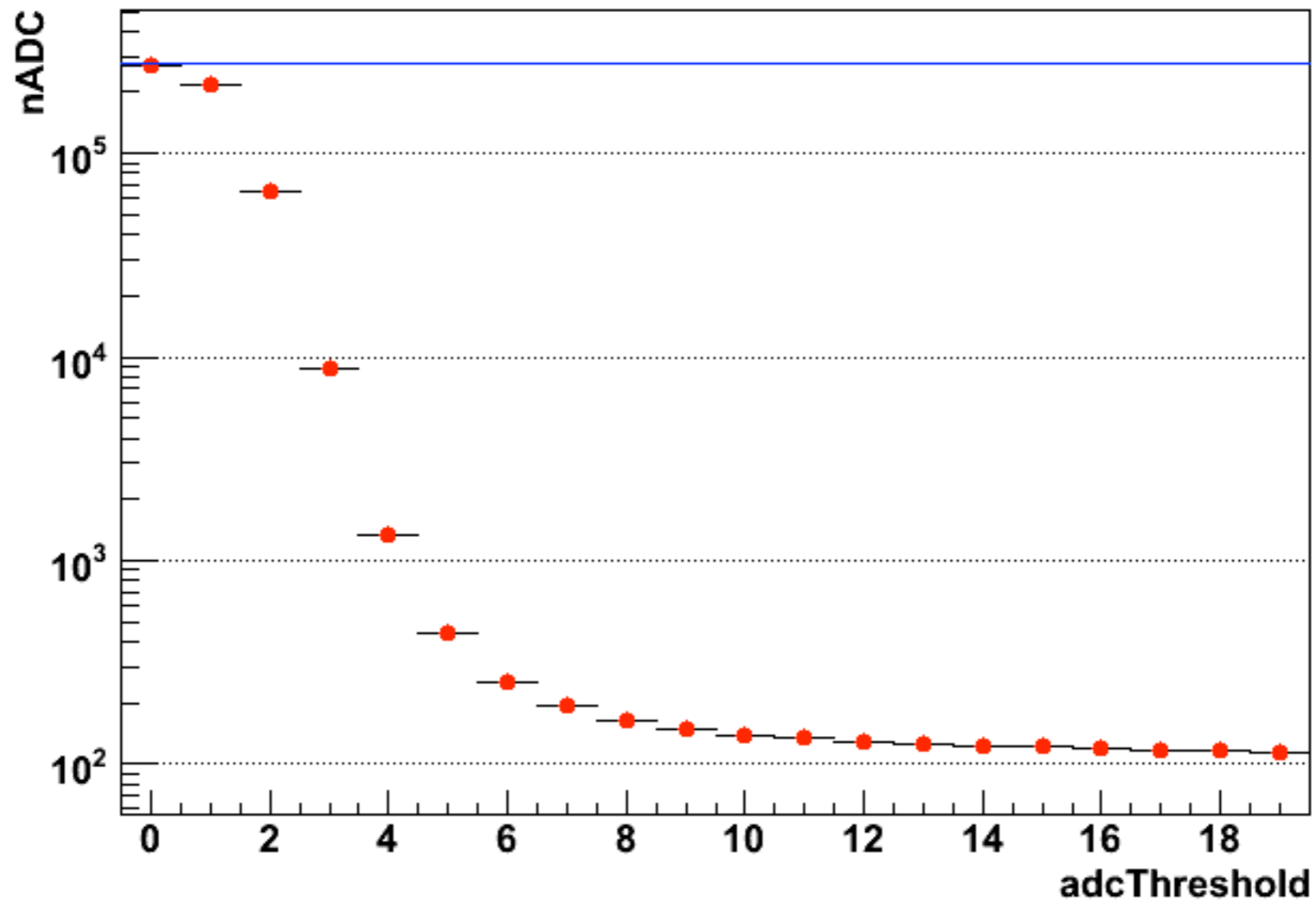# Number of Activated channels vs. ADC threshold(noise run)


- Q(i) > adc threshold, write 3 ADC channels for all time bins(so called neighbor sensitive)

- Base line 10 is already subtracted

- blue line indicate the number of adc channels of nzs data

- Same type of study which Sylwester shown in the commissioning meeting

- http://indico.cern.ch/conferenceDisplay.py?confId=36952

Header Words Size

- Per equipment

  - GTU header 32 bit words

    - 1 + 68 (example)   = 69 words (will vary)

    - 5 stacks * 8 words = 40 words

  - per half chambers

    - tracklet words   ~ 2 words (noise data should be 0 but give big number)

    - tracklet end marker words = 2 words

    - hc header words   = 2 words

    - data end marker words   = 2 (or 4)? words

  - per mcm

    - mcm header words   = 1 words

    - adc mask words   = 1 words

- total number of header words per super module for ZS data

  - [69+40] + [48*(2+2+2+2 + 16*4*2) + 12*(2+2+2+2 + 16*3*2)] = 7885 words

- total number of header words per super module for NZS data

  - [69+40] + [48*(2+2+2+2 + 16*4*1) + 12*(2+2+2+2 + 16*3*1)] = 4237 words

Data Size vs. ADC threshold (4 SMs)
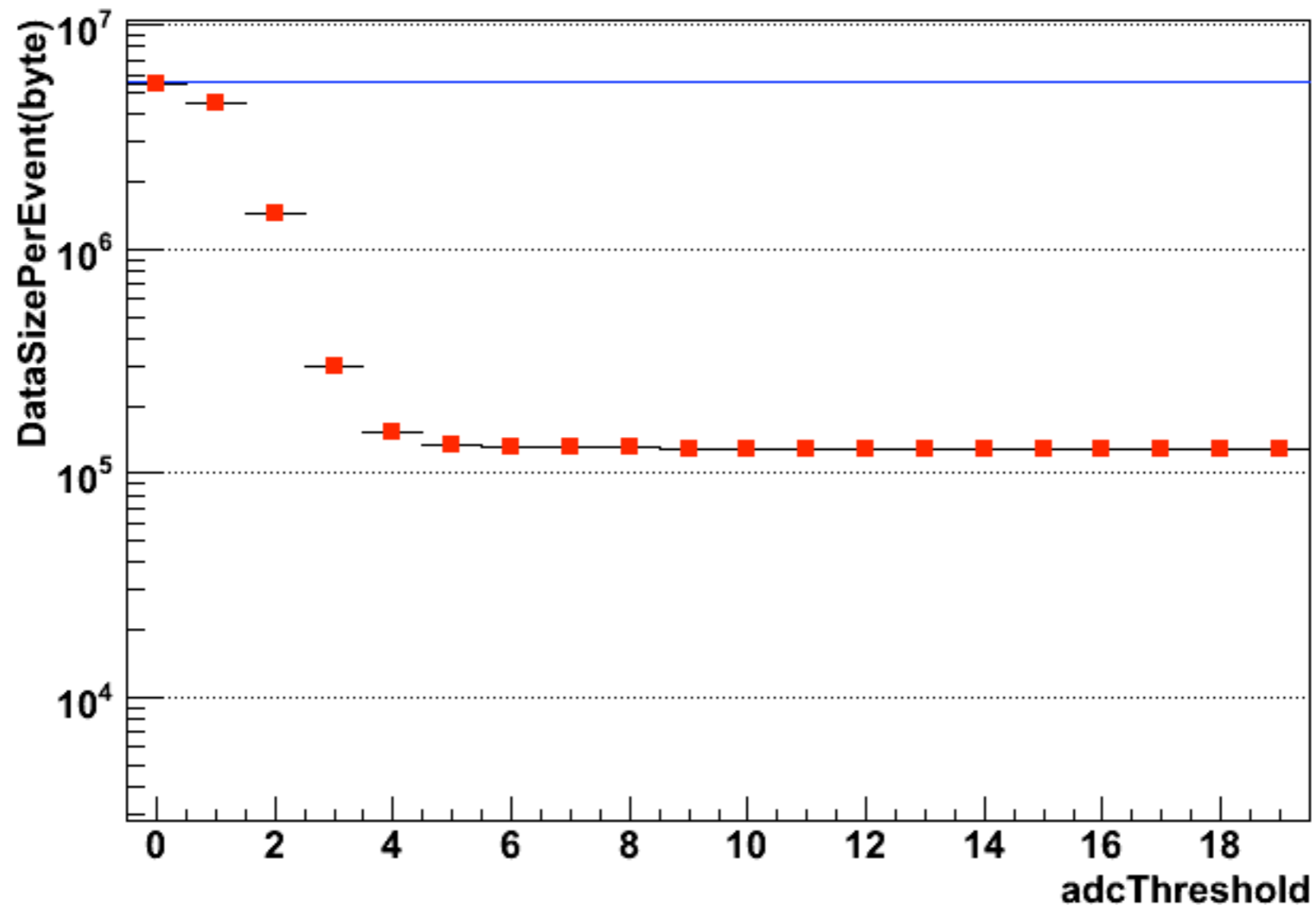
- Header Size per event:

  ▸ for ZS data= 7885(words) * 4(sm) * 4(byte) ~ 126 KB

  ▸ for NZS data = 4237(words) * 4(sm) * 4(byte) ~ 68 KB

- threshold 5, we are already dominated by header size

Double check the calculation

- Non Zero Suppressed run data size per event (based on Run 49643)

  ▸ From Log book: 3939(MB)/740(events)= 5.32MB

  ▸ From above count(blue line): 4237 header words per sm * 4 sms * 4 bytes + 5 words * 4 byte * 275646 adcs = 5.58MB

  ▸ 260KB mismatching due to missing HC (with reason)

(Number of Activated channels)/(Number of channels of NZS case) vs. ADC threshold(noise run)