Summary for last week.

The positive region of the histogram is the slower neutrons.
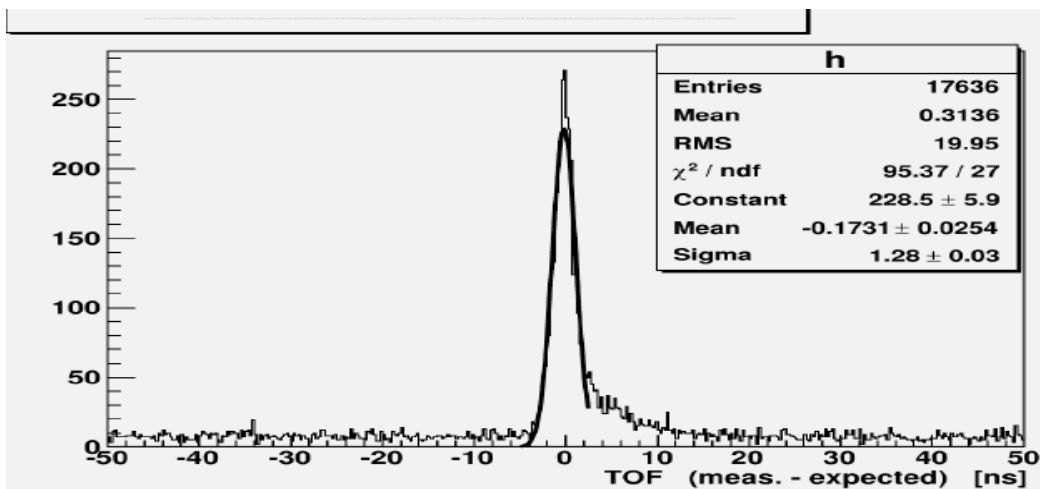

Fig 1.

If I plot this TOF distribution vs energy deposit I can clearly see the Time walk effect. It can be seen in fig 2.
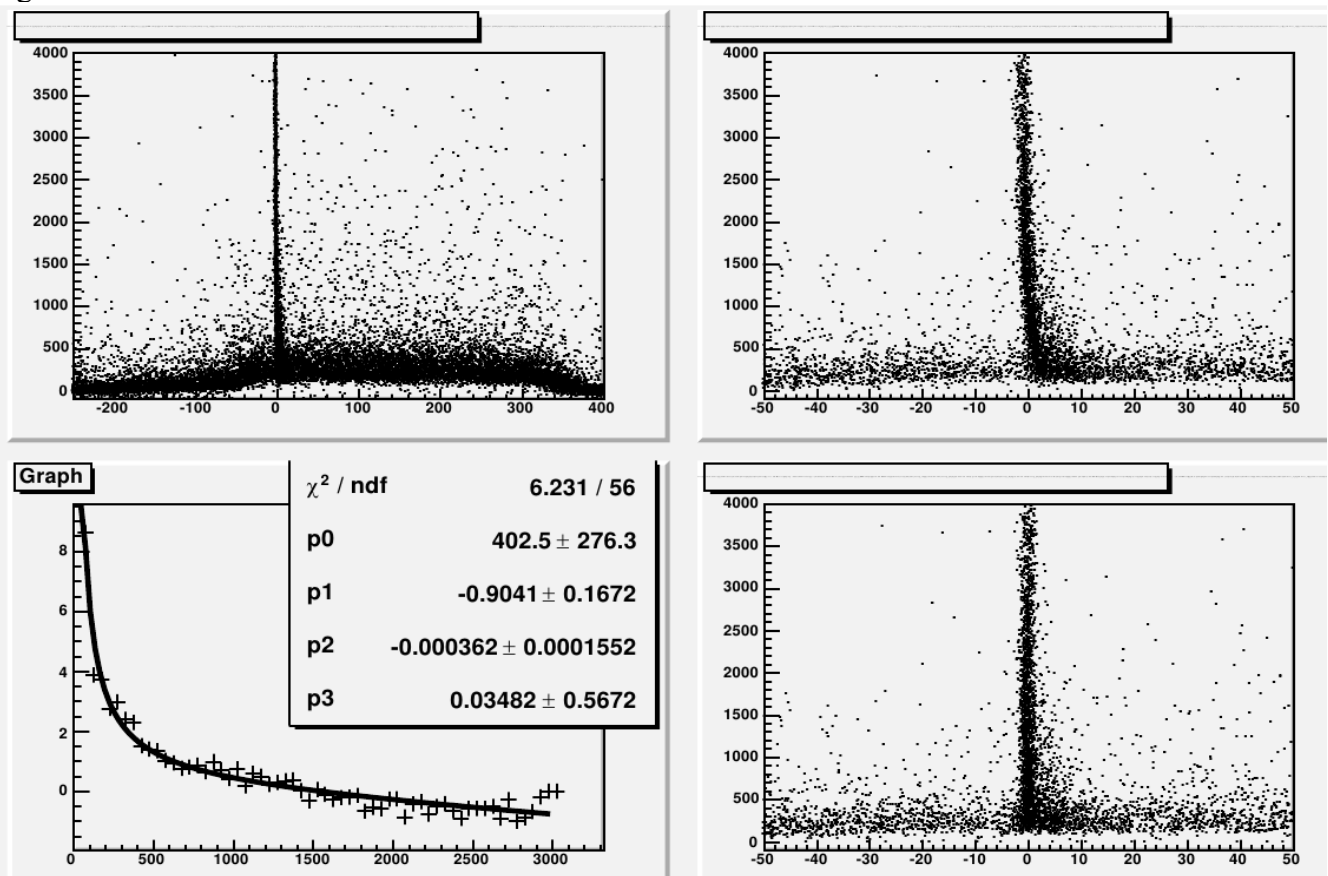

fig 2

Top left: ADC vs TDC. Top right: same with zoom in.

Bottom left: TOF peak position vs ADC. Right side: Time walk corrected TOF vs ADC.

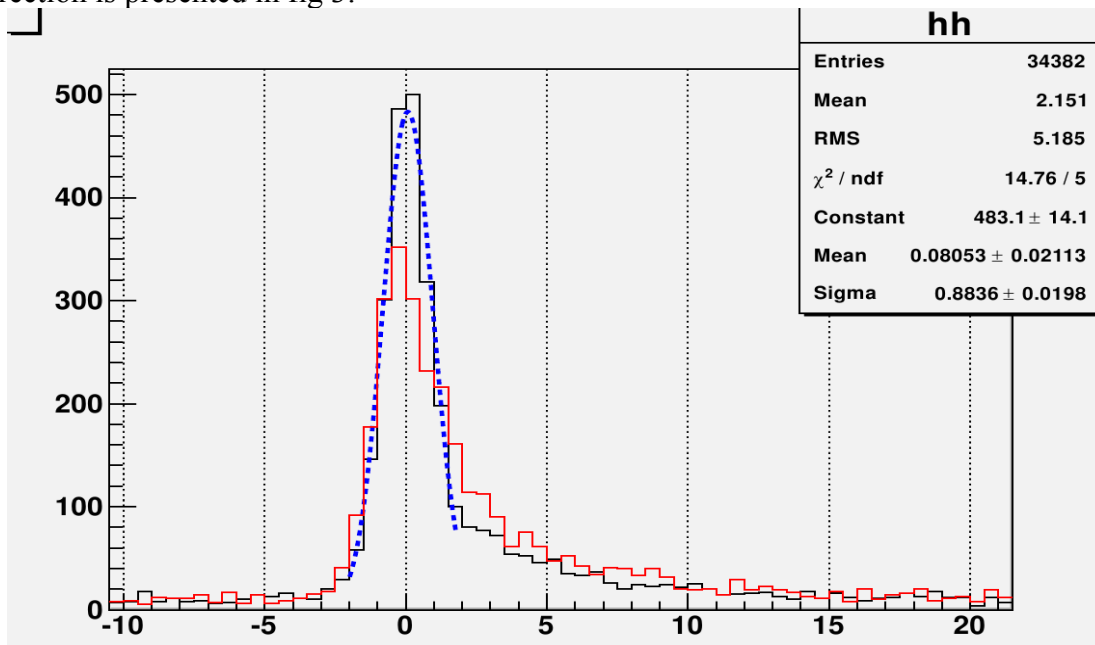This correction is presented in fig 3:

fig 3

The red line is before the correction.

This procedure is done for the higher pmiss point, because at lower pmiss the HRSs didn't have time information (only trigger and tracking).

As it seen from fig 3 even if we apply the Time Walk correction, the TOF is still distorted. Nevertheless, I continued with the efficiency estimation.

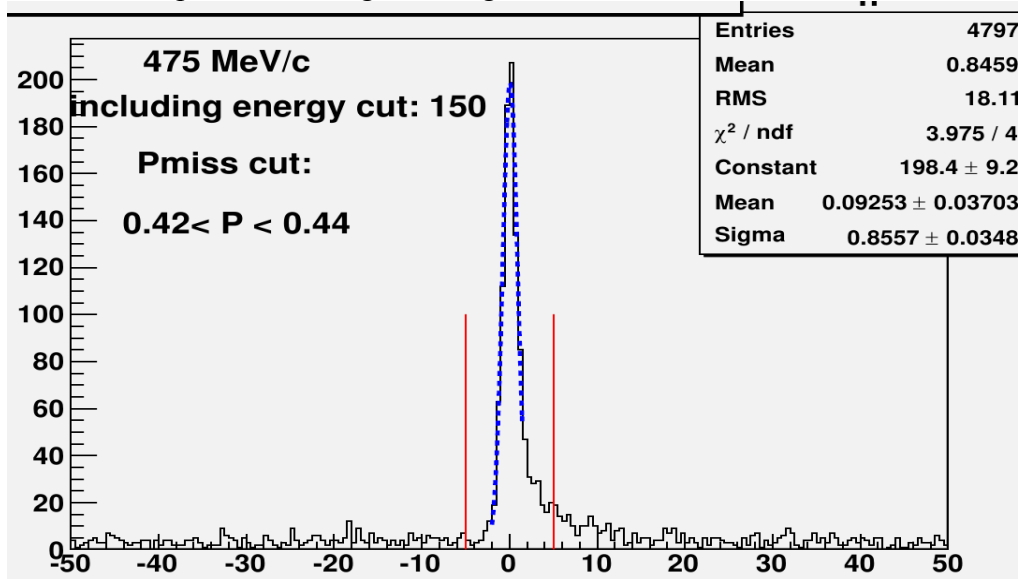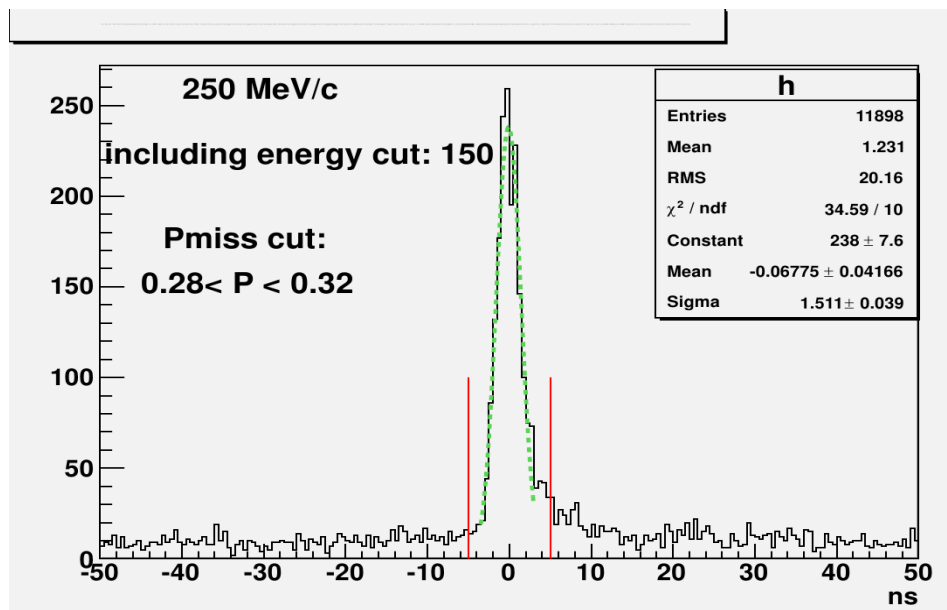The range that I chose is presented in fig 4 and fig 5:

fig 4

fig 5

In addition, as it can be seen from the caption on the figures, I used cut on ADC >150 (it not exactly ADC. It's sum of the left and right ADCs from all bars that belong to the specific neutron).
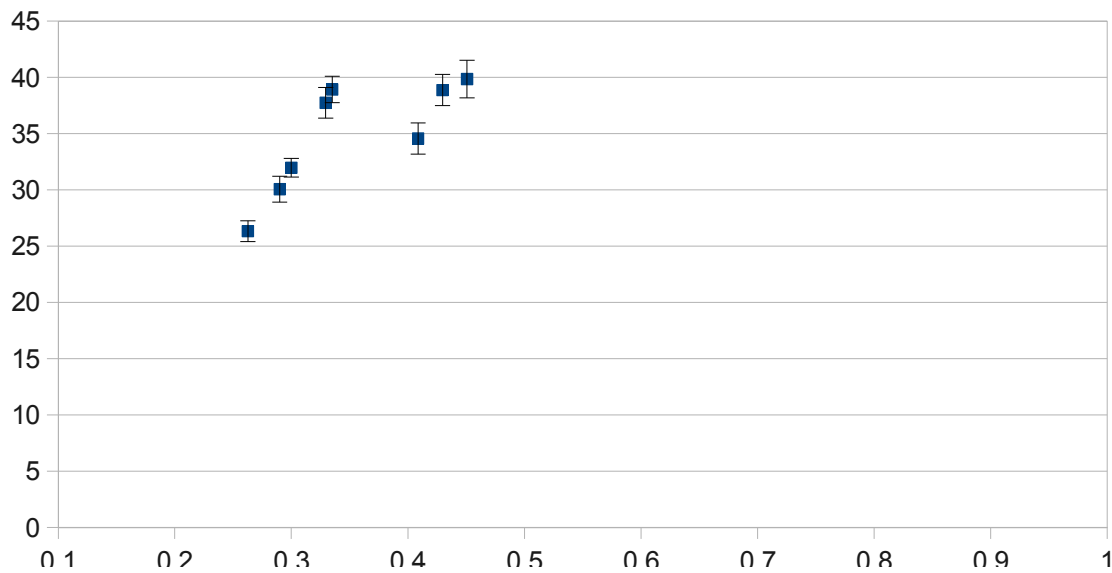
If fig 6. The resulted efficiency:

fig 6

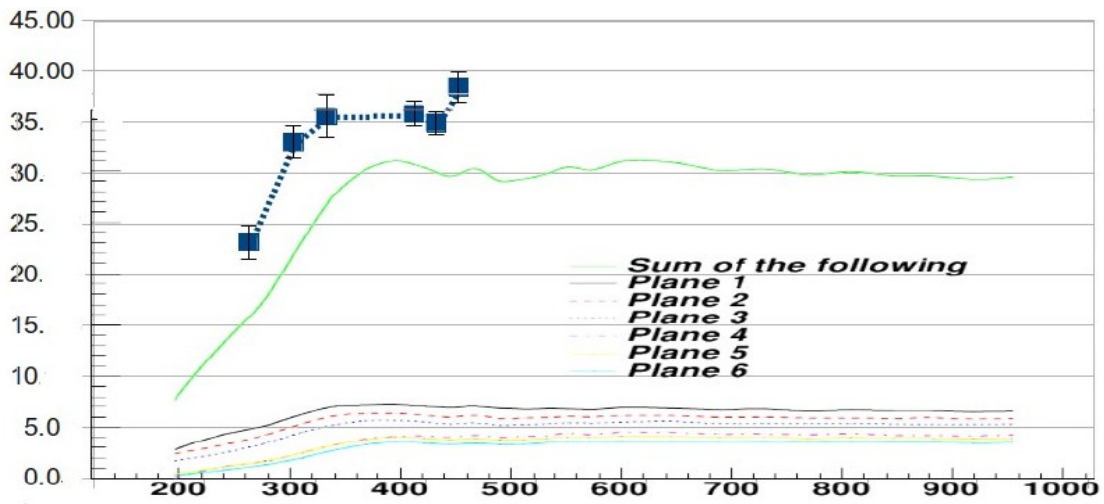It can be compared to the previous result (using the time walk correction) and different event selection, fig7:

fig 7

Triple coincidence:

500 MeV/c point:
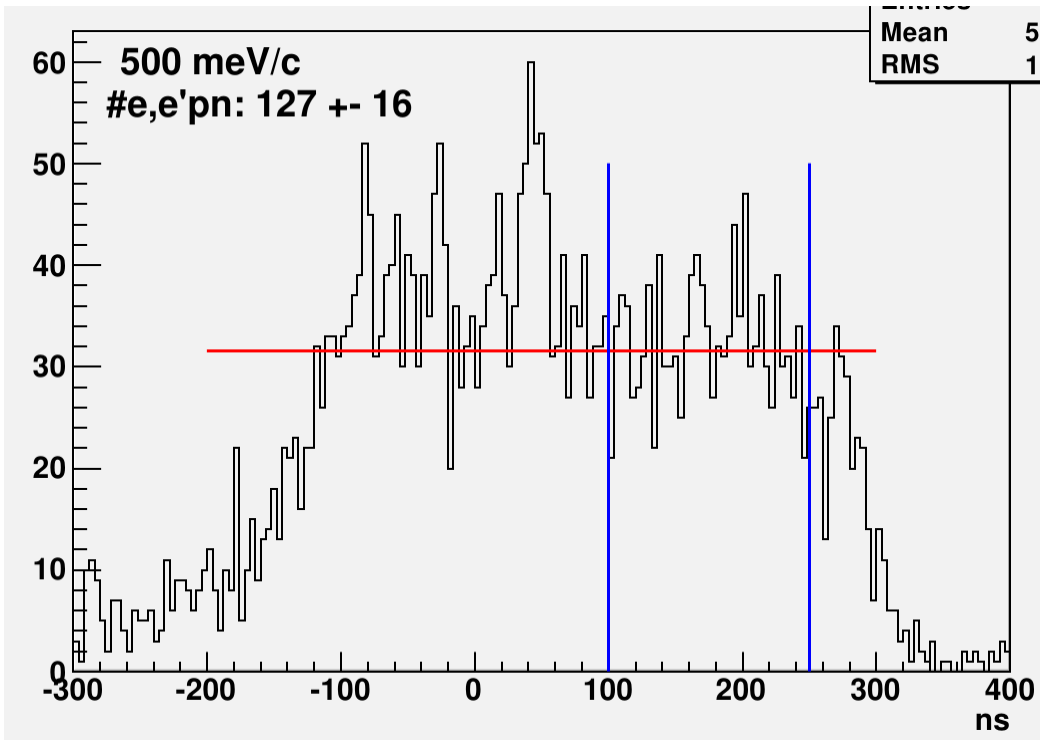
TOF distribution with Time Walk correction and cut on ADC.

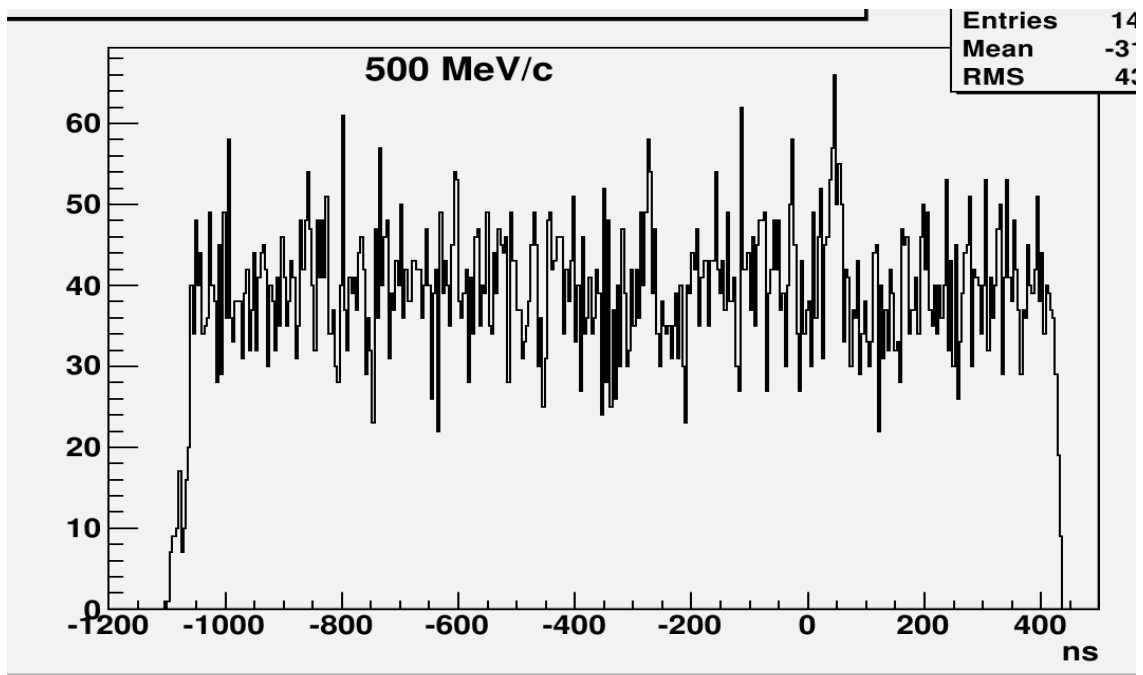fig 8: Red Line marking the BG level based on the region between two blue lines

fig 9: TOF distribution with no cut on ADC
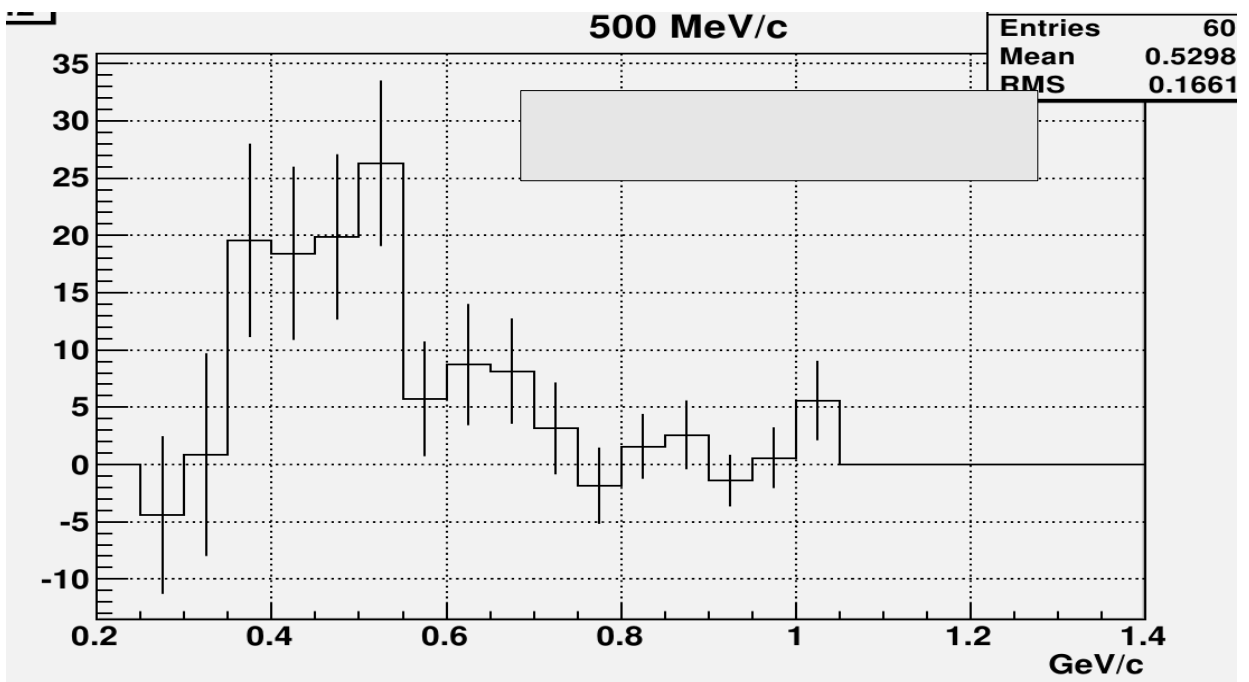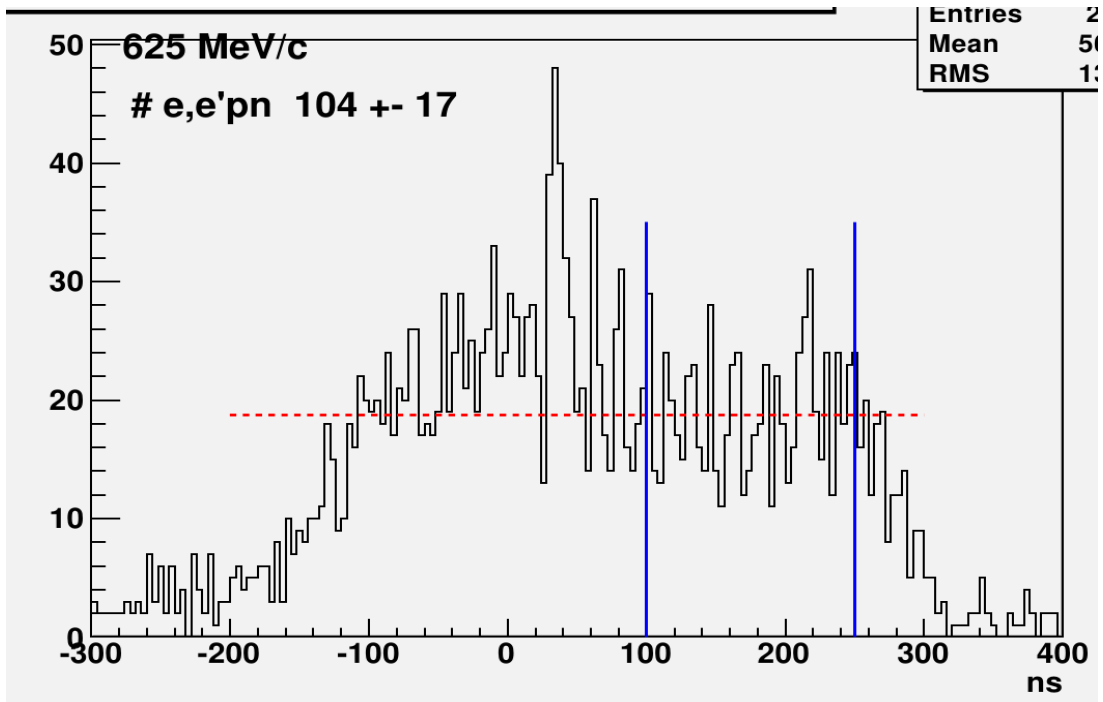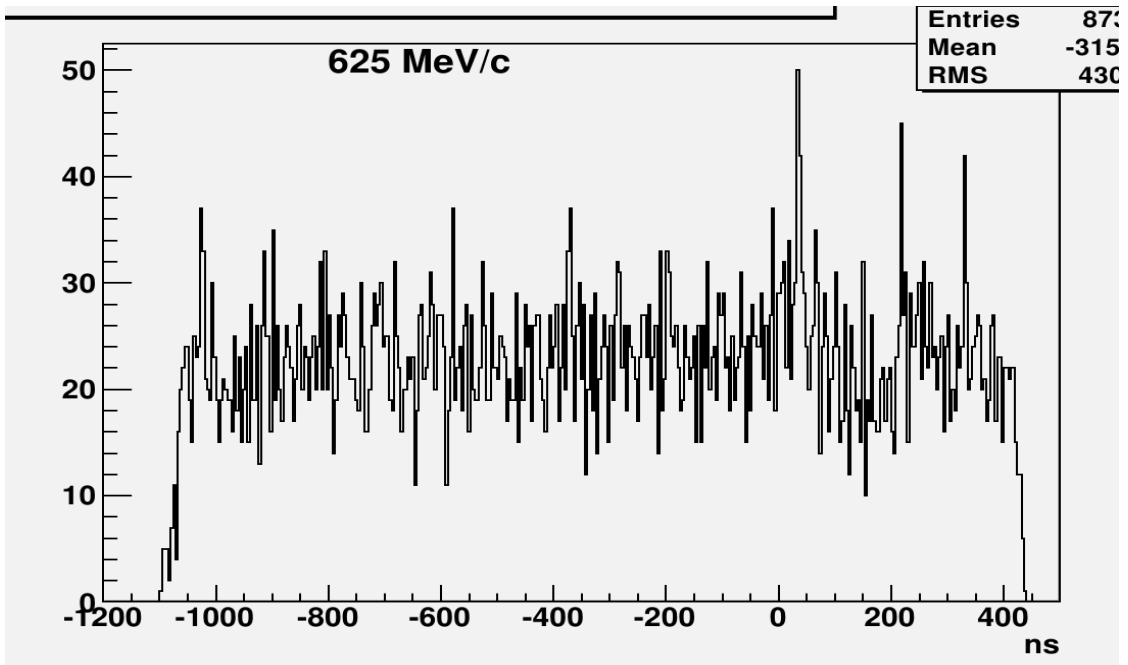
momentum distribution:
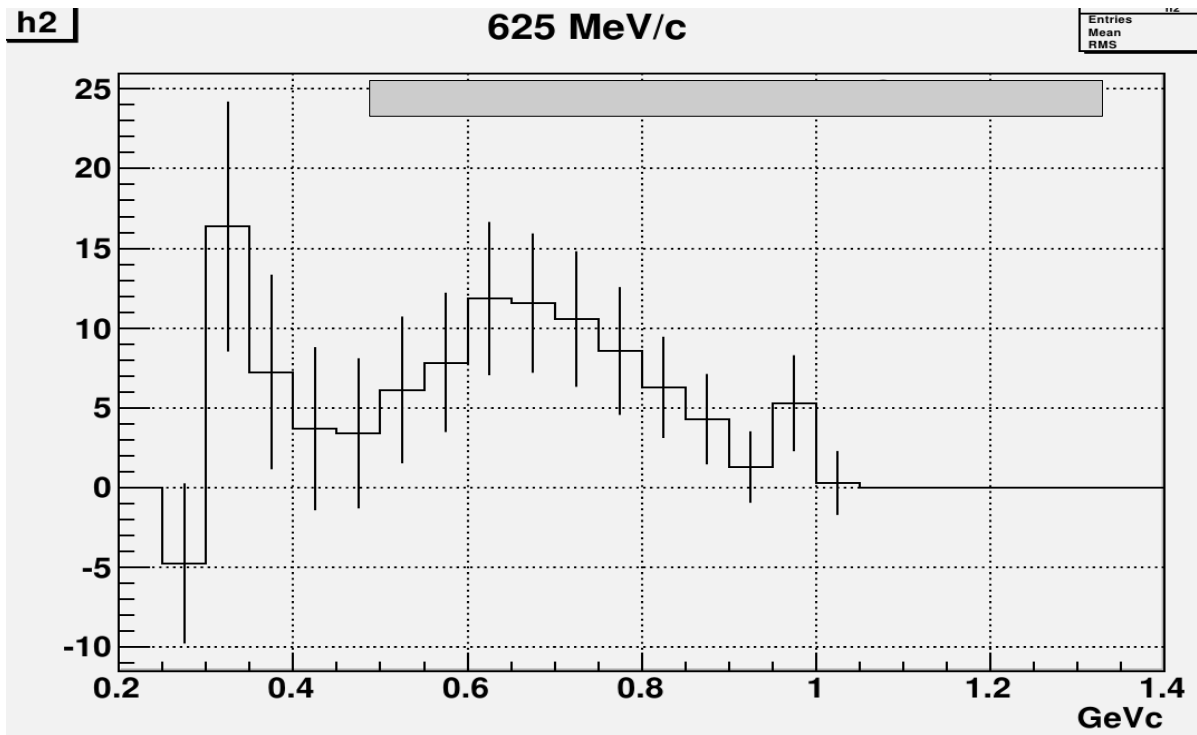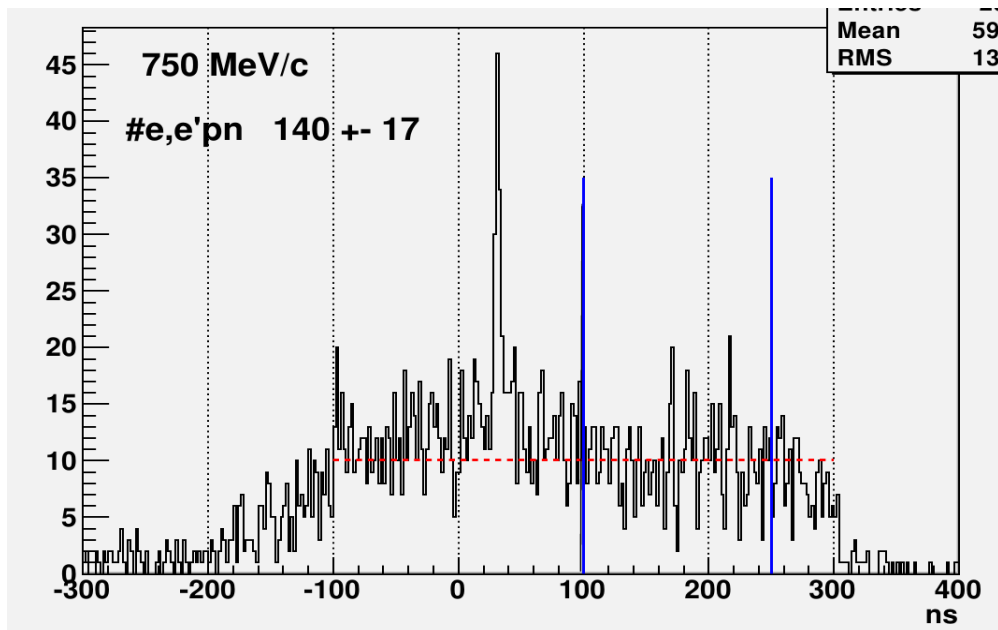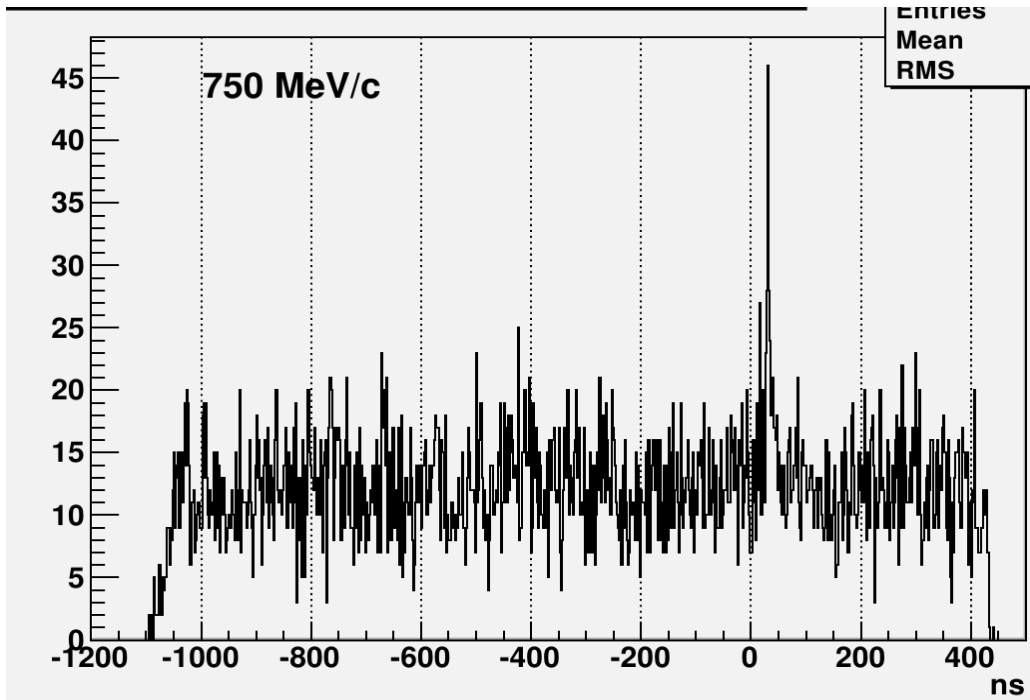

fig 10

625 MeV/c

fig 11

fig 12

momentum distribution:
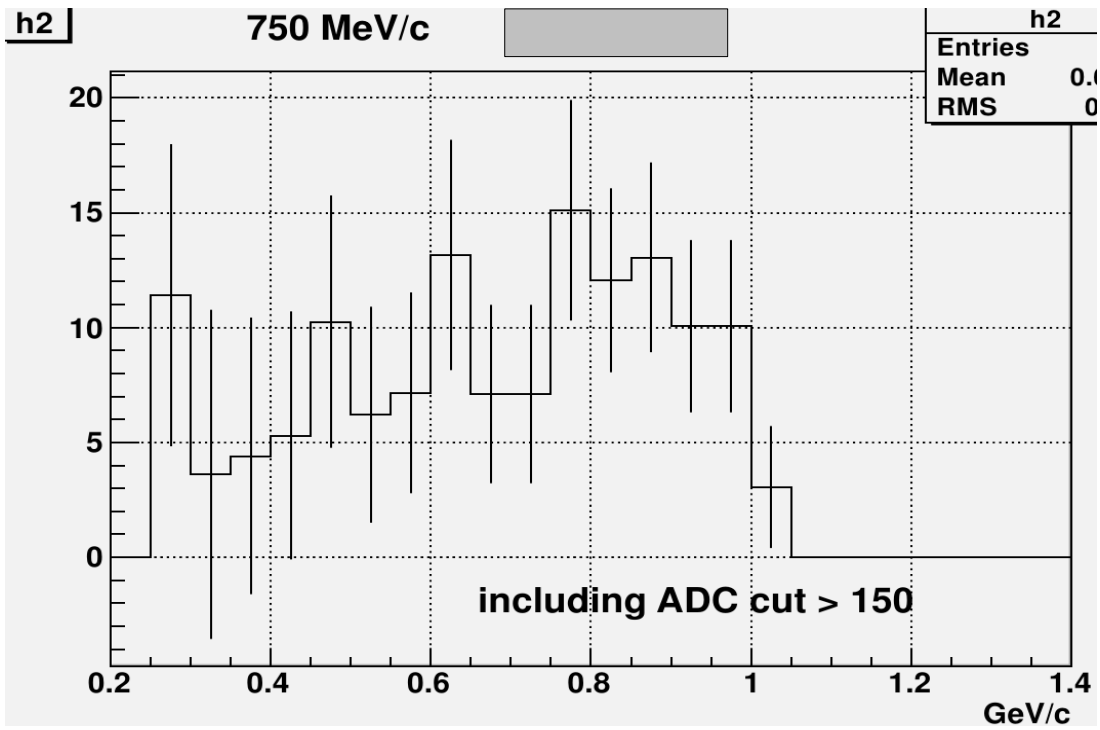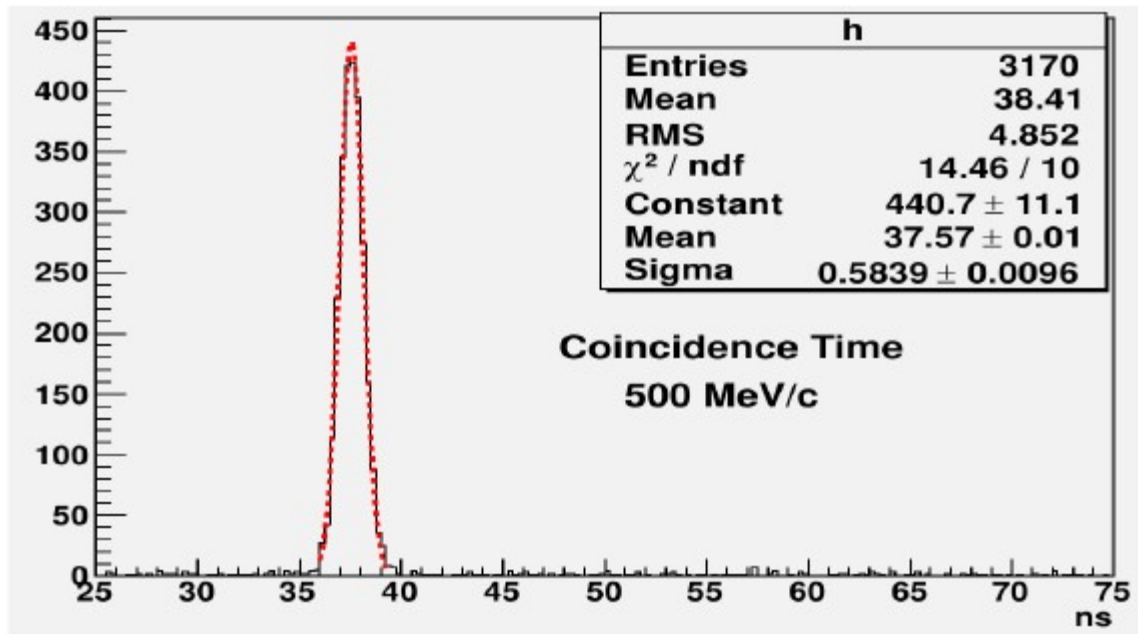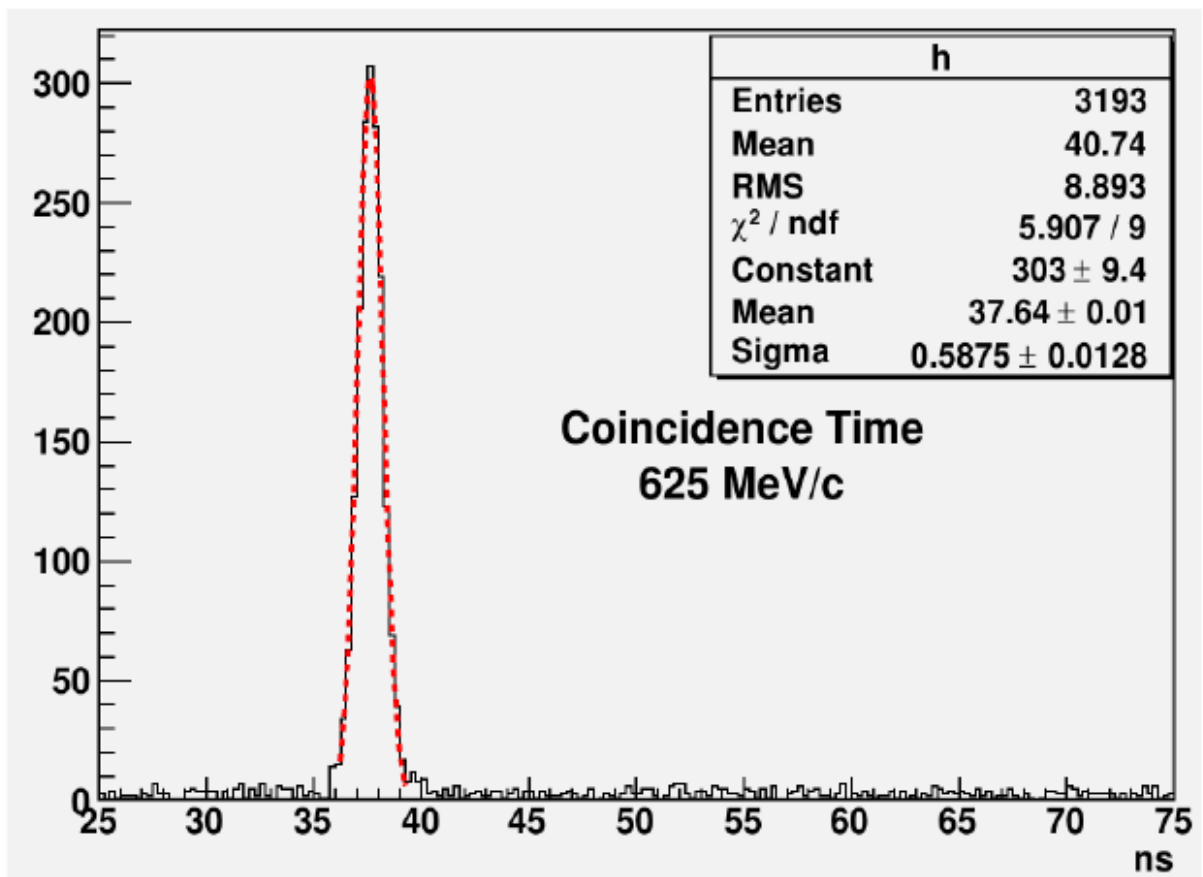

fig 13

750 MeV/c

fig 14

fig 15

fig 16

fig 17

fig 18
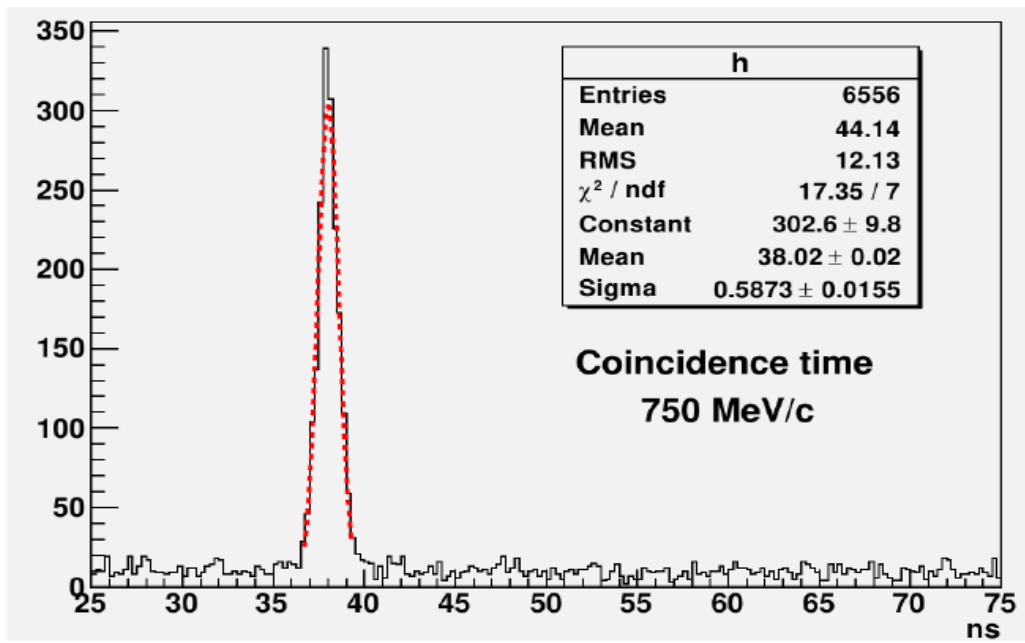
fig 19

Emiss distribution: Black line- no cut on X. Red line with additional cut on x>1.05

fig 20

fig 21

fig 22