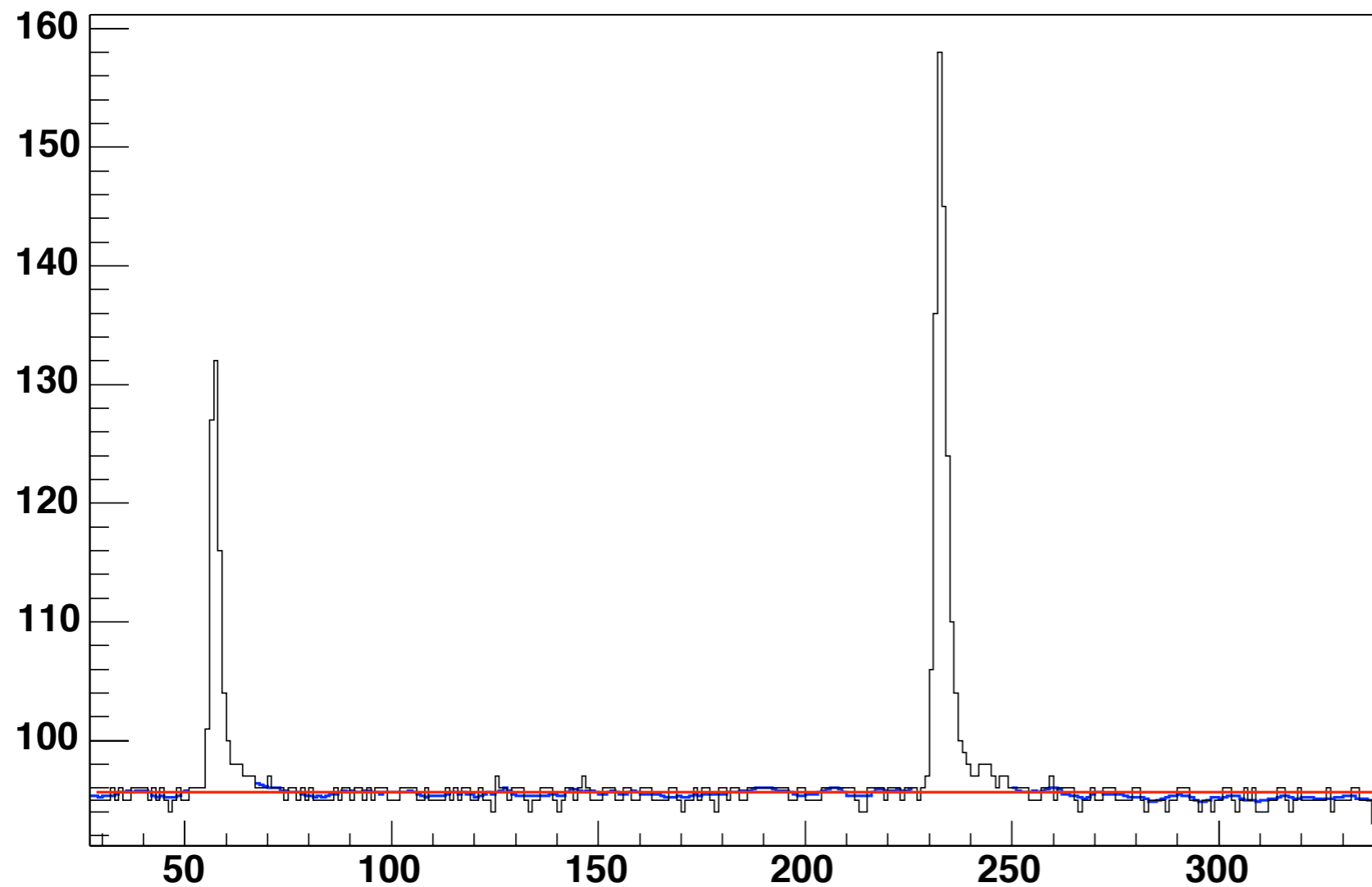


# Sector test Analysis

# Data - MIP

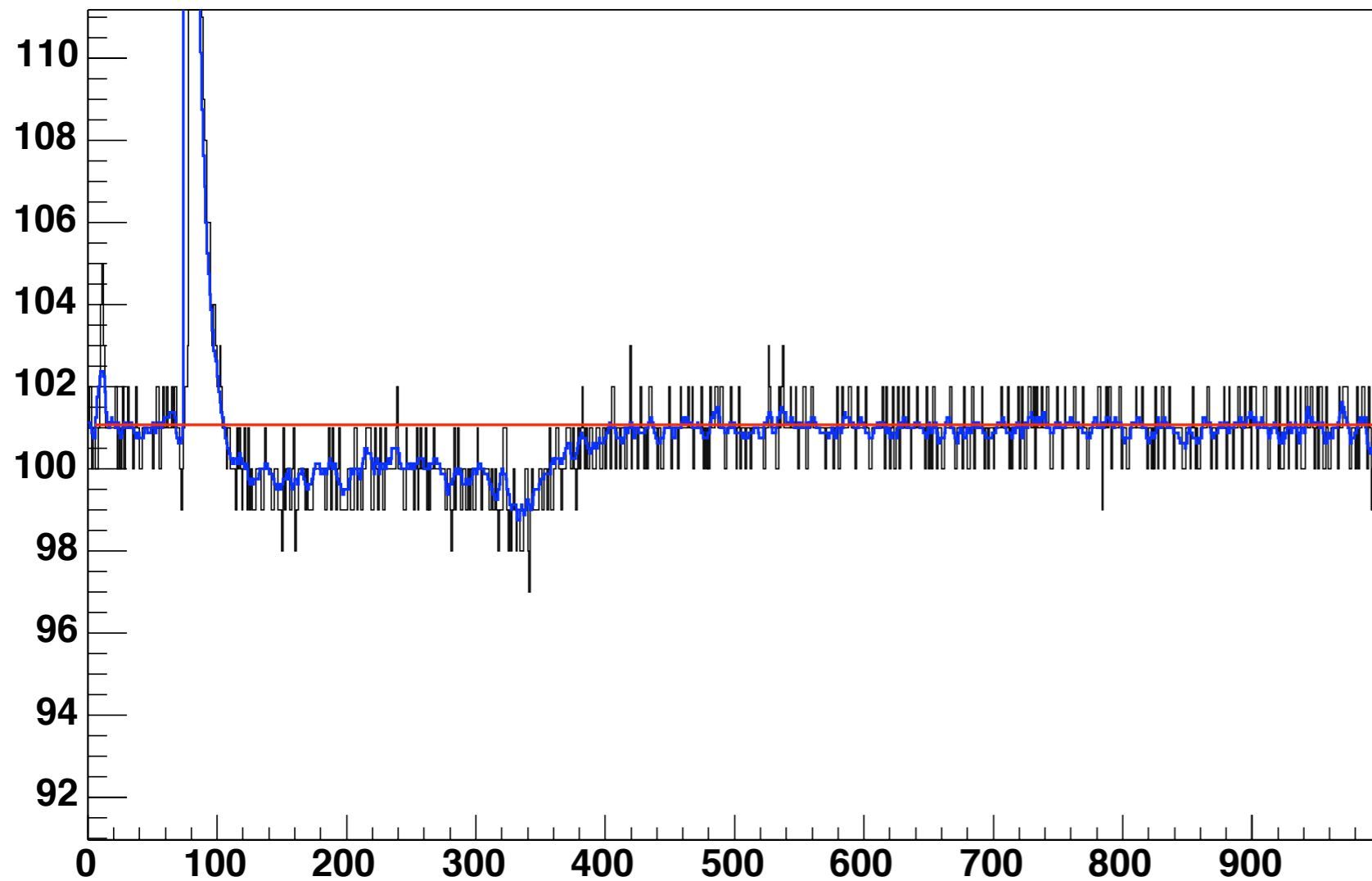
Event: 3 run00013 Row=48 Pad=45 RMS=0.840277 Channel=452 maxADC =62



- most probable pulse
- Baseline
- Moving Average

# Data - 10 MIP

Event: 9 run00013 Row=13 Pad=38 RMS=2.379783 Channel=703 maxADC =300

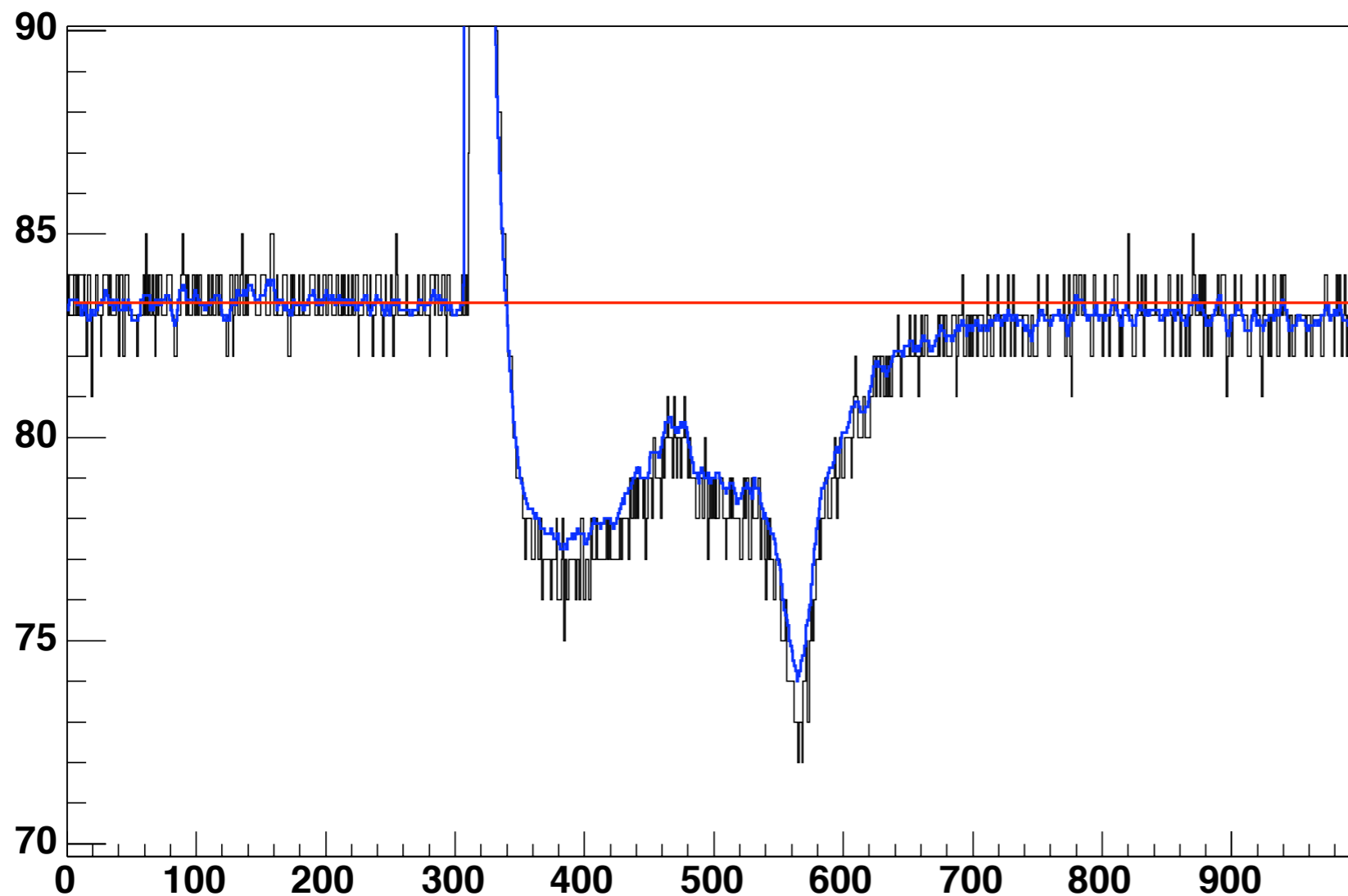


- 10 MIP Signal
- maxADC ~300
- structure after Peak

timebins [100 ns]

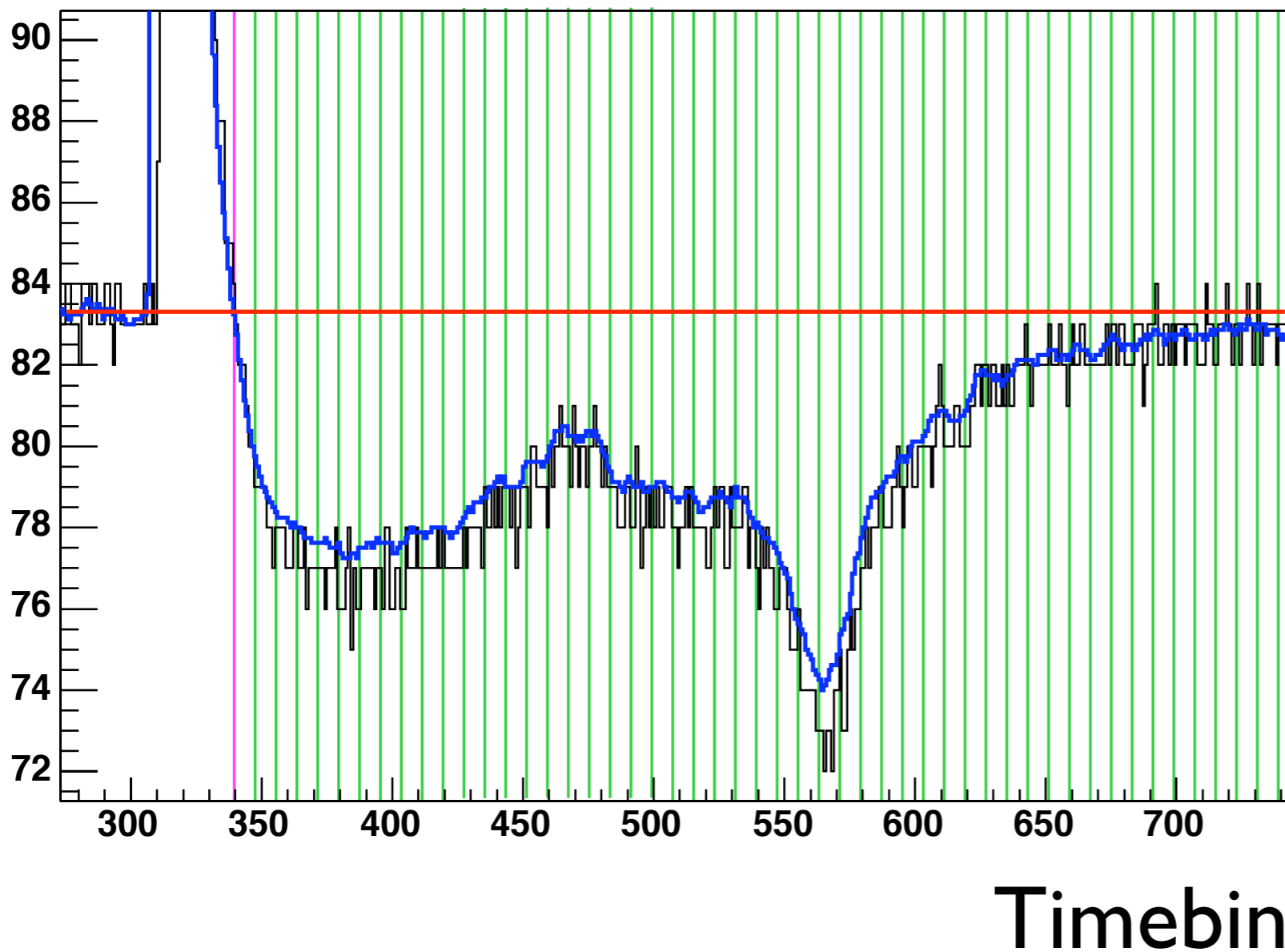
# Data - 30 MIP

Event: 716 run00013 Row=9 Pad=31 RMS=55.518810 Channel=929 maxADC =939



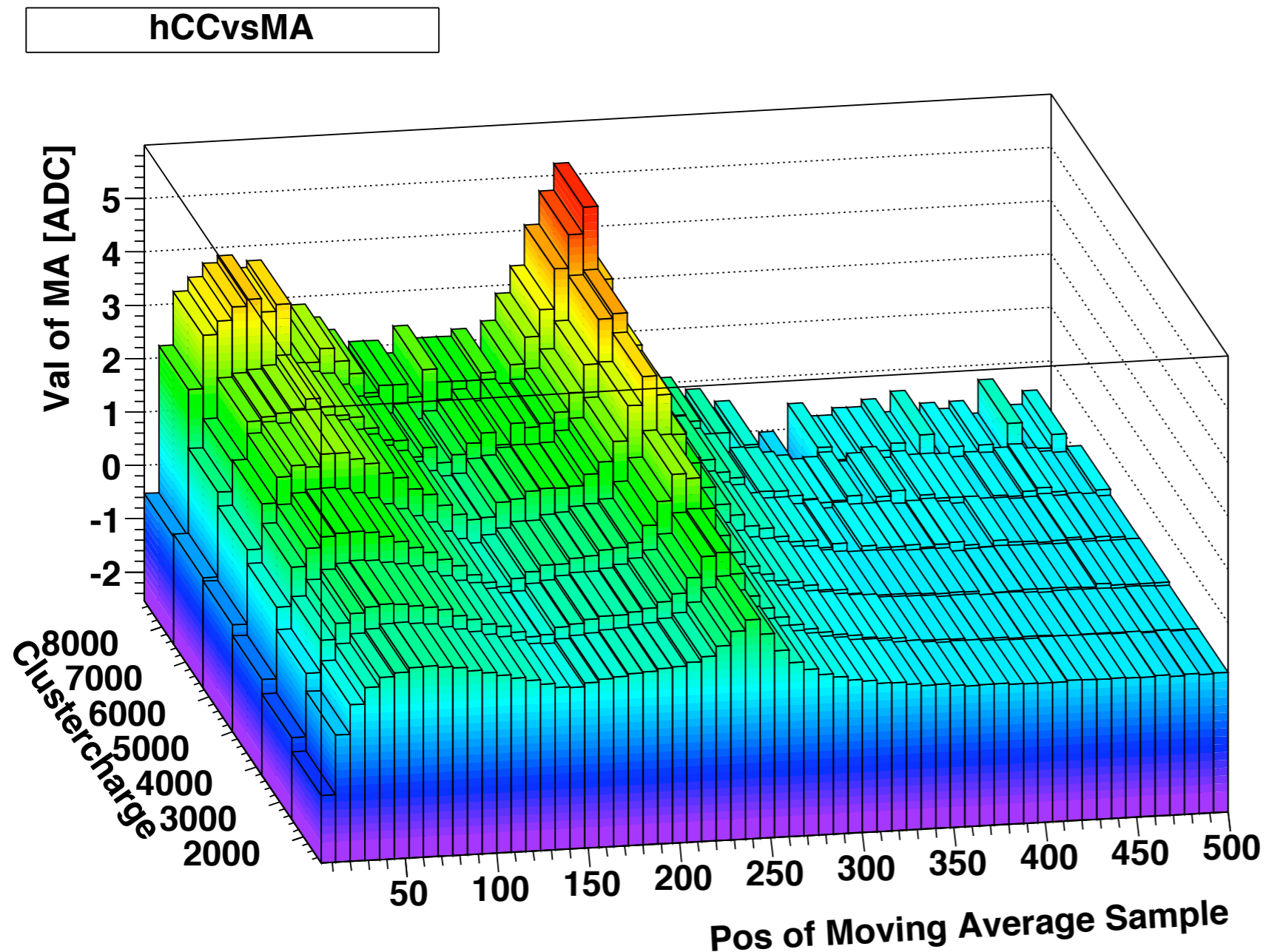
- 30 MIP signal, very unlikely
- Structure has 2 minima
  - slow Part
  - fast Part

# Data - Tail Analysis



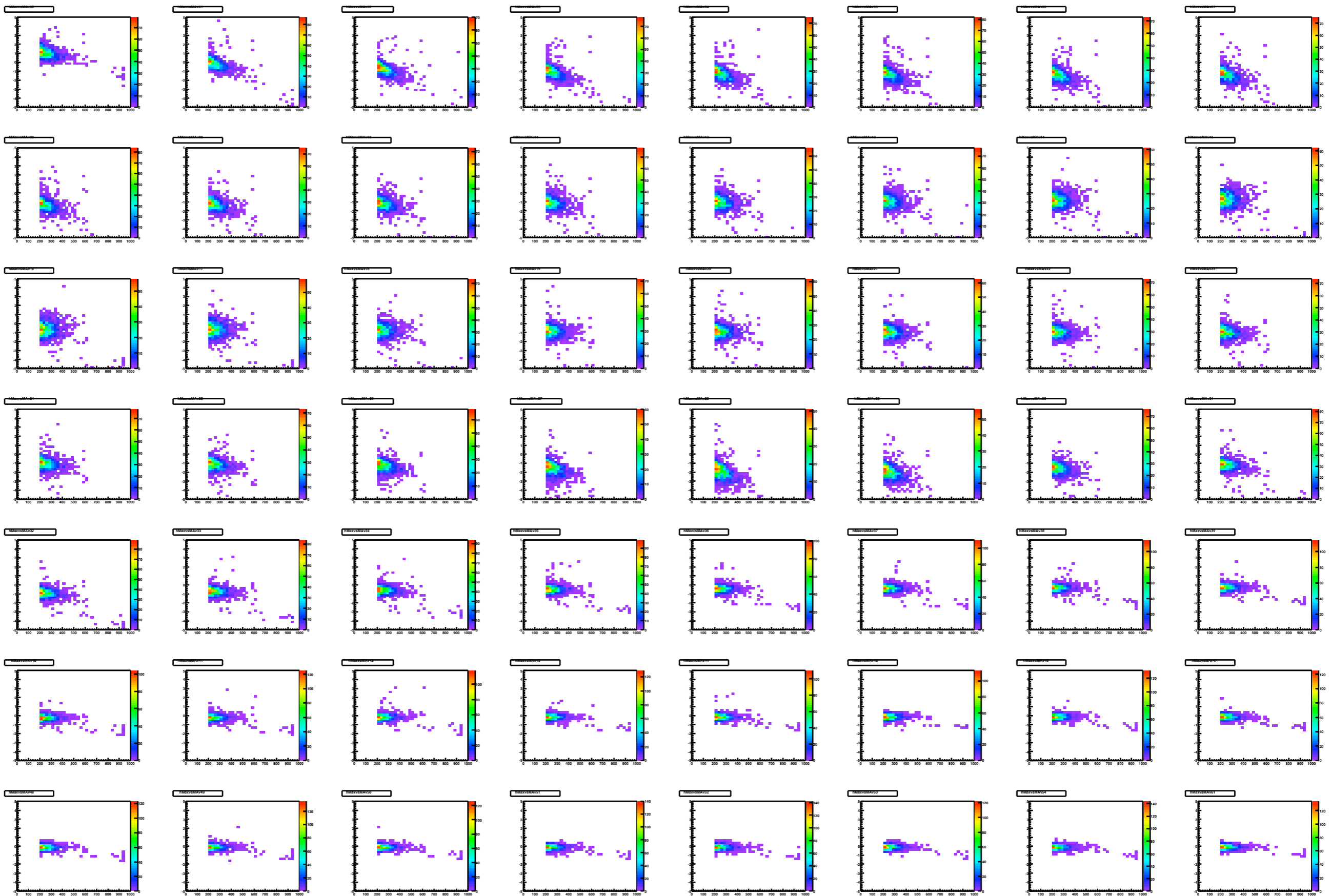
- zero crossing Point
- Moving Average sample Points (8 timebins)
- Cuts:
  - $\text{maxADC} > 200$
  - $50 < \text{center of Gravity} < 400$
  - One Pulse per Channel

# Data - Tail Analysis



- Constant time profile ( $< 800$  ns)
- Amplitude scales with Pulse-charge

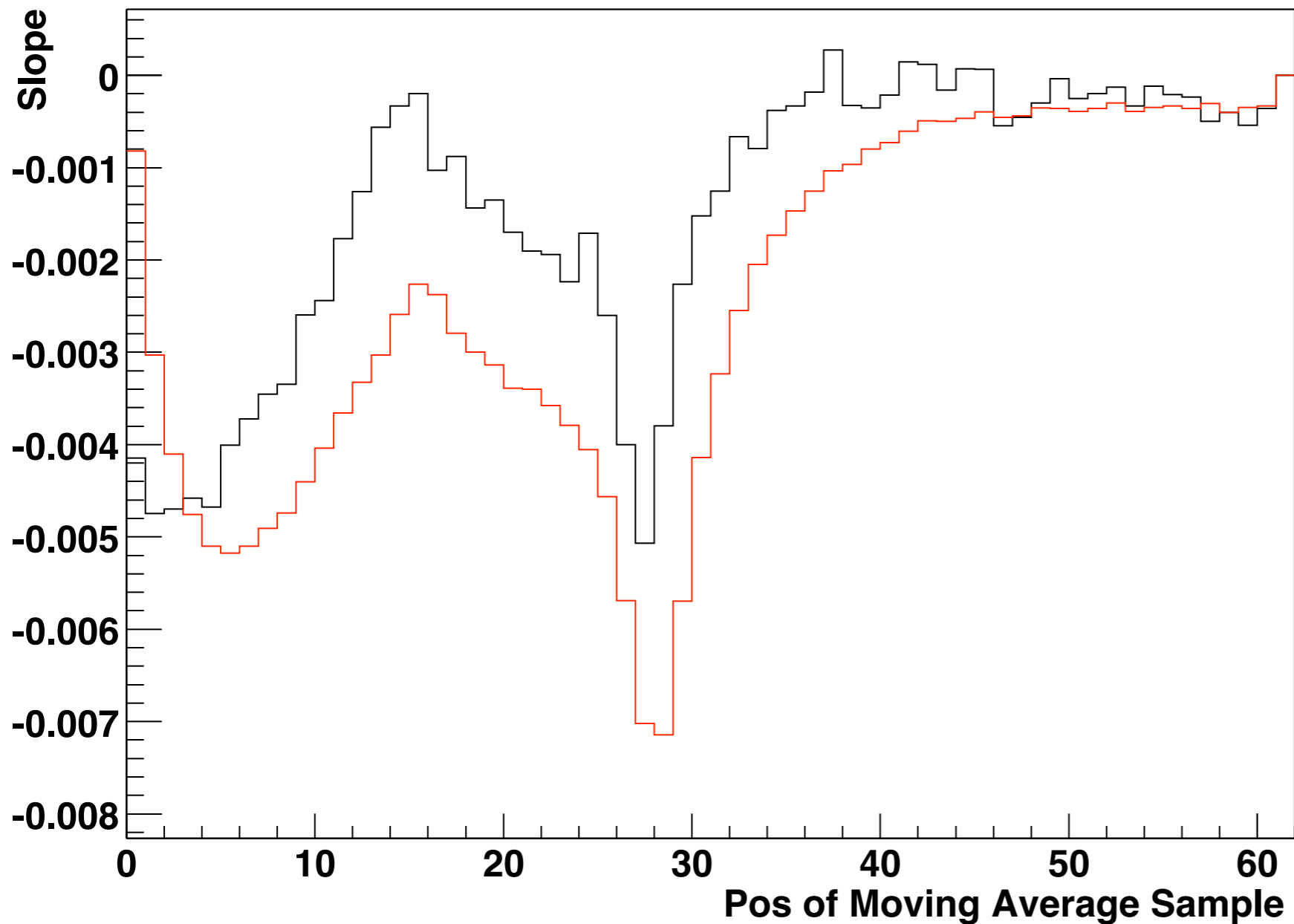
# Undershoot Amplitude



0

1000 MaxADC

# Data- Tail Analysis

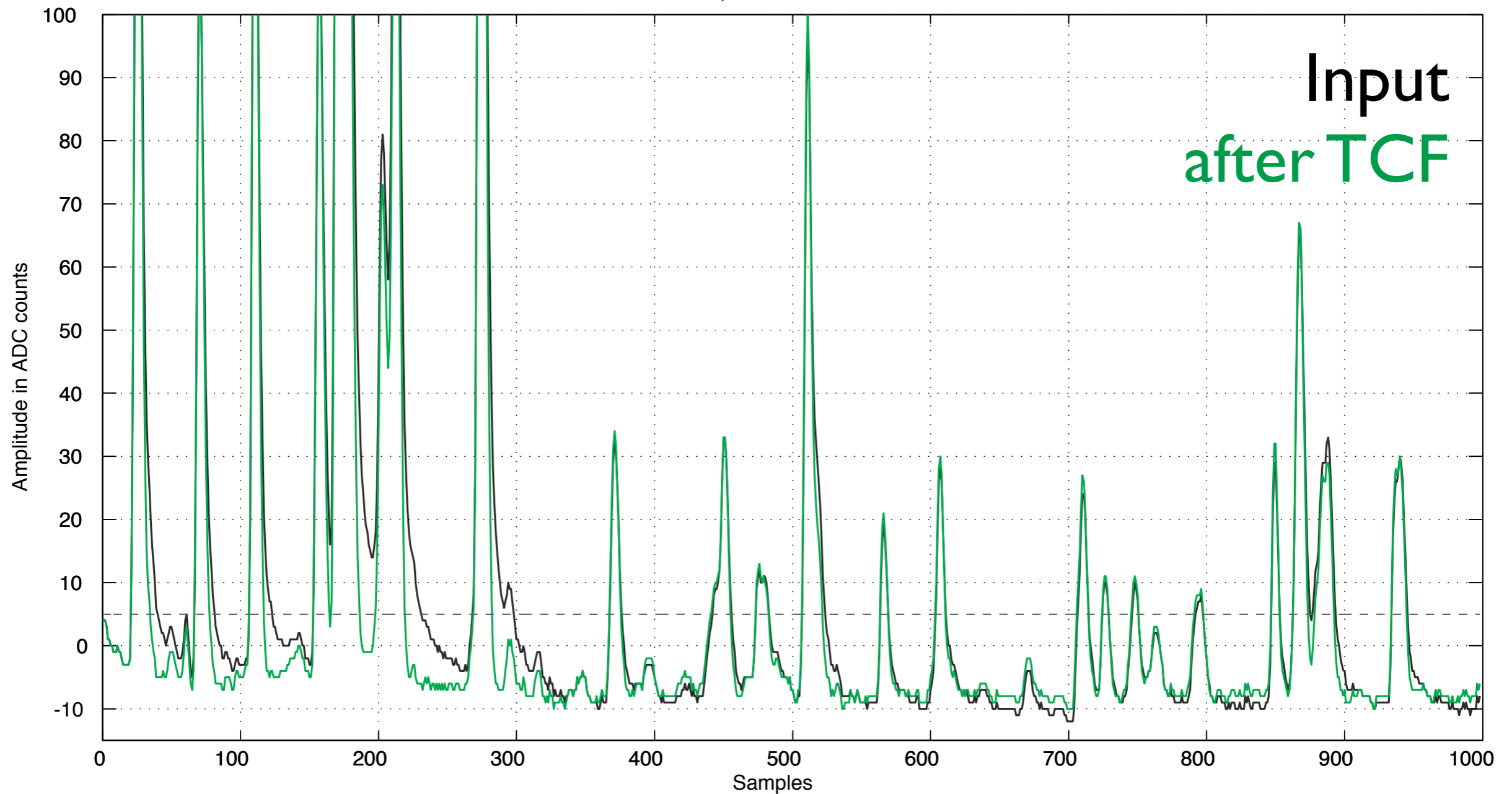


- extracted the mean positions (min 20 Points)
- fitted them with a line
- free fit
- forced fit to pass through 0,0



# Altro (ArCO<sub>2</sub>)-TCF

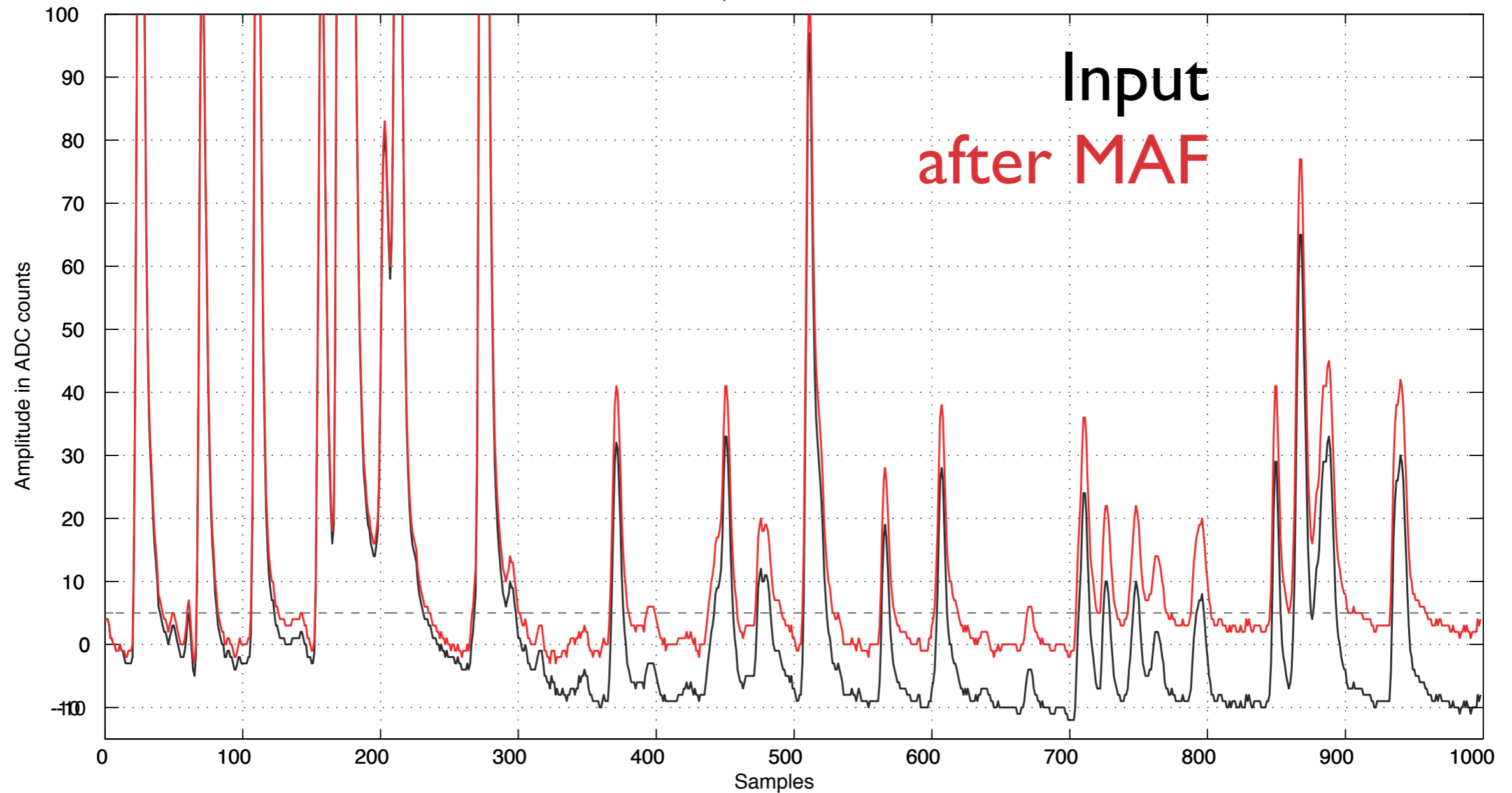
Event 251, Channel 140



- Clusters narrowed, but some clusters are lost

# Altro(ArCO<sub>2</sub>) - MAF

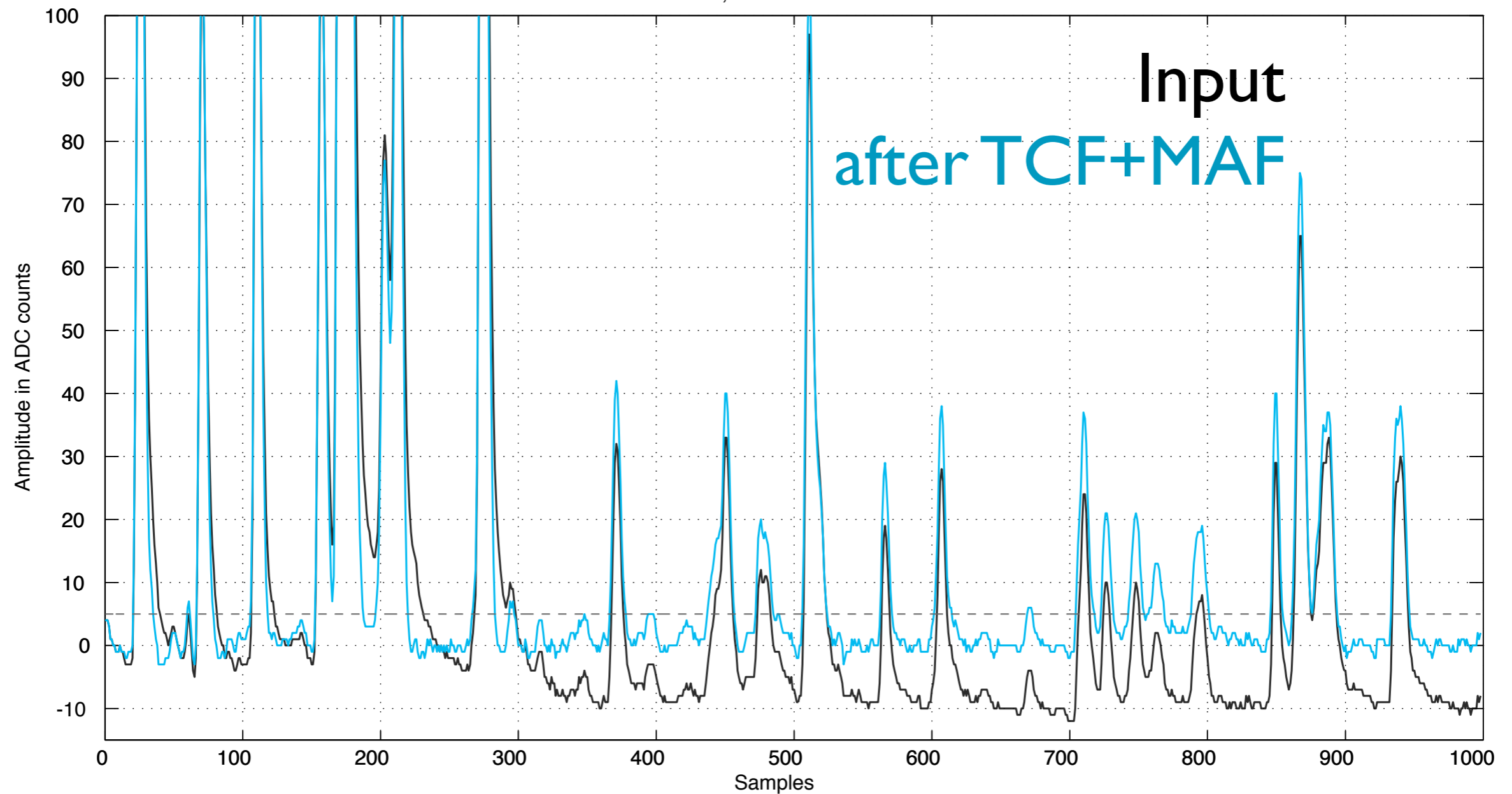
Event 251, Channel 140



- Baseline restored, but some clusters lost

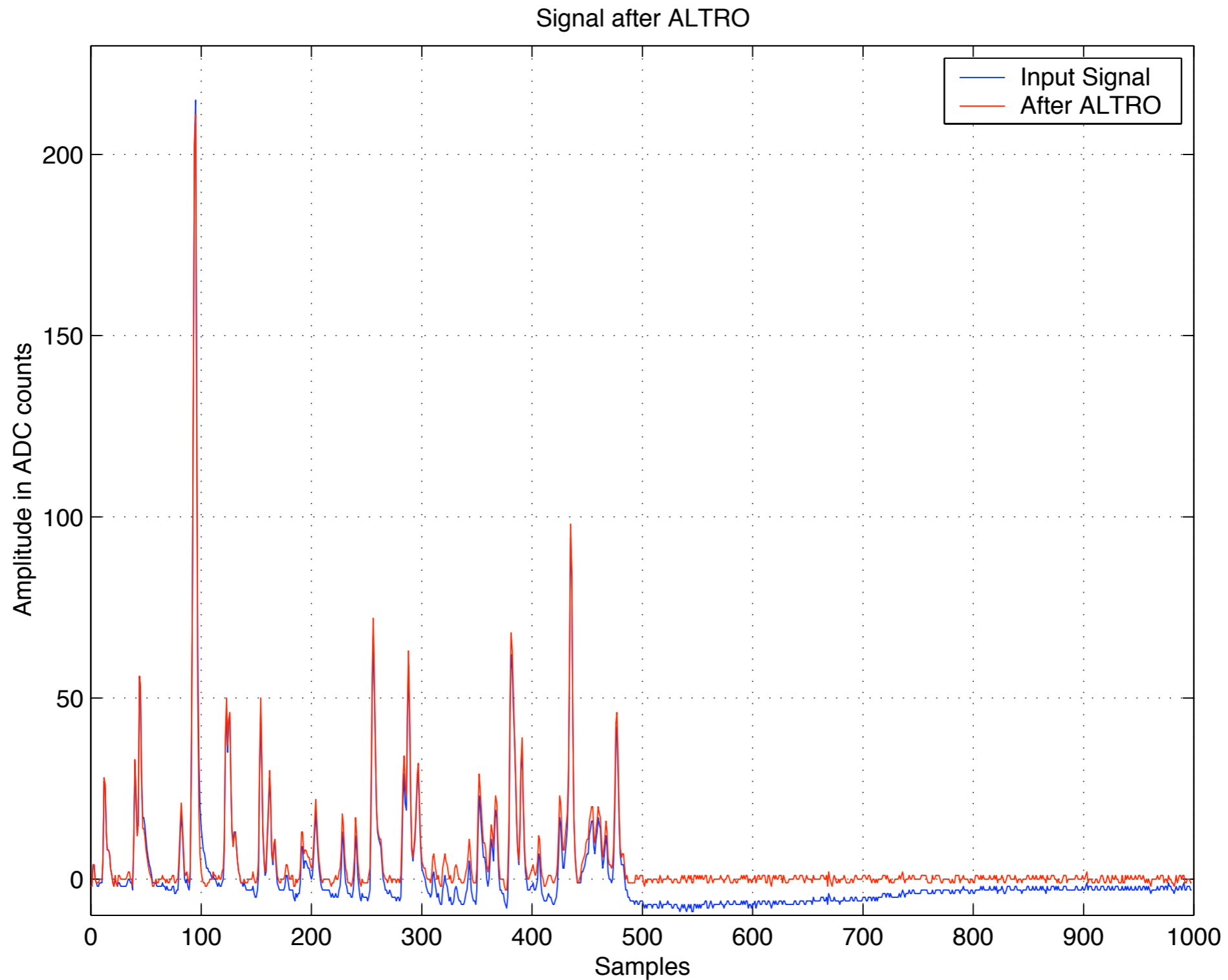
# Altro(Ar...)-TCF+MAF

Event 251, Channel 140



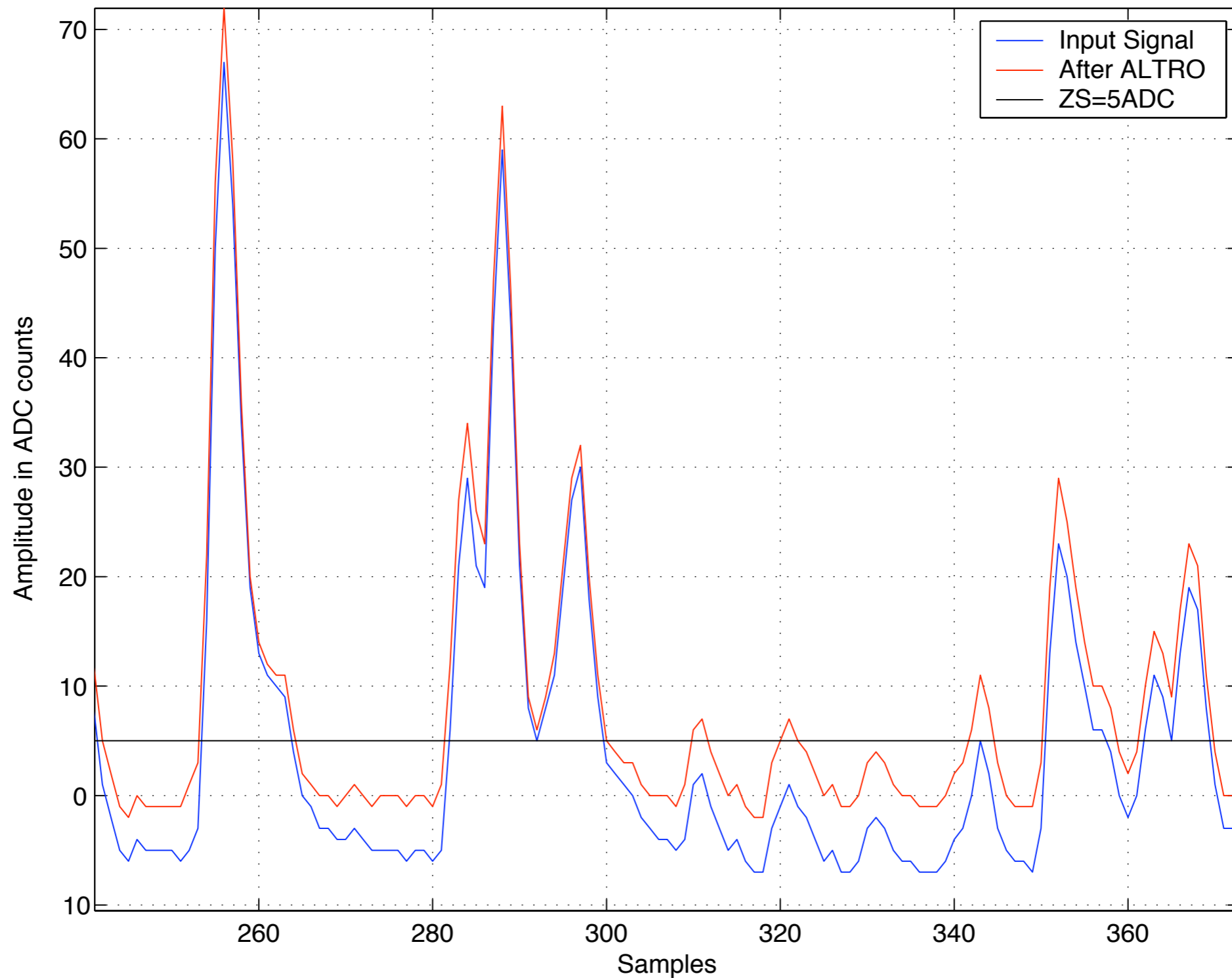
- Baseline restored, Clusters narrowed

# Altro(Ne...)-TCF+MAF

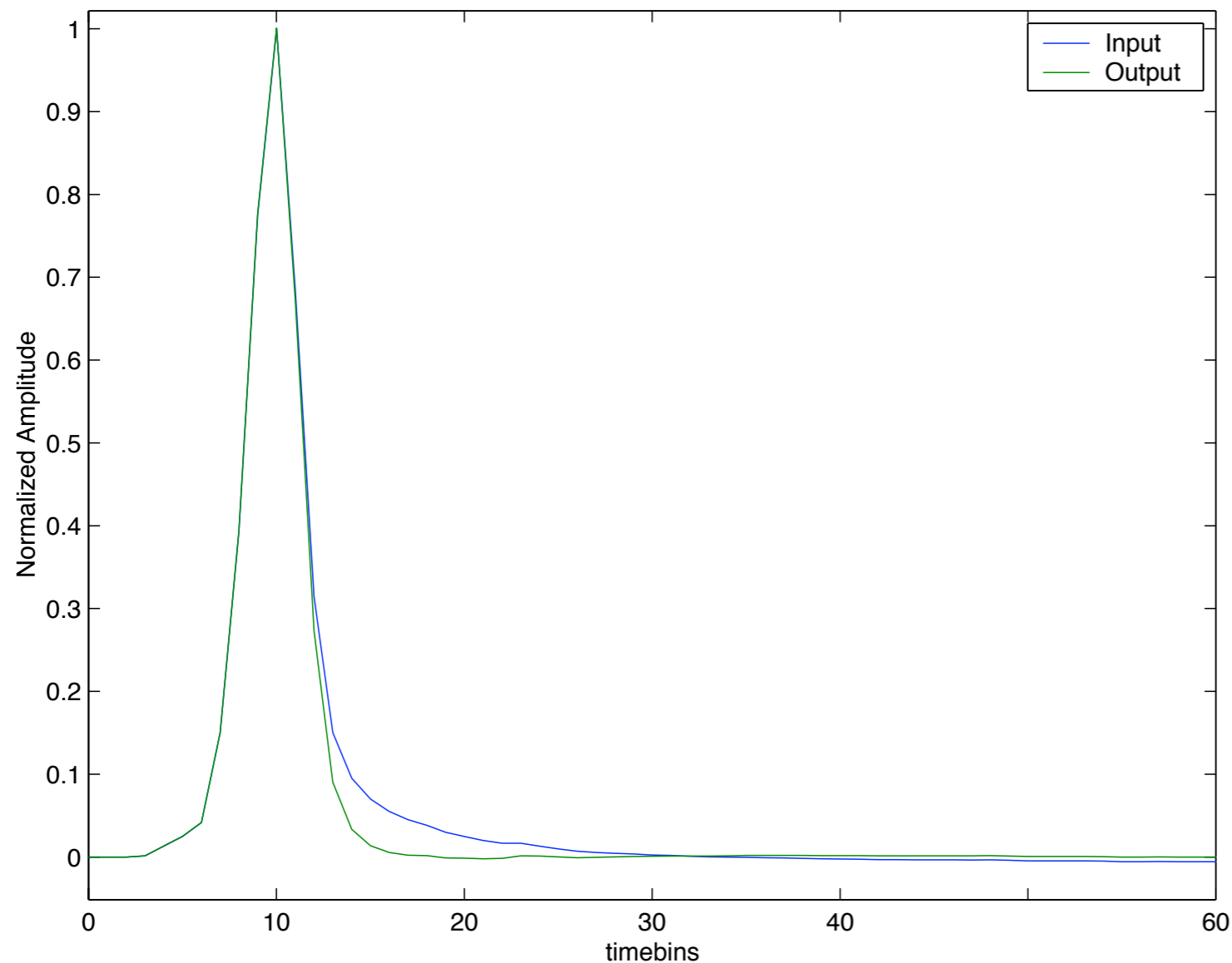


# Altro(Ne...)-TCF+MAF

Signal after ALTRO

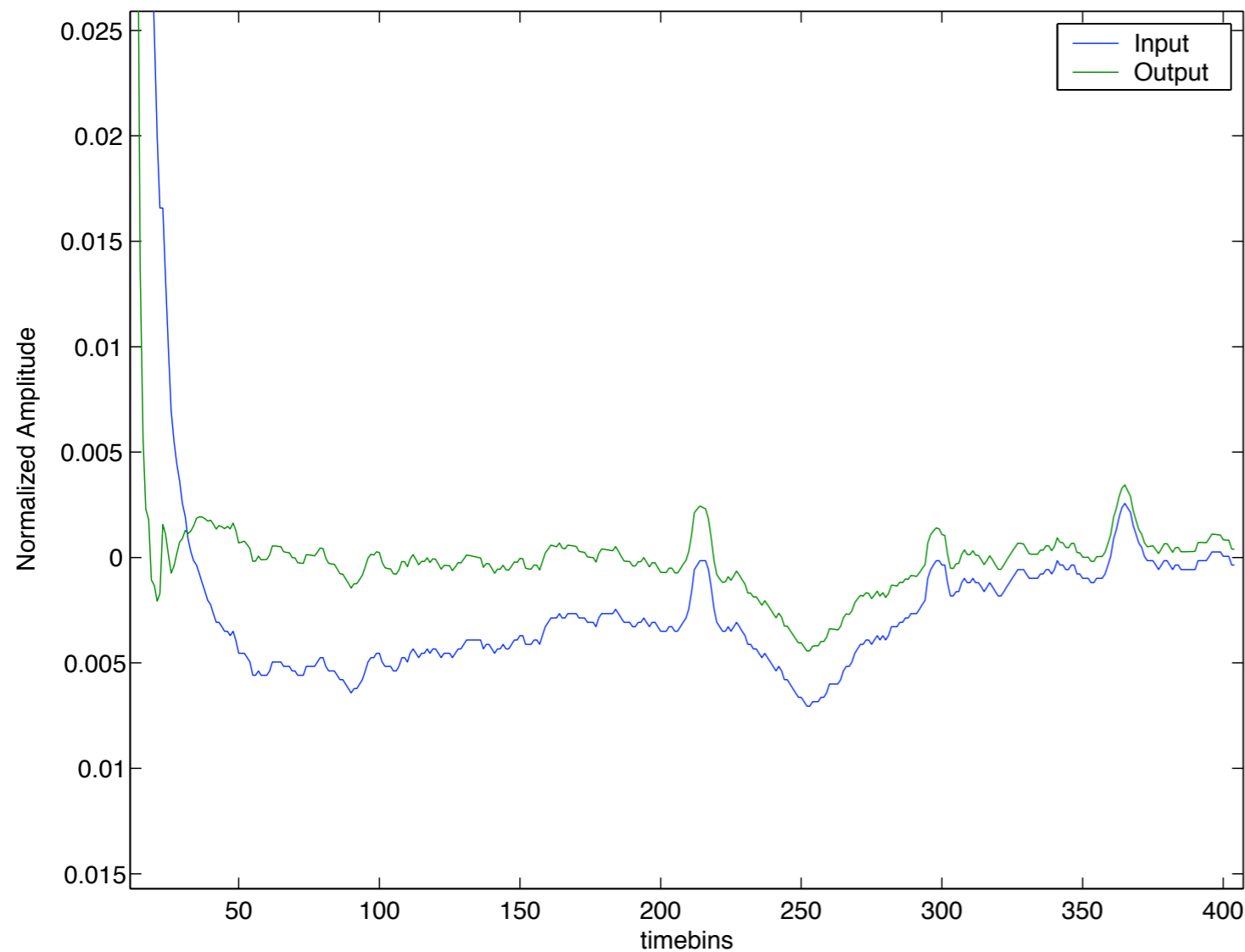


# TCF - Performance in one Channel



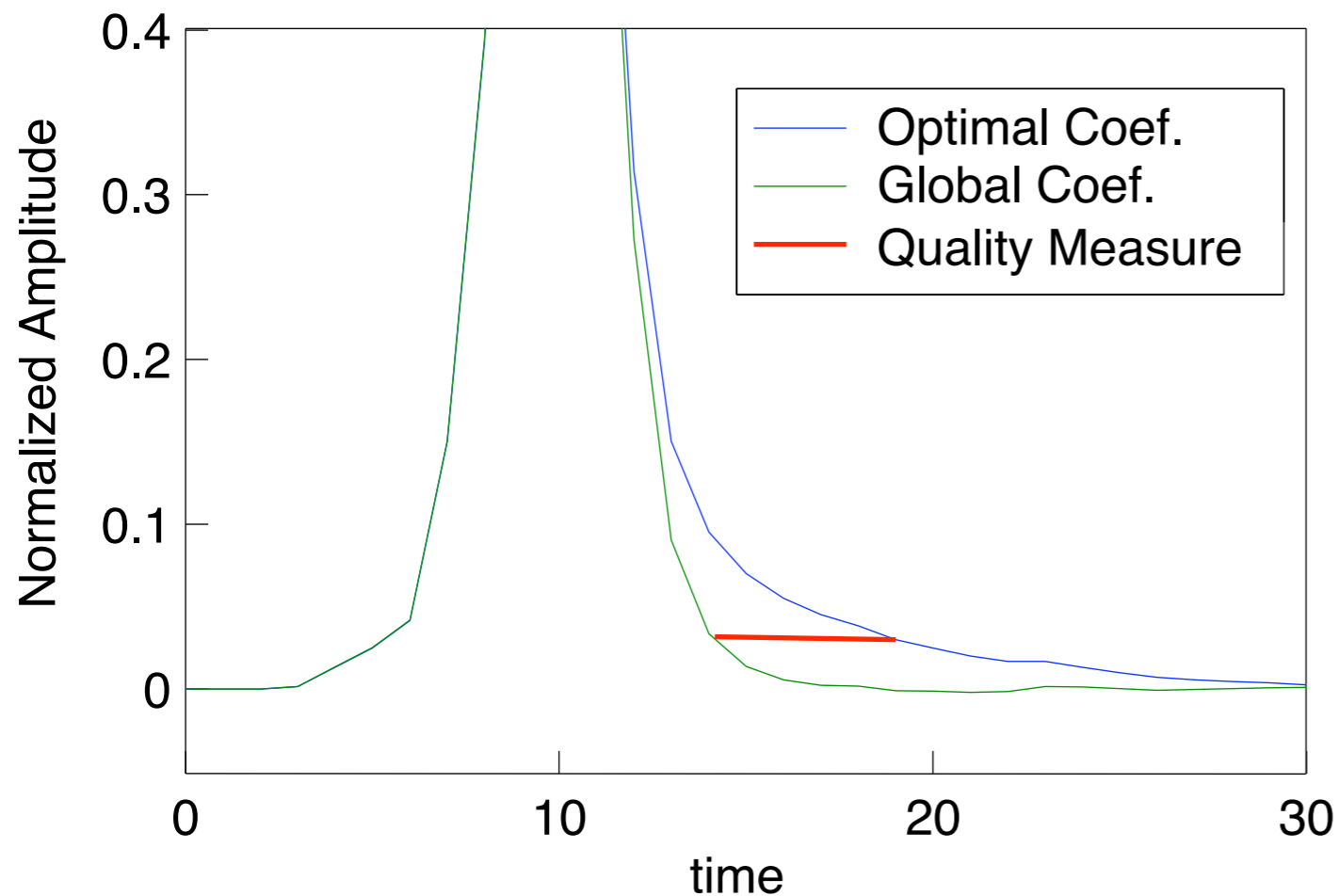
- Maximum of Pulse is kept
- Pulse is shortened

# TCF - Performance in one Channel



- changes the long tail part
- can resolve the slow part of Undershoot

# TCF Performance

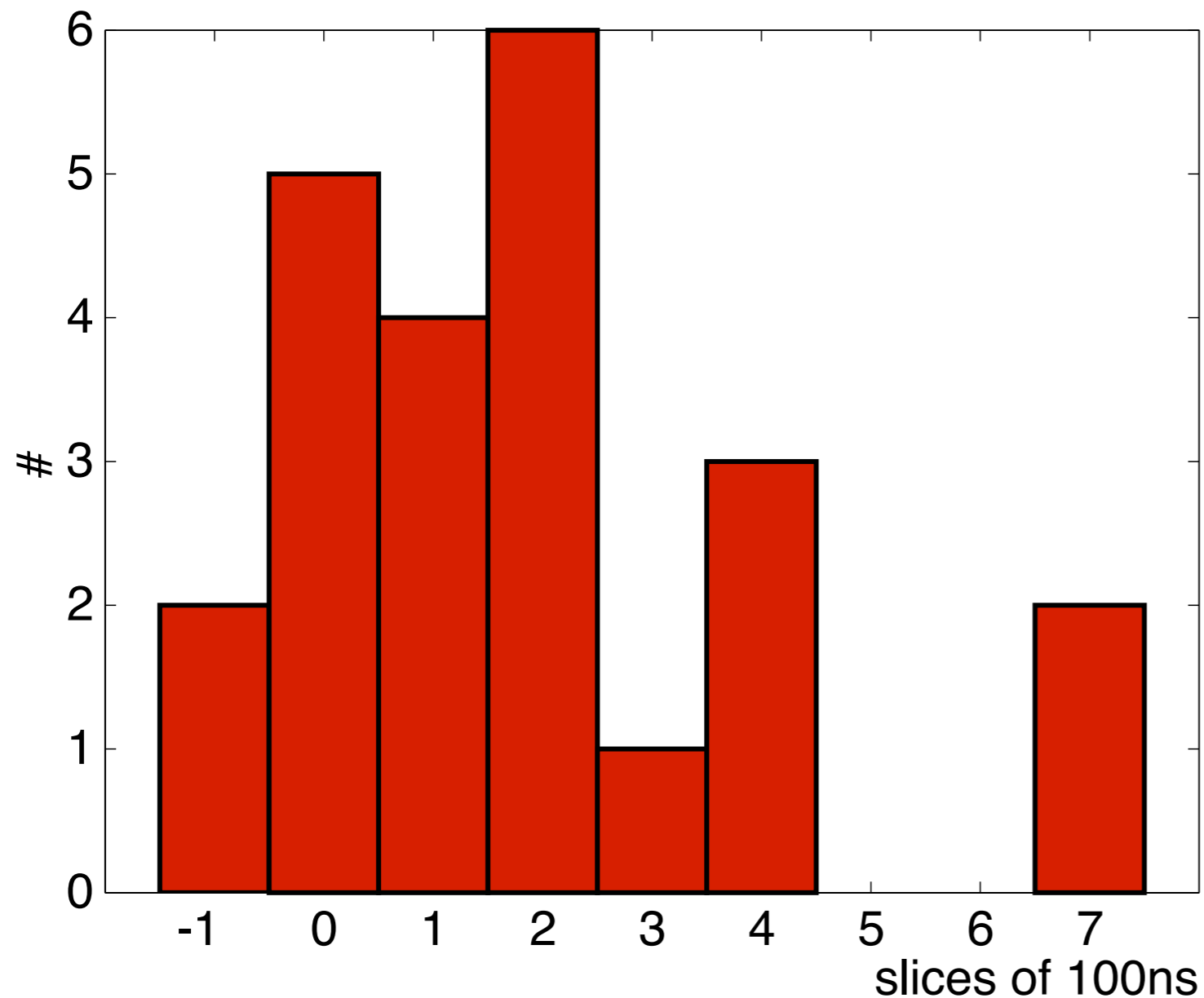


- Searched for big Clusters
- applied algorithm to extract Parameters \*
- **QM** is the measure comparing a **Global** set vs. a **per Channel** (optimal) set

\* see Thesis of Bernado Mota

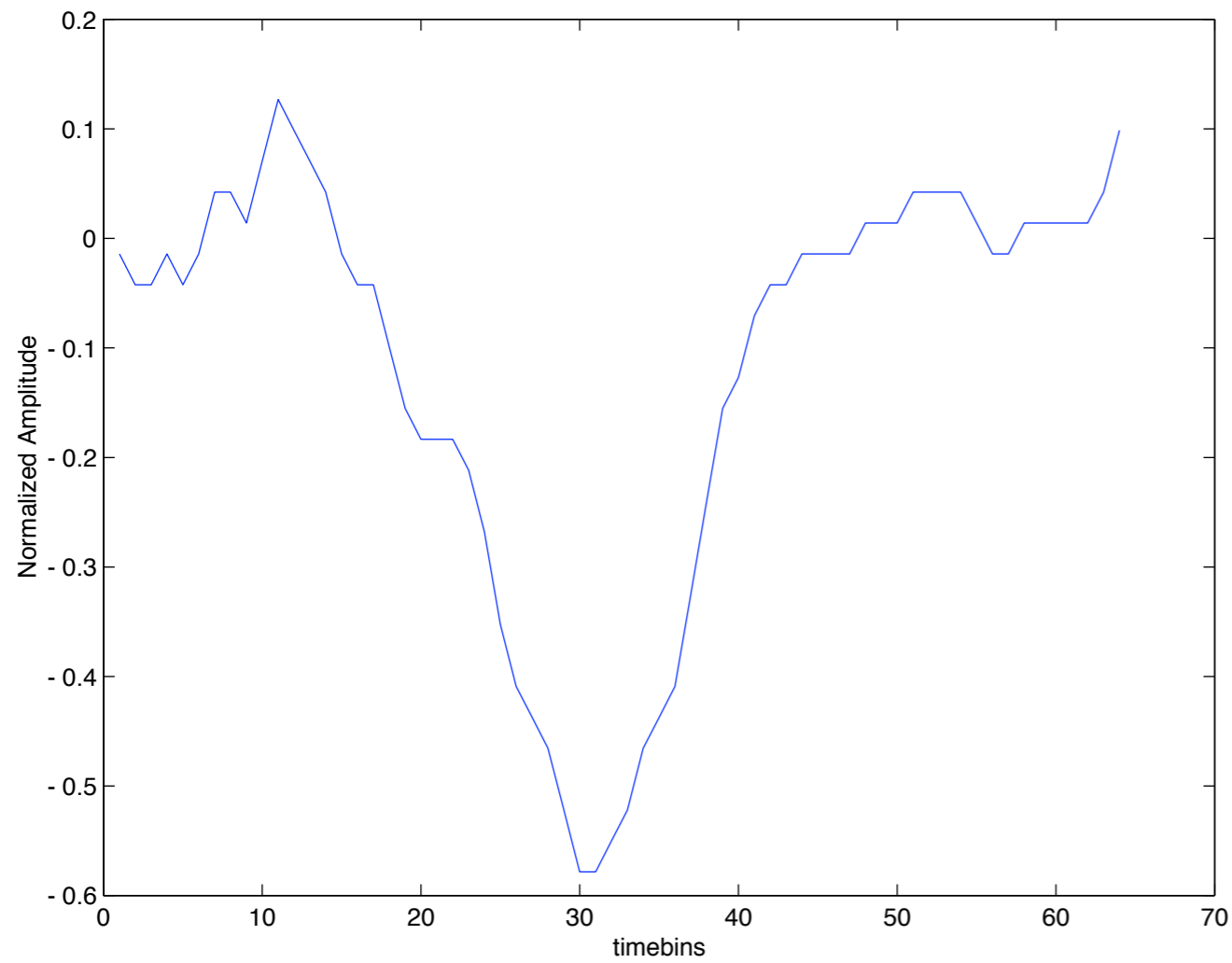


# TCF Performance



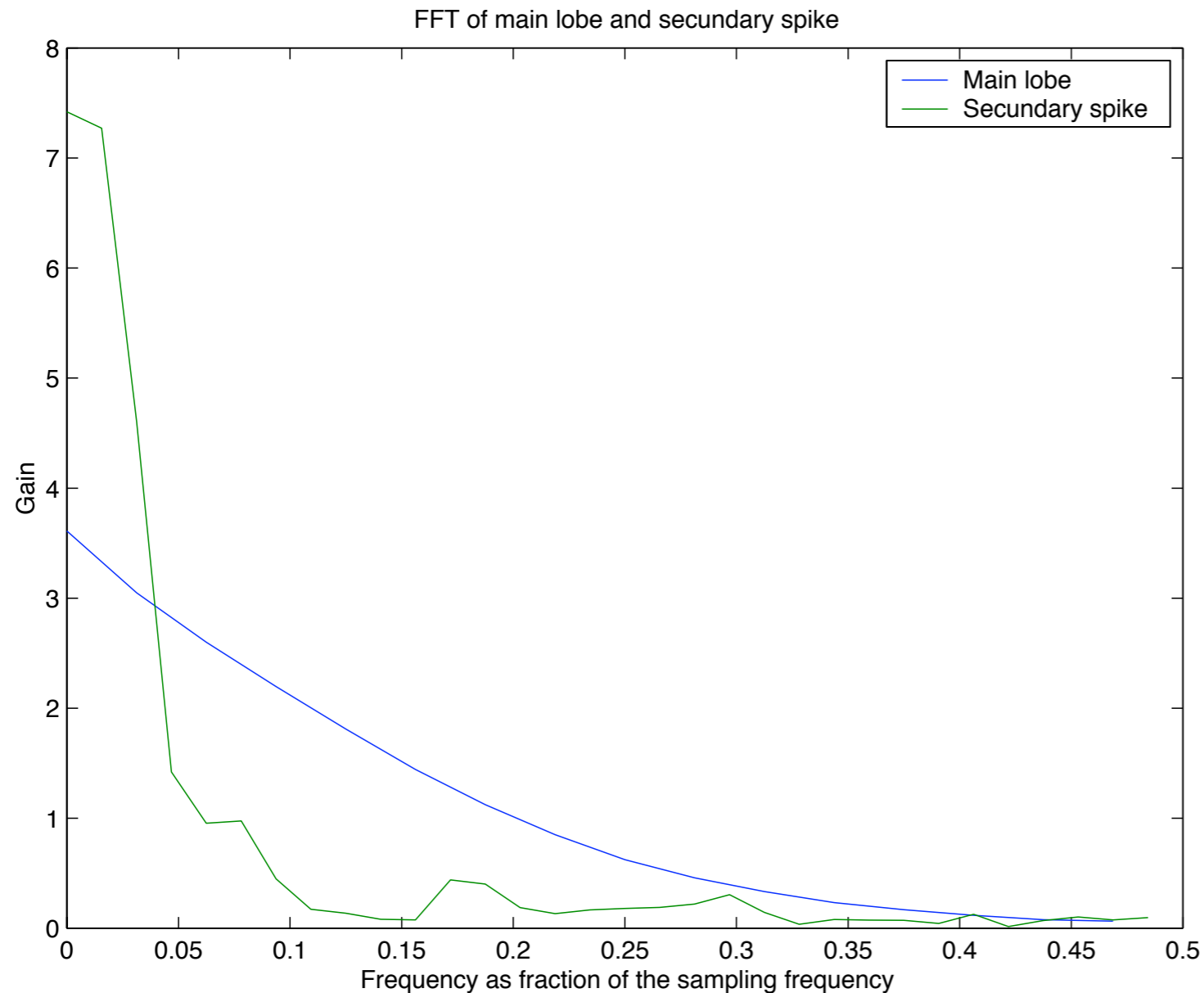
- QM shows a huge difference between optimized and global coefficients
- indication that a per channel TCF is needed

# Second Spike



● secondary Spike

# Secondary Spike - Frequency



- Peak and Spike have different frequency spectrum
- BUT most of the signal power is located in the same region