

Using the estimated energy loss corrections, the events from the beam entrance and exit window are separately selected to plot the  $^{27}\text{Mg}_L$  spectrum. There appears a mass shift of  $\sim 3$  MeV for the events that comes from the entrance window.

# Mass Shift is Applied to the Entrance Window

The  $\sim 3$  MeV shift can be applied to either of these two spectra and will not affect the neither momentum matrix optimization nor affect the missing mass scale.

The shift is applied for the events from the beam entrance Al window

$$B_L = B_L - 3.0 \text{ MeV}$$

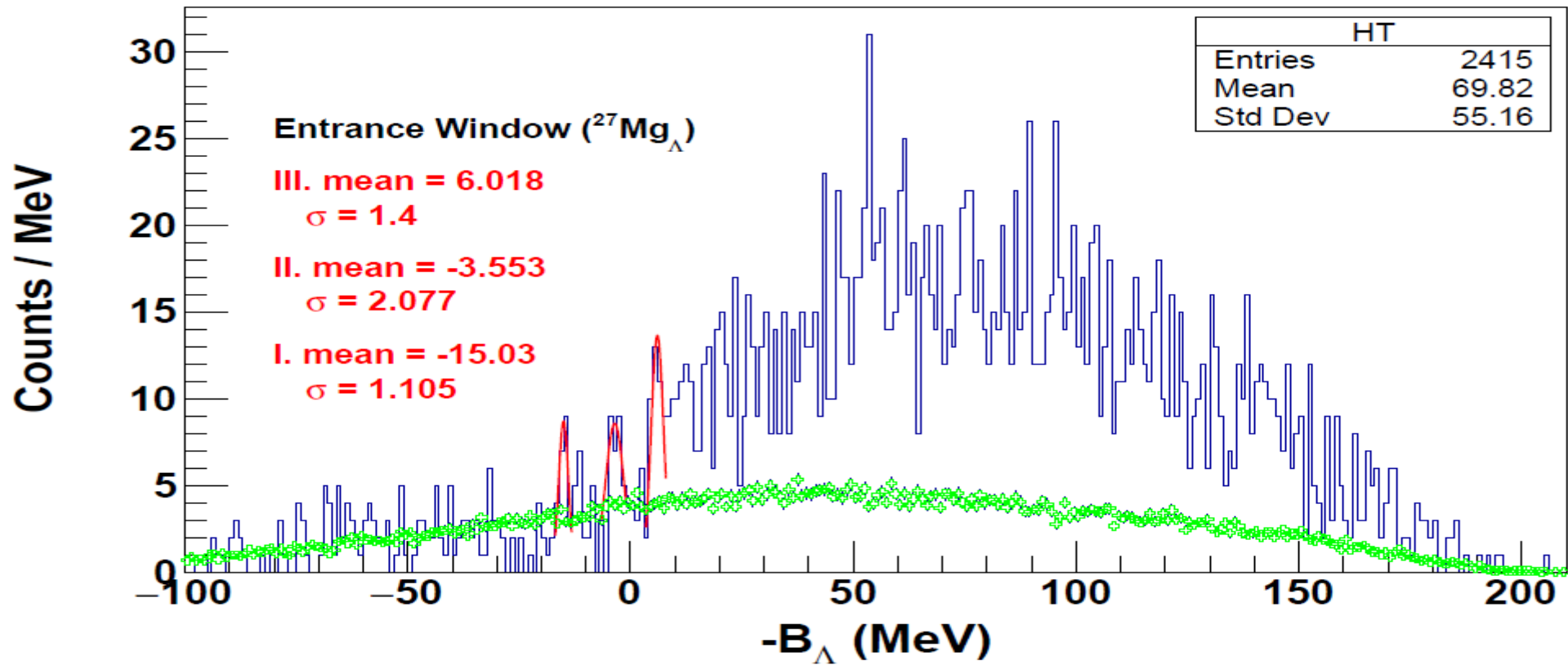
To involve the Al data in the matrix tune the following 3 regions are selected

$$B_L = -20 \sim -10 \text{ MeV}, B_L = -10 \sim 0.0 \text{ MeV} \text{ and } B_L = 0.0 \sim 10 \text{ MeV}$$

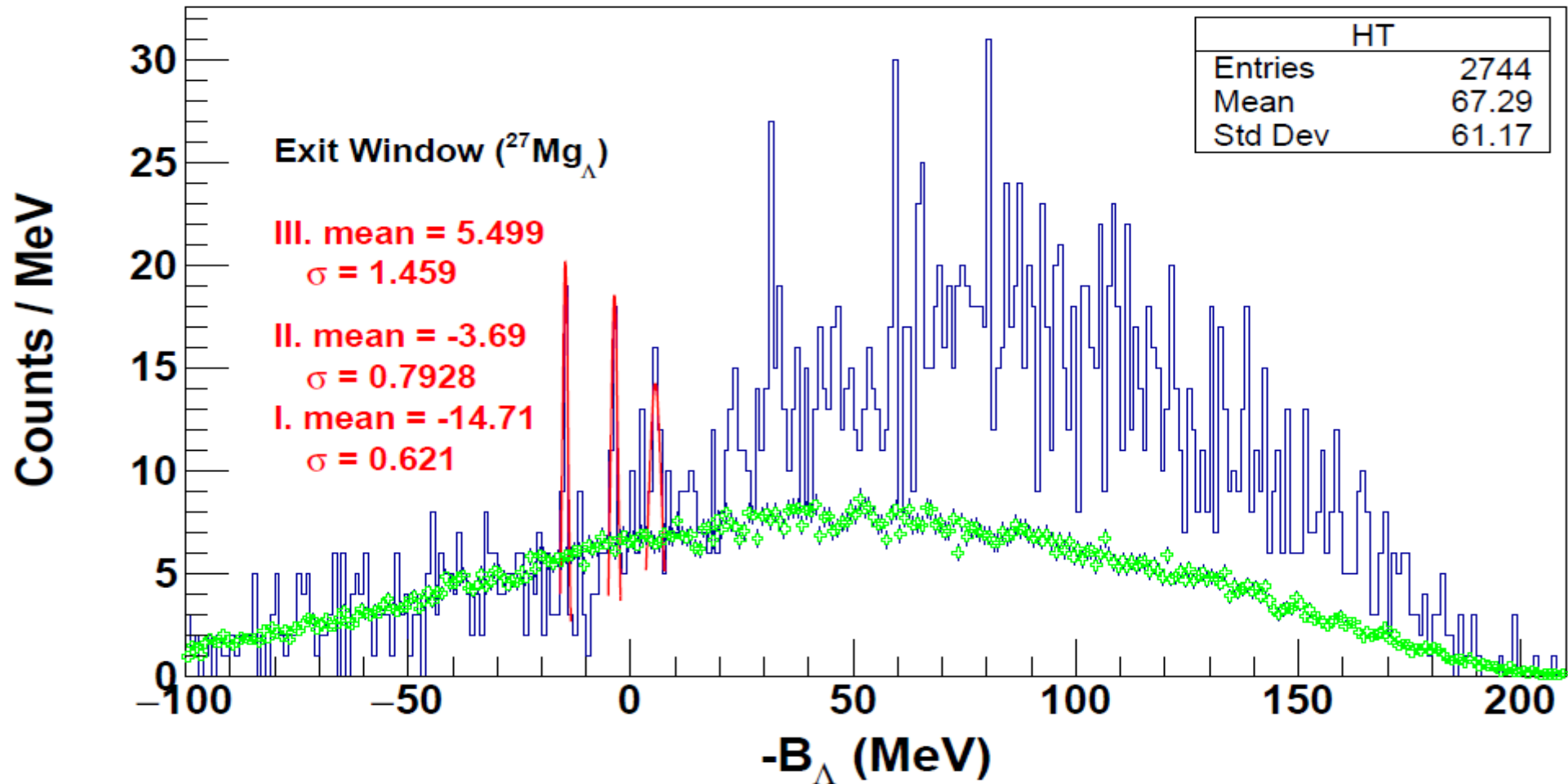
The mean value of each gate is used as the  $\chi^2$  definition.

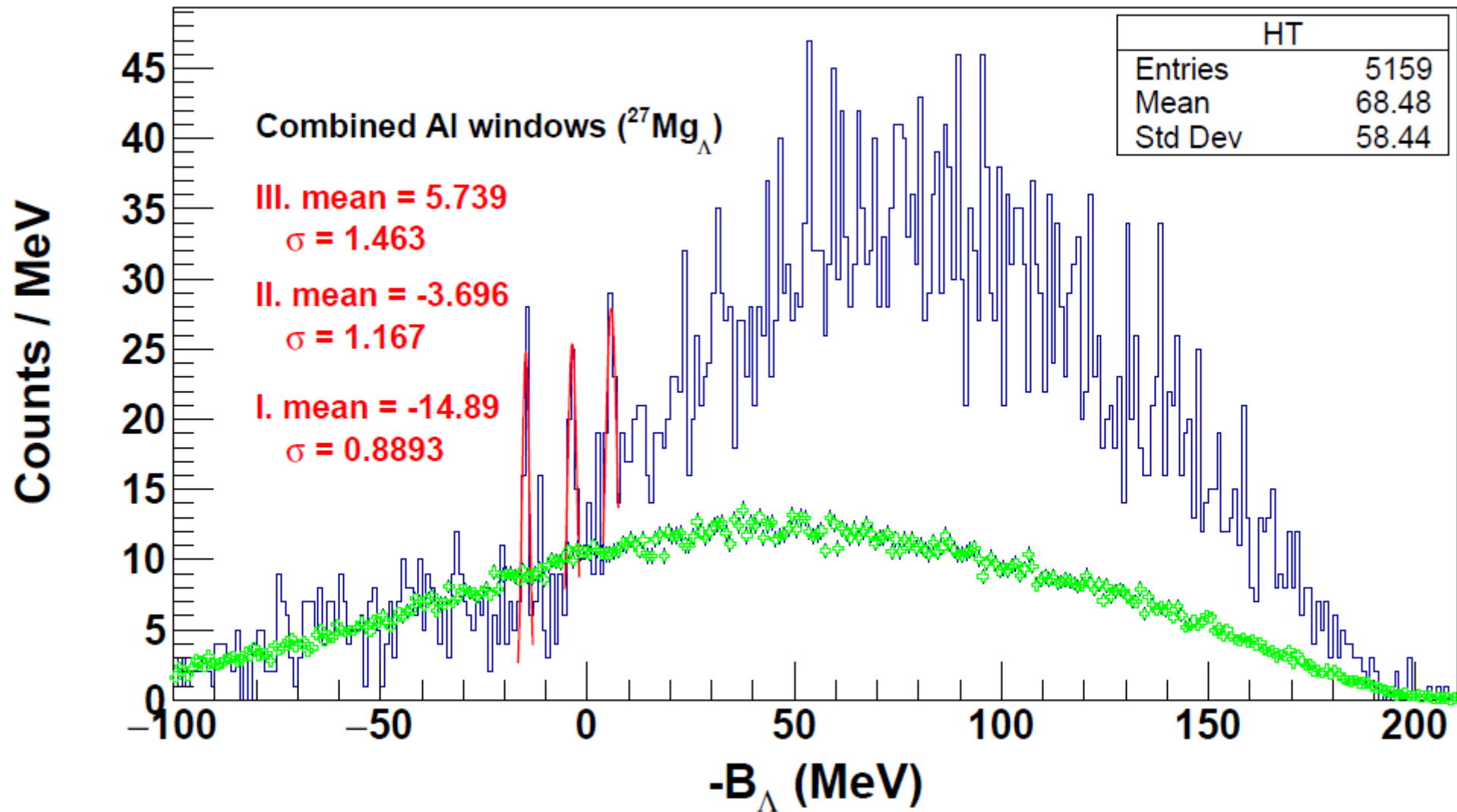
The selected region does not have sufficient events, a suitable statistical weight was given.

# Al Entrance window After Tune



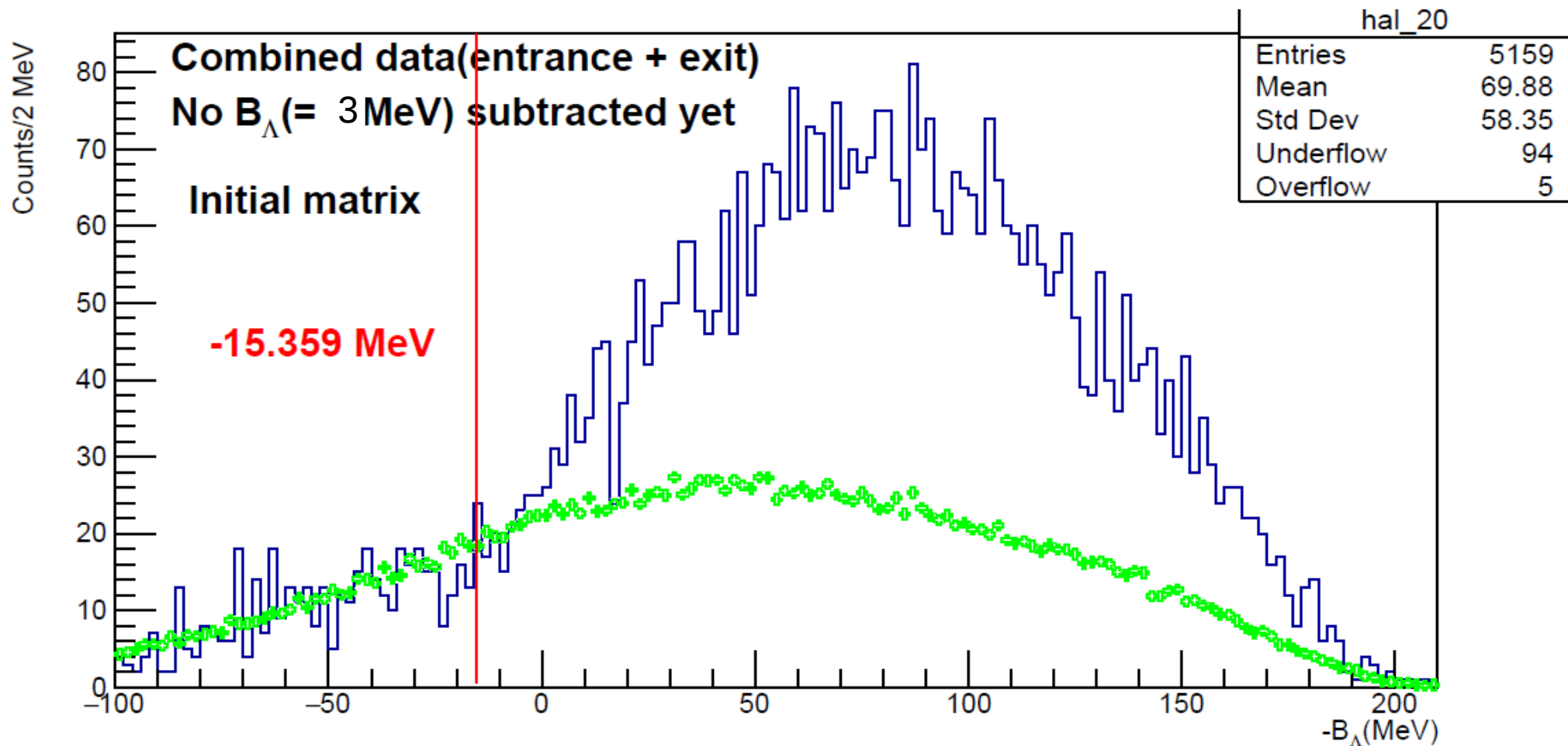
# Al Exit window After Tune





Backup slides

# Before AI data involved in tune



Before AI Data involved in tune

