SRS TB ANALYSIS - OCCUPANCY

02. 06. 2021.

Files and cuts

Files/runs:

- Run 16 - 5 GeV, energy scan, planes 4-8, 10, 12, 14
- Run 74 – 5 GeV, channel 51, no FLAME, planes 1-8

W in front of the 1st sensor!

CR-RC filter

$$S(t) = A\frac{t-t_0}{\tau}\exp-(\frac{t-t_0}{\tau})\,\theta(t-t_0)$$

A – amplitude (MIP), τ – shaping time, t_0 – time from signal arrival until reaching the maximum

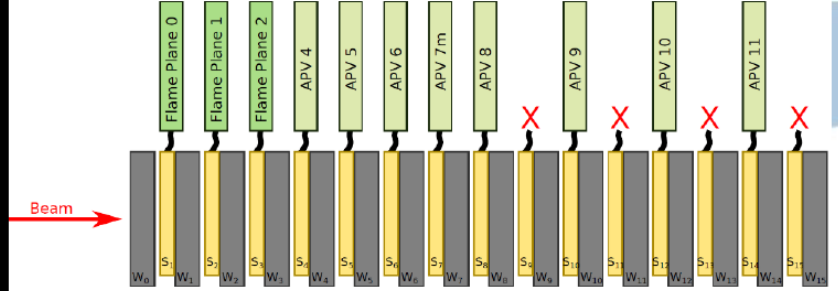
Signal cuts (to reduce noise):

Veta's cuts HG:
$1 < \tau < 3$, $0 < \text{signal} < 2000$ $3 < t_0 < 7.5$, $nn > 60\%$

Veta's cuts LG:
$0.2 < \tau < 3$, $0 < \text{signal} < 2000$ $1.8 < t_0 < 5.5$, $nn > 60\%$

Strict cuts HG:
$1 < \tau < 3$, $0 < \text{signal} < 2000$ $3 < t_0 < 6.5$, $nn > 80\%$

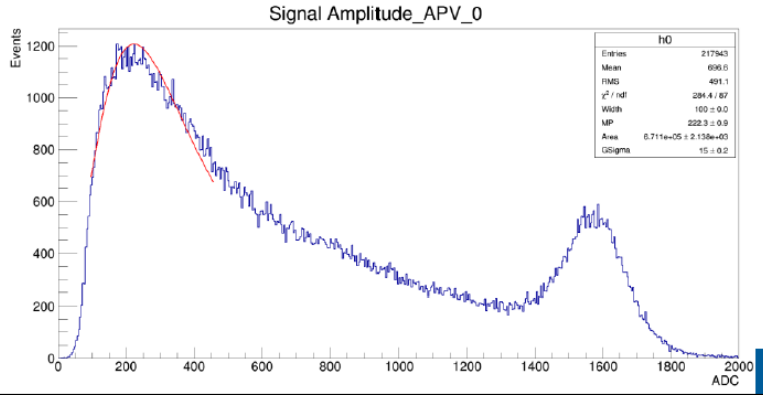
Strict cuts LG:
$0.8 < \tau < 1.8$, $0 < \text{signal} < 2000$ $3 < t_0 < 5.5$, $nn > 80\%$



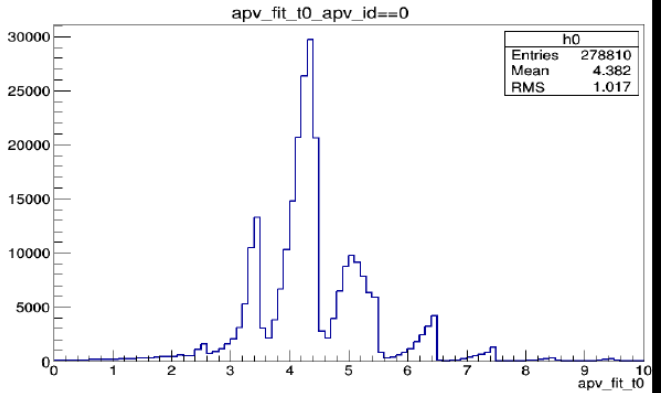
Set-up configuration for SRS run182

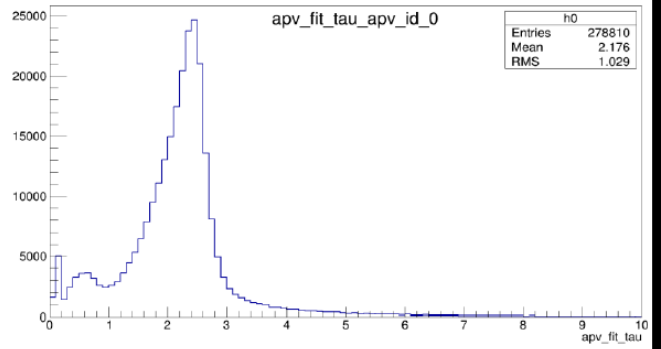
Signal selection: S_{max} < 2000 ADC

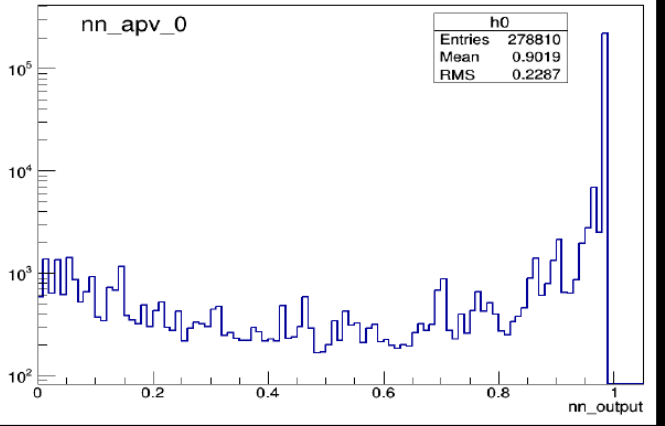
apv_reco->Draw("apv_signal_maxfit>>h0",
"apv_id==0 &&
apv_fit_t0>3,0 && apv_fit_t0<7,5 &&
apv_fit_tau>0.2 && apv_fit_tau<3 &&
apv_nn_output>0.6")

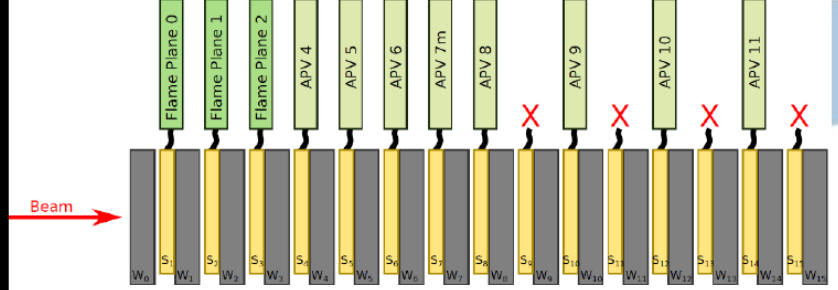


Taken from Veta's talk

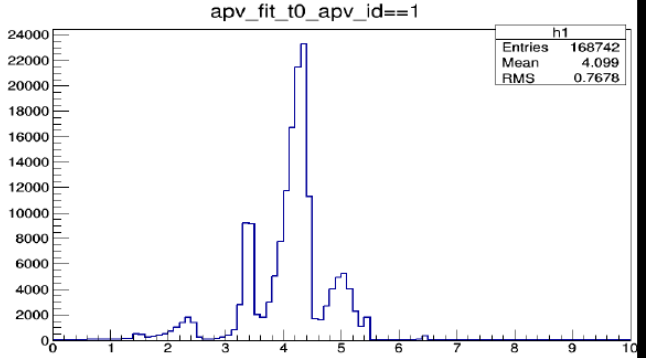






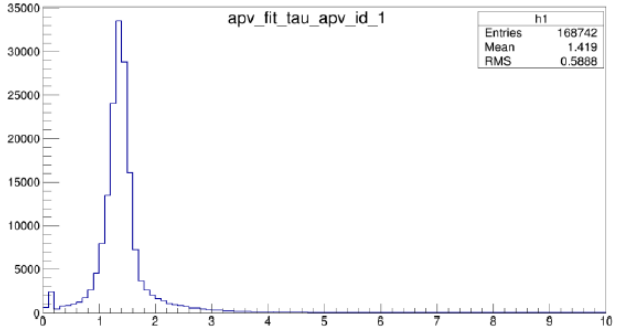


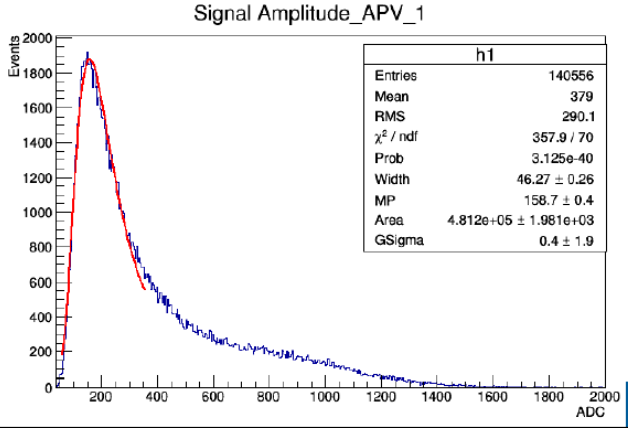
Set-up configuration for SRS run182



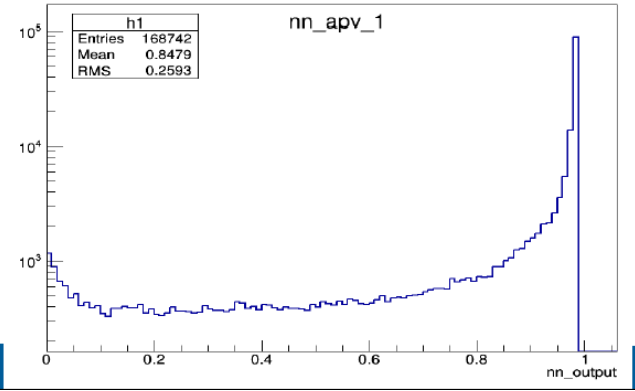
Signal selection: S_{max} < 2000 ADC

apv_reco->Draw("apv_signal_maxfit>>h0",
"apv_id==0 &&
apv_fit_t0>1.8 && apv_fit_t0<5.5 &&
apv_fit_tau>0.2 && apv_fit_tau<3.0 &&
apv_nn_output>0.6")

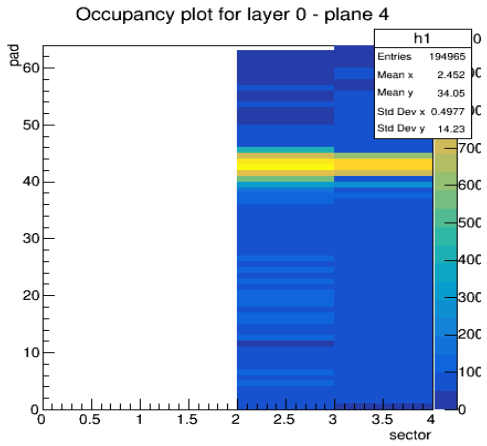


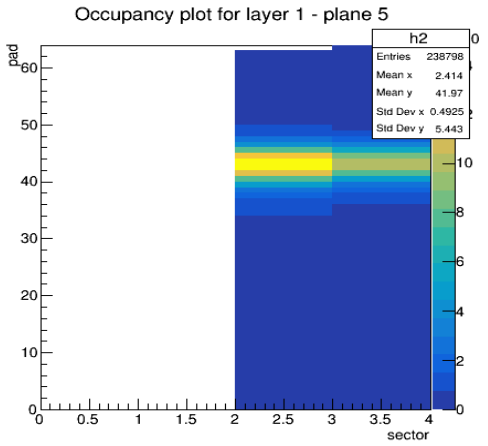


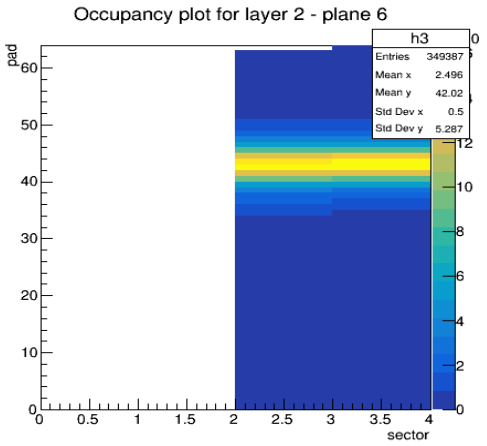
Taken from Veta's talk

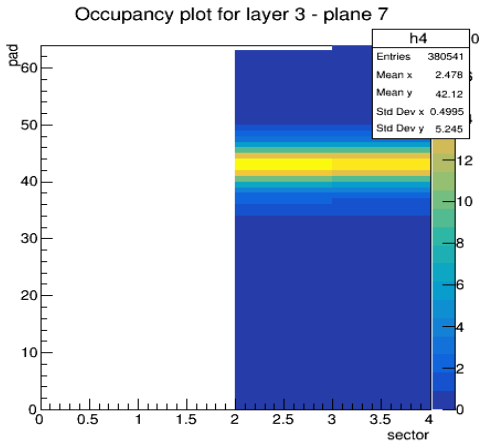


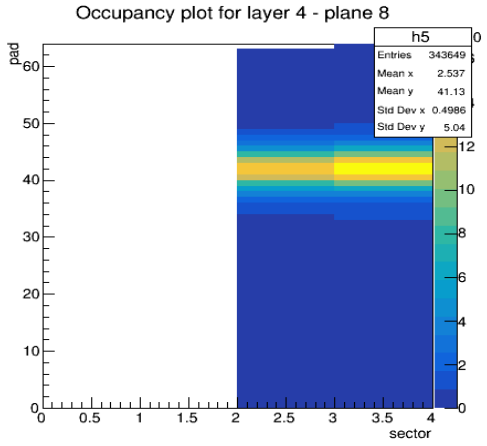
Run 16, 5 GeV, high gain, Veta's cuts

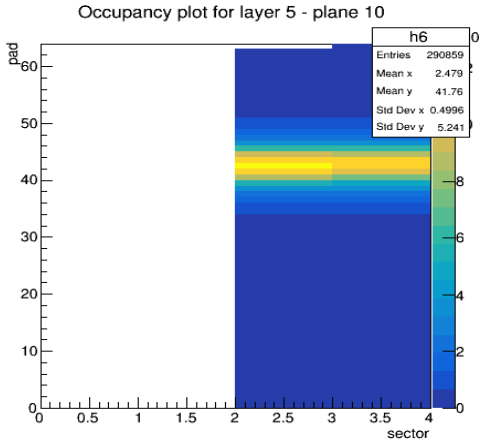


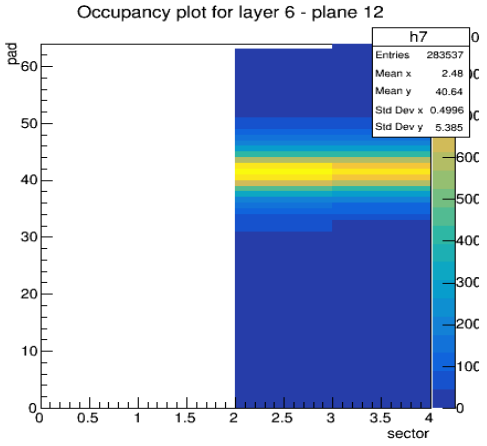


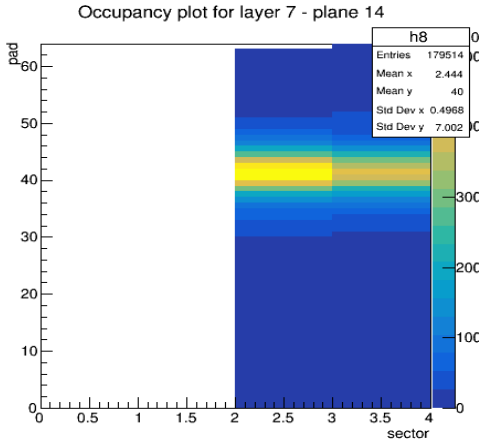




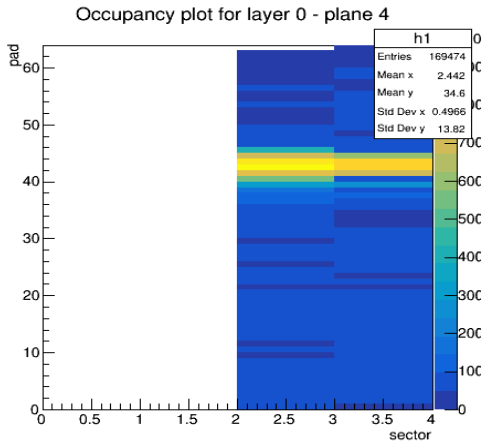


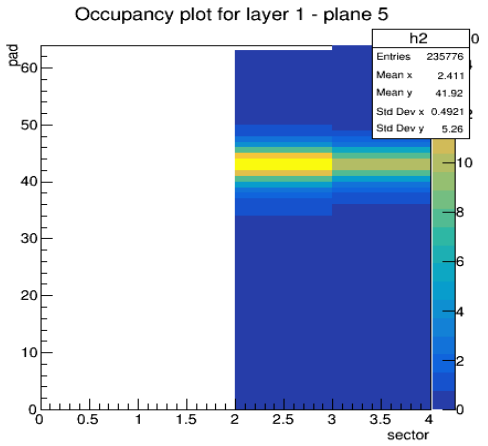


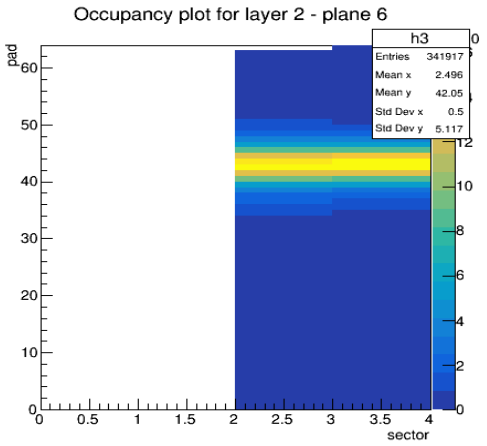


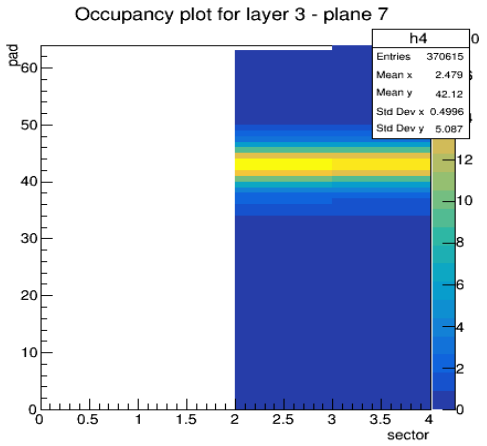


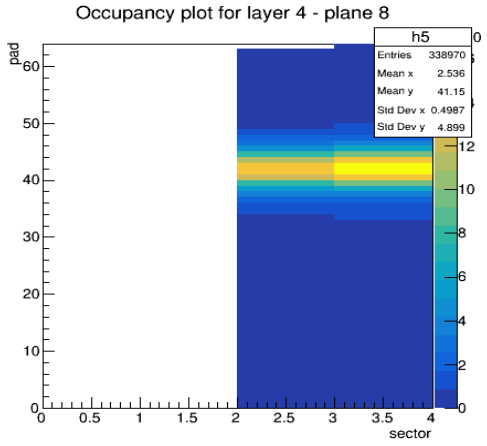
Run 16, 5 GeV, high gain, strict cuts

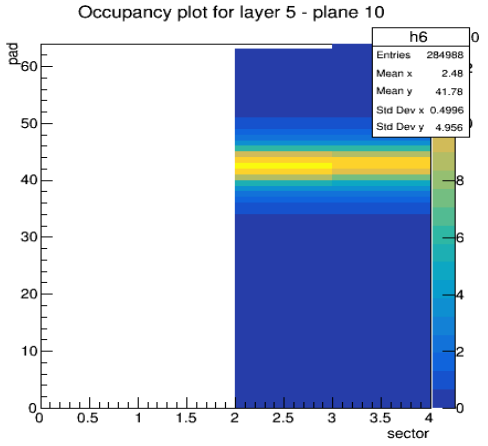


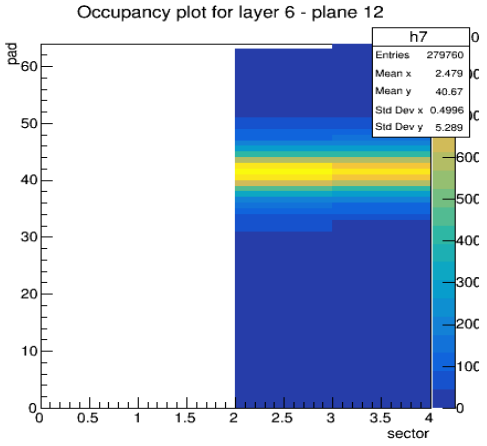


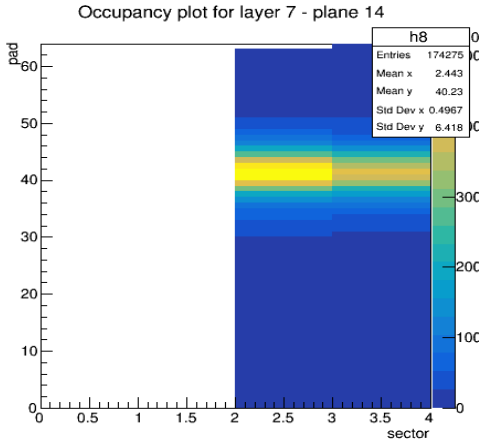




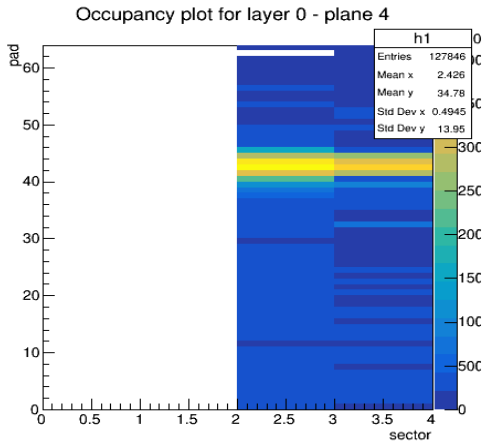


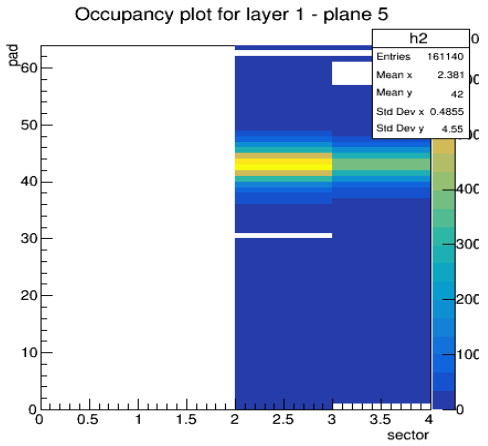


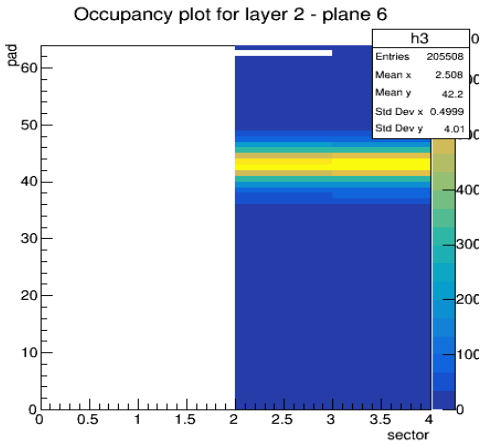


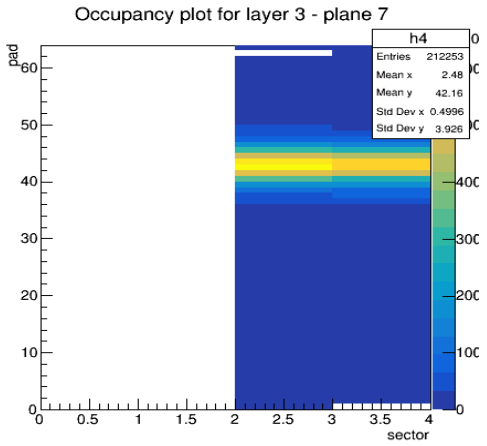


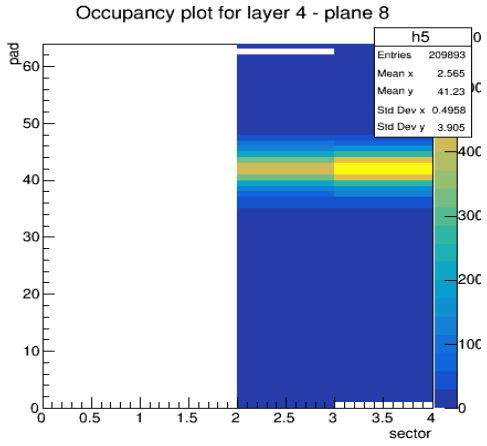
Run 16, 5 GeV, low gain, Veta's cuts

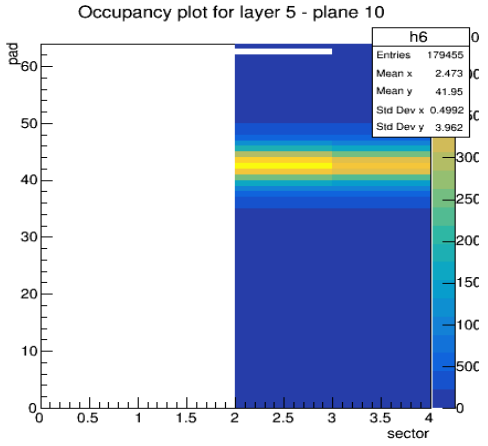


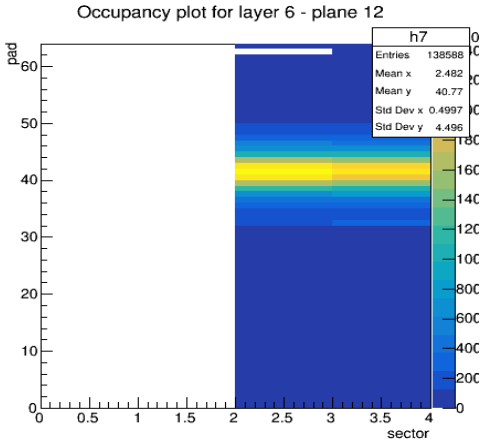


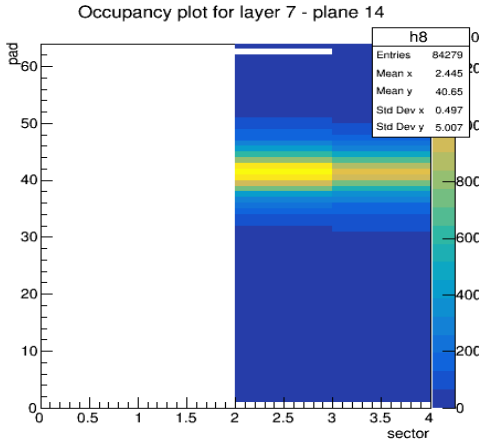




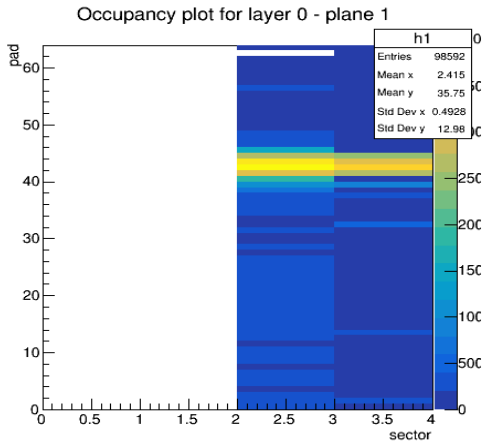


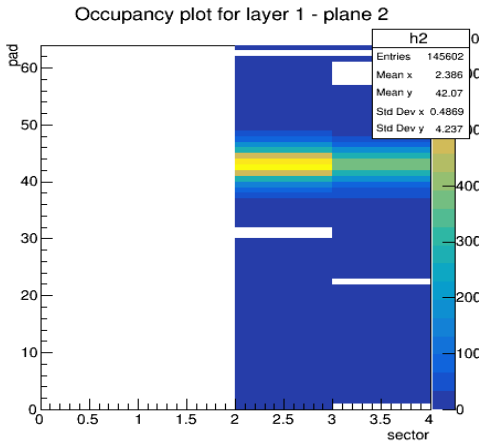


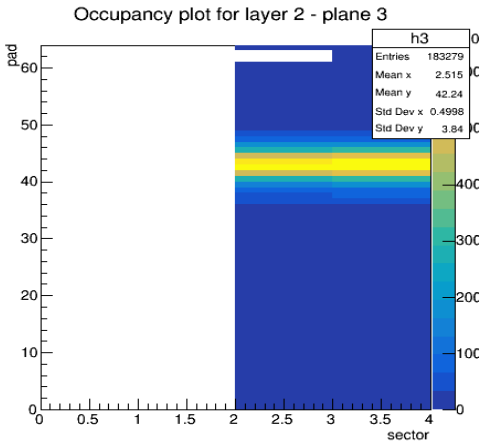


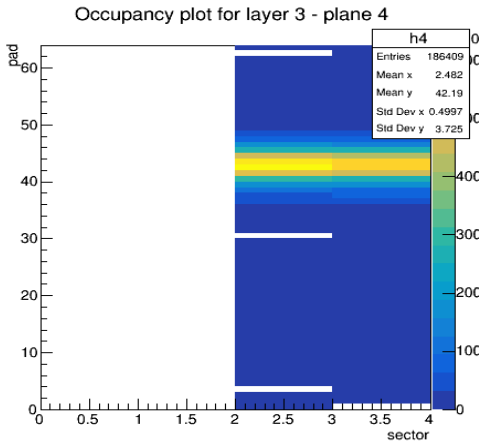


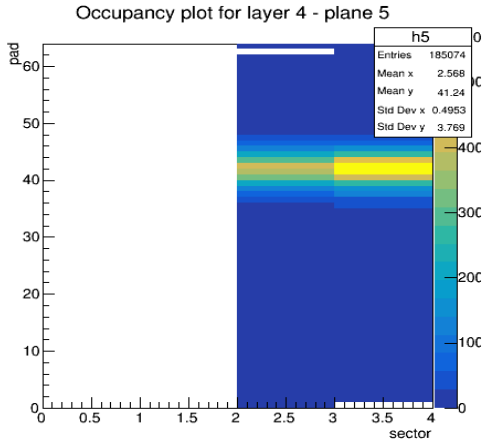
Run 16, 5 GeV, low gain, strict cuts

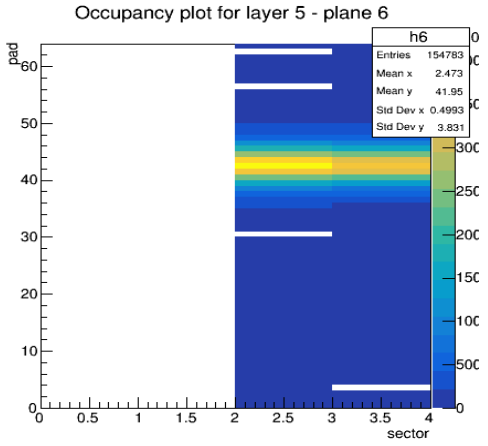


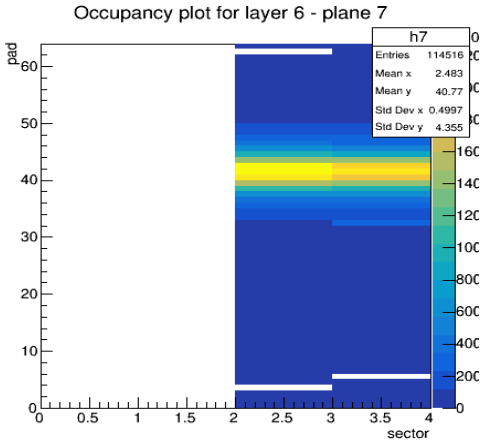


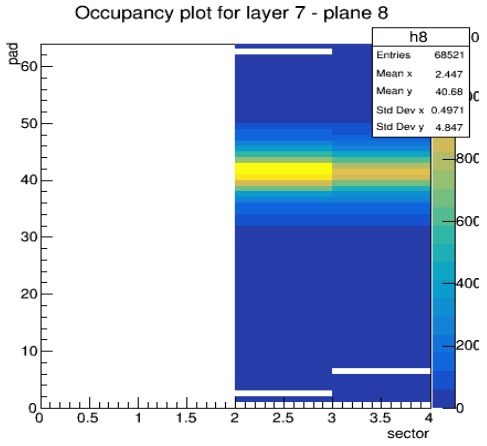




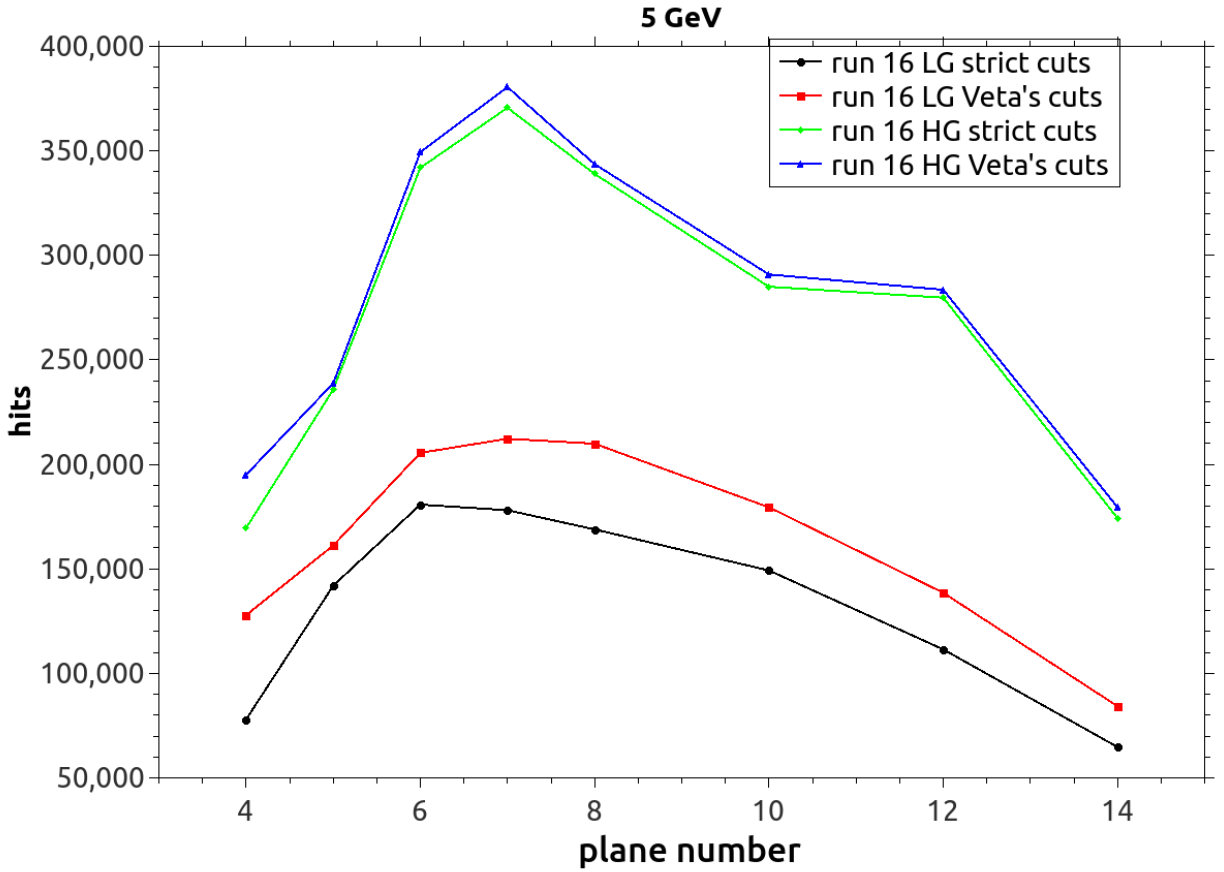






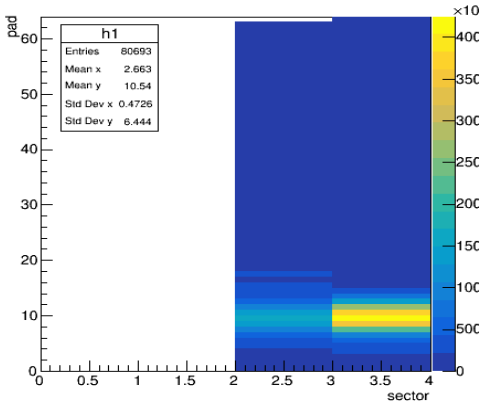


Run 16, 5 GeV, shower development

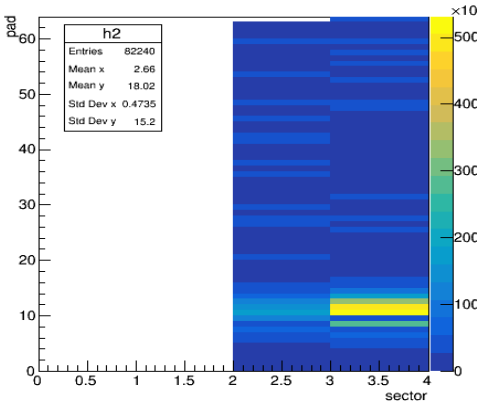


Run 74, 5 GeV, high gain, Veta's cuts

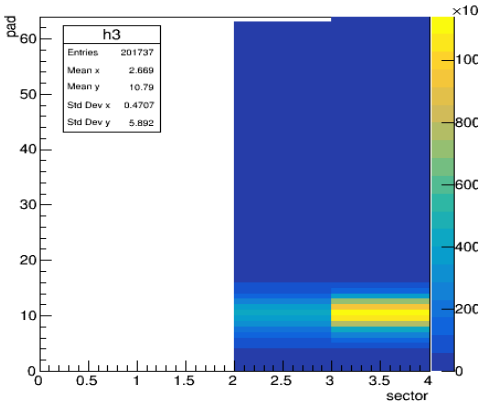
Occupancy plot for layer 0 - plane 1



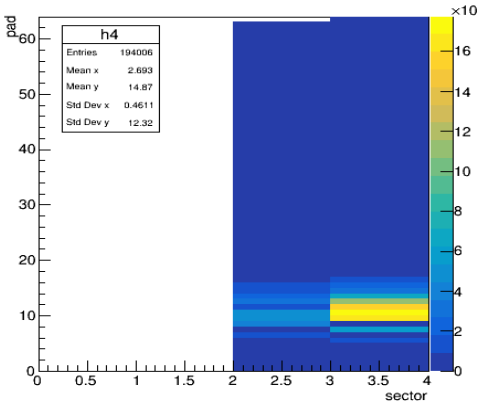
Occupancy plot for layer 1 - plane 2



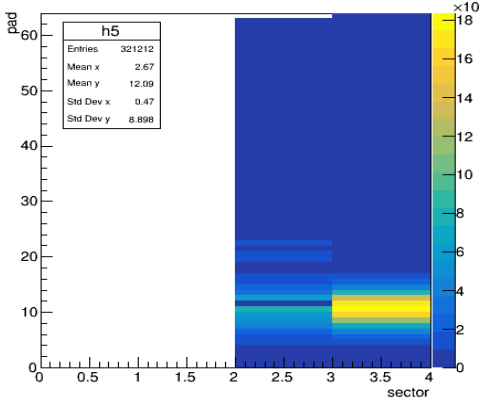
Occupancy plot for layer 2 - plane 3



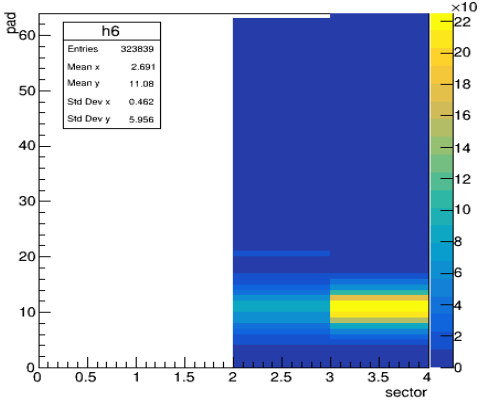
Occupancy plot for layer 3 - plane 4



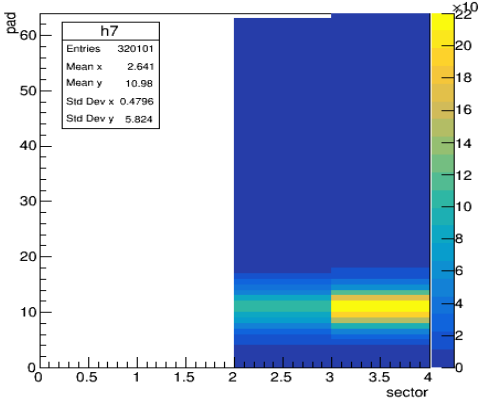
Occupancy plot for layer 4 - plane 5



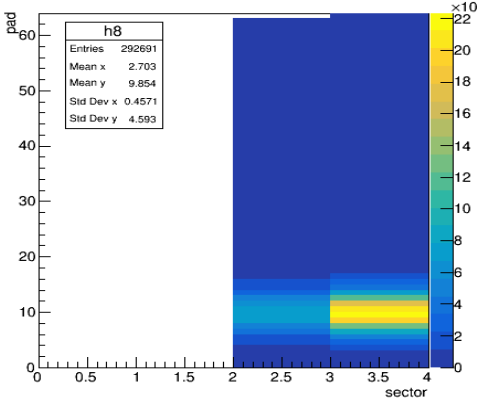
Occupancy plot for layer 5 - plane 6



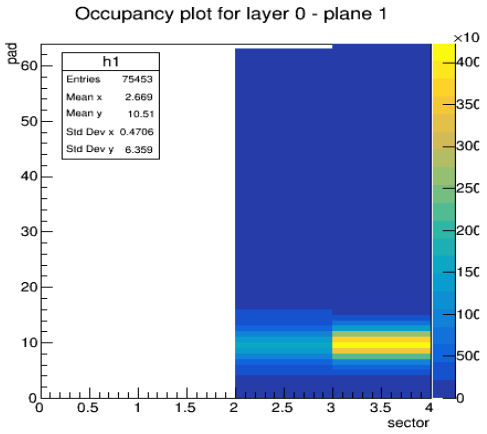
Occupancy plot for layer 6 - plane 7

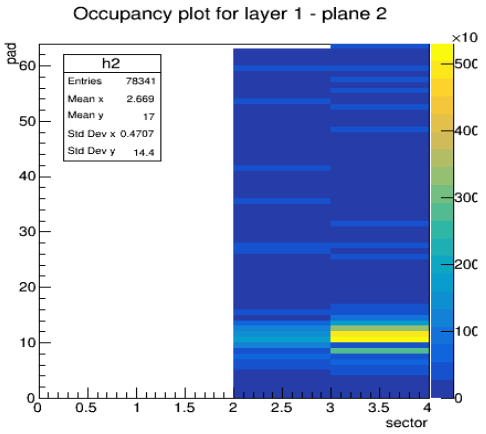


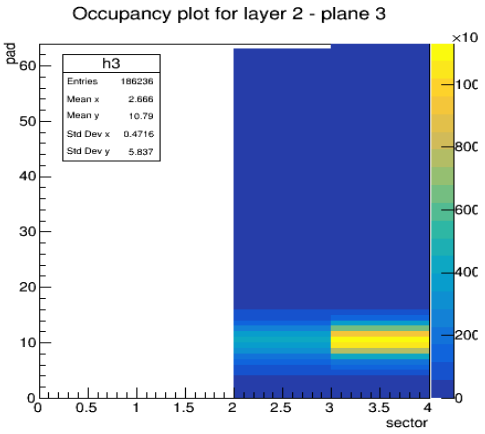
Occupancy plot for layer 7 - plane 8

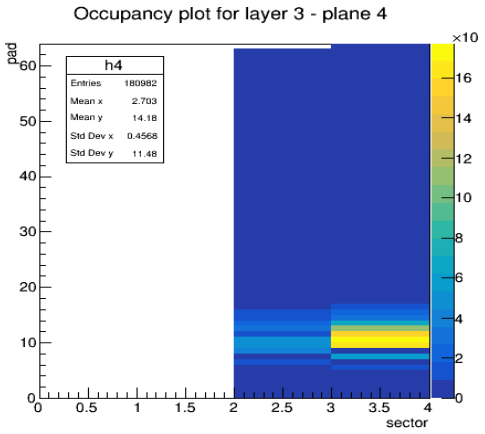


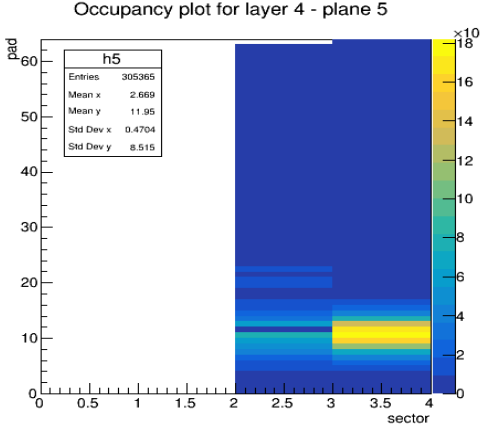
Run 74, 5 GeV, high gain, strict cuts

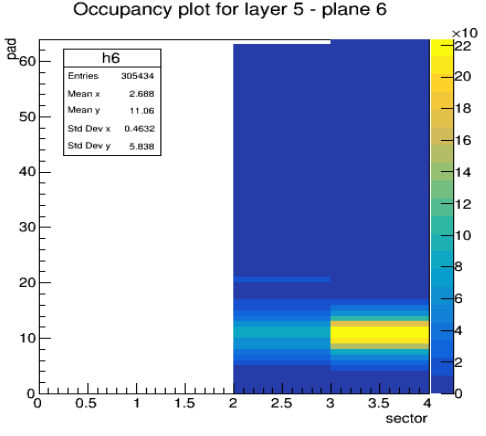


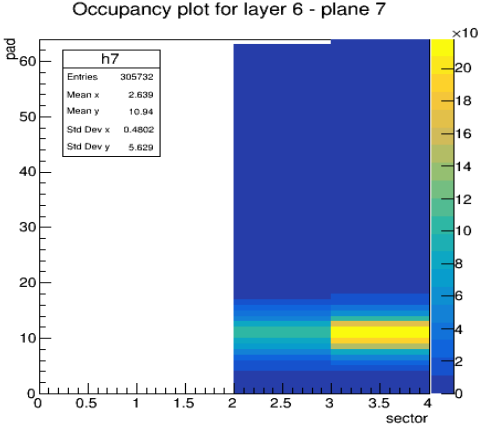


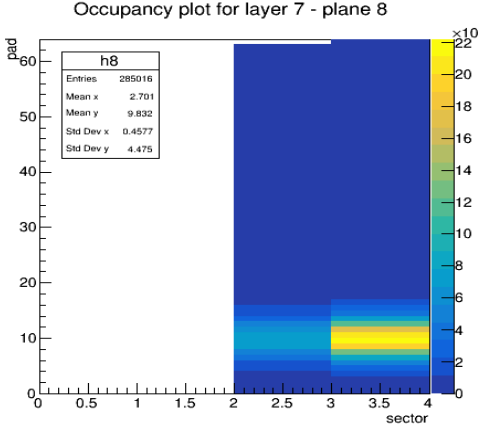




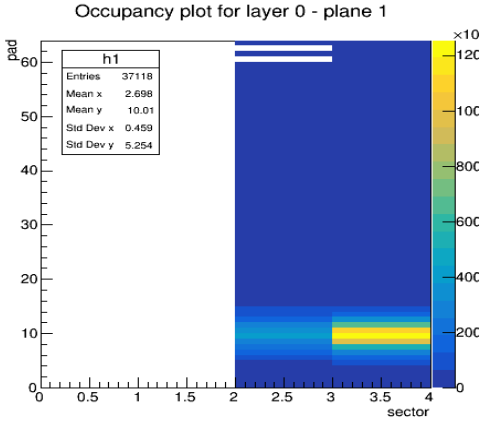


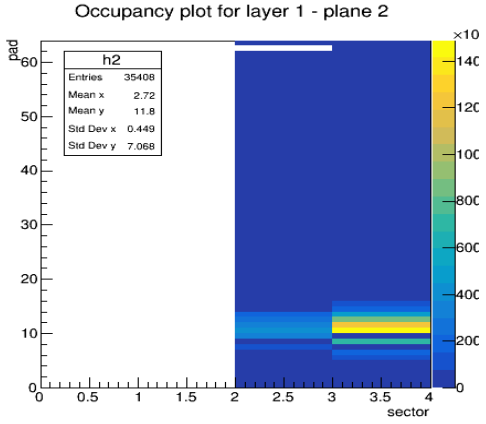


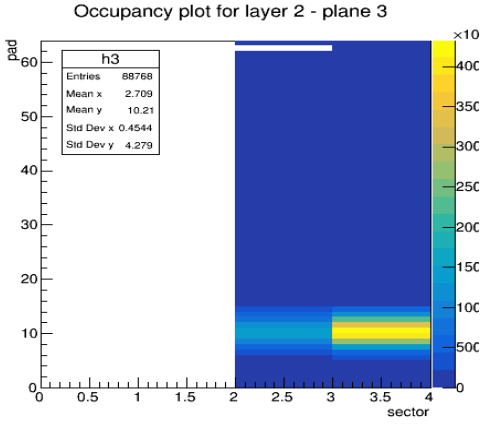


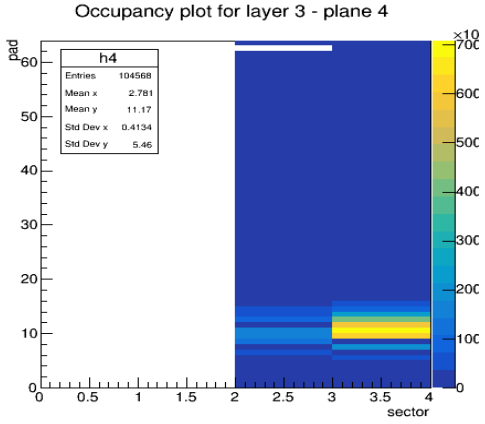


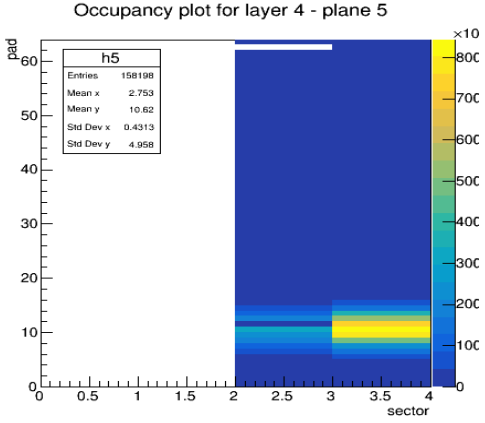
Run 74, 5 GeV, low gain, Veta's cuts

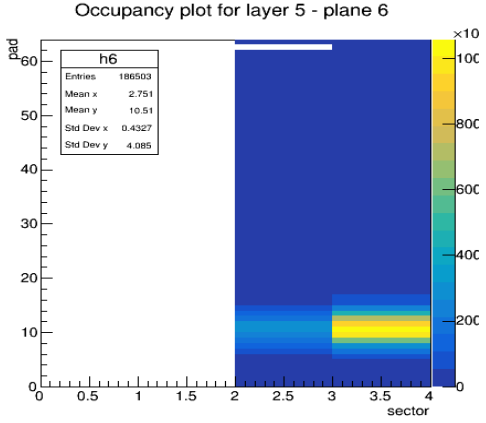


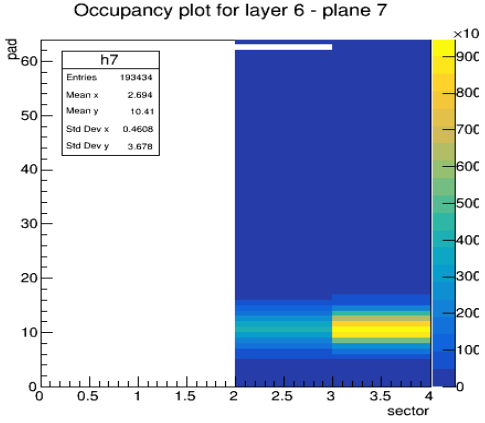


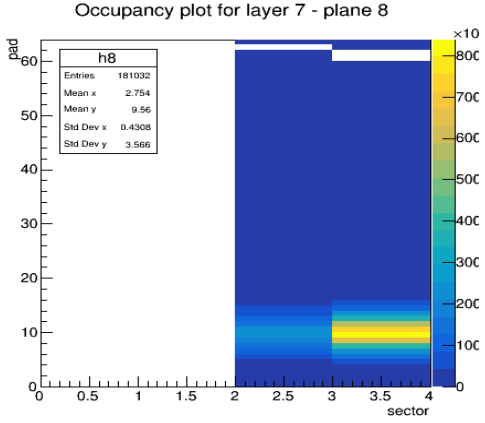






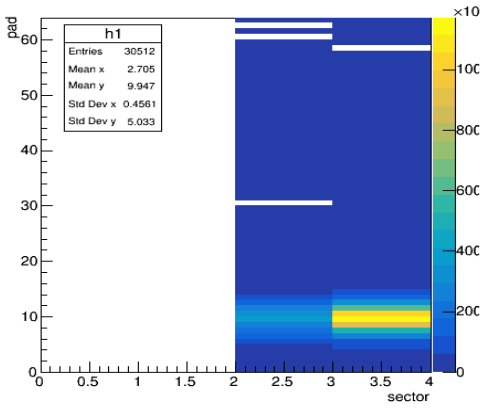




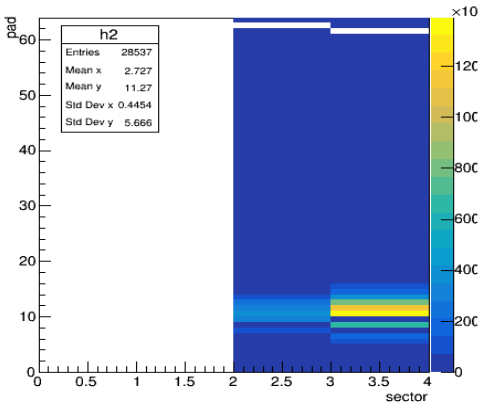


Run 74, 5 GeV, low gain, strict cuts

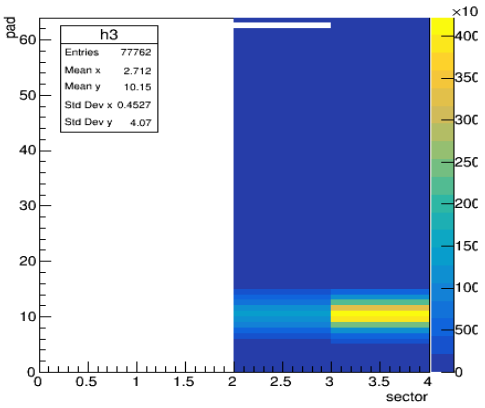
Occupancy plot for layer 0 - plane 1



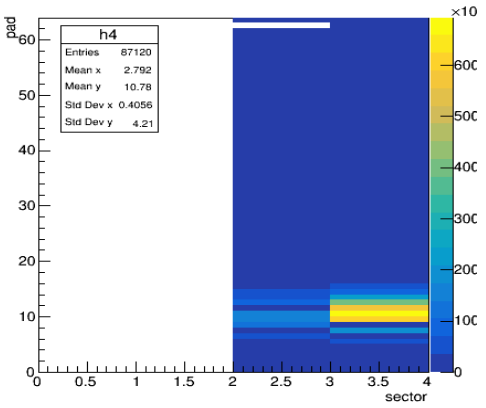
Occupancy plot for layer 1 - plane 2



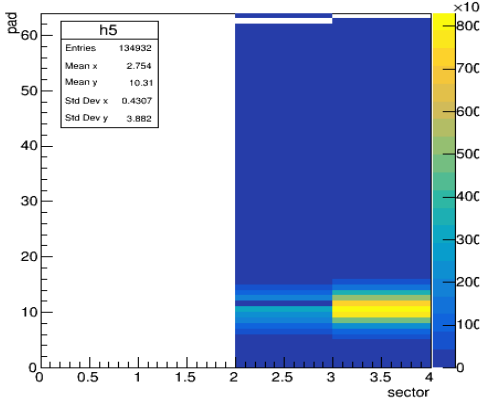
Occupancy plot for layer 2 - plane 3



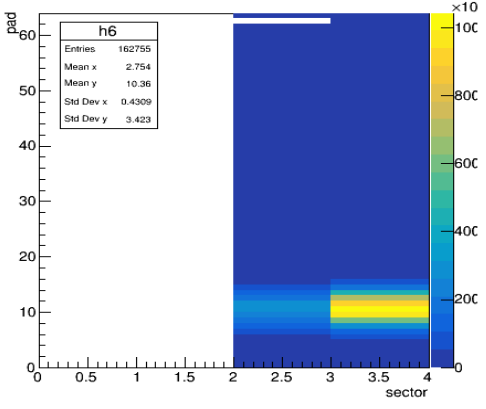
Occupancy plot for layer 3 - plane 4



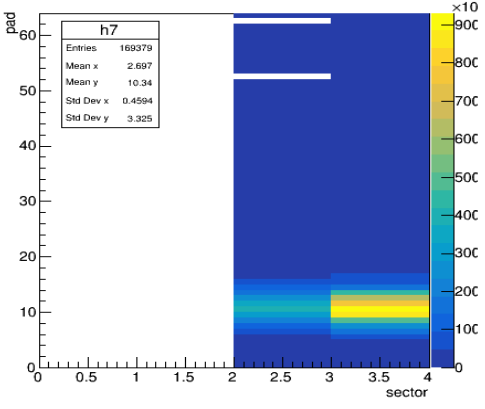
Occupancy plot for layer 4 - plane 5



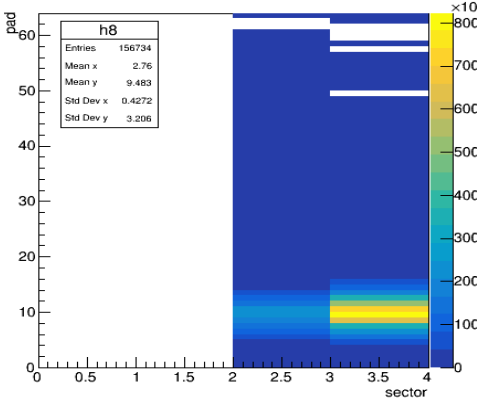
Occupancy plot for layer 5 - plane 6



Occupancy plot for layer 6 - plane 7



Occupancy plot for layer 7 - plane 8



Run 74, 5 GeV, shower development