E570 analysis report 18/June/2006 H. Tatsuno

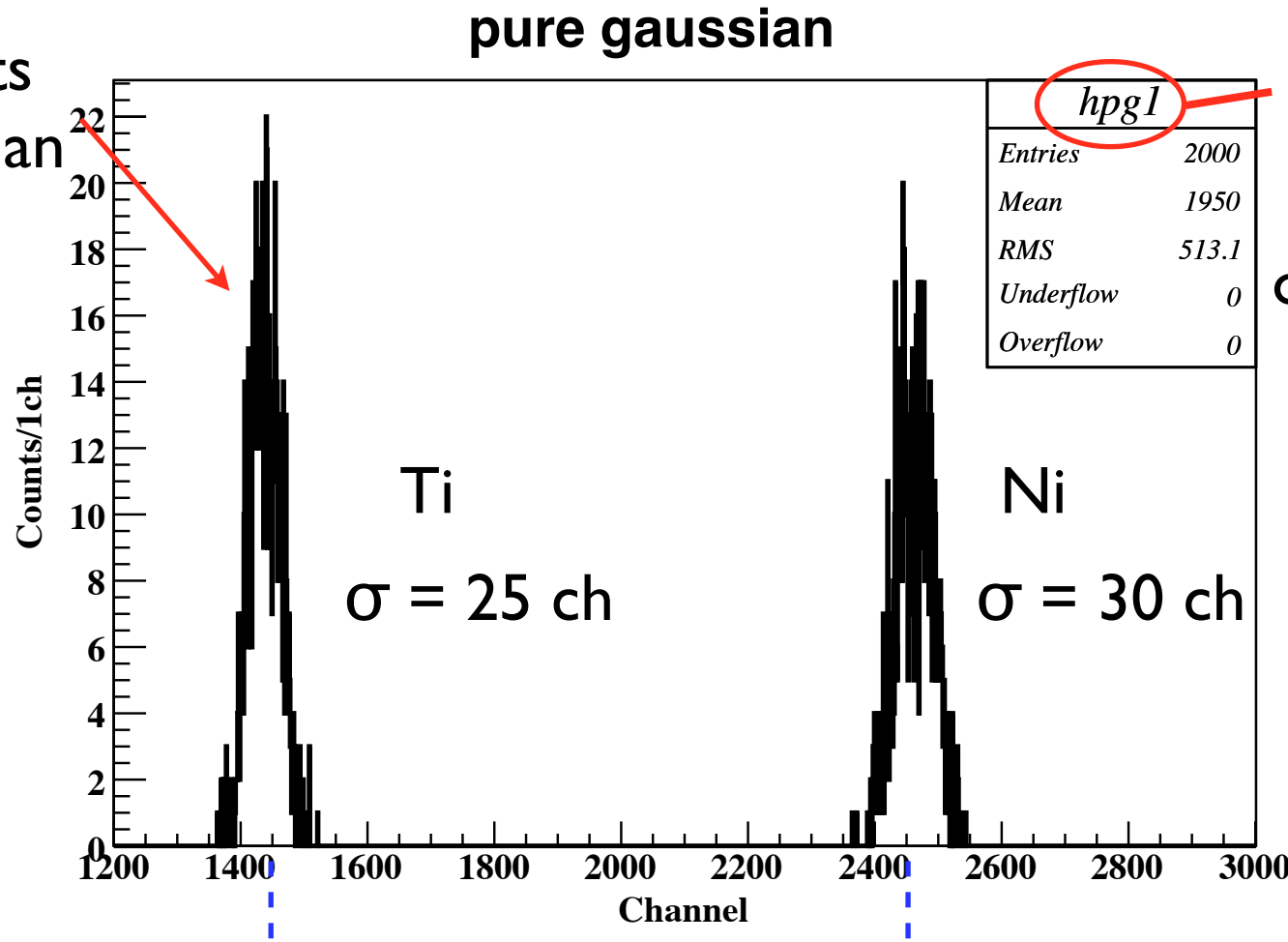
Systematic error of from adding histograms with gain drifts correction (2)

This report is continued from the report on June 16th.
Please see it before reading this report.

In this report, the gain uncertainty is considered.

1. Two pure Gaussians (simulation)

1000 events for 1 Gaussian



histogram id

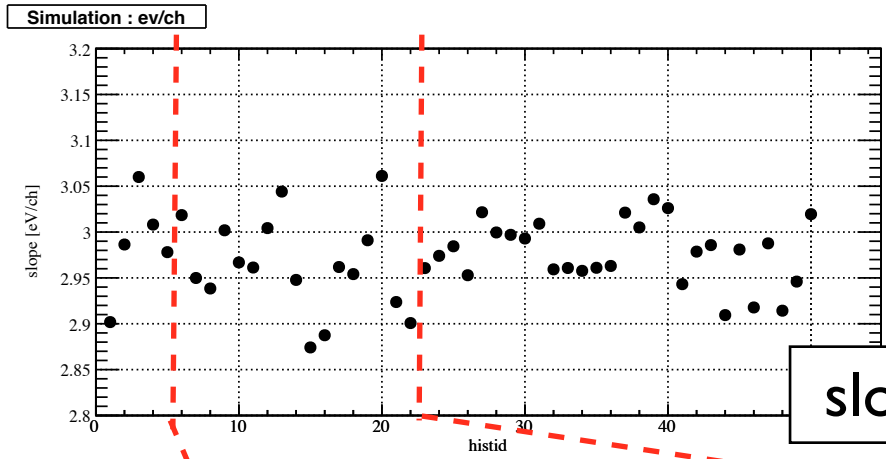
(the number of histograms is 50.)

meanTi = RandGaus(1450,10)

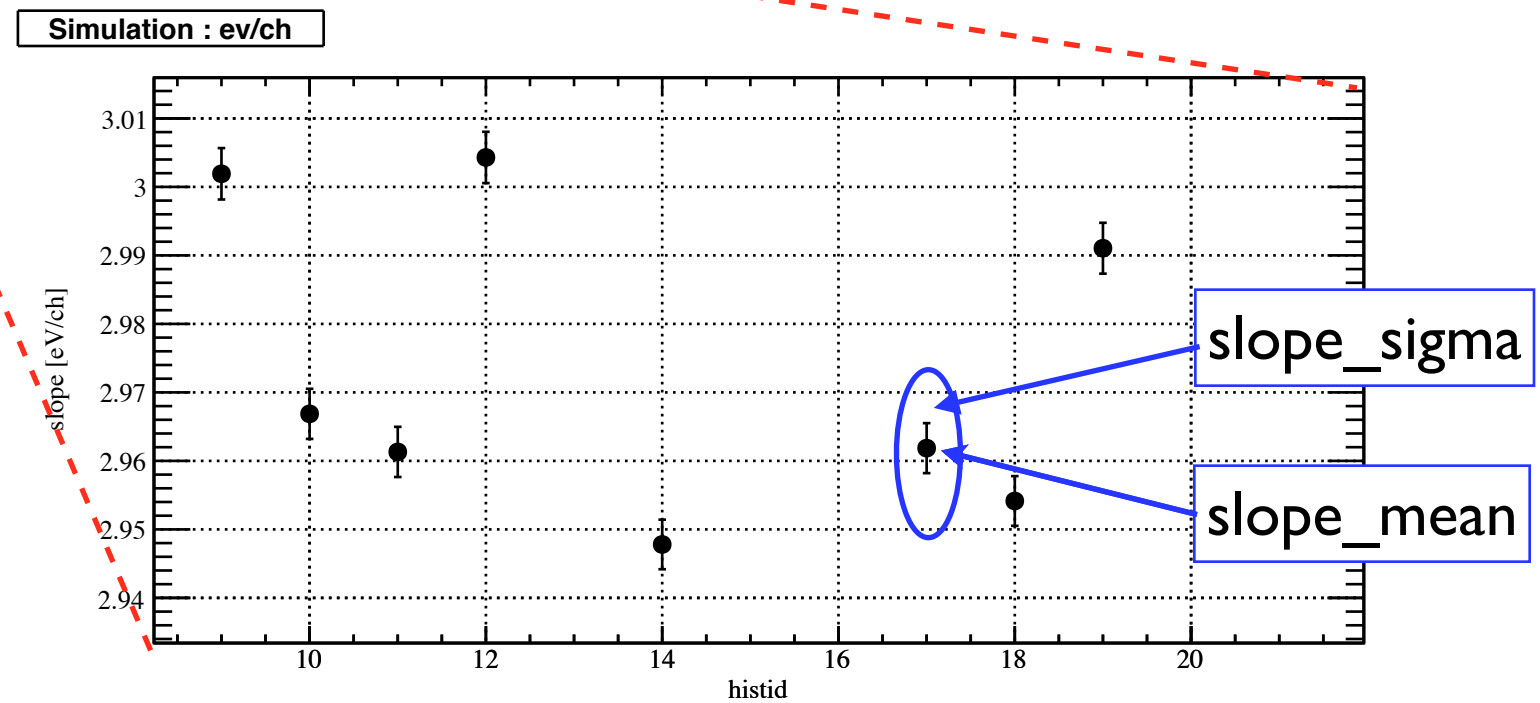
meanNi = RandGaus(2450,10)

the mean of Gaussians change with the histogram id as a Gaussian distribution (σ = 10 ch).

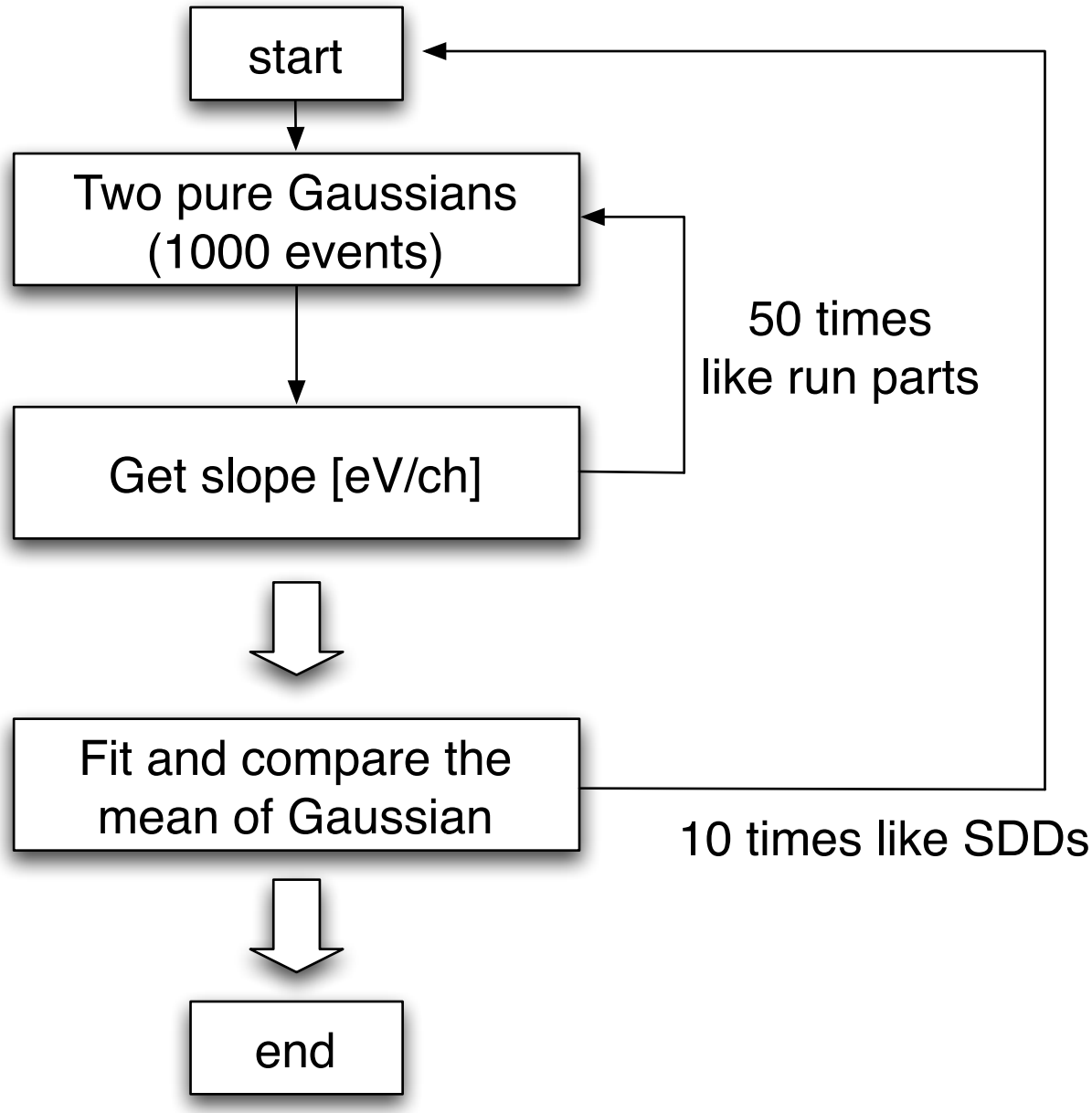
2. Uncertainty of slope [eV/ch]



slope = RandGaus(slope_mean, slope_sigma)

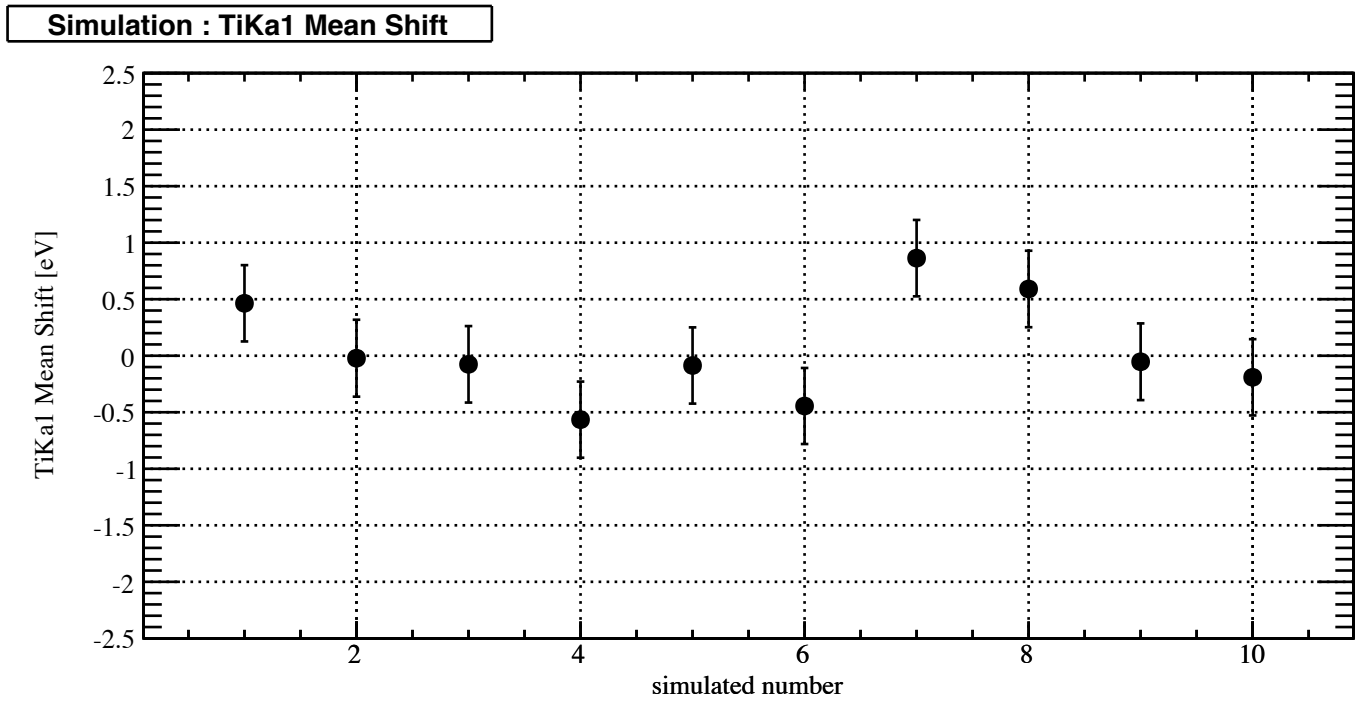


3. Simulation loop :10 times (10 SDDs)

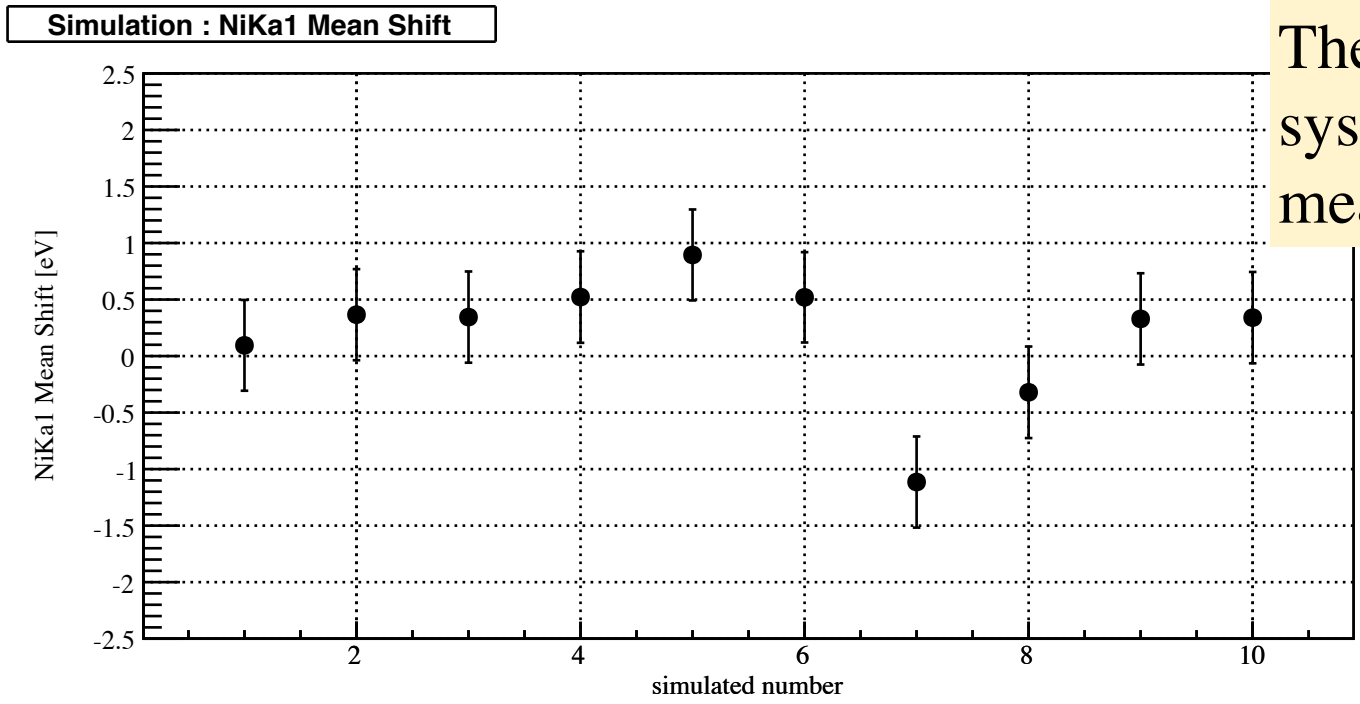


4. Simulation results

TiKa1 Mean Shift [eV]



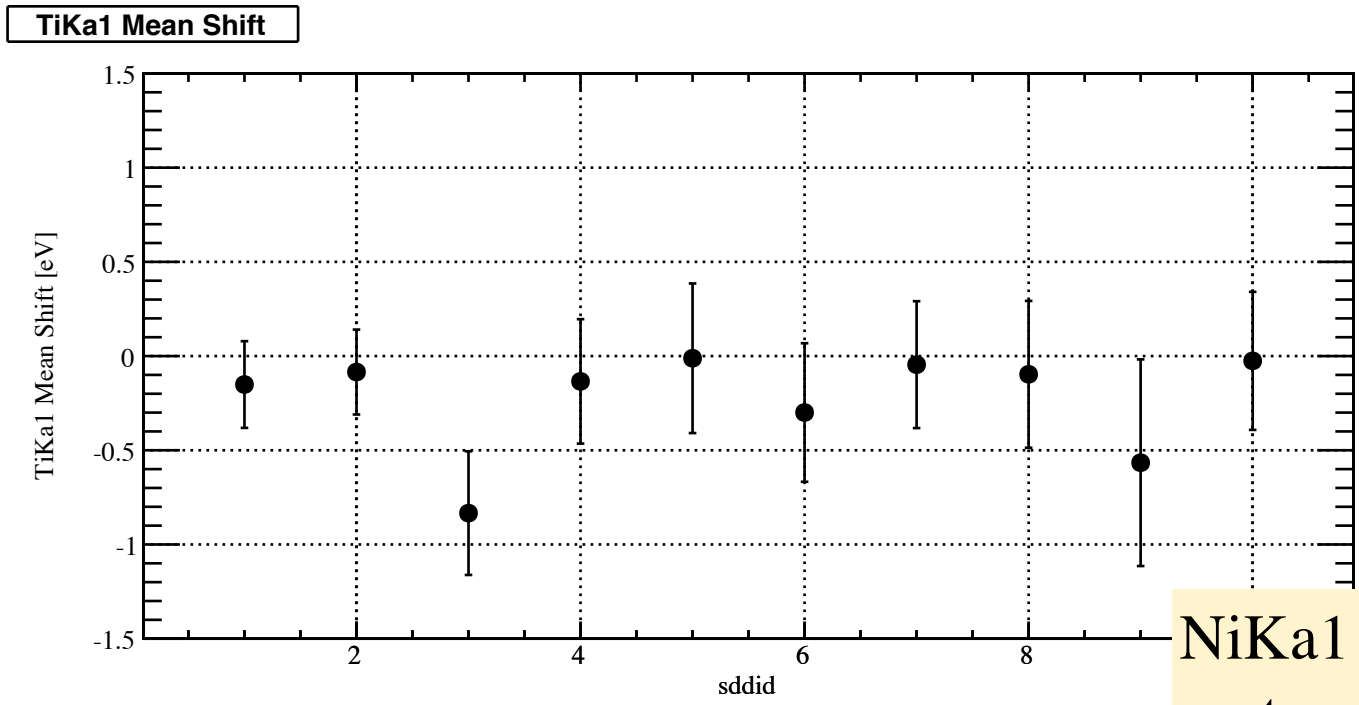
NiKa1 Mean Shift [eV]



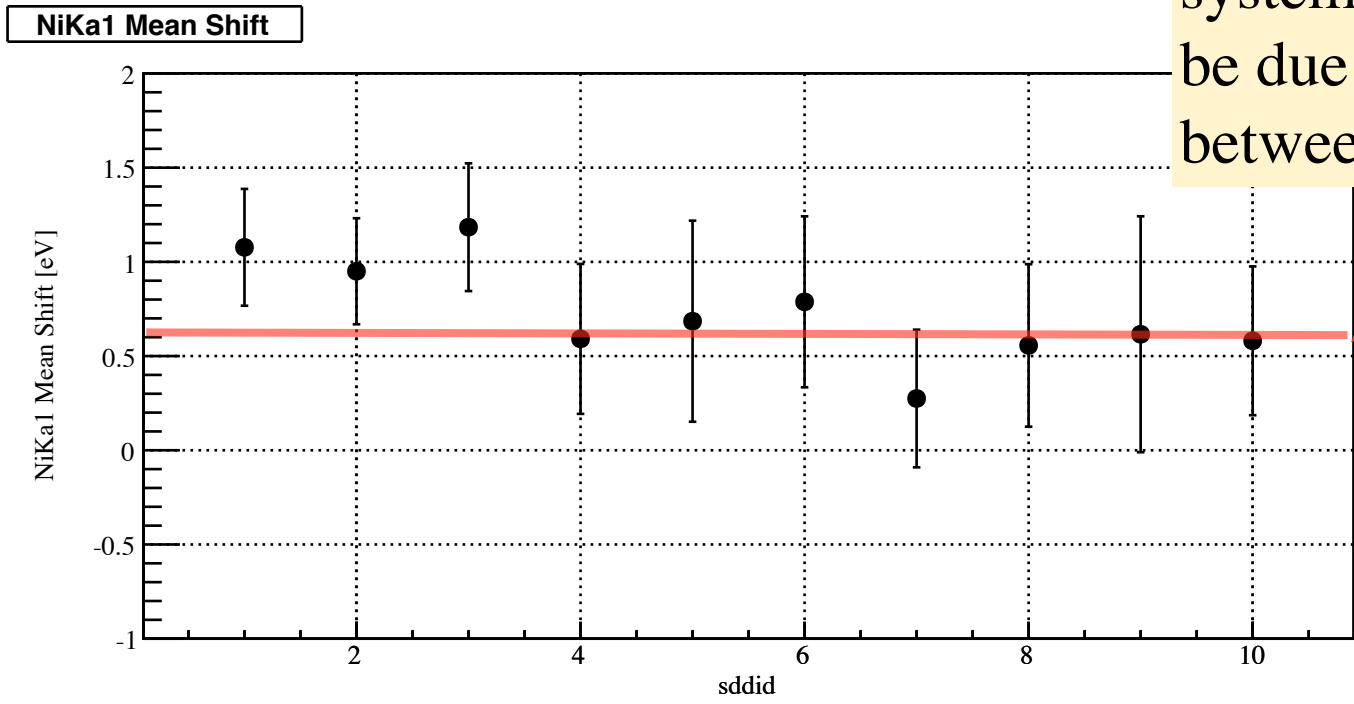
There is no systematic shift of mean of Gaussian.

4. DATA (not simulation)

TiKa1 Mean Shift [eV]



NiKa1 Mean Shift [eV]



NiKa1 mean has some systematic shift, might be due to the excess between Ka and Kb