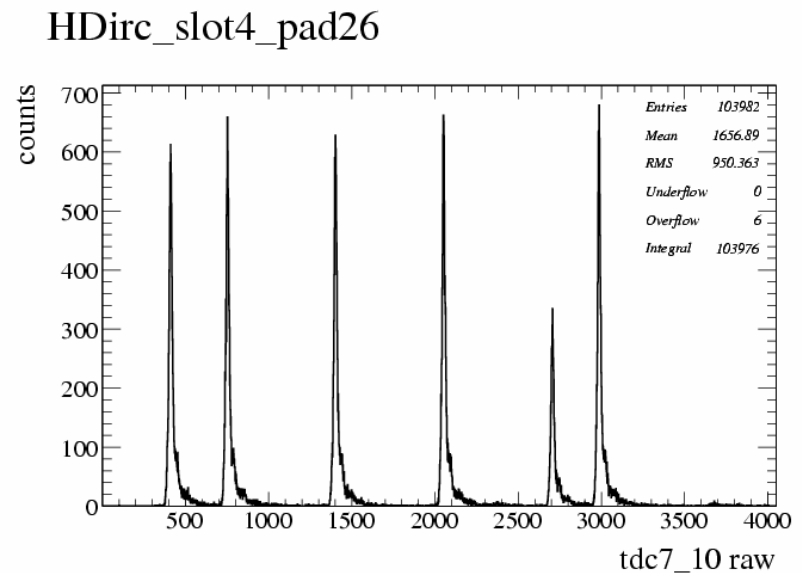


Programs for the
calibration of TOF
measurement with the
new pulser

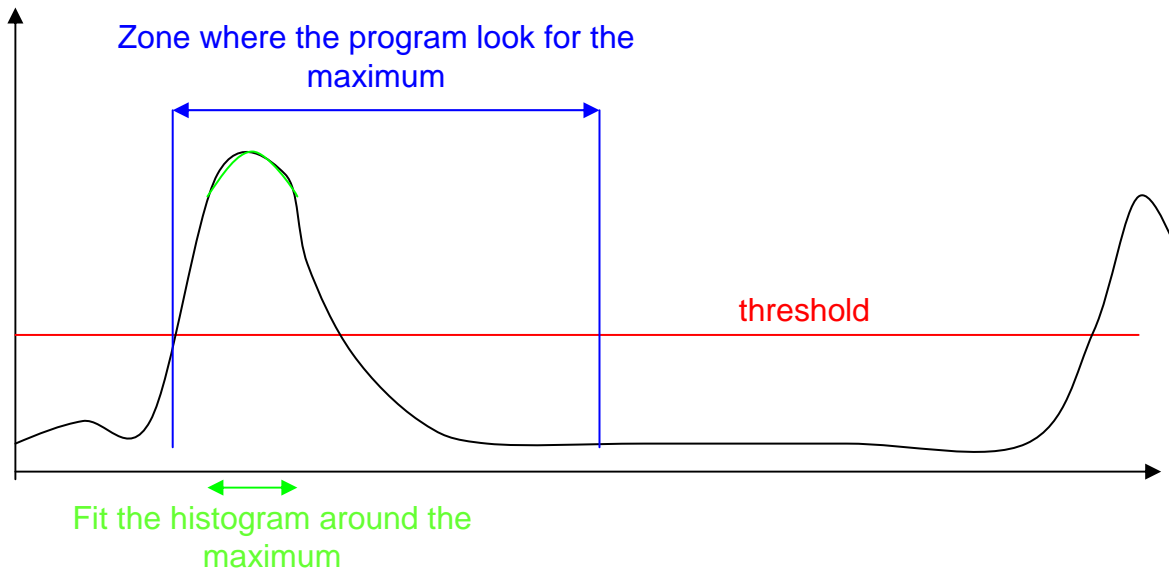
Generating a fake histogram for testing programs

- I have used 6 former test run done with different delay cable and chained them in order to have a fake histogram with several peaks like the further results files with the new pulser.
- The delay between the peaks is not the same for the six peaks. In the real data this delay will be the same. I modified some line of the program because of it.
- The file used are:
 - *Testrun_20051019_0403_100000.root*
 - *Testrun_20051019_0933_100000.root*
 - *Testrun_20051019_1024_100000.root*
 - *Testrun_20051019_1139_100000.root*
 - *Testrun_20051019_1304_100000.root*
 - *Testrun_20051019_1502_100000.root*



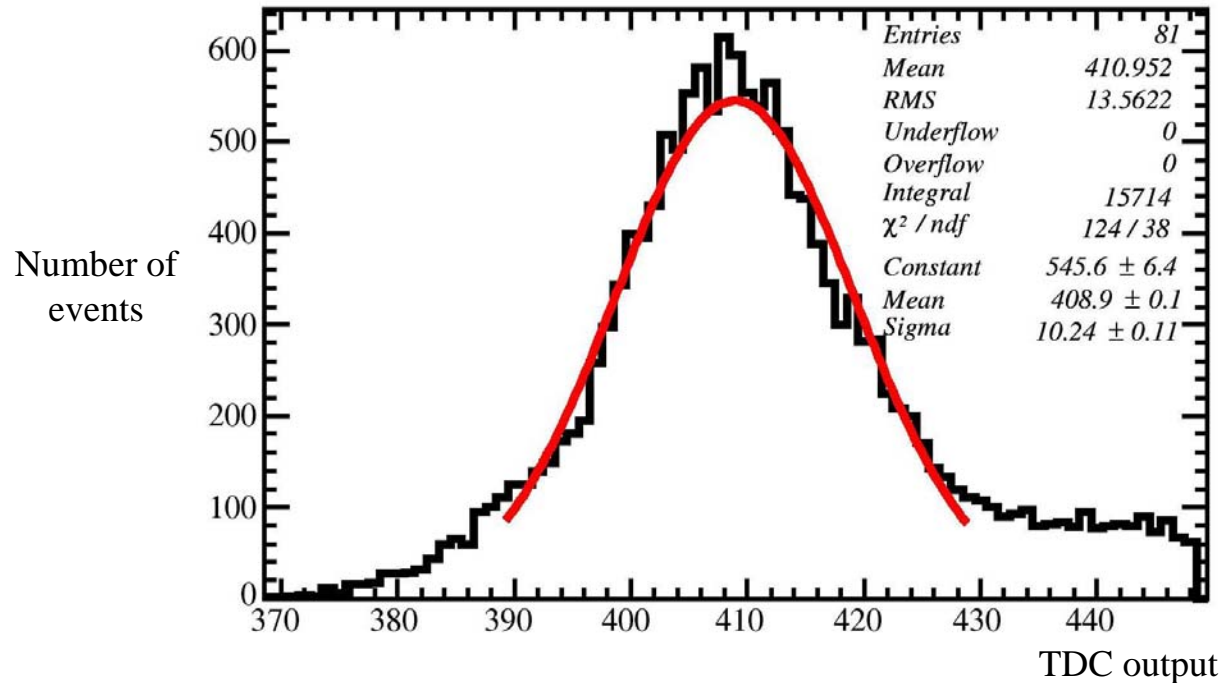
Find and fit the peak

- I wrote two programs (OnePadPeaksDet.C and AllPadPeaksDet.C) which find the 6 peaks and fit it.
- The program start from $tdc = 0$ and start to read the values of histo. When the number of events is bigger than the threshold, the program looks for the maximum in a windows with a predefined width. Next, the program fit the histogram around the maximum.



Results of the fit

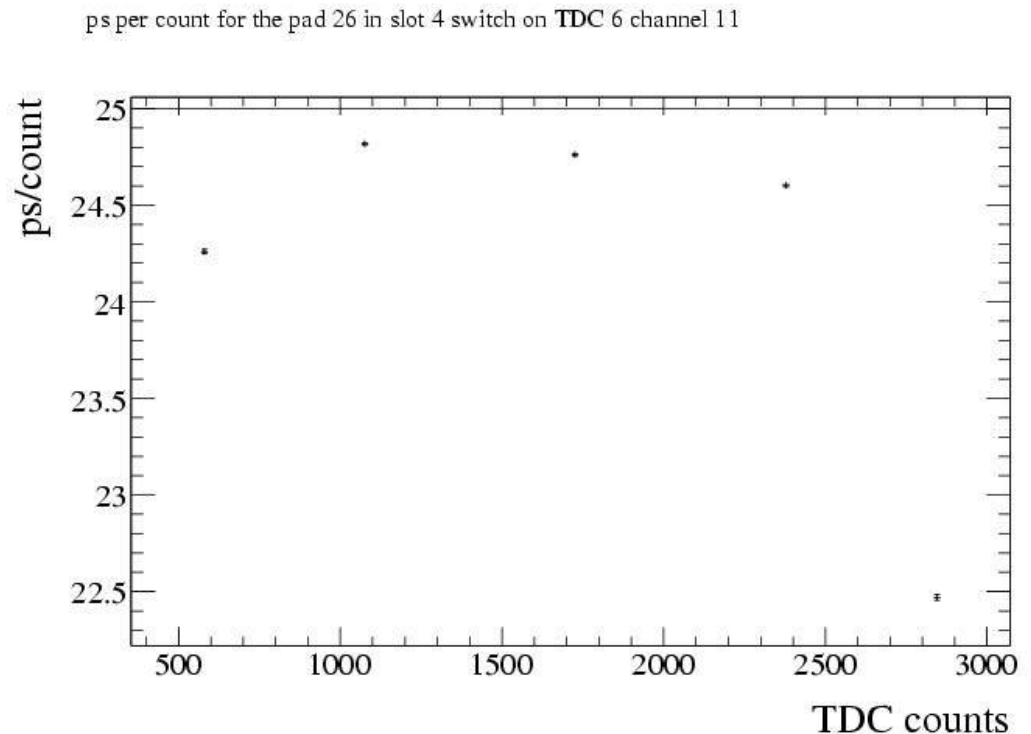
TDC distribution for slot 4 pad 26 : peak 1



The ROOT uncertainties seems to be too little like in TAC&ADC Calibration. The error will be probably different for the real data. I did not spend time to estimate it well. And I have taken the ROOT error for the test.

Calcul of ps/count in function of TDC values

- The delay between two peaks is known exactly. So, it's possible to know average ps/count value between the two peaks.
- Ps/count is calculated with the formula:
$$ps/count = \frac{\text{delay between the two peaks}}{(\text{position of peak } n - \text{position of peak } n-1)}$$
This value of ps/count is plotted in the middle of the two peaks.
- The ps/count value seems to depends of the TDC value. But we need to be careful because the error bar are false in these test data. The delay between peaks could be false.



Ps per count for all channel

- In order to study the variation of ps/count for the different TDCs. I have superpose the graph of all pads with each TDC in a specific color.
- The points of one TDC make clusters. The value of ps/count seems to be quiet the same in a TDC for all channels.

