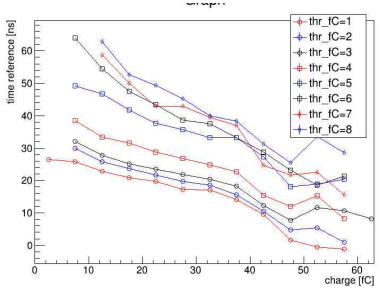
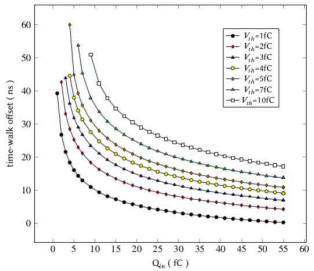
Time calibrations

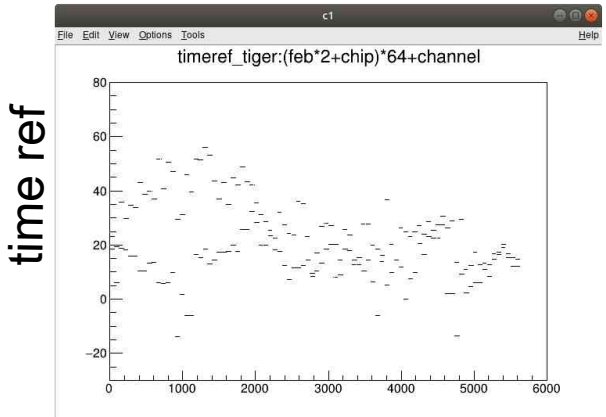
Some considerations





Time walk from simulation and from data-driven studies show a strong difference between high charge and low charge domains.

For charges above 40 fC the time-walk corrections differs from one point to another less than 10 ns



Time reference measurements are affected by time-walk effects and they are biased by low charge hits.

Proposal

In order to reduce as much as possible the iteration between time-walk and time-reference we propose this schedule

1. Measure the time-reference using only hits with charge > 40 fC. These values are measured chip by chip, separating X and V strips
2. Include this value in the LUT and process the new run reconstructions with the global time-reference plus the local one (chip by chip)
3. Measure the time-walk effect with an error on the single point below 5 ns
4. Produce the output file to pass these corrections to CGEMBOSS (thank to Linghui)
5. Measure the time-reference using all the hits. This correction is measured channel by channel.
6. Merge the correction measured in the point 1 with the one in the point 3 and re-process the data
7. Repeat point 3->6 until the convergence is reached