The background of the slide is a photograph of the Stephen Kay building at the University of Regina. It is a large, multi-story building with a grey facade and many windows. The building has a distinctive green roof with gabled sections. In the foreground, there are green trees and a grassy lawn. The sky is blue with some white clouds.

KaonLT Analysis Update

**Stephen Kay
University of Regina**

29/07/20

hcana Updates - New Scripts

- New script to process new pedestal defaults for multiple runs and create new cuts files
 - https://github.com/JeffersonLab/hallc_replay_lt/tree/offline/CALIBRATION/set_peddefault
 - *SetPedDef.sh* and *Process_List.sh*
- New script to plot and examine new reference time variables
 - https://github.com/JeffersonLab/hallc_replay_lt/tree/offline/CALIBRATION/ref_times
 - *RefTCuts.sh* and *Process_List_RefT.sh* (yes it's not exactly an imaginative naming scheme)
 - *RefTCuts.sh* also determines new Hodoscope AdcTdc Offsets
- Due to various changes in hcana, AdcTdc offset for the hodoscopes has shifted
 - See talk by Deepak - https://hallcweb.jlab.org/DocDB/0010/001060/002/update_april2020.pdf

AdcTdc Offset Determination

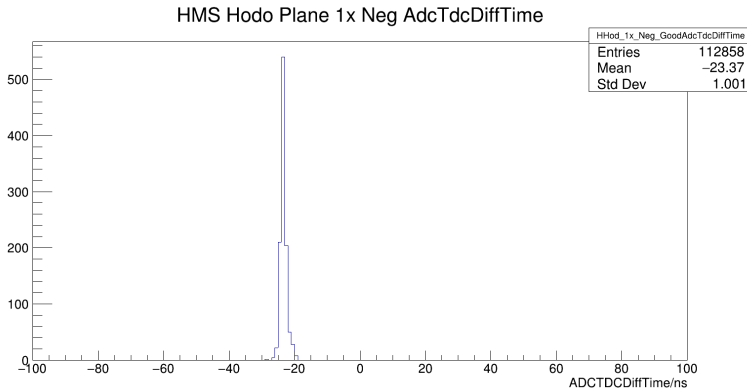
- Fairly straightforward to do
- Need to examine where position of the AdcTdc offset peak is for each hodoscope plane
 - Shift offset by amount away from zero
- Positive and negative sides differ slightly
 - Take error weighted average (from mean/mean err of dist) to determine offset

$$\bar{x} = \frac{\sum \mu_i}{\sum \frac{1}{\sigma_i^2}}$$

- Need to run script, get new files from it and replay again (there's a lot of this)

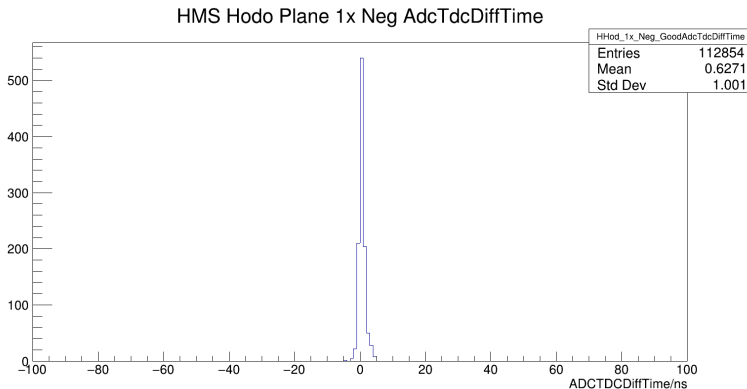
Updated Hodoscope AdcTdc Offsets

- HMS Hodoscope 1x (negative) before correction (Run 8029)



Updated Hodoscope AdcTdc Offsets

- HMS Hodoscope 1x (negative) after correction (Run 8029)



Discussion

- Offsets don't seem to change a great deal over a run period
 - Can probably use just a few sets
 - Plot all obtained values and see?
 - Also applies to pedestal default values
- What is left to change/modify?
 - Need to recheck hodoscope time windows
 - Other detectors worth checking too?
- Why do some pedestal default values all come back as 0?