

Status Report

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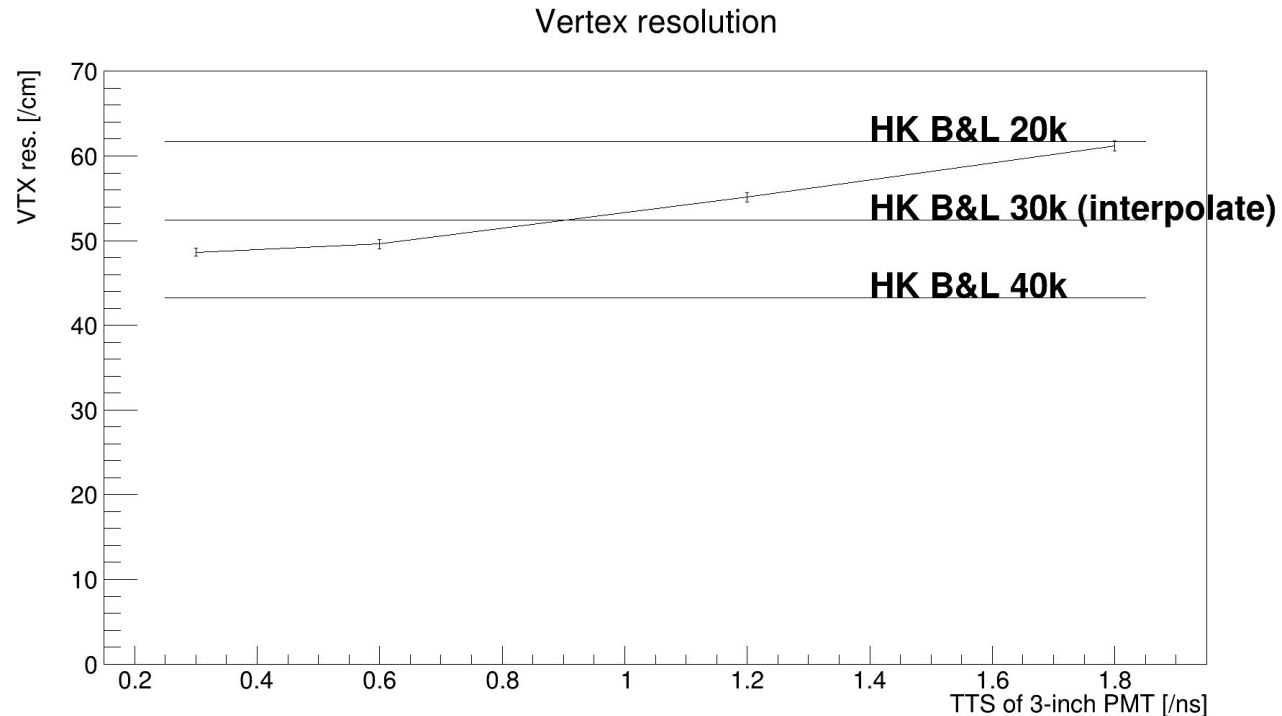
Update

- Impact of TTS on LEAF
 - I checked vertex resolution with various TTS of 3-inch PMT
- Directionality
 - I made plots to investigate improvements with directionality. However it has something wrong...

Impacts of TTS

- At HK-PCM of Feb., we got the comment why mPMT has better performance than 20-inch B&L.
- MC: HK mPMT hybrid (B&L 20k, mPMT 10k)
 - 3-inch PMT: dark rate = 100 Hz, TTS = {0.3, 0.6, 1.2, 1.8} ns
 - 20-inch B&L PMT: dark rate = 4.2 kHz, TTS = ? ← depend on Q
 - 10,000 electrons, uniform in tank, isotropy

LE fitter is tuned for TTS = 0.6 ns. So one of 0.3ns has less improvements. When I interpolated configuration w/o mPMT to 30k B&L case, mPMT has better VTX resolution.



Directionality

- Today's LEAF has the directionality of theta dependencies of incoming photons against each 3-inch PMT. I am now trying to check the directionality information.
- I made some plots for each 3-inch PMT number in mPMT.
 - The plots are attached in other files
 - Phi, and theta are defined like below picture.
 - PMT 0-11: outer PMTs, PMT 12-17: middle PMTs, PMT 18: center PMT
 - The histogram of PMT0-17 is the ratio by one of PMT18.
 - There are mistake in calculation of phi so 2D and phi histograms. Therefore they look strange... But I want to see directional sensitivity in these plots.

