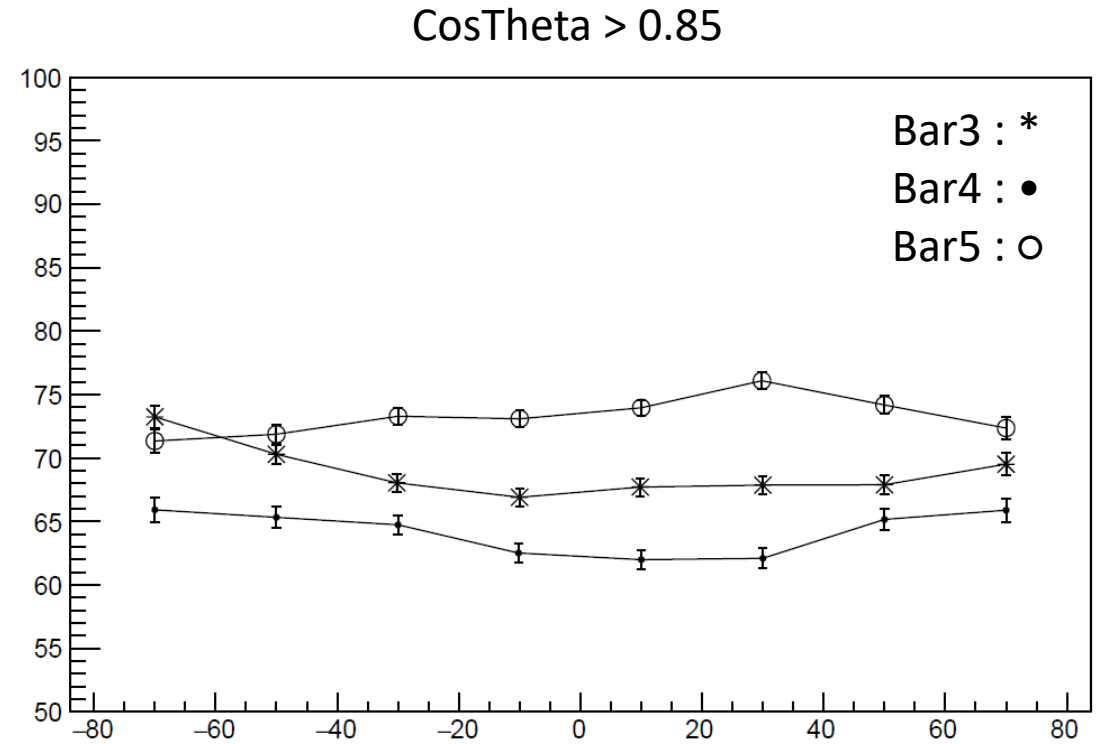
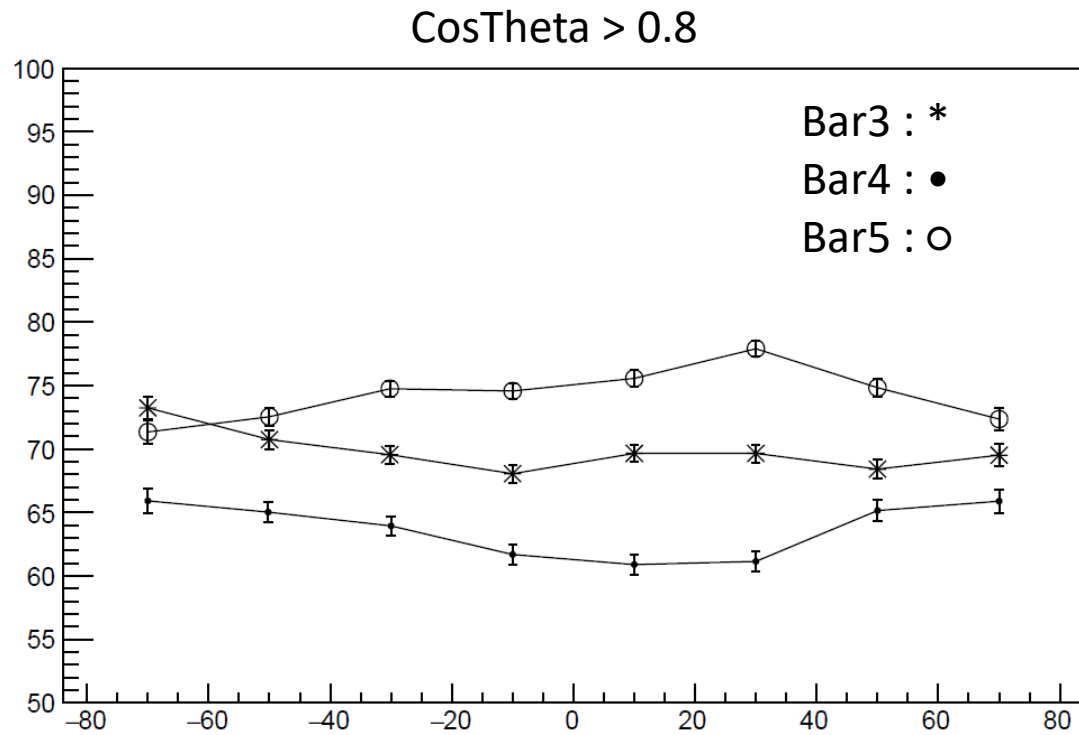


Time resolution issue

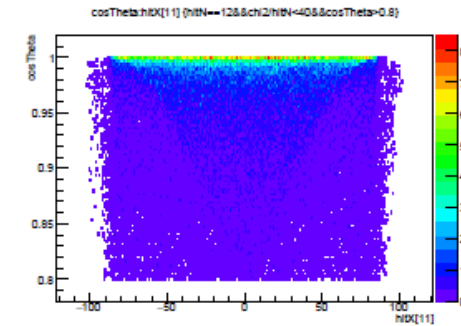
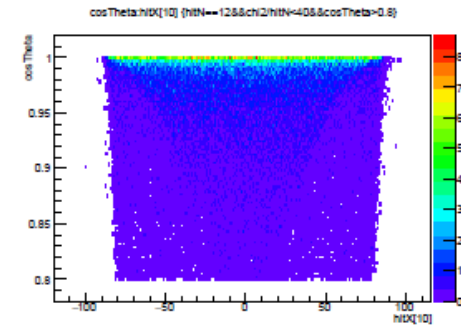
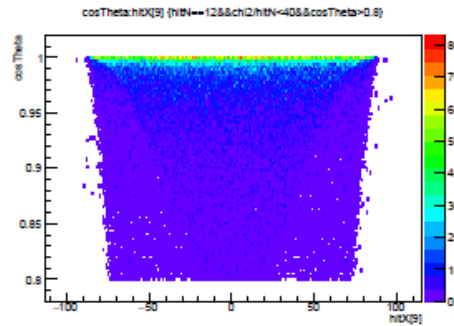
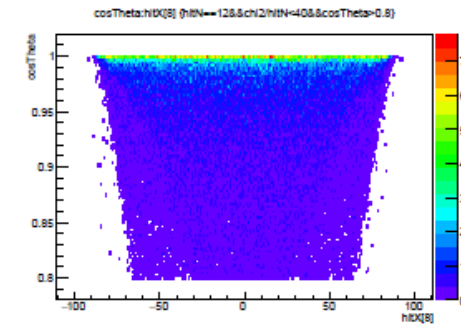
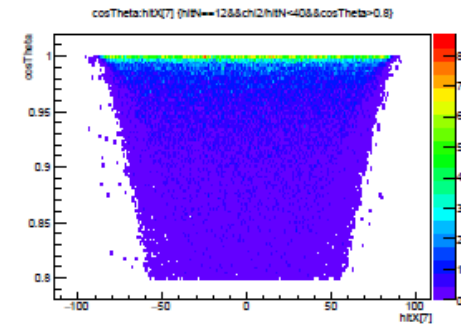
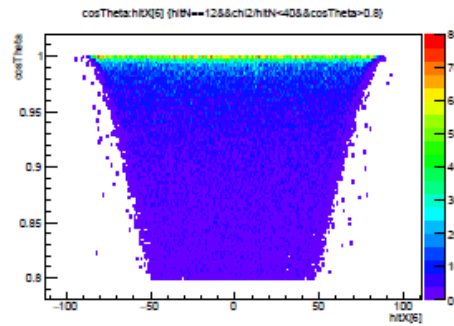
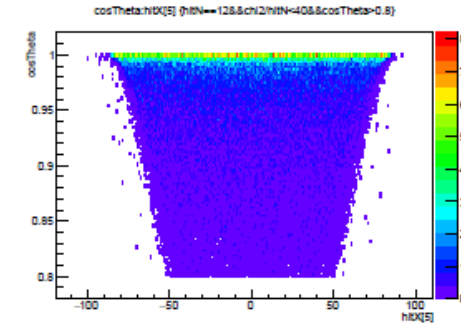
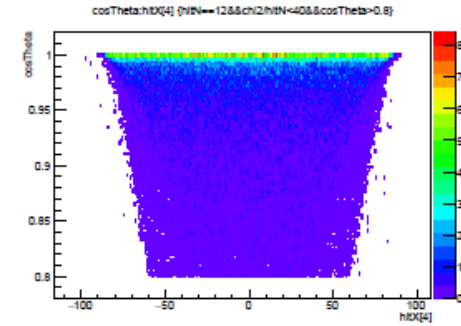
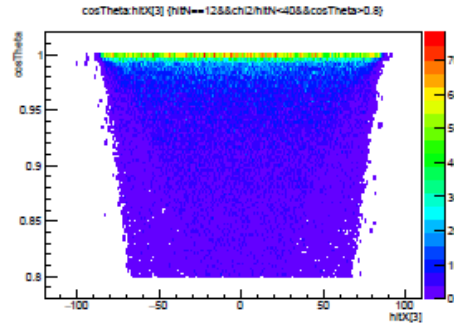
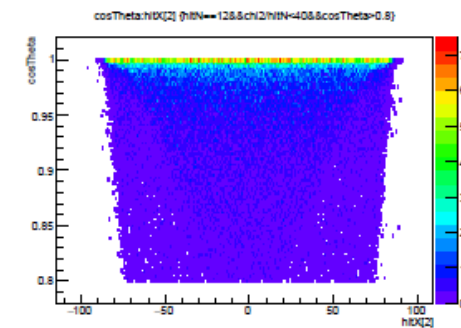
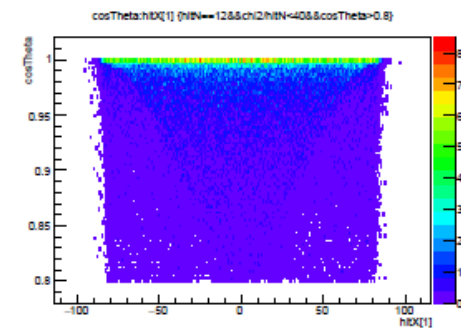
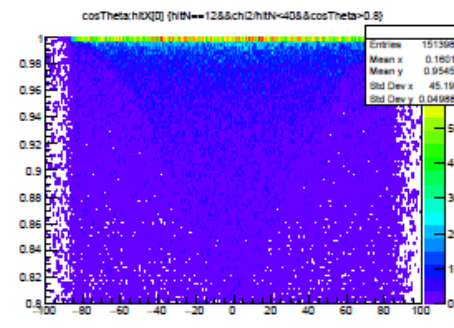
Understanding of the big deviation of time resolution for different position

- Precision of position is not good because of several issues.
- Tight cosine cut or Chisquare cut can ruin the stability of time resolution for position by wrong positioning issue (by the deviation of measured position and real position)
- Reduce the cosine cut and give range cut for all 3 bar per each group to select same events for all 3 bars resolution data sample.

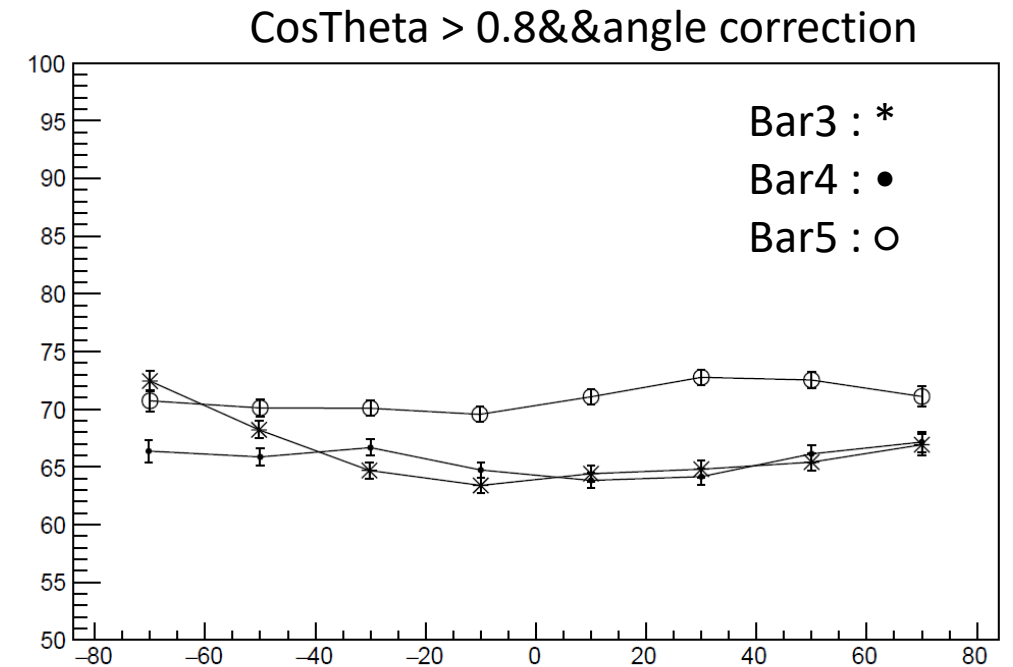
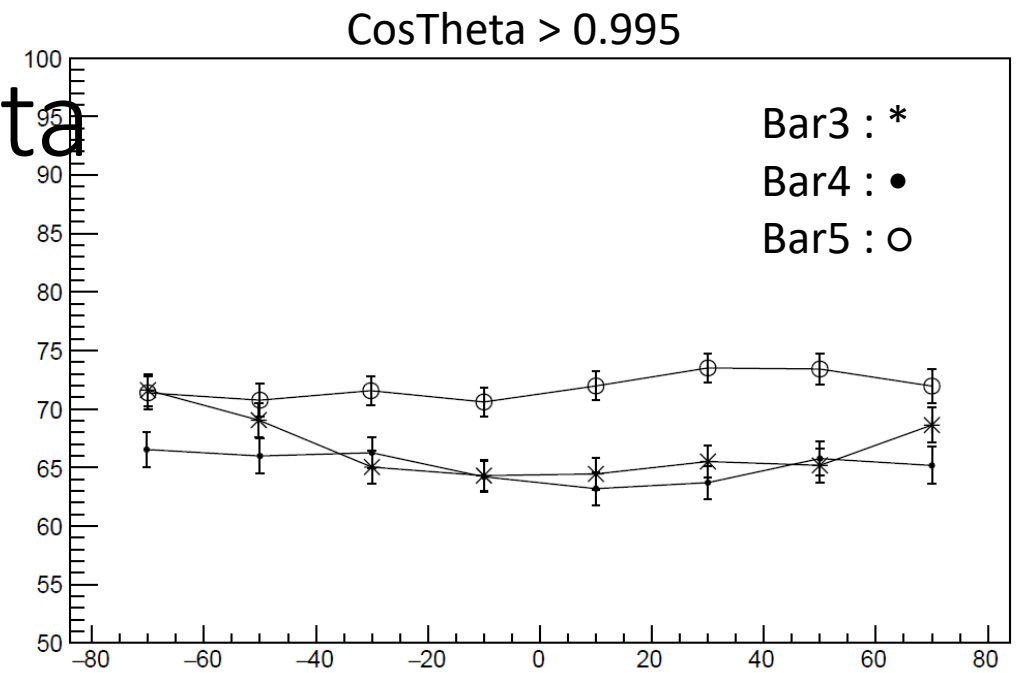
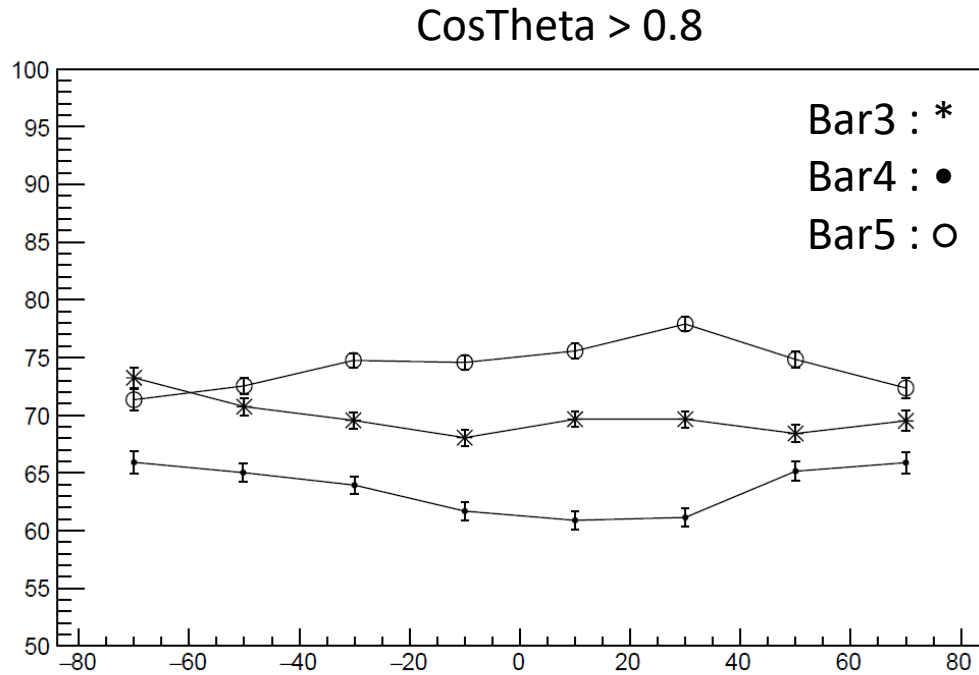
Time resolution depends on costheta



- $t_j - t_i = 0.3\text{ns}/\cos\theta$
 $t_i - t_k = 0.6\text{ns}/\cos\theta$
 For one group (i, j, k)
 from top, j would give
 smaller resolution
 ← Negligible for
 $\cos\theta > 0.995$ (?)
- CosTheta vs hitX →



Time resolution for costheta



- Angle correction for bar i,j,k

$$\Delta t_{ij} = t_i - t_j - 0.1m/3.e8/\cos\theta$$

$$\Delta t_{ki} = t_k - t_i + 0.2m/3.e8/\cos\theta$$

backup

HitX(x) vs Height(y)

- Black : $\sqrt{H_L * H_R}$
- Red : $\text{Max}(H_L, H_R)$
- Blue : $\text{Min}(H_L, H_R)$
- Bar1 (top middle) shows biggest deviation as resolution then Bar7 as second one.
- But Bar5 shows no big deviation at time resolution plot different with here....

