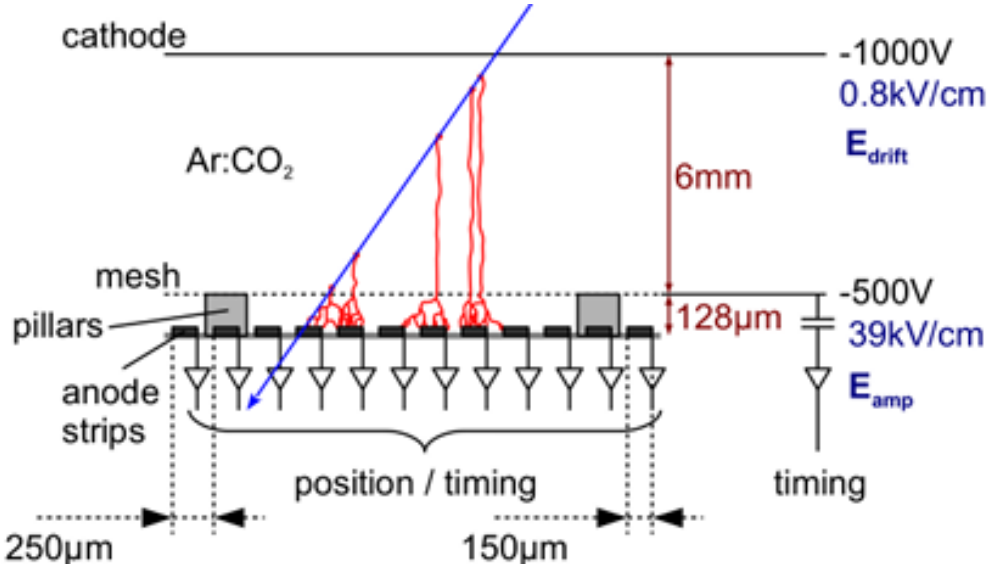
Hardware Meeting 08.08.2024

Investigation of PAD detectors.



Micromegas detector

Aim:

- Ultimately: Testing PAD detectors with cosmic muons.
    - Lower number of electronics for similar or better resolution for the same area.

- Current Project:
    - Optimizing 4 Micro Megas to build a telescope for reference measurements with PAD.

Pad Detector

- Uses Pixels instead of strips.
- One APV for 100 pixels.
- Good resolution (Hopefully!)

MicroMegas Detector (Currently Using TMM’s)

- Uses strips in both X and Y
- Require 2APV’s for one direction. Total 4.
- More read out channels.

Experimental Setup

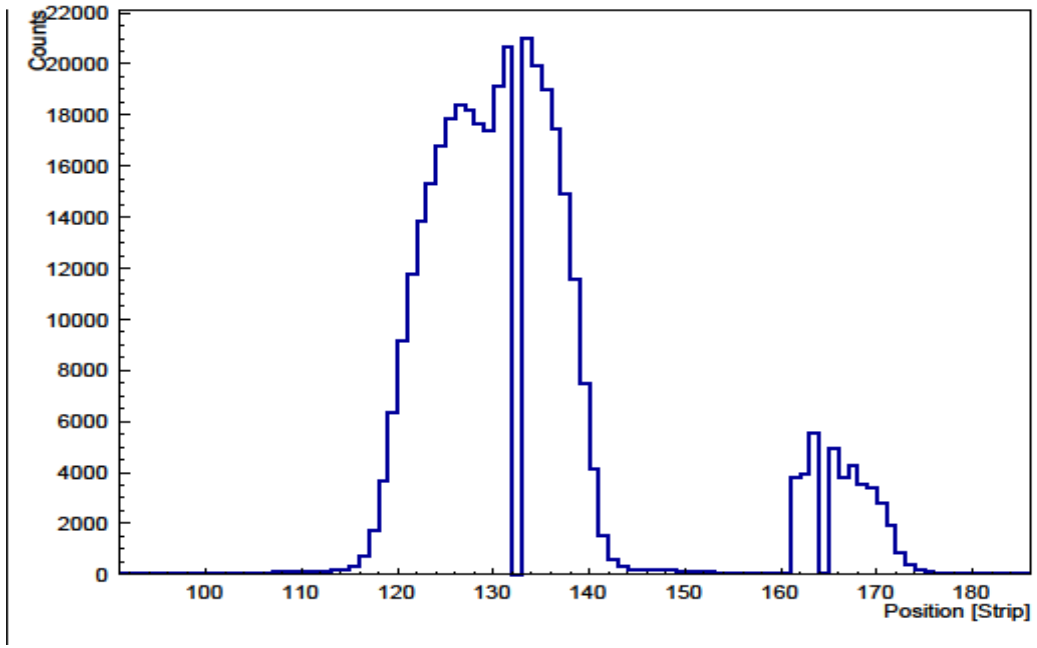
- Source: Fe 55.

Optimizing MM: 2 Main issues.

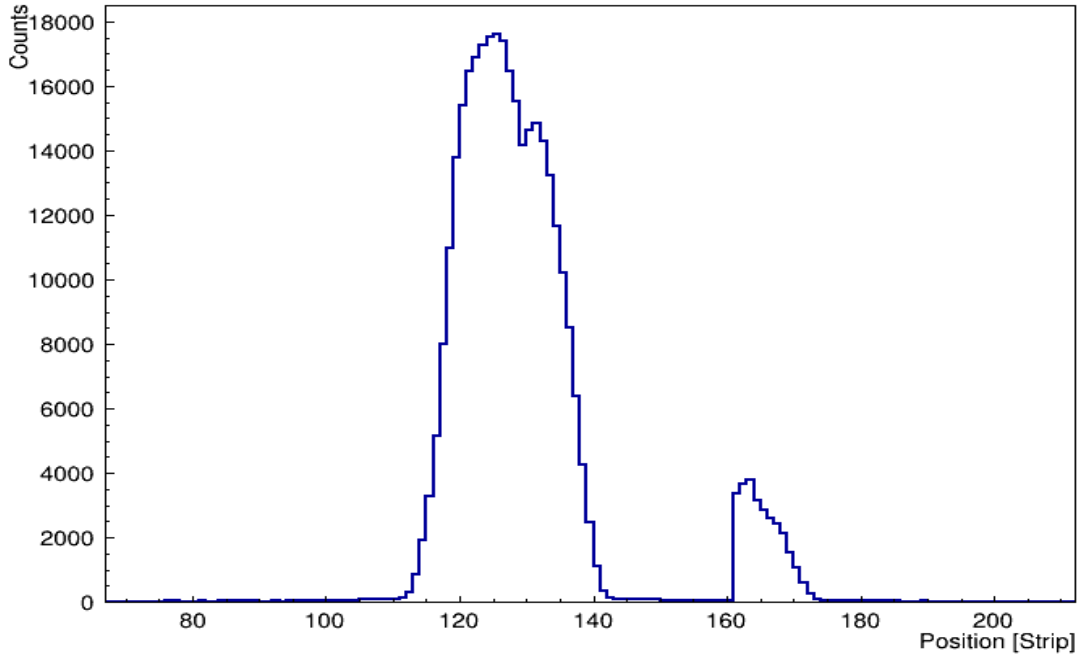
1. Peak towards the later strips. Source Unknown.
   - Changing Amplification Voltage helped. But not quite.

2. Missing strips.
   - A consistent missing of certain strip numbers have been observed.
   - When it’s not missing, there is an evident dip.

h_StripNumber_TMM1X



h_StripNumber_TMM2X



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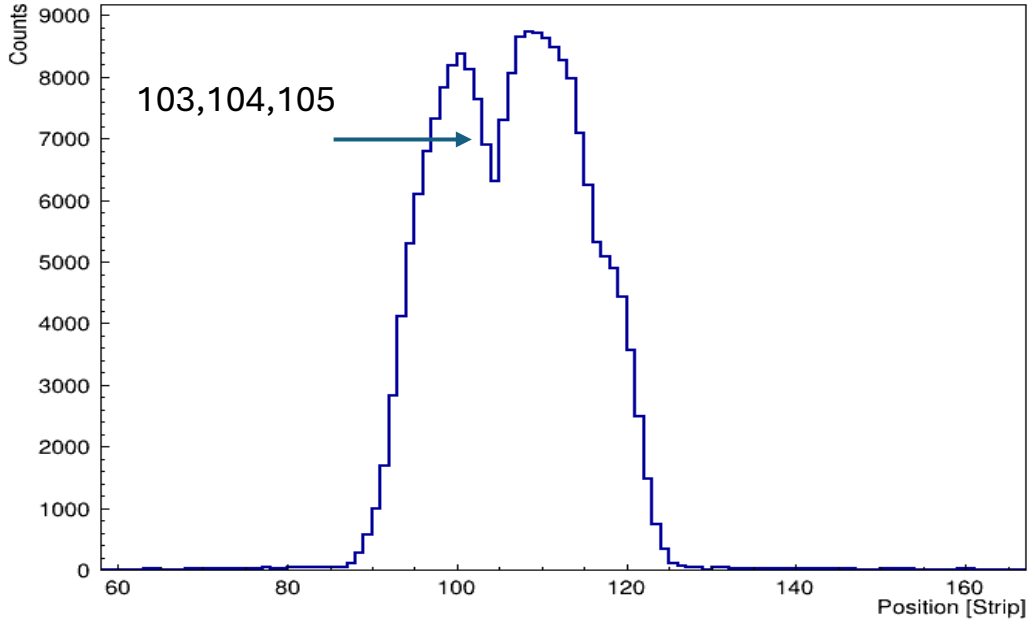

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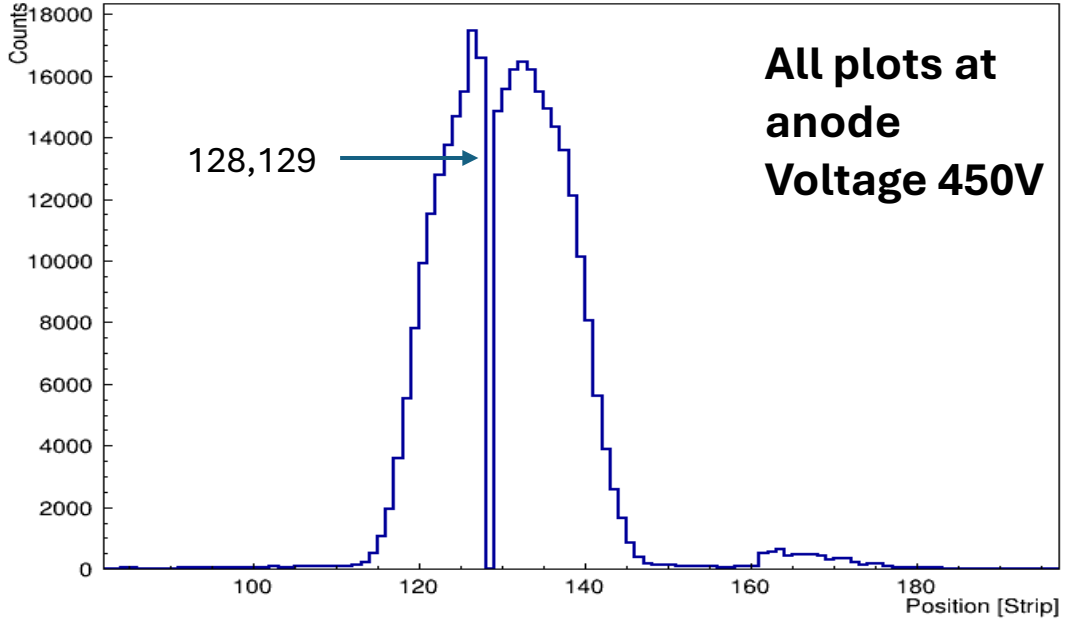
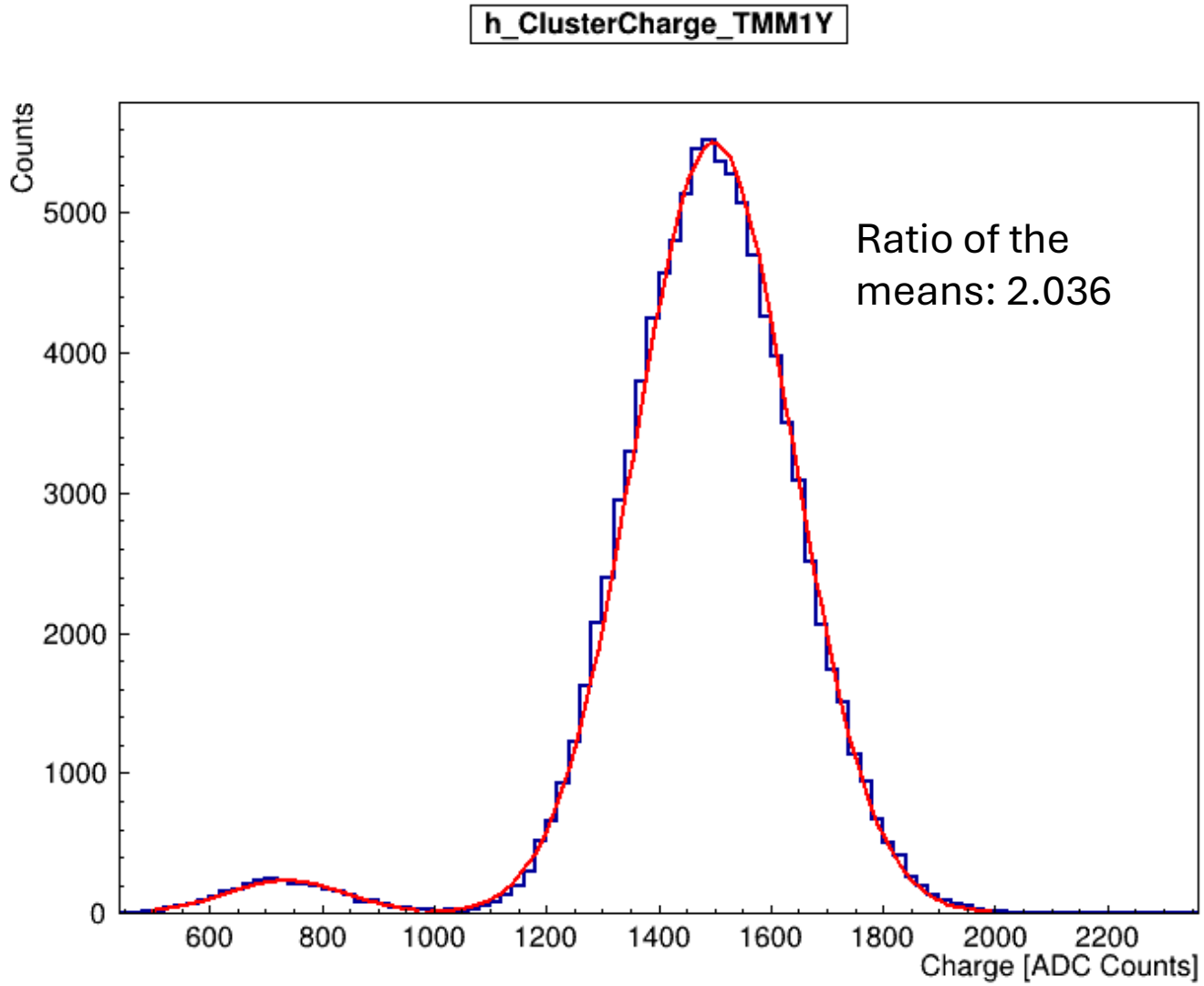
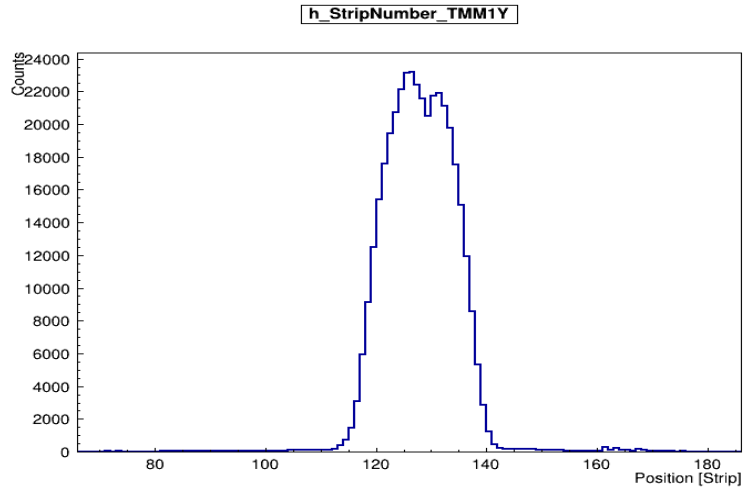
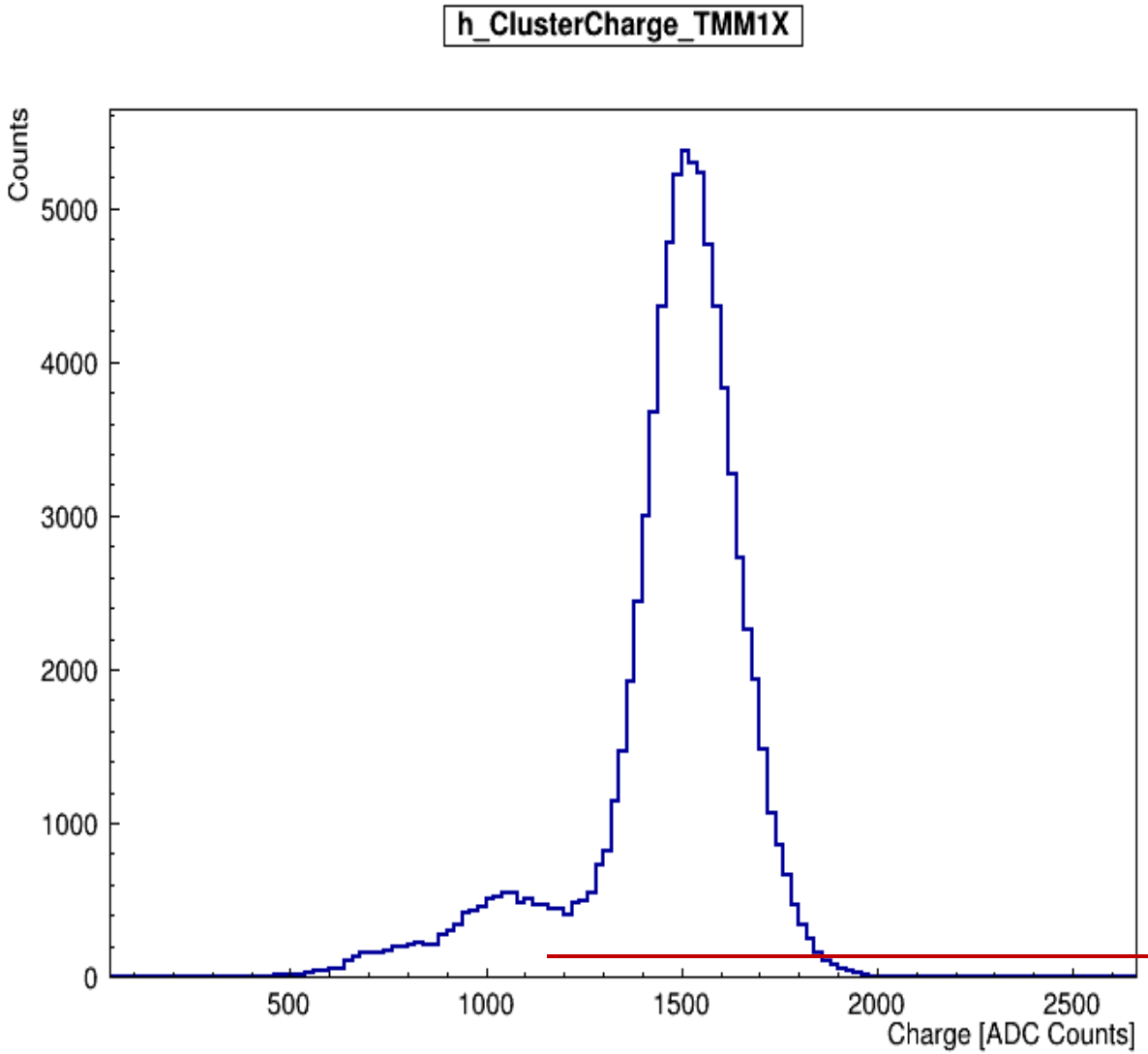


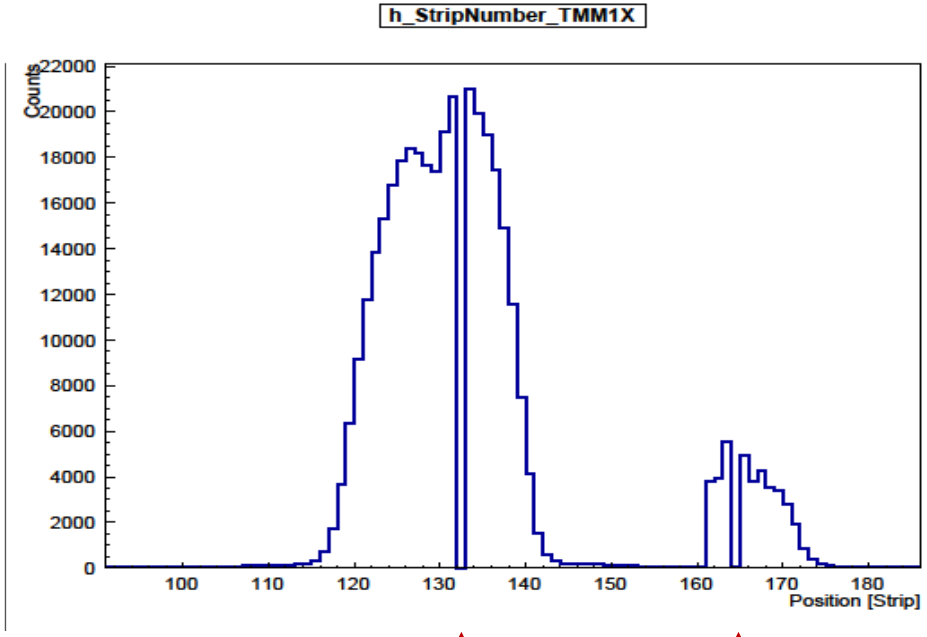
All plots at anode Voltage 450V



Optimizing to find the best energy resolution possible.

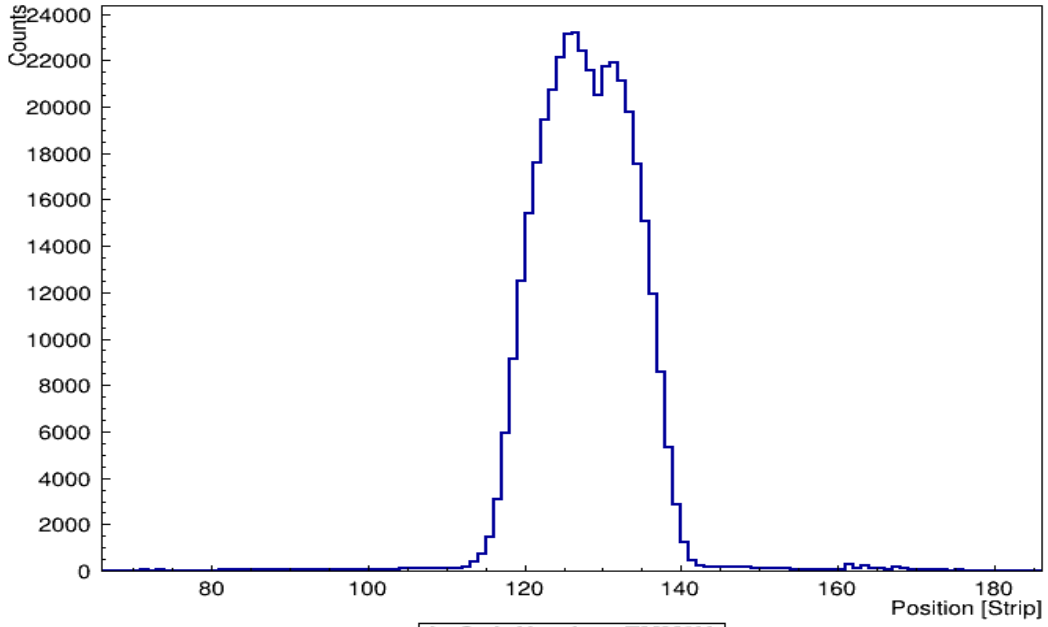






Resolution not very good!
Maybe from the missing strip majorly and the unwanted peak??

h_StripNumber_TMM1Y



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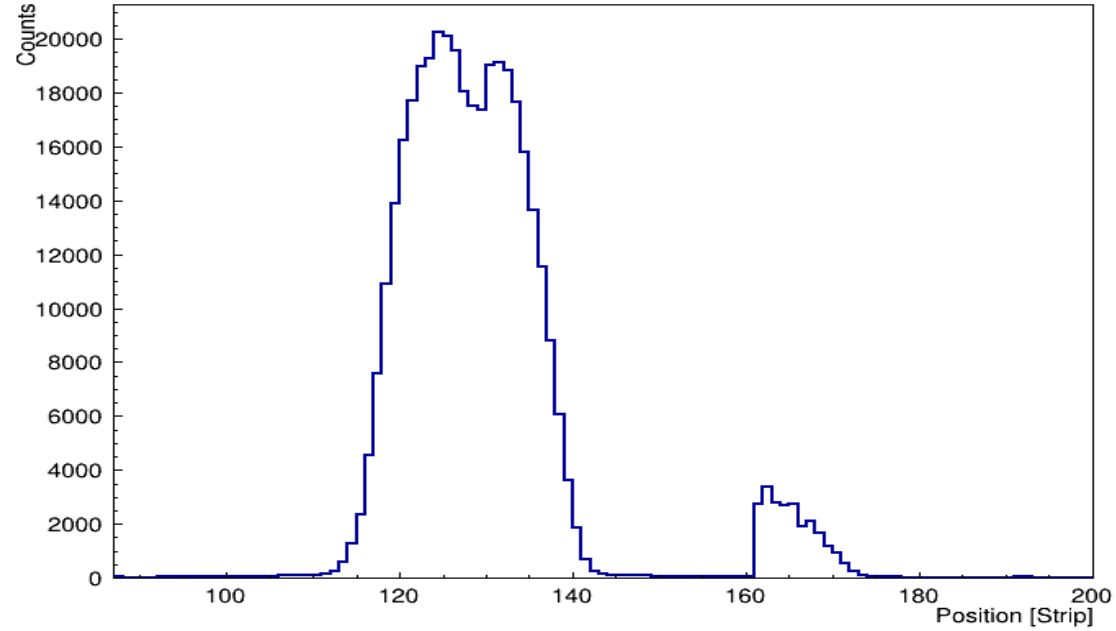

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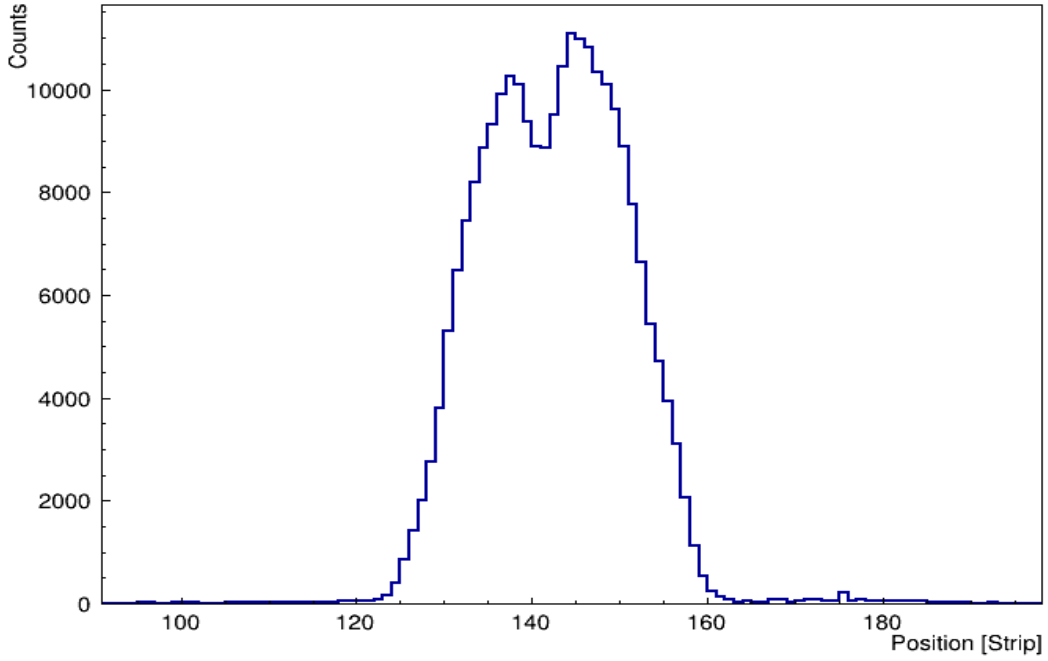

h_StripNumber_TMM4Y