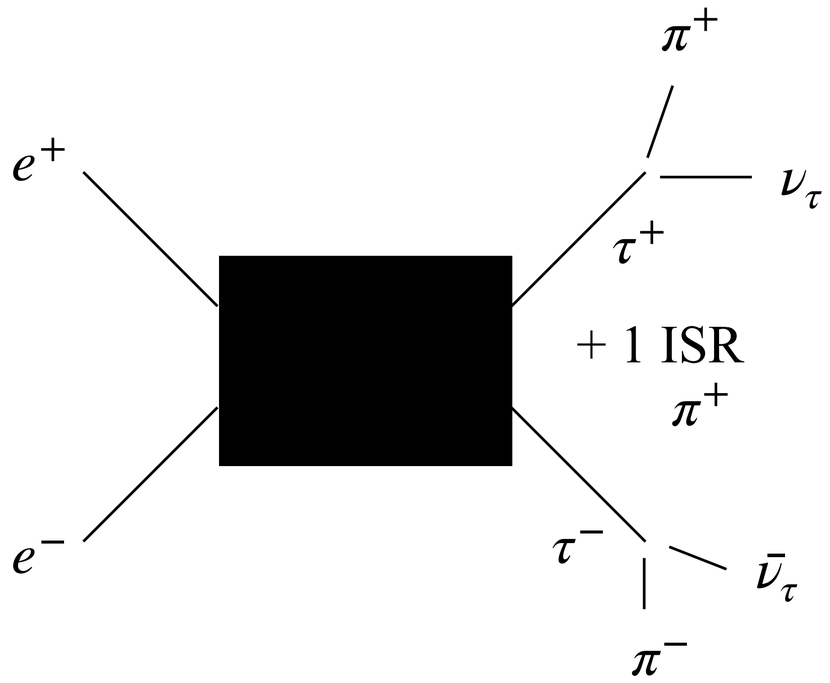
Current Status

- Write ToyMC code (and mathematica)

  for validation of methods using helical track

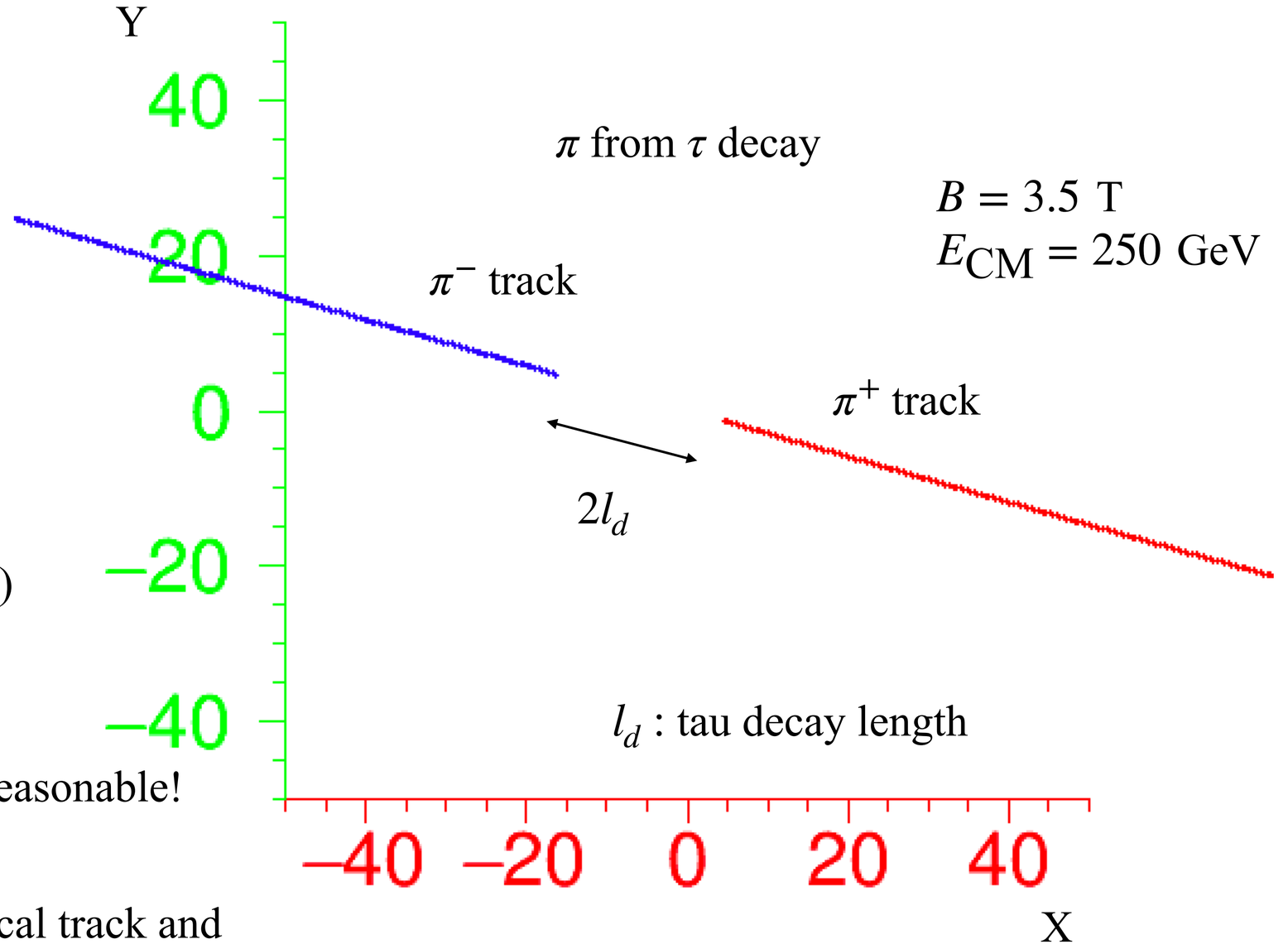
- Jacknife method

  combine several solutions to calculate tau polarisation



ToyMC

Example event display



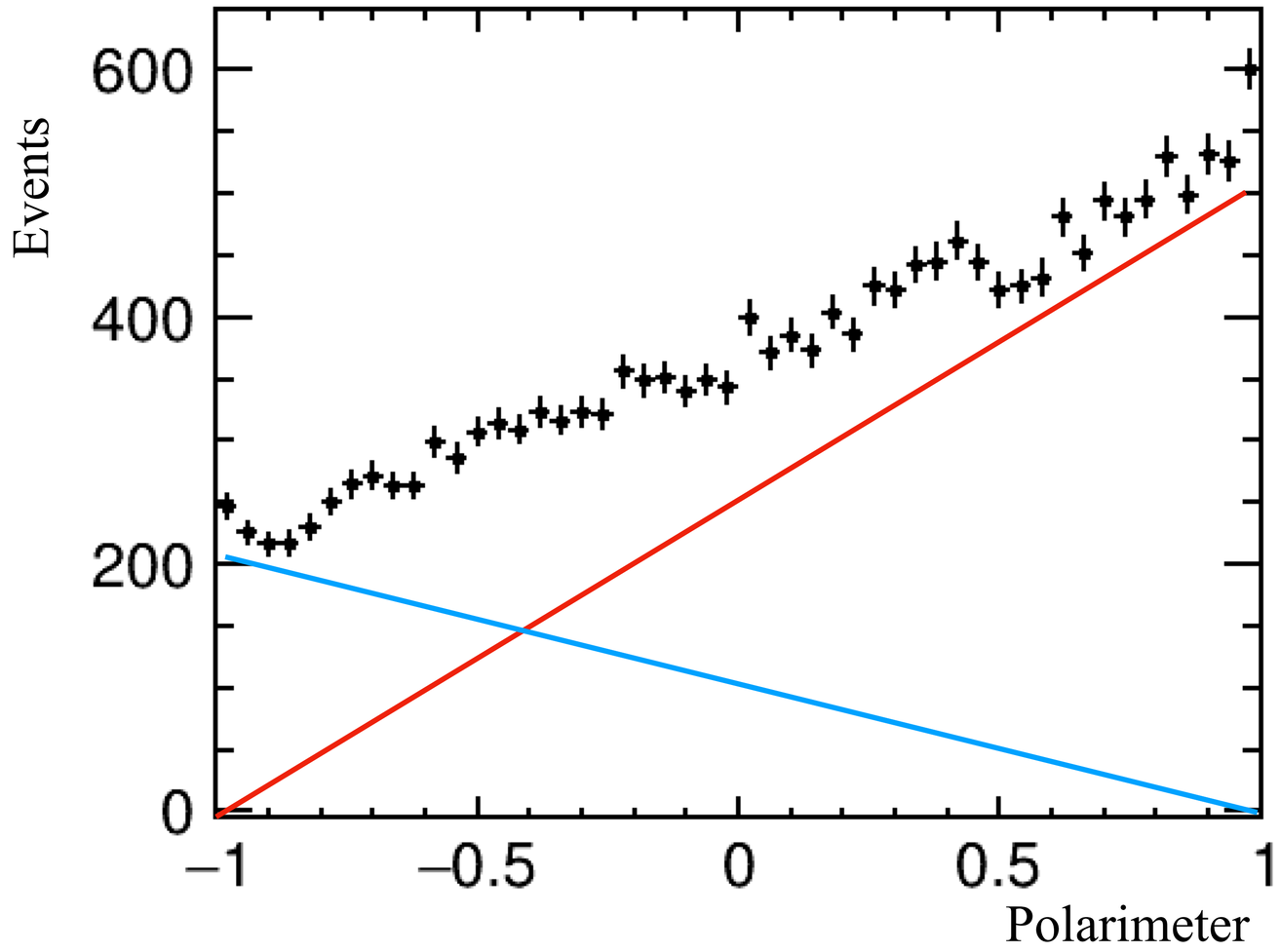
based on phase space calculation

π track : along <u>helical track</u> (not straight line)

⇨ looks straight line

Daniel-san's straight line approximation is reasonable!

we tried to verify the method using helical track and found the straight line approximation to be reasonable.

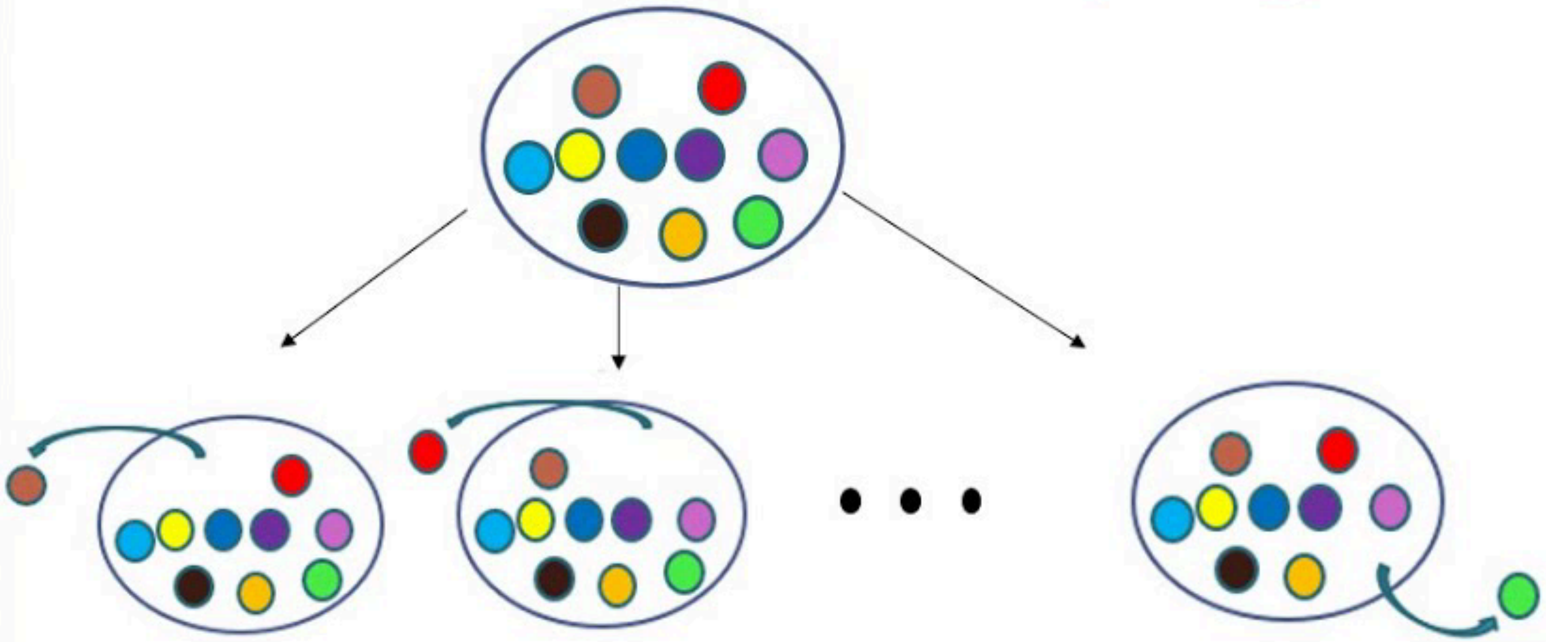


$$\hat{W}(\omega) = \hat{f}(\omega)\,[1 + P_\tau\,\omega] = \frac{1}{2}\left[(1+P_\tau)\hat{W}^+(\omega) + (1-P_\tau)\hat{W}^-(\omega)\right], \qquad (6)$$

where W^+ and W^- are the distributions for positive and negative helicity respectively.

tau polarisation can be extracted

Jackknife resampling



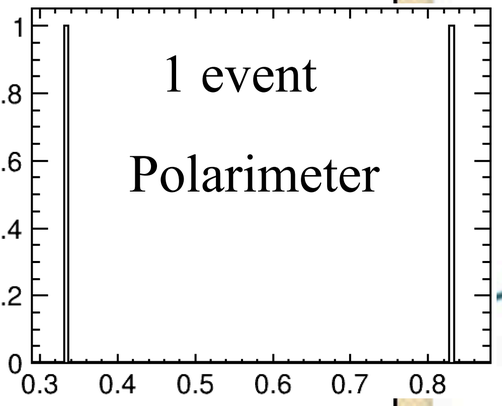
Main data set (X) of size n=10

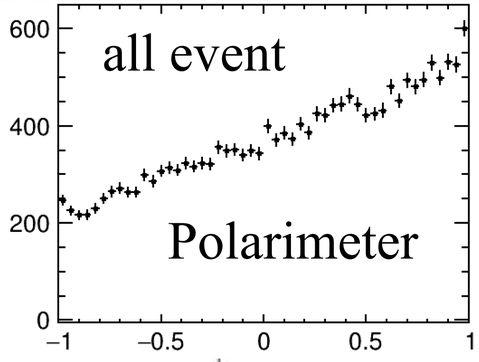
10 resample from (X) of size n=9

Sample 1 Sample 2 . . . Sample 10

$\hat{\theta}_{(-1)}$ $\hat{\theta}_{(-2)}$ . . . $\hat{\theta}_{(-10)}$

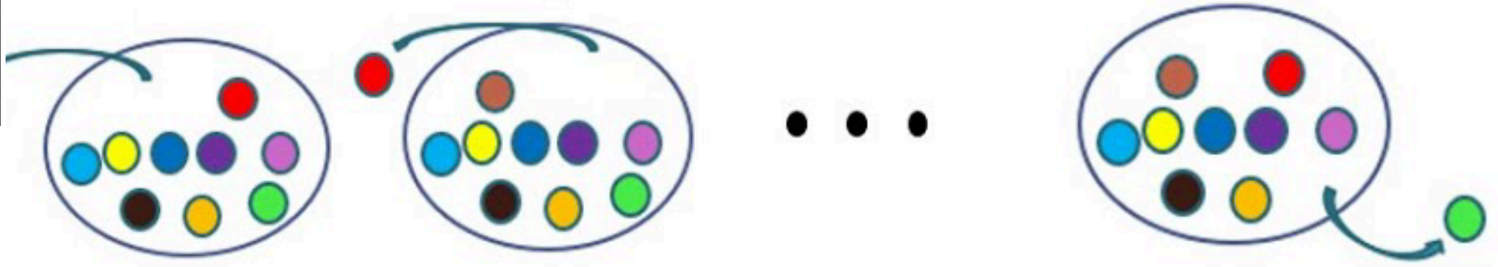
Jackknife resampling



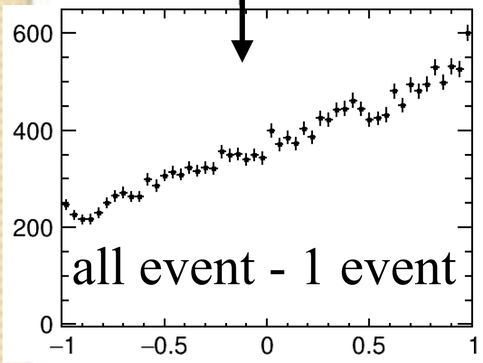


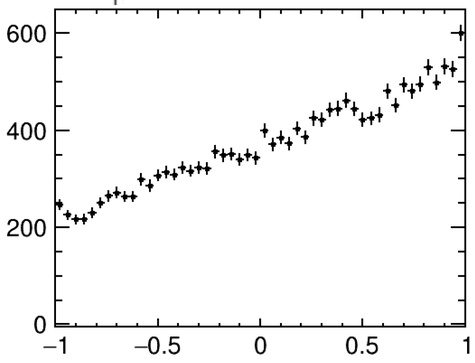
Main data set (X) of size n=10

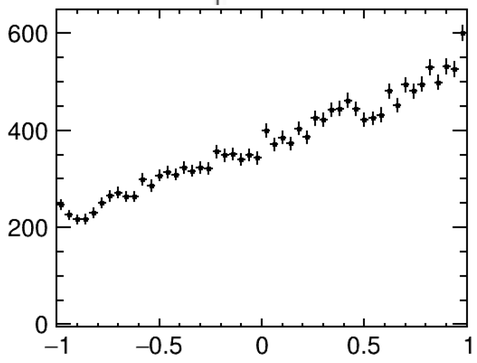
10 resample from (X) of size n=9



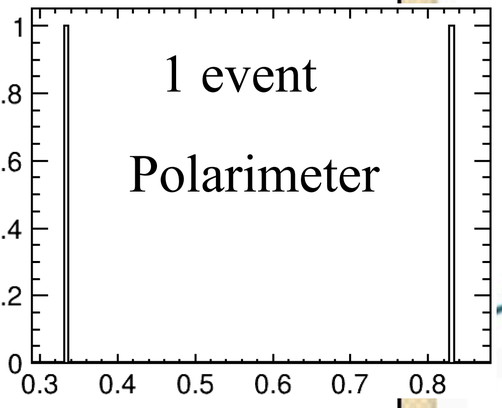
Sample 1 Sample 2 Sample 10

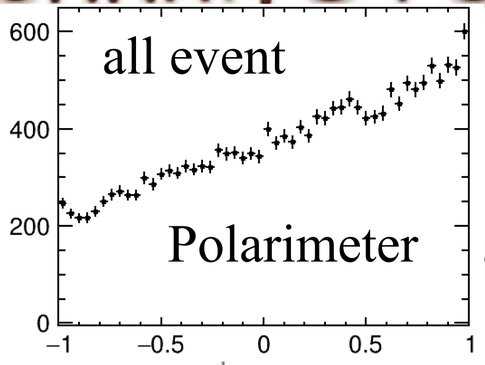






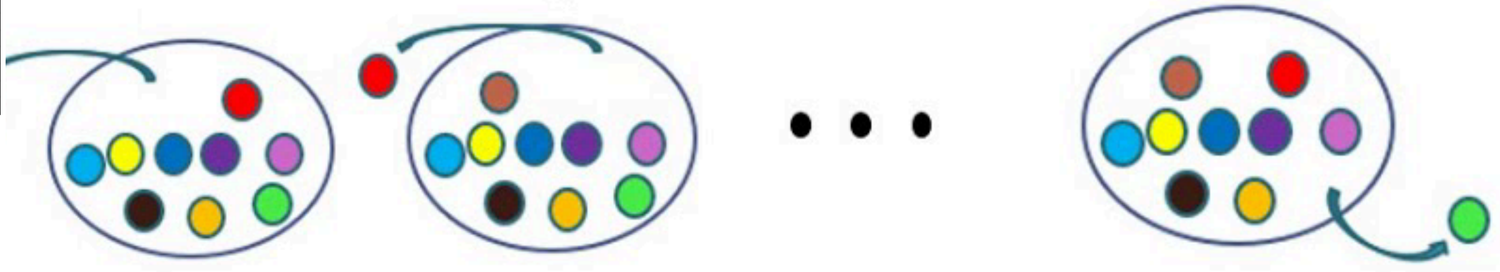
Jackknife resampling



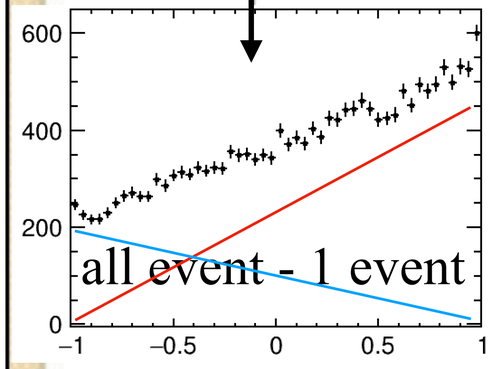


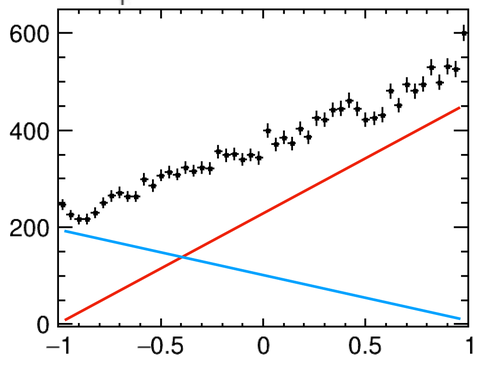
Main data set (X) of size n=10

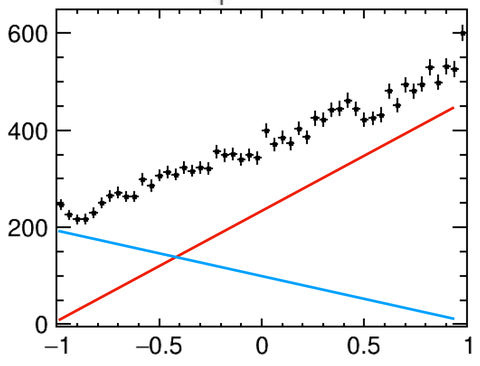
10 resample from (X) of size n=9



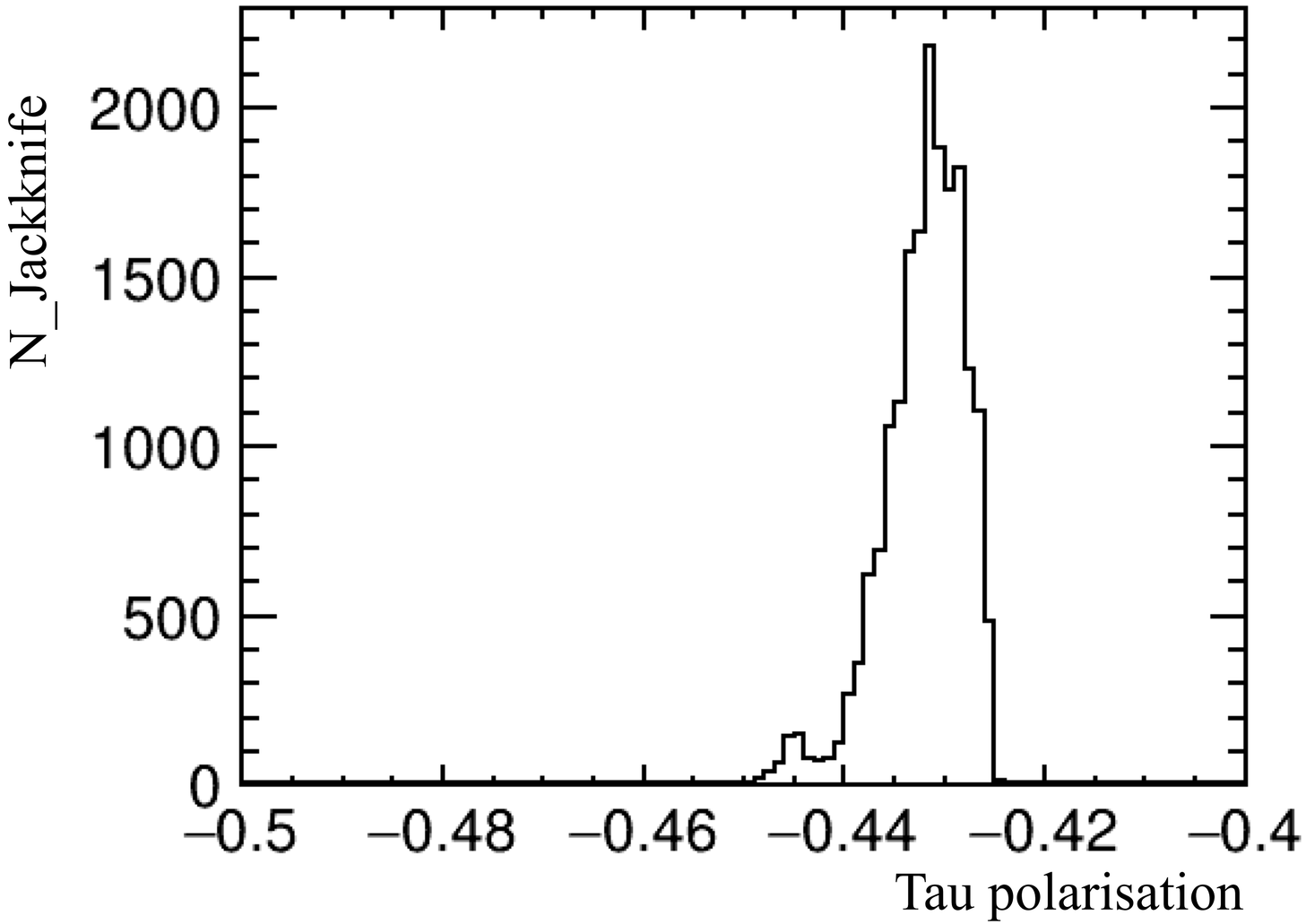
Sample 1 Sample 2 Sample 10



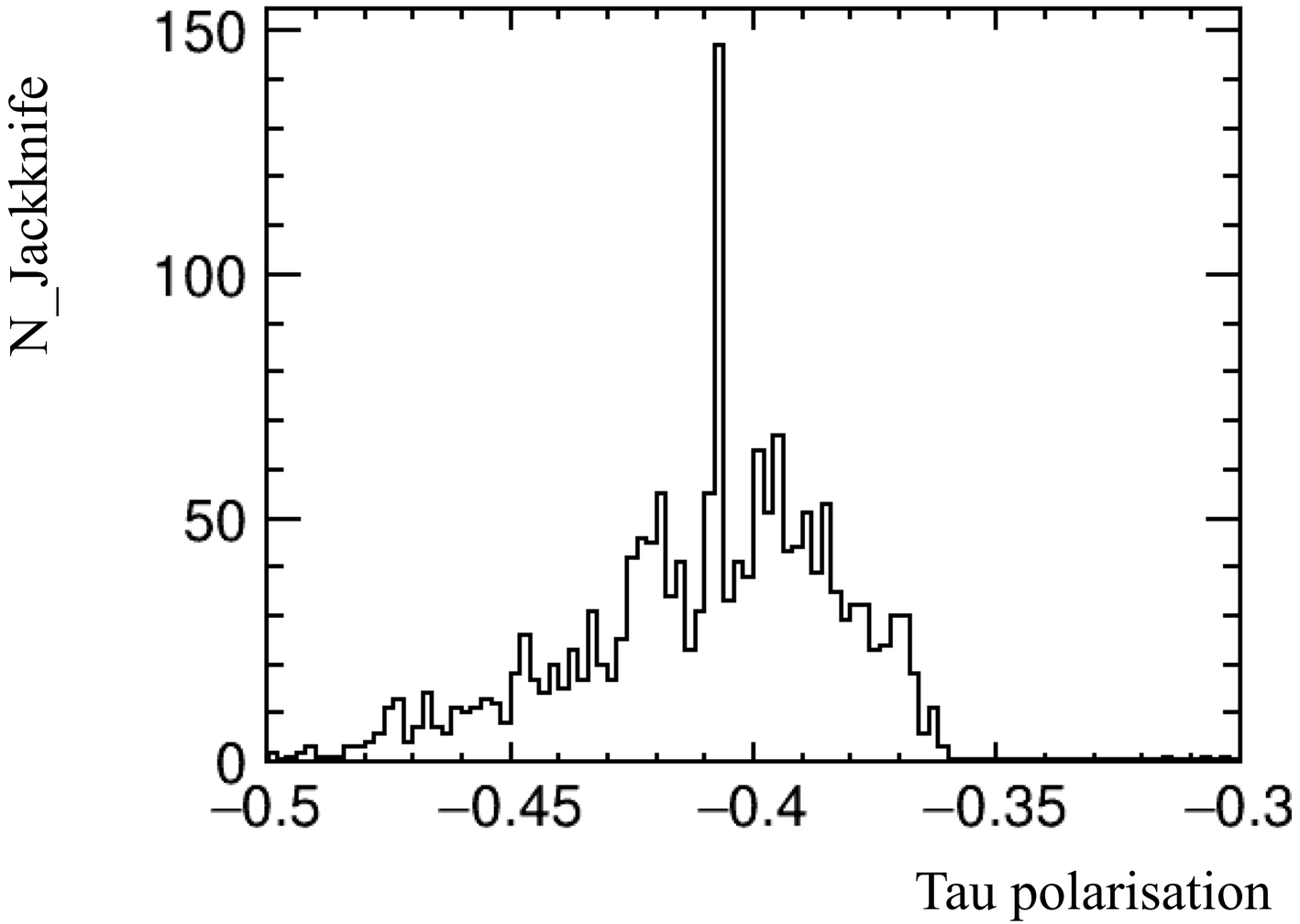




tau polarisations
can be extracted
from Jackknife sample



From this width, the uncertainty of tau polarisation can be estimated



small sample

From this width, the uncertainty of tau polarisation can be estimated

Next step

- Write ToyMC code (and mathematica)

  for validation of methods using helical track
- Estimate tau polarisation uncertainty