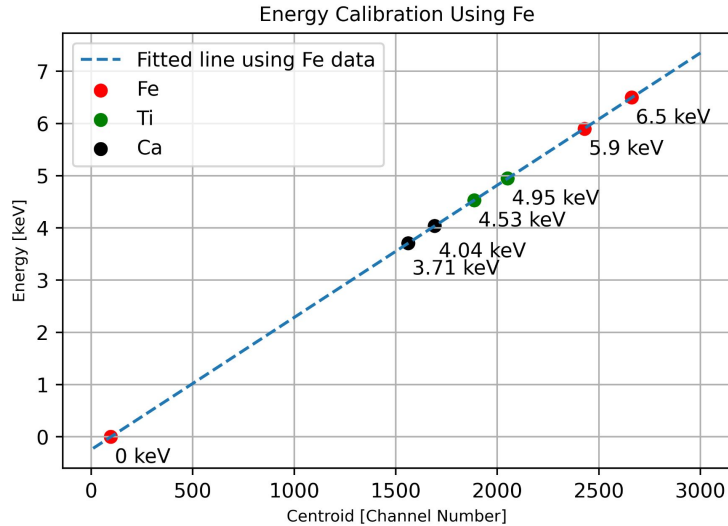


Titanium and Calcium Data Analysis

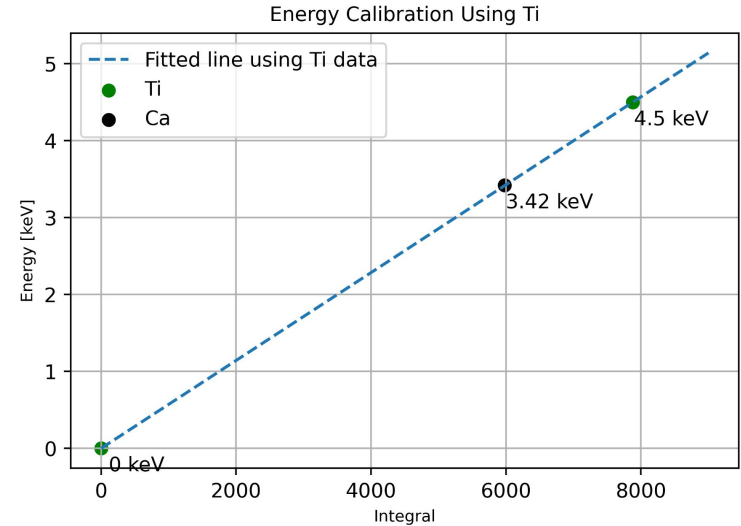
A. Prajapati, D. Pinci, E. Baracchini

24/02/2022

Energy Calibration



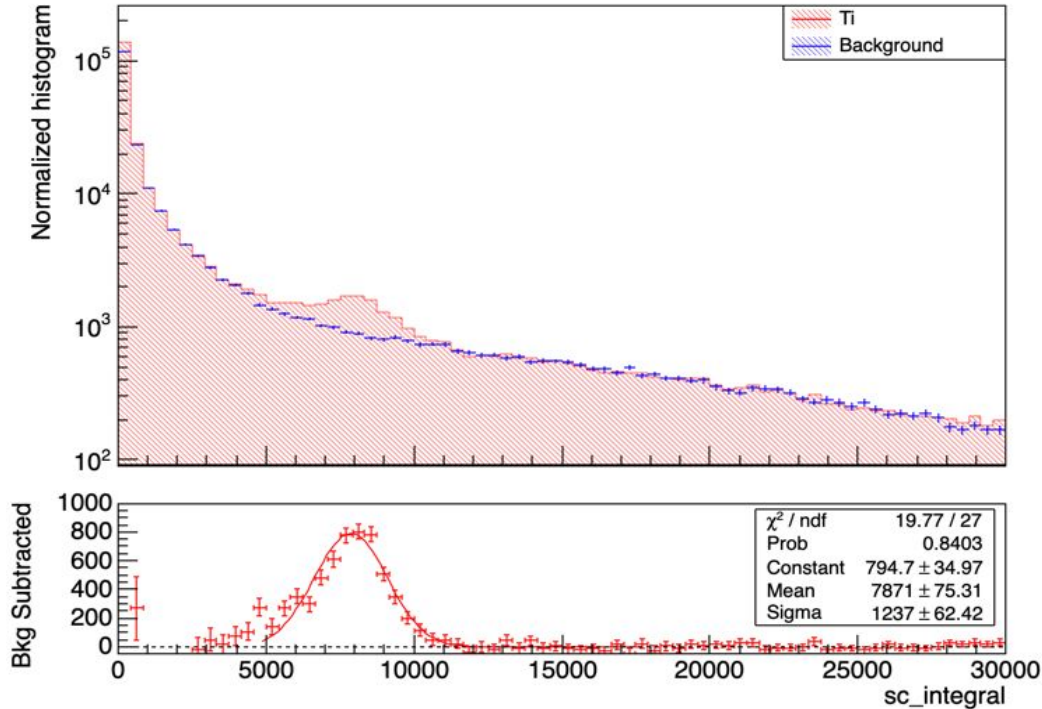
- Calibrated using the pedestal (i.e. 0 keV) and 2 peaks of Fe.
- Energy of Ti and Ca is computed using the linear fitting of Fe data.



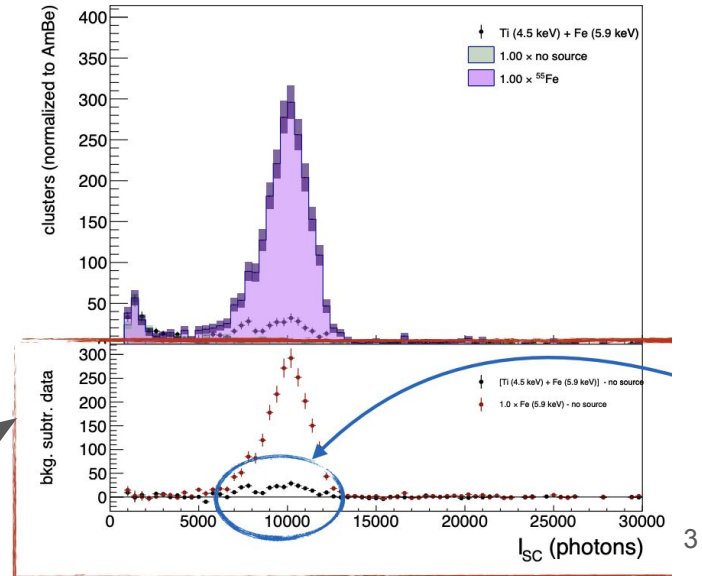
- Calibrated using integral of Ti and 0.

Integral (Ti ~ 4.5 keV)

Histogram for sc_integral

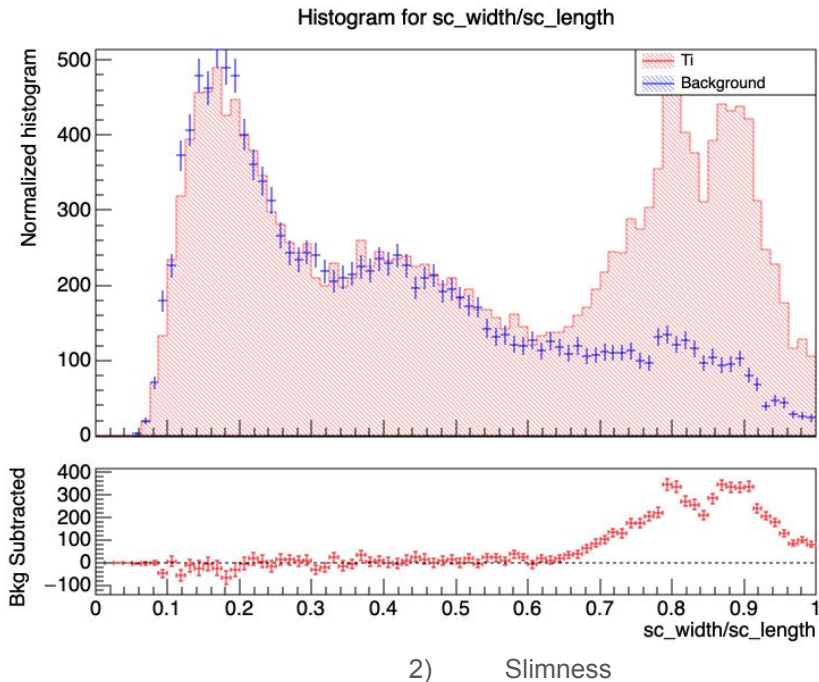
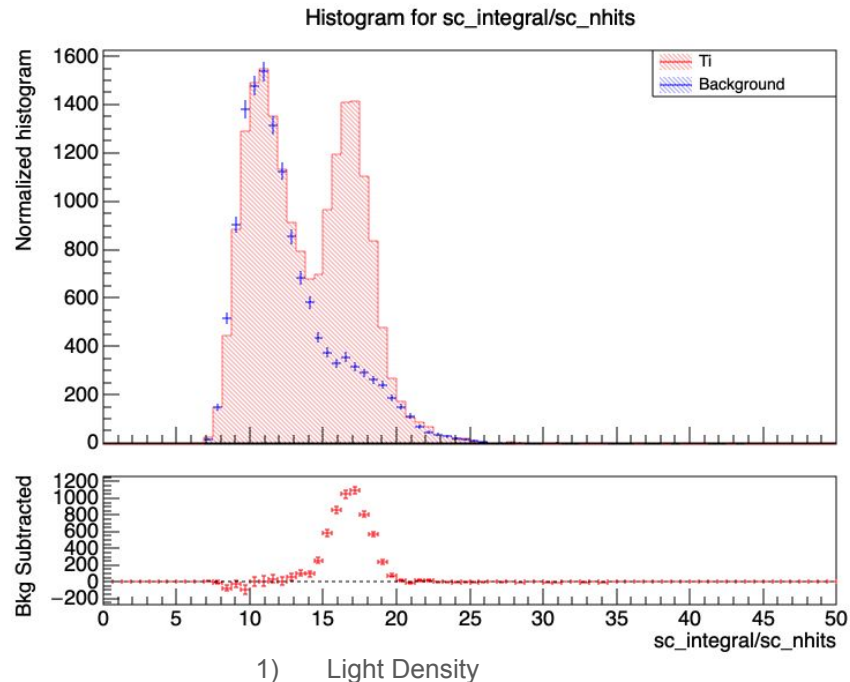


- All the histograms for Ti are made after applying a cut on **sc_length** < 400 and **sc_integral** > 5000 and **sc_integral** < 10000
- All the histograms are normalized to the number of events.



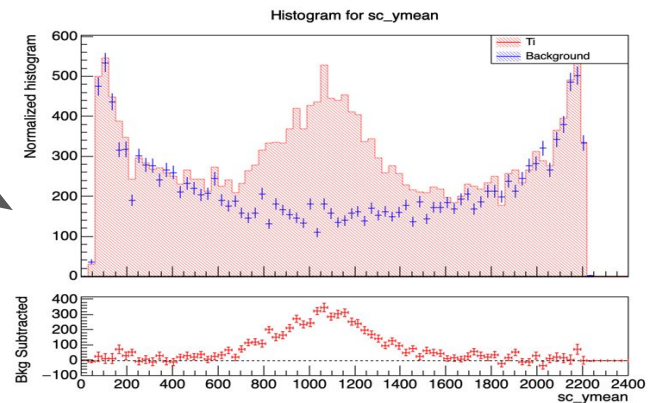
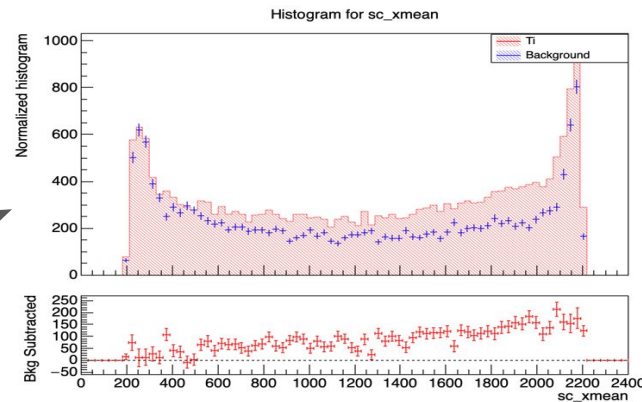
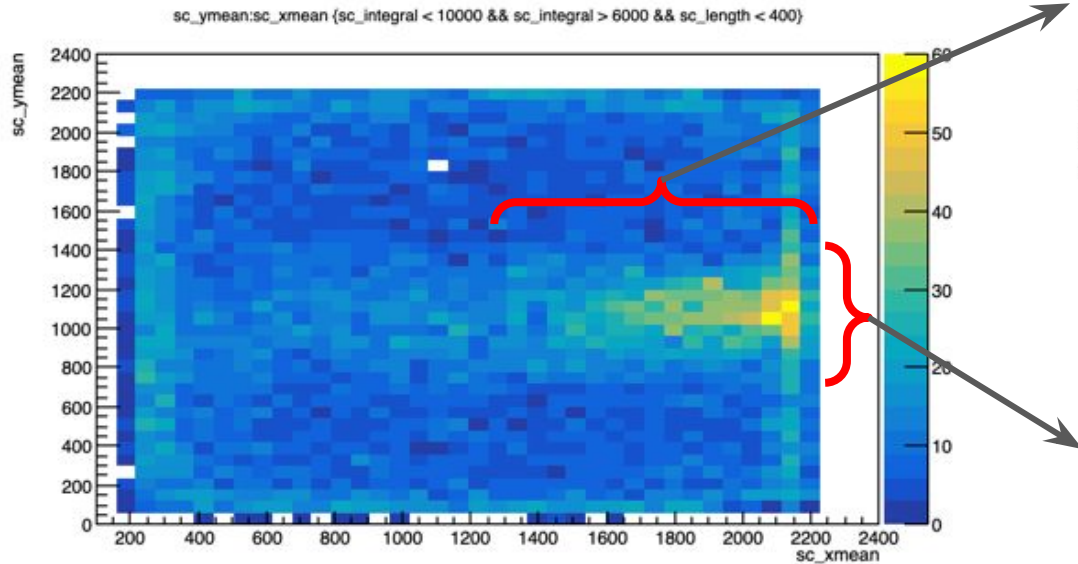
From E. Di Marco's Presentation

Light Density and Slimness

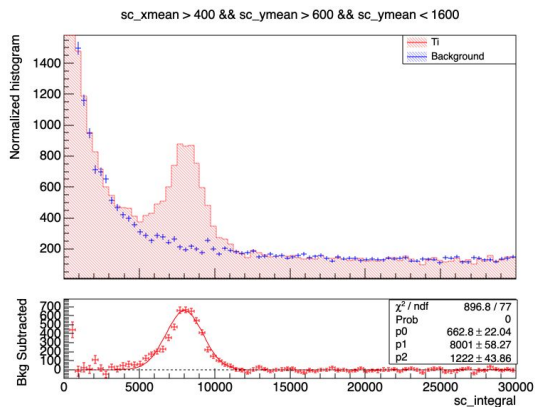


- These histograms are made after applying a cut on integral.

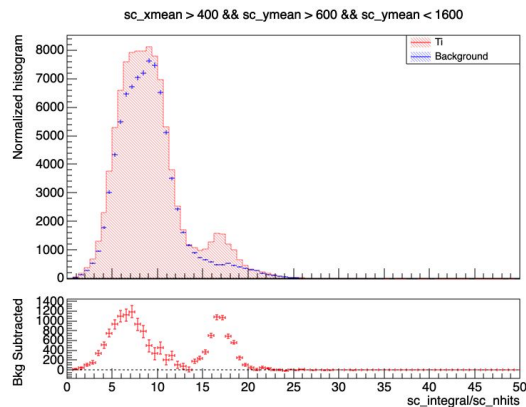
Position of the clusters



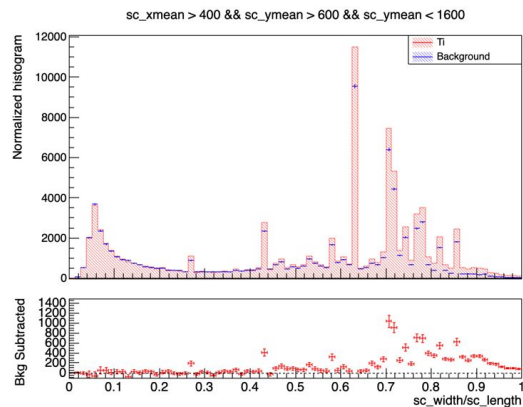
Applying a selection on position of tracks



1) Integral



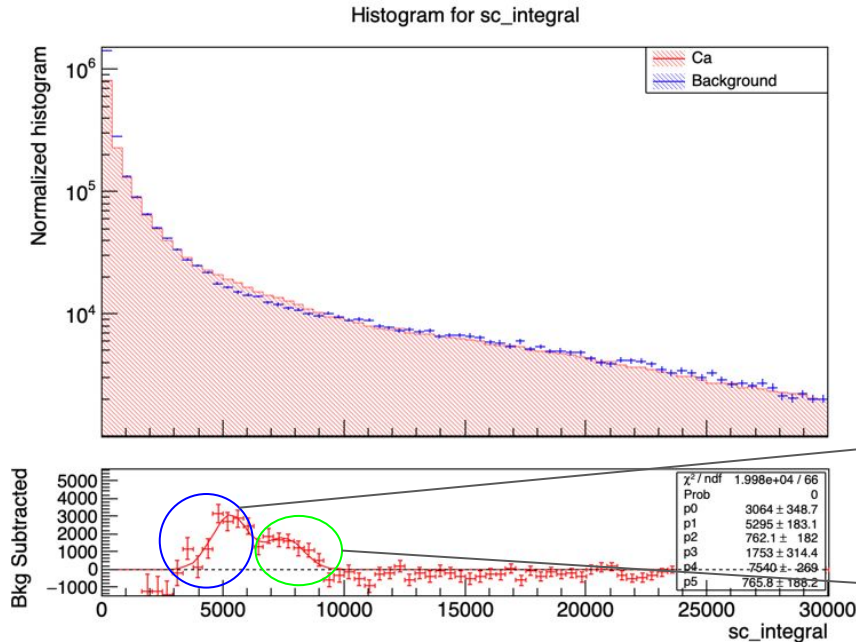
2) Light Density



3) Slimness

Calcium

Integral (Ca~3.7 keV)

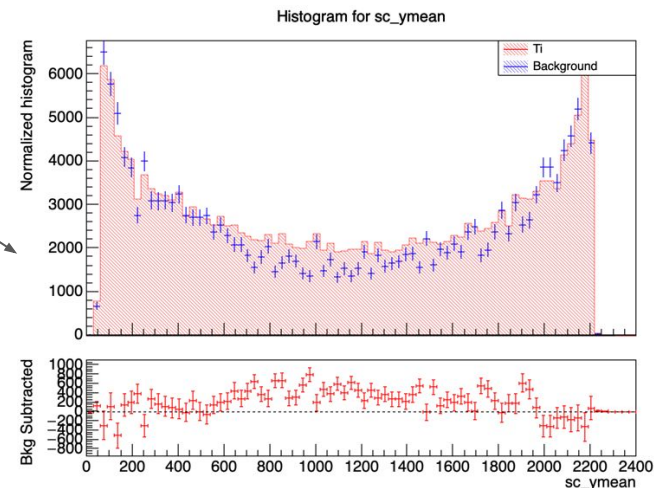
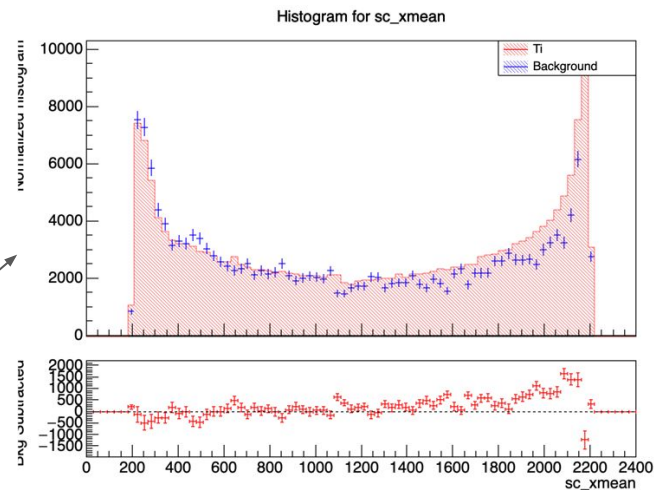
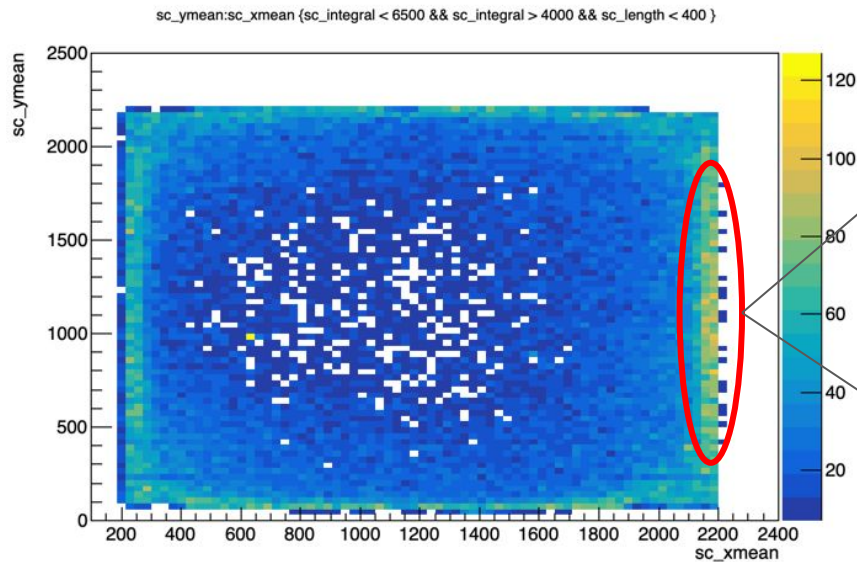


From
Calcium

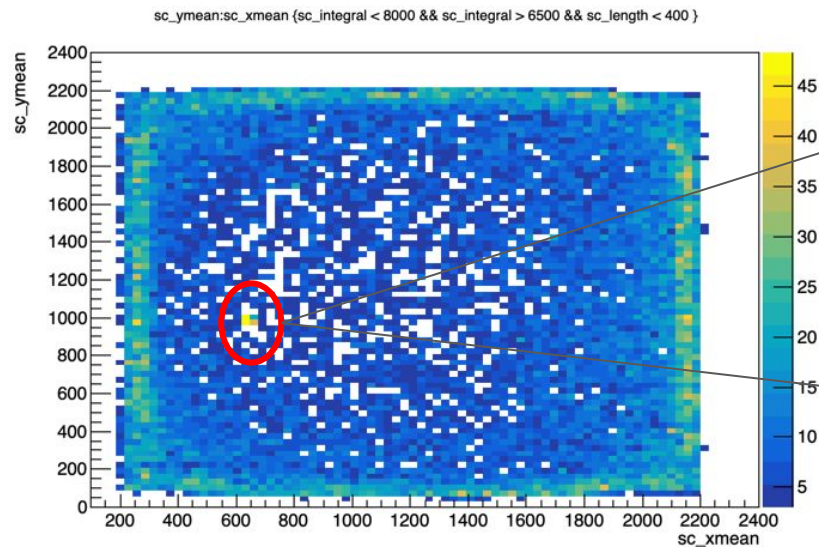
Probably
from a
Hotspot

- Energy of the first peak is ~ 3.42 keV using Ti (4.5 keV) to calibrate the integral.

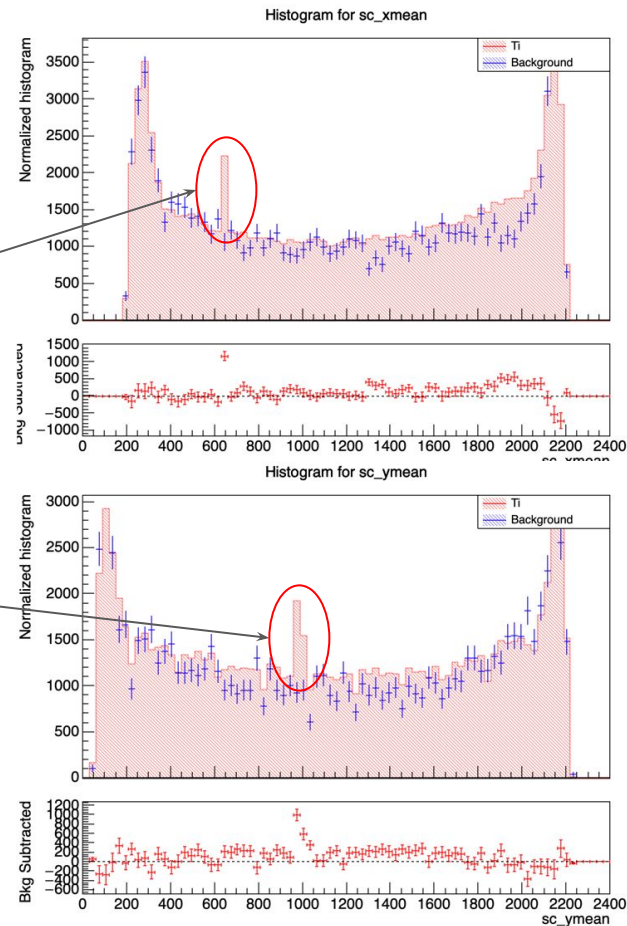
Position of Clusters in first peak



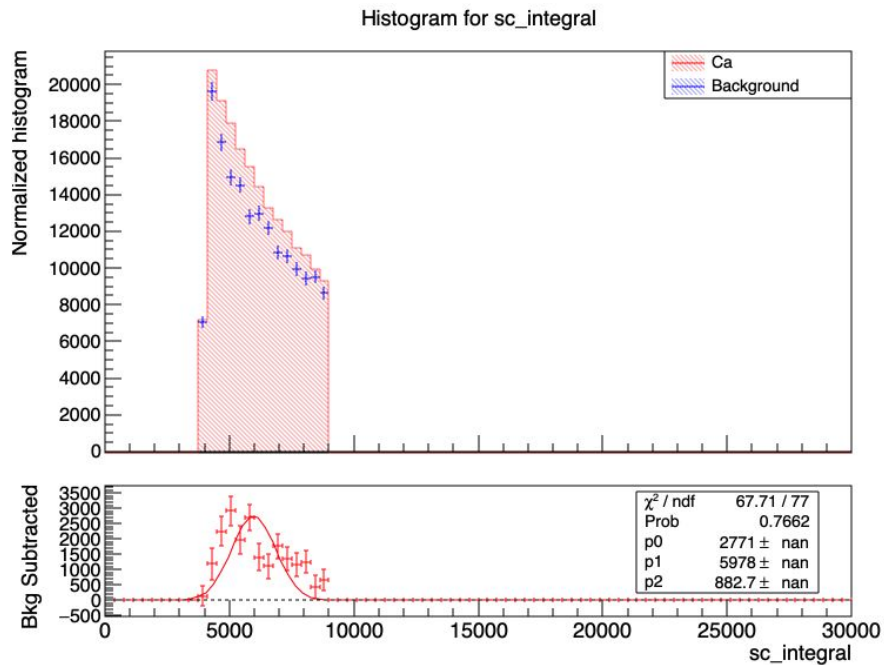
Position of hotspot



There's a hotspot around (600,1000) pixel and this contributes to the appearance of second peak in the integral.

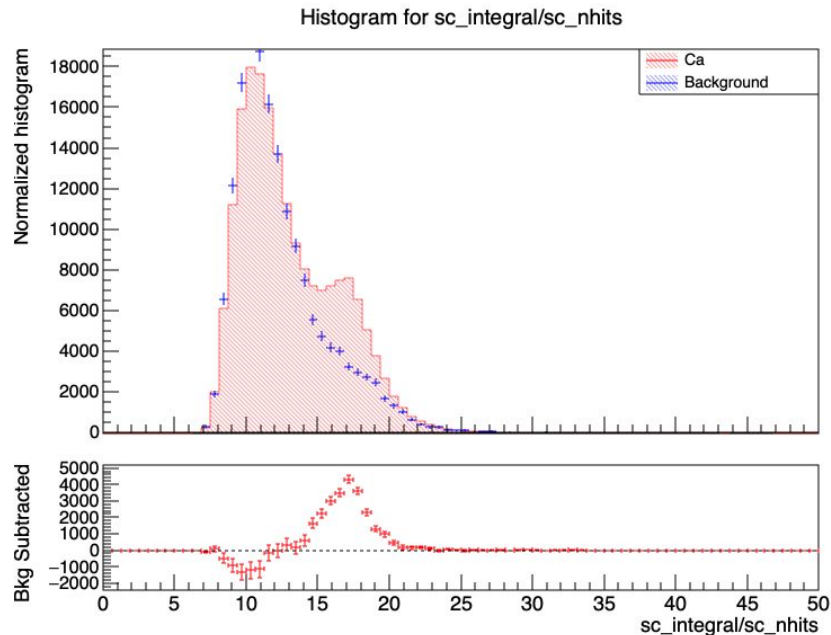


Integral of after removing the hotspot

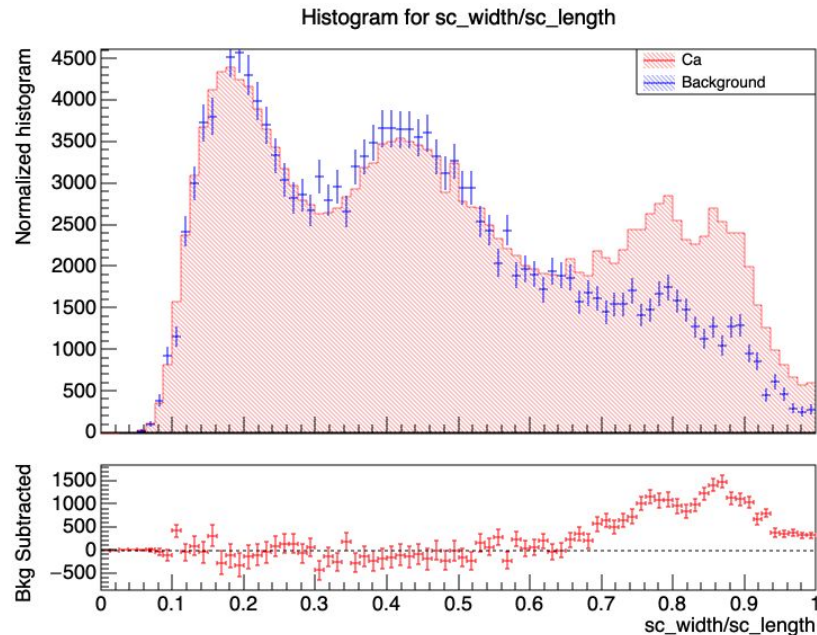


- This gaussian fit doesn't seem very good but with this fit we get the energy ~ 3.4 .

Light Density and Slimness after removing the hotspot



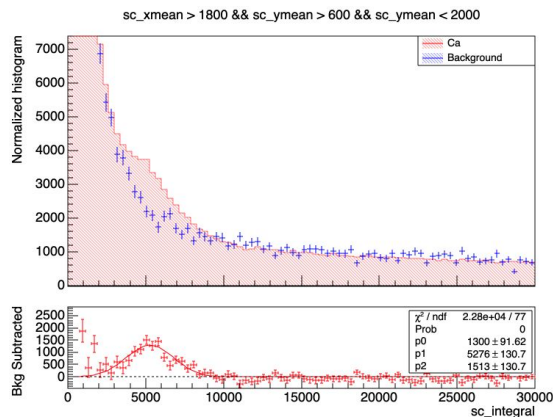
1) Light Density



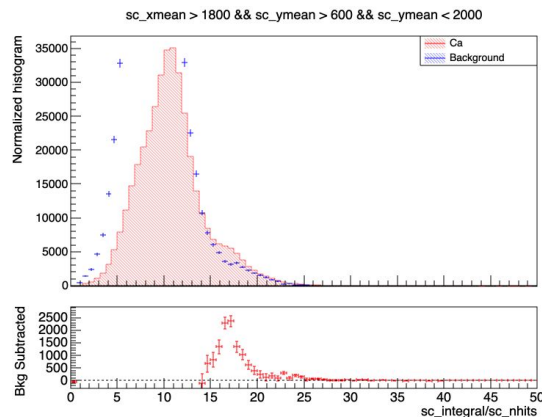
2) Slimness

- These histograms are made after applying a cut on integral.

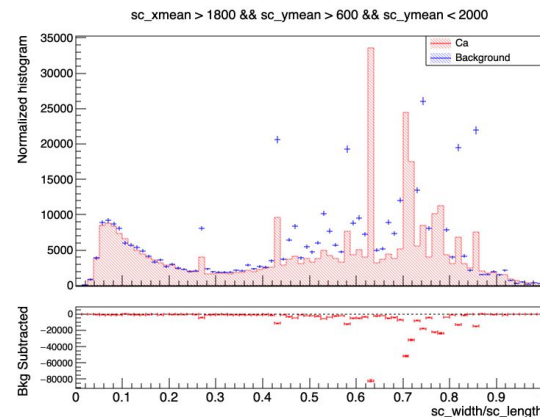
Applying a selection on position of tracks



1) Integral



2) Light Density



3) Slimness

- With this fit on integral, computed energy is ~3.12 keV.
- Normalization doesn't work well at low energies in Ca data, and the result is that we have very big negative values in all the variables after subtracting the background at low energies.

Issues:

- There are a few reconstructed runs that are missing [6144, 6165, 6179, 6184, 6188, 6198, 6202, 6204, 6219, 6230, 6241, 6252, 6255, 6258, 6262, 6263, 6274, 6285] from calcium data set.
- Pedestals runs [6221, 6232, 6243, 6254, 6265] are reconstructed.