# ETF feasibility study

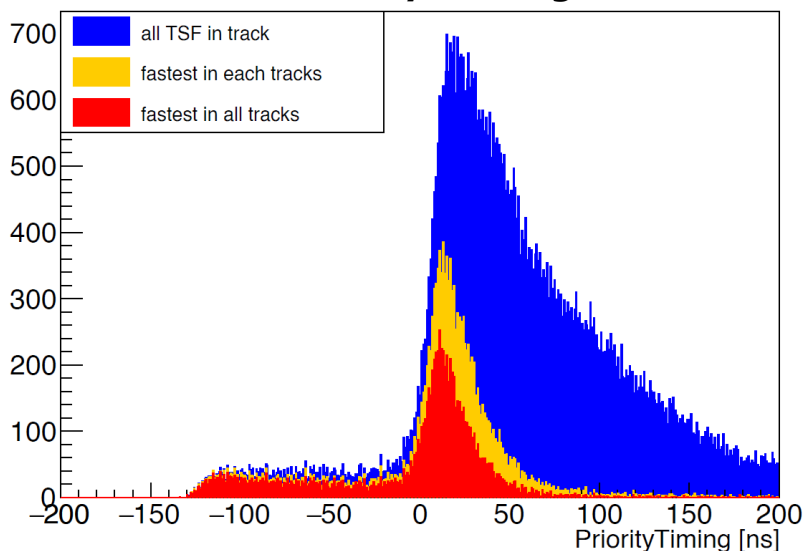Yuki Sué, Nagoya Univ.
Aug. 27, 2019

ETF feasibility study

ETF algorithm is required to be upgraded
for robustness of high hit rate and better time resolution.

- Use the TSF associated with track.
- For 3D tracker study, the time resolution achieves σ=20-30ns.

- Rough 2D hough finder + fastest timing
  - The granularity could be reduced to reduce the logic size.
  - need to be implementation on UT4?
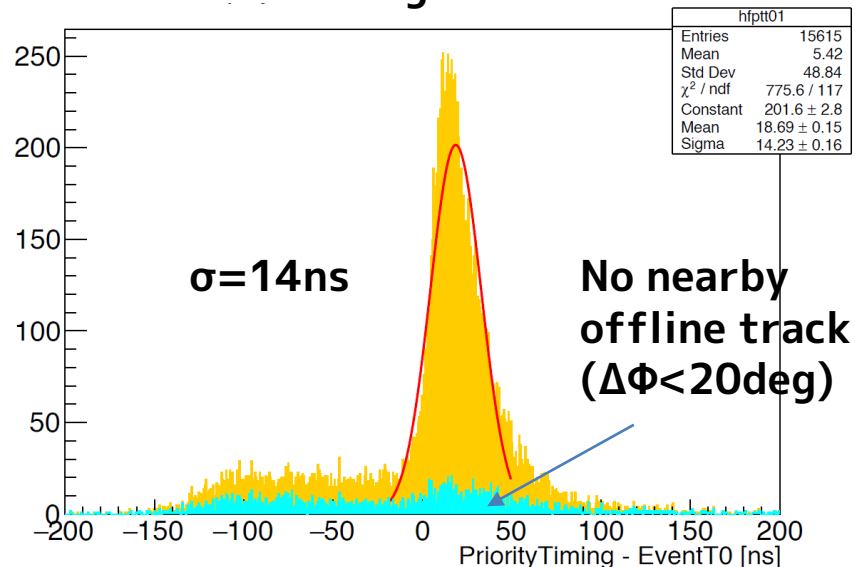- Other way?
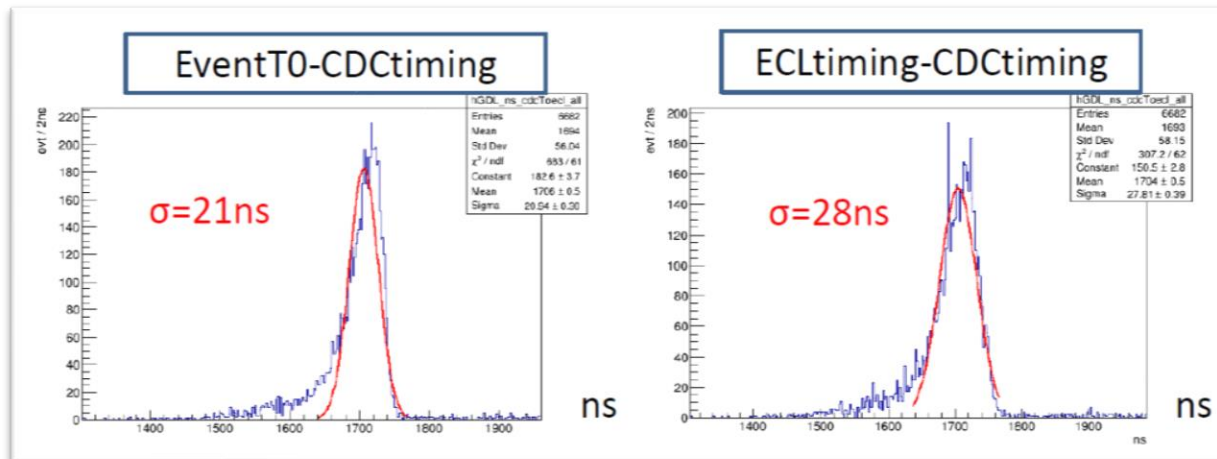
Koga-san's study

- Exp8/run01038
- CDCTrigger2DFinderModule is used on TSIM (fast simulation).
  - only axial wires
- The resolution is better than that of 3D tracker.
  - It does not reproduce the previous study.
 - Need more study…

Priority timing

- all TSF in track
- fastest in each tracks
- fastest in all tracks

PriorityTiming [ns]

Fitting result

hfptt01

Entries	15615
Mean	5.42
Std Dev	48.84
χ^2 / ndf	775.6 / 117
Constant	201.6 ± 2.8
Mean	18.69 ± 0.15
Sigma	14.23 ± 0.16

σ=14ns

No nearby offline track (ΔΦ<20deg)

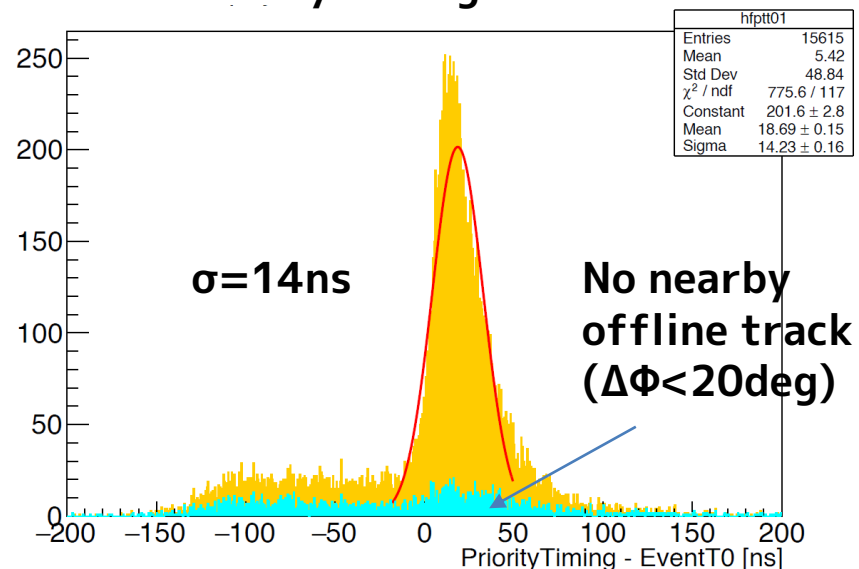PriorityTiming - EventT0 [ns]

- Exp8/run01038
- CDCTrigger2DFinderModule is used on TSIM (fast simulation).
  - only axial wires
- The resolution is better than that of 3D tracker.
  - It does not reproduce the previous study.
  - Need more study⋯

Fastest timing – EventT0

σ=9ns

Priority timing – EventT0

σ=14ns

No nearby offline track (ΔΦ<20deg)
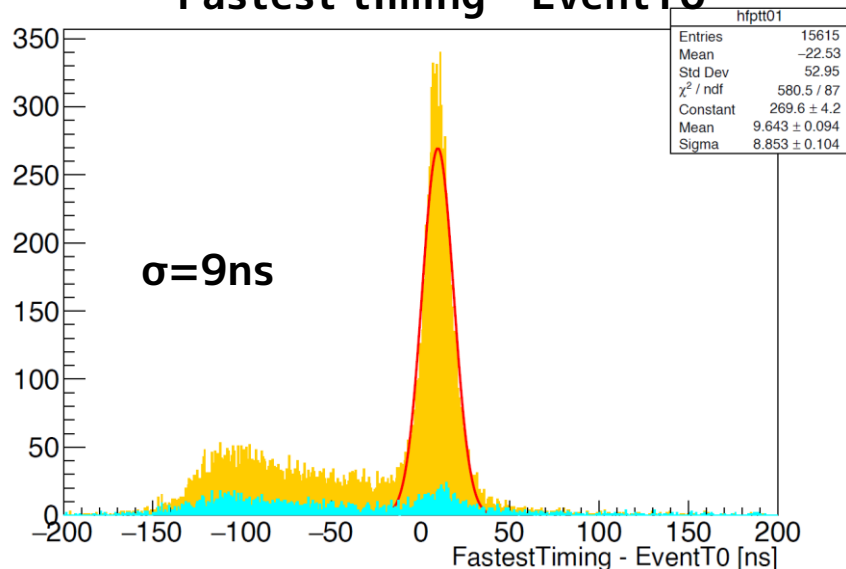
Plan

- Feasibility study: 1-2 month
- UT4 implementation: 6month?

⇒ by April 2020?