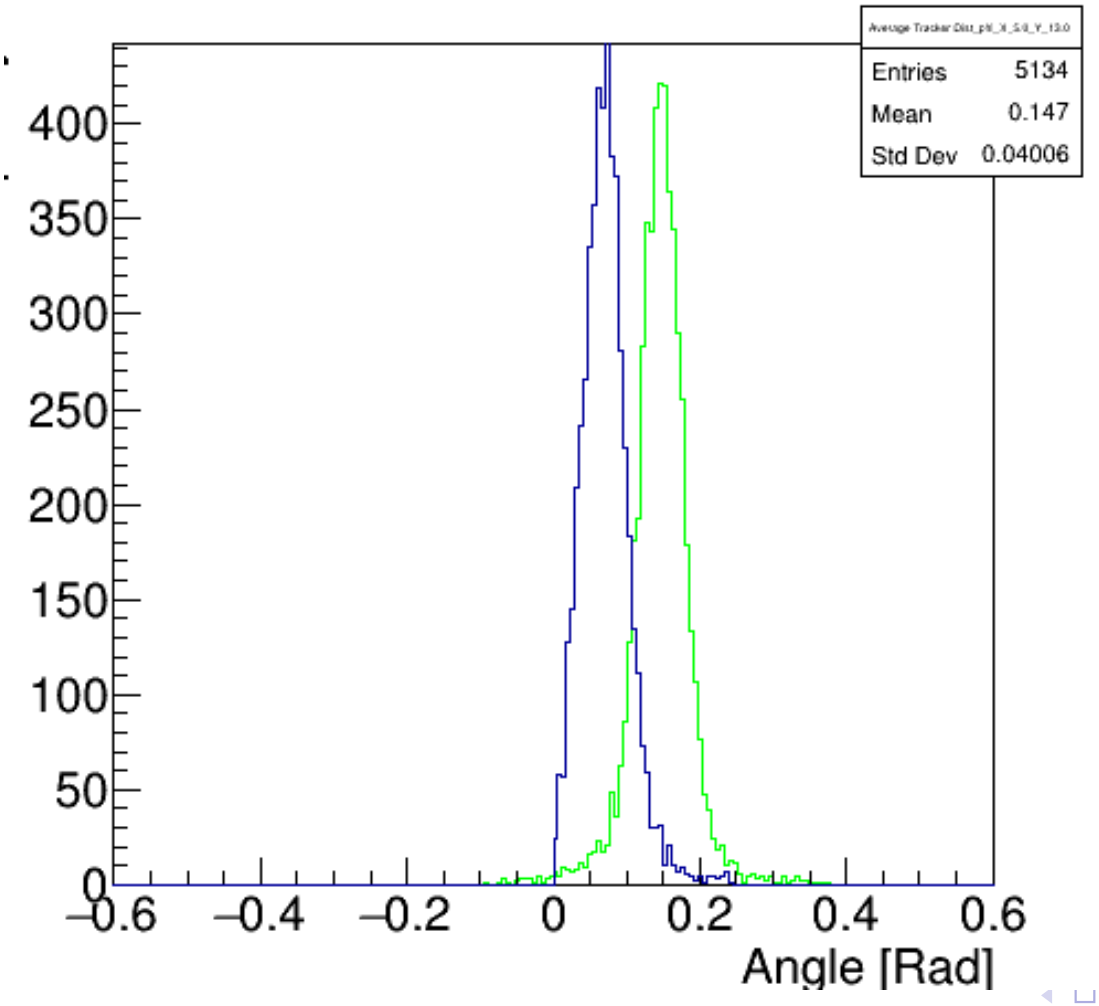
Angular distributions in motion



Angular distributions in motion



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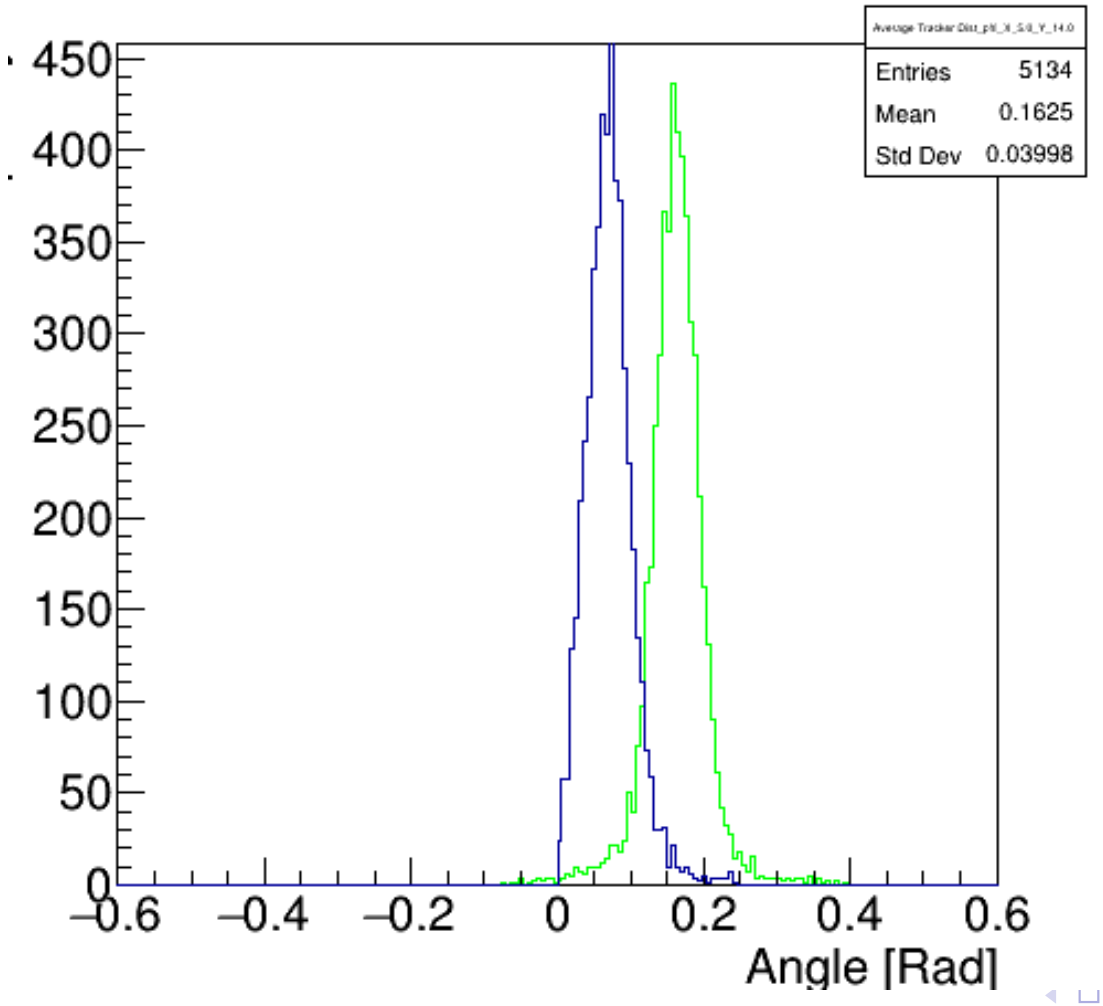
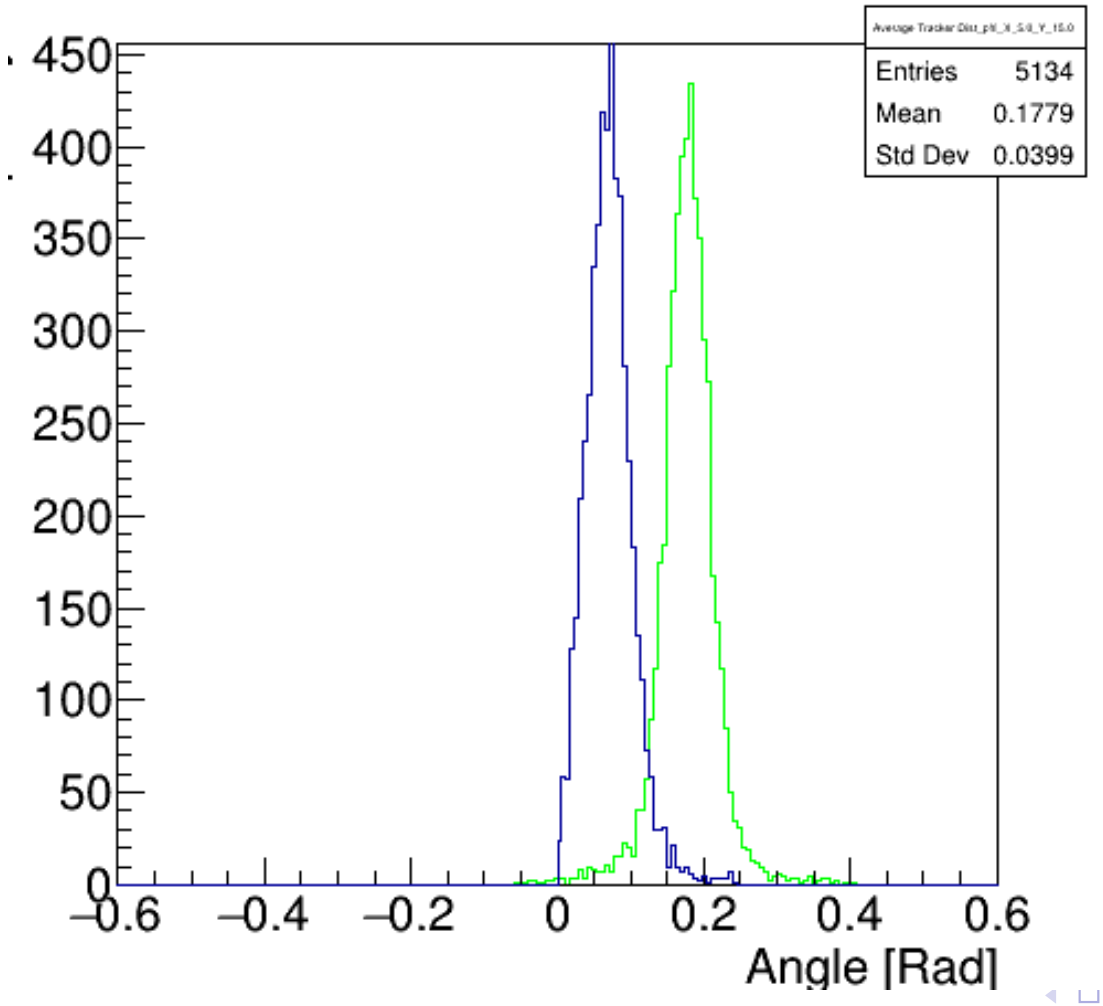
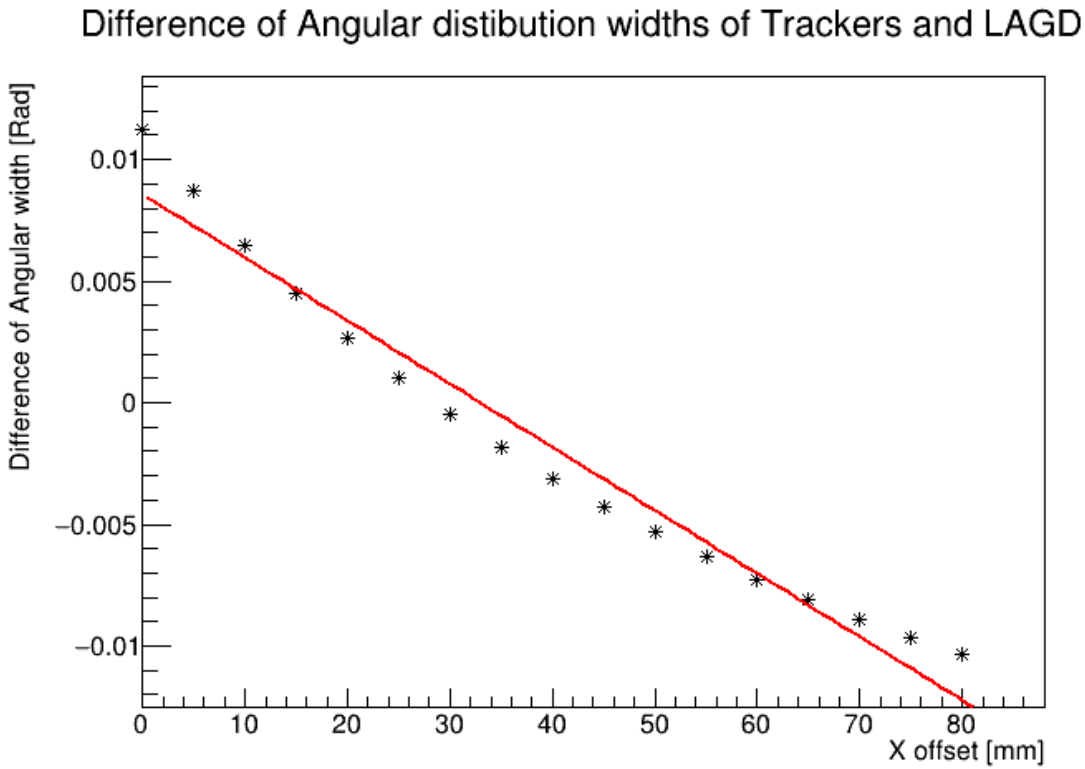
Angular distributions in motion



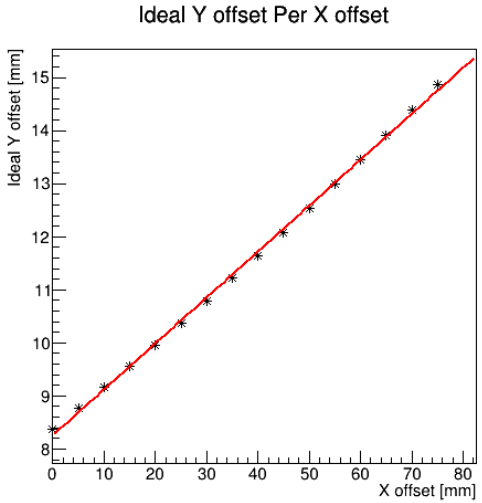
Angular distributions in motion

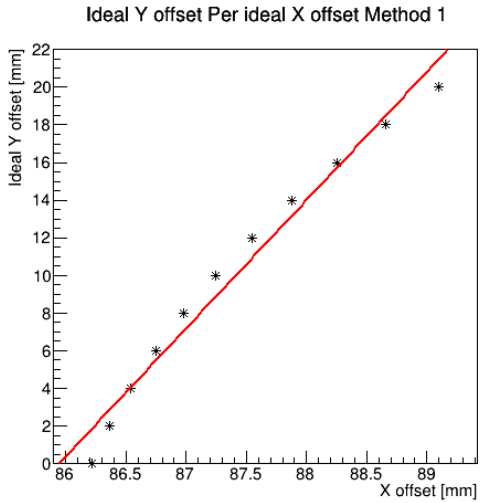


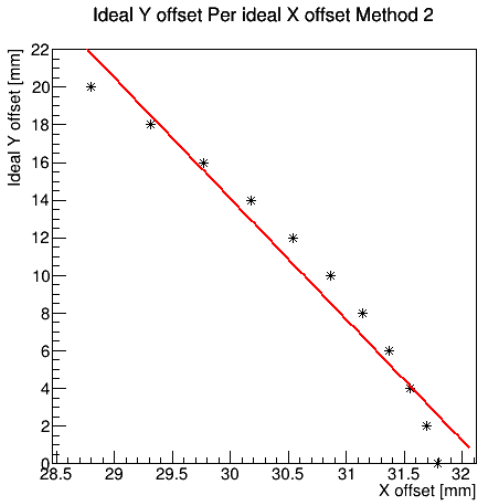
plots of new method

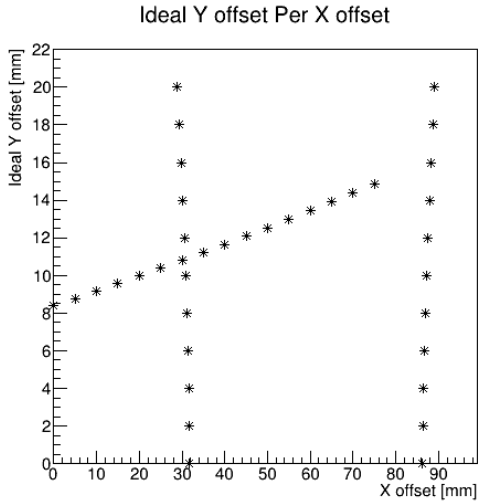


Aiwu plots with new method

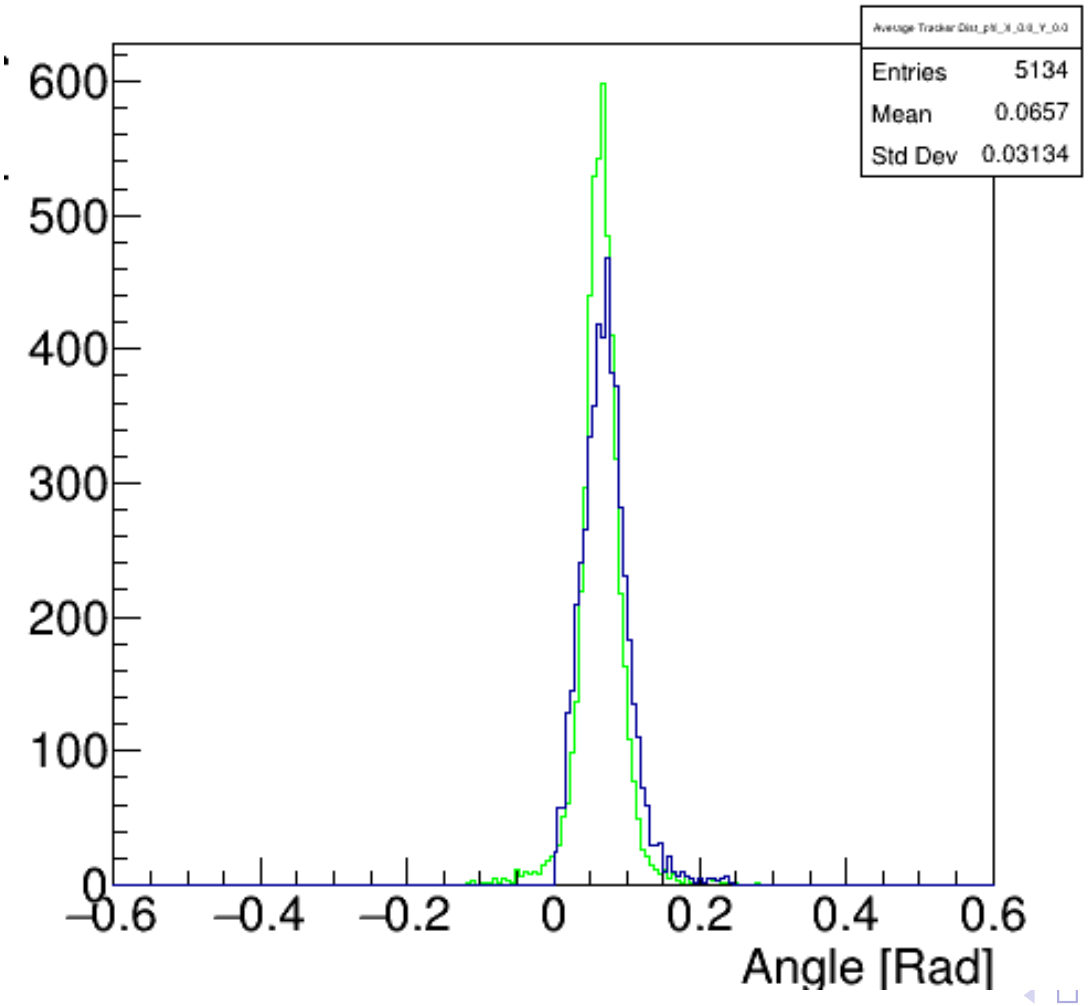




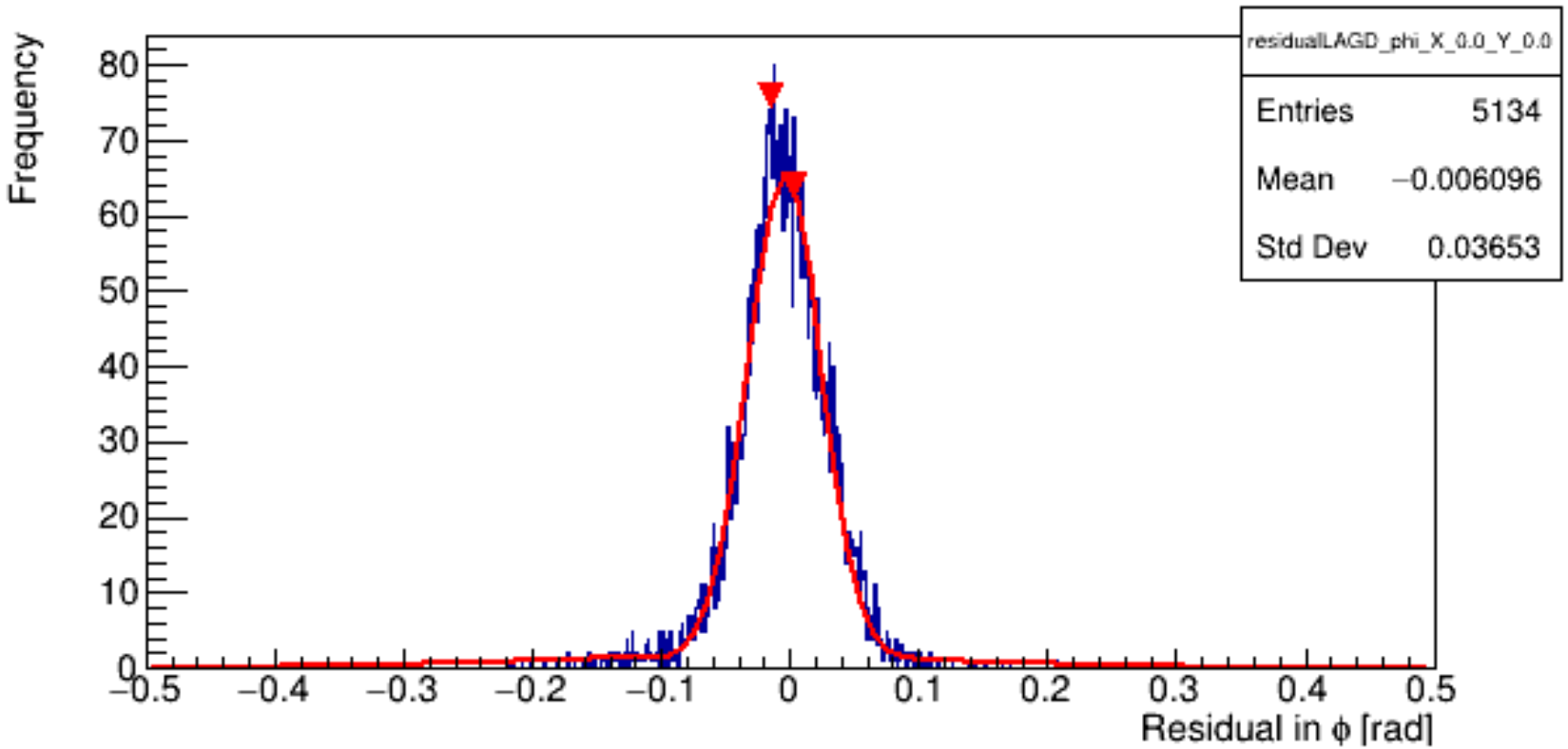




Ang dists at ideal location



Residuals at ideal location



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Notes on the new method

- Notice the linear fit is not perfect on the new plot
  - switched to parabolic fit
  - Solve for intersection of parabola and line to find ideal offsets
- Average angle = [(angle in T 1 and 2)/2 + (angle in T 3 and 4)/2]*(828.2/1596)
- These two corrections to my new method perfectly overlaps the two hitspots
- Need to incorporate the rotation of the LAGD wrt to the trackers

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