



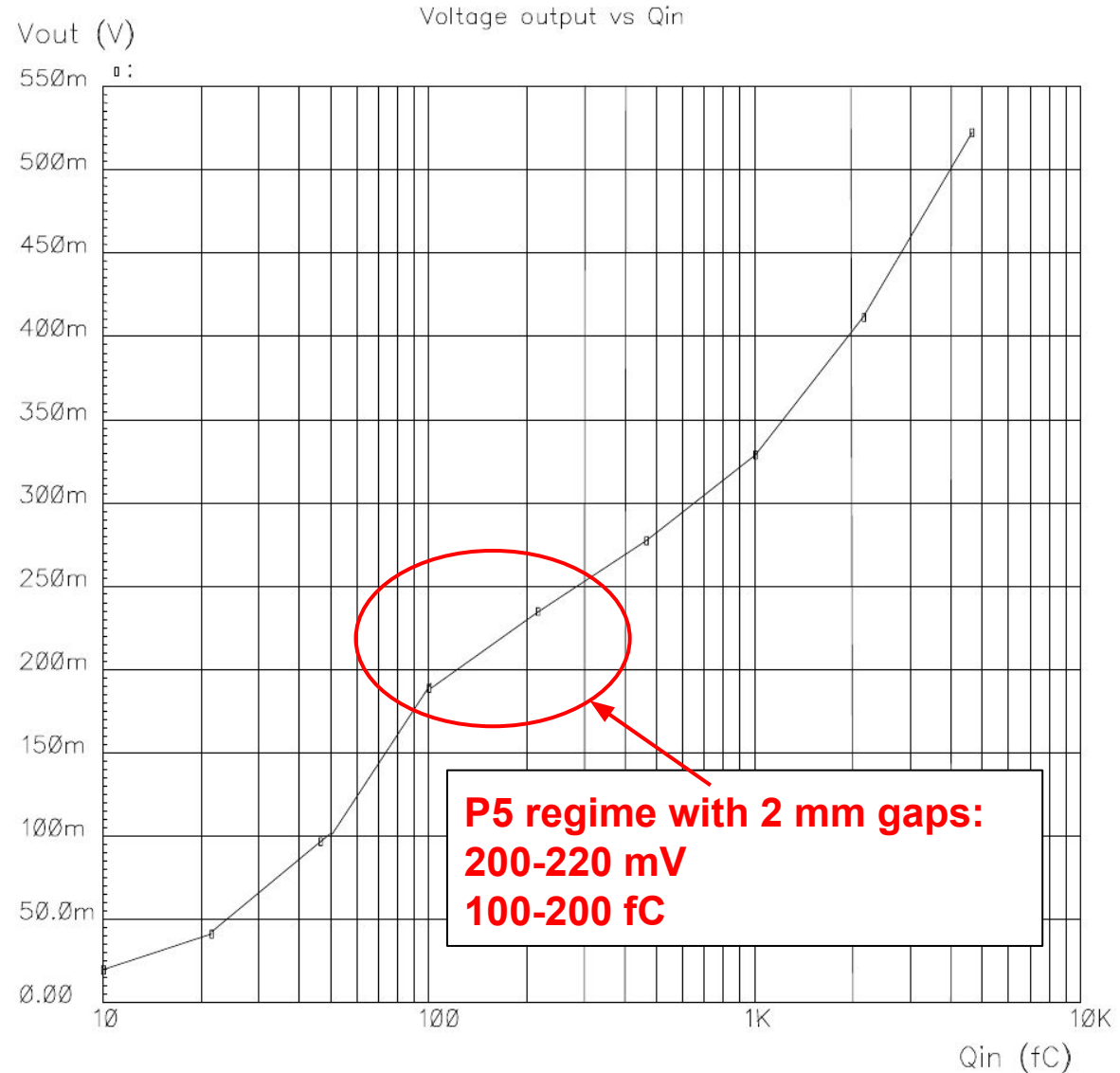
# Characterization of CMS FEB electronics with a RPC 1.4 mm double gap chamber

May 2019

# Electronics documentation

Paper: <https://cds.cern.ch/record/435663/files/p457.pdf>

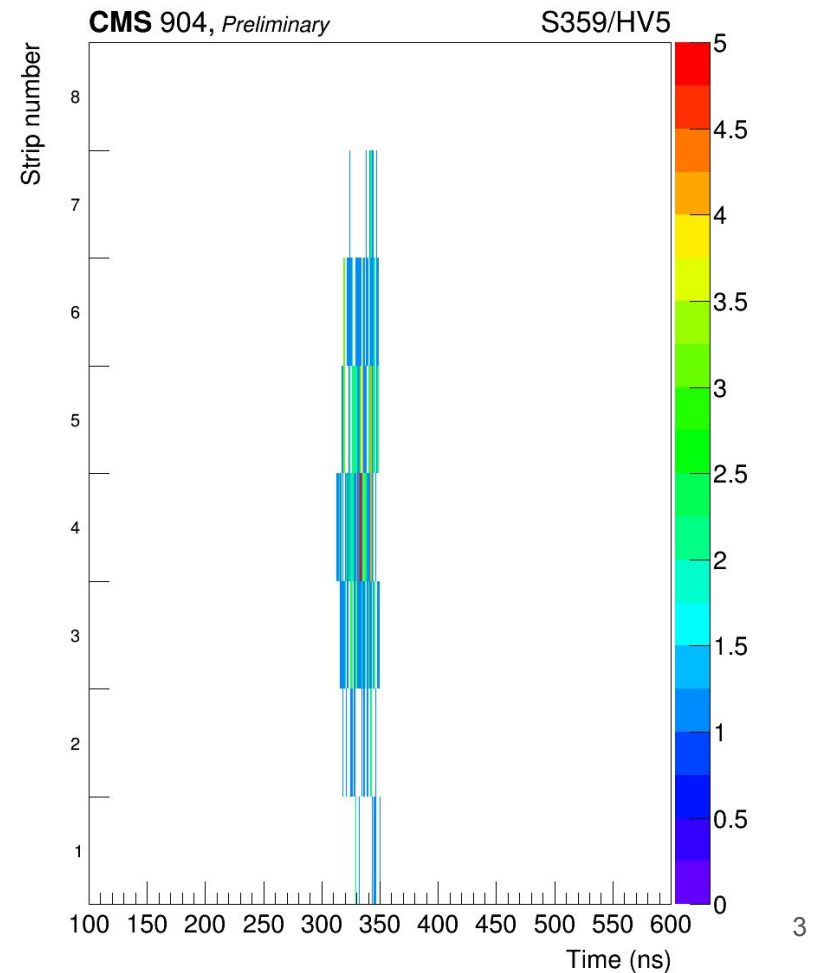
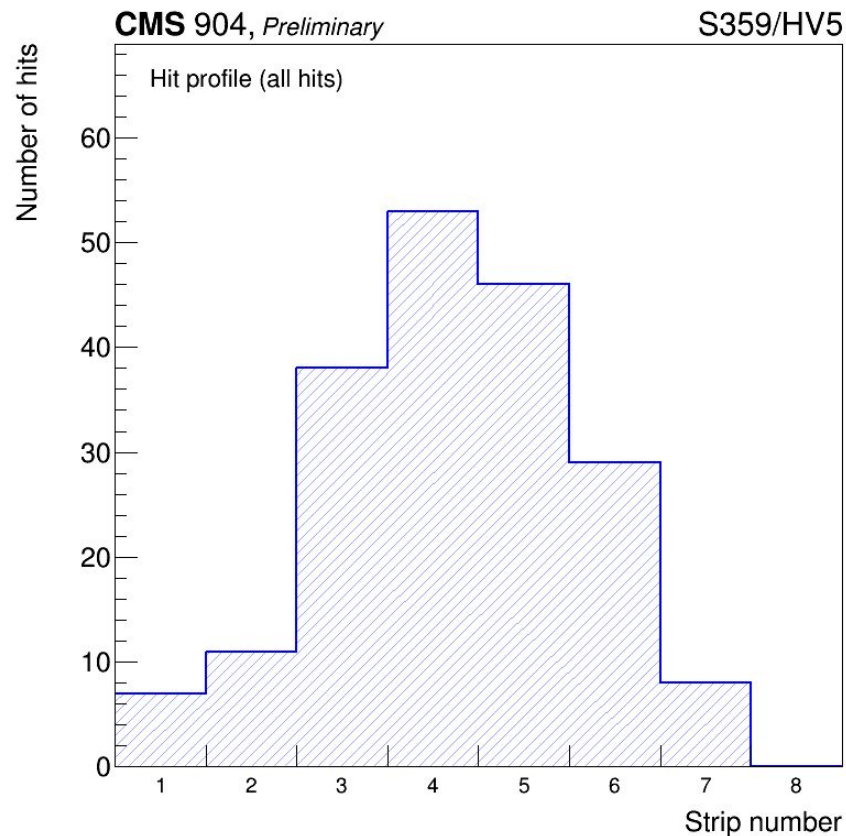
## Calibration curve



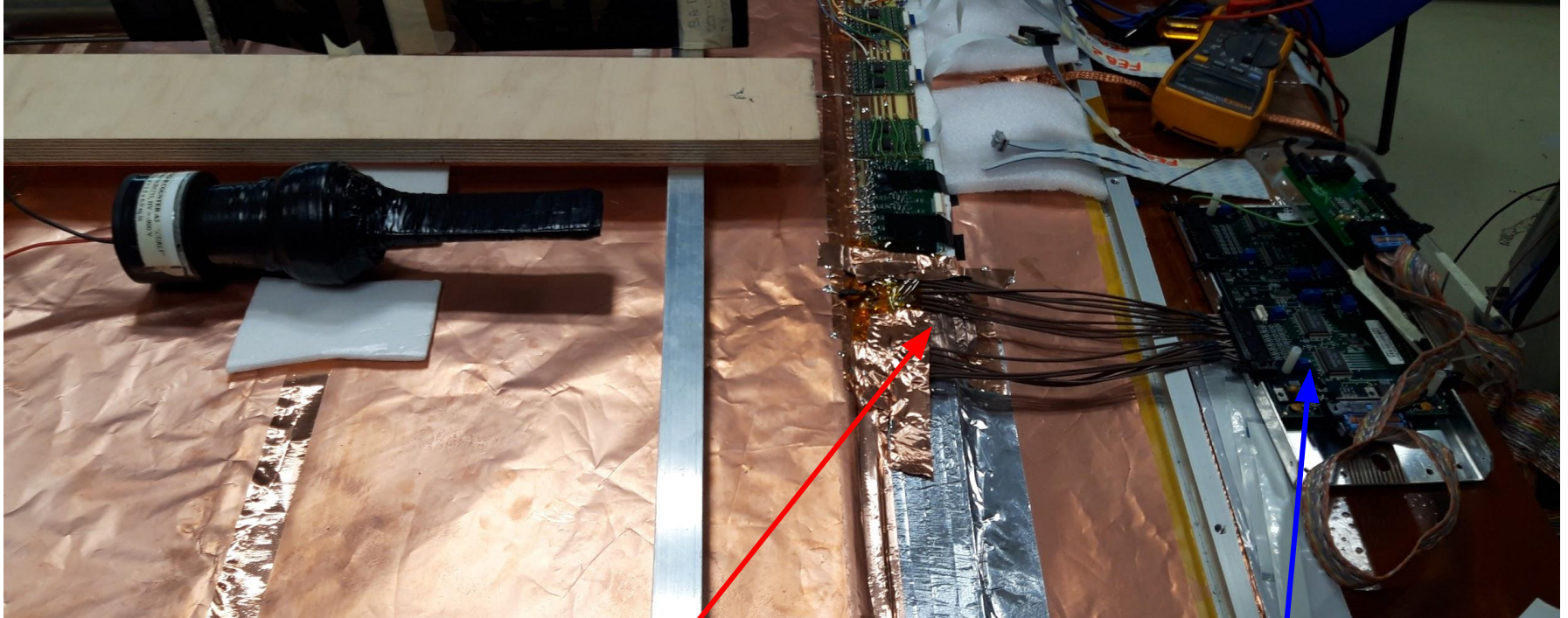
# Measurement details

- Connected 7 strips of 1.4 mm gap to the CMS FEB electronics (8th strip connected to the ground)
- PCB Strip length  $\sim 150$  cm terminated with 50 Ohm
- CMS FEB pulses read by conventional TDC
- Narrow trigger used (positioned close to the FEB), almost only covering the 7 strips

Threshold efficiency scan taken, varying threshold.  
For each HV point 100 triggers asked.



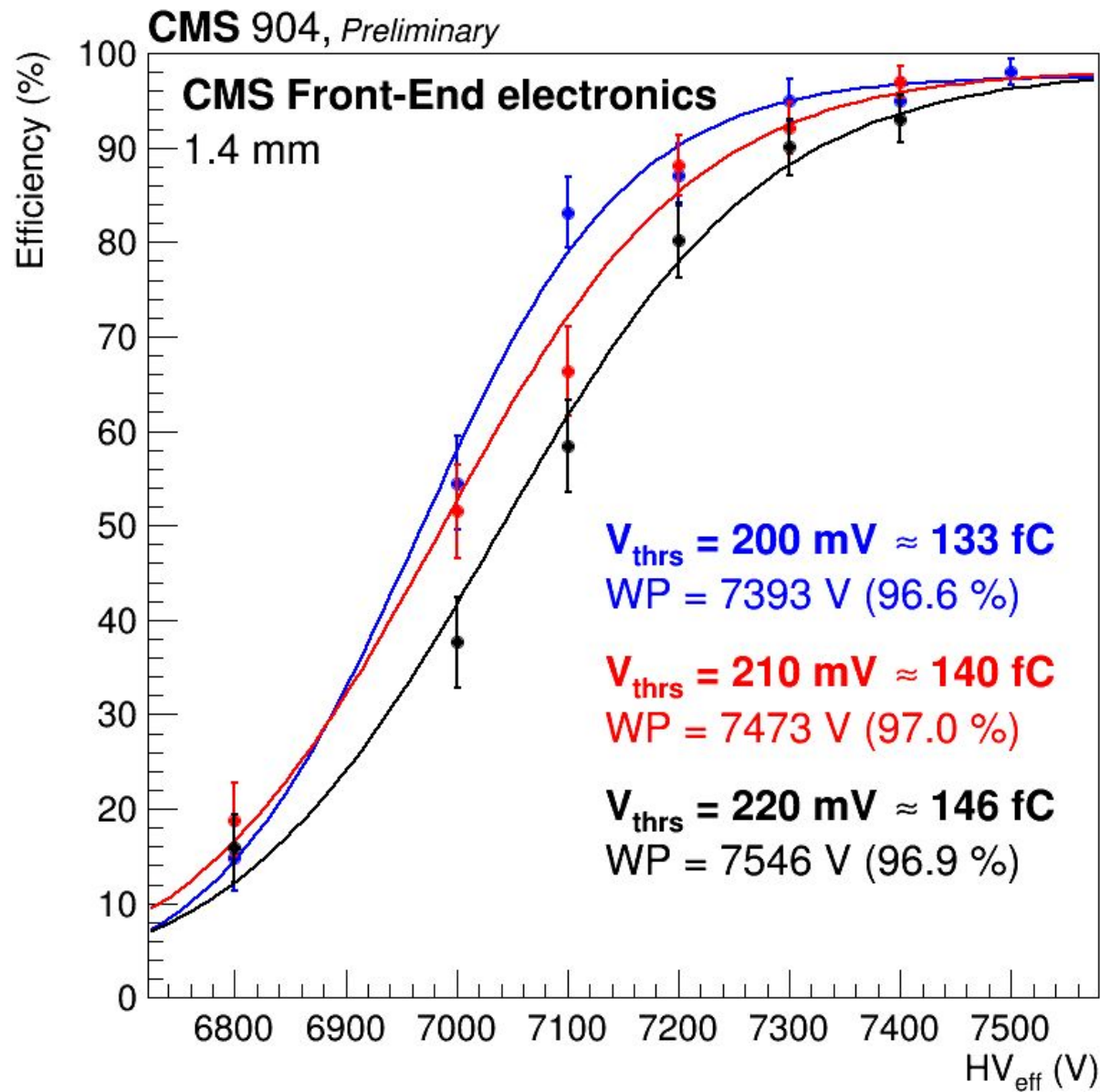
# Setup picture



7 strips connected to FEB  
Other channels connected to ground

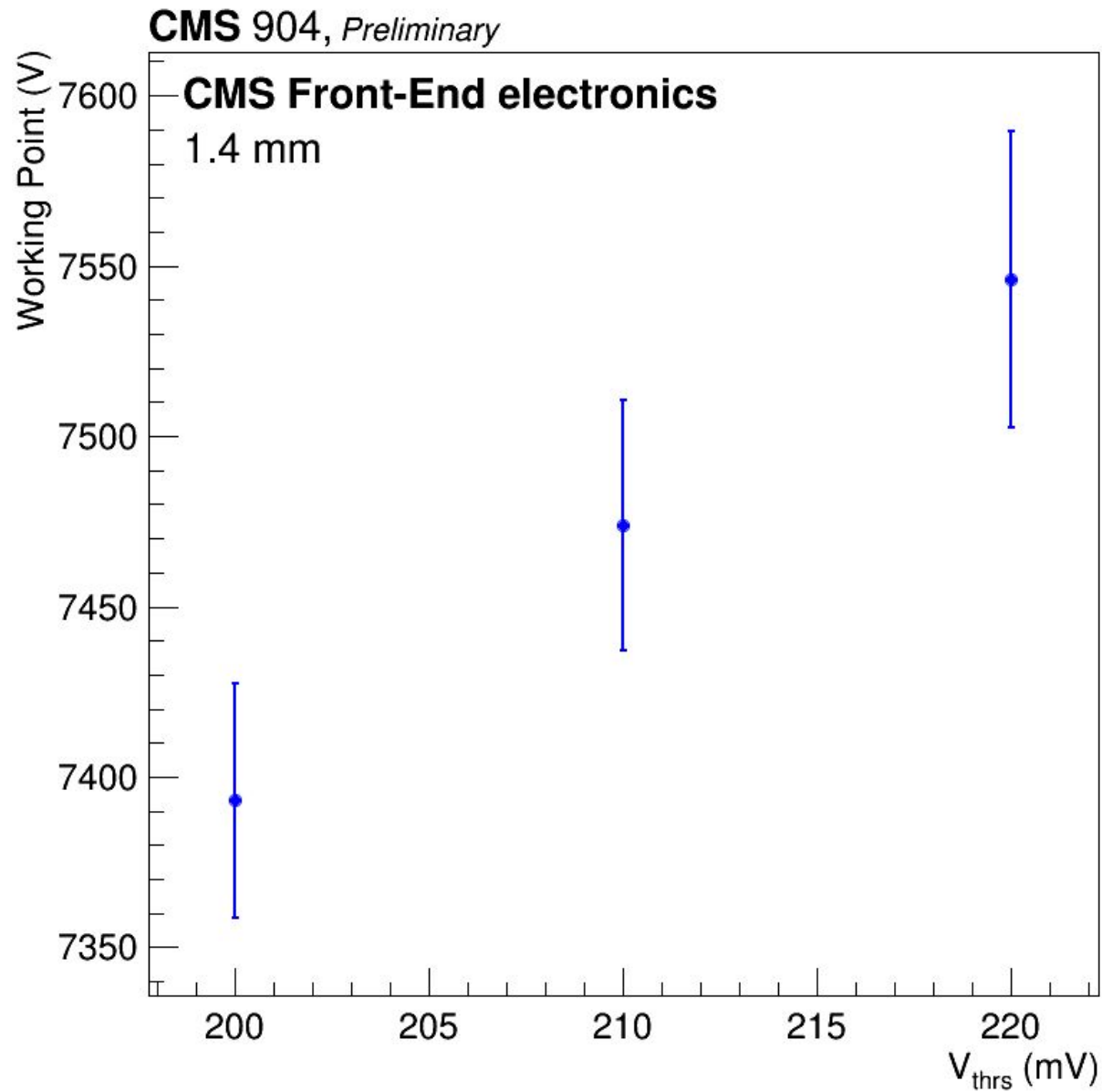
**CMS FEB**

# Efficiency results for 3 threshold values (200, 210, 220 mV)

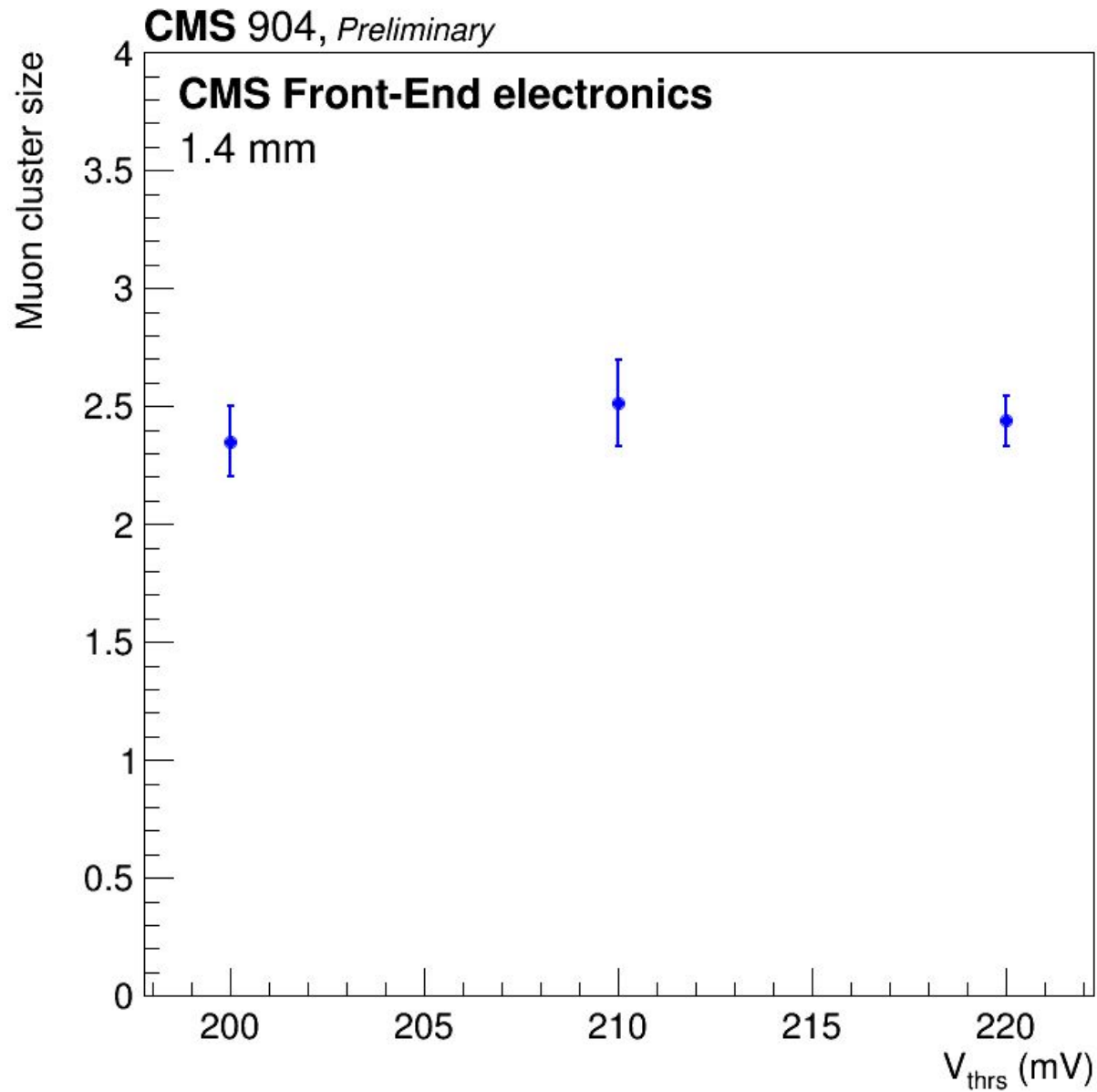


$WP = \ln(19)/\lambda + HV(50\%) + 150 \text{ V}$  ( $\lambda$  and  $HV(50\%)$  from fit)

# Working point vs. threshold



# Muon cluster size vs. threshold





# Noise vs. threshold

