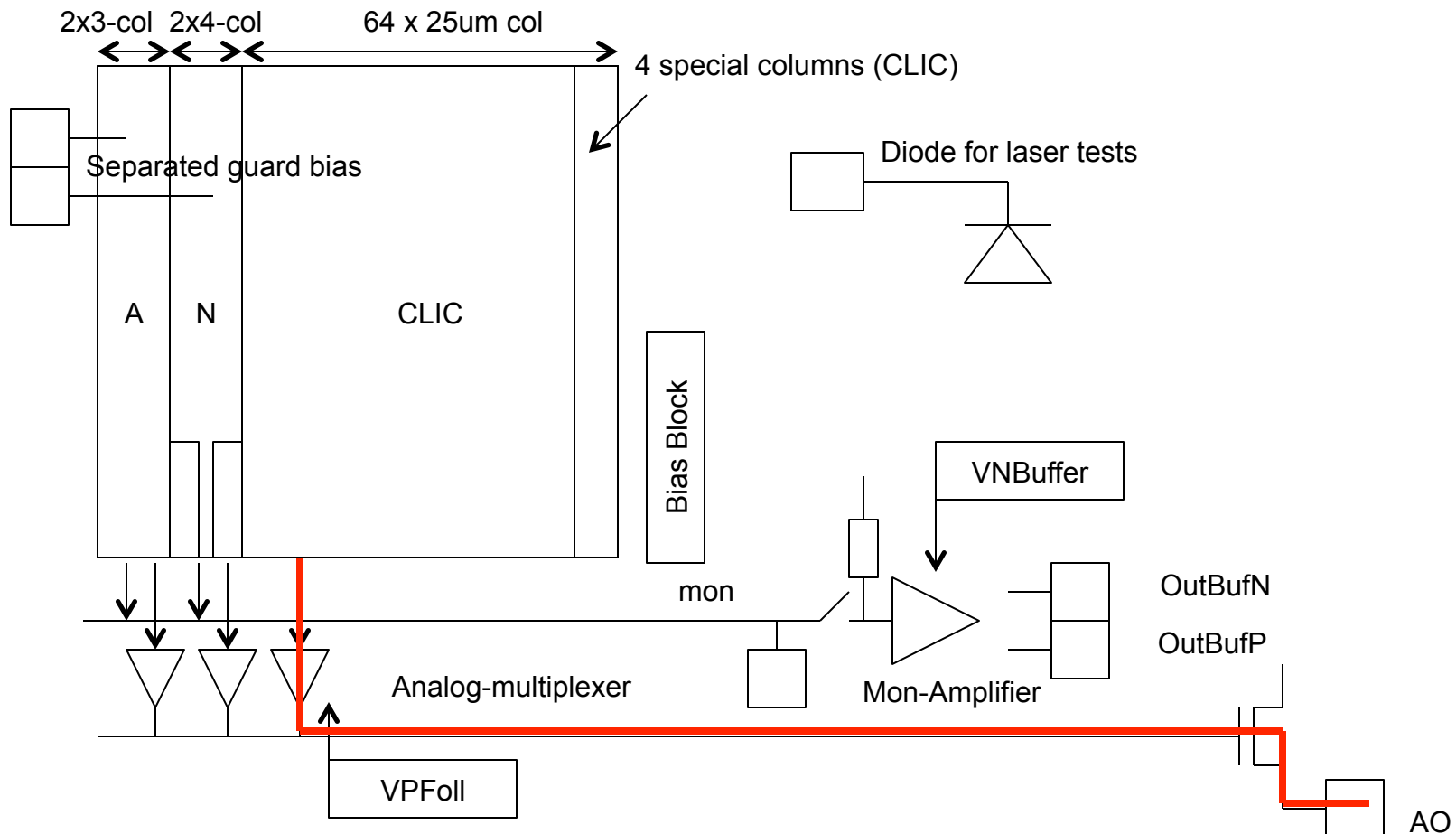
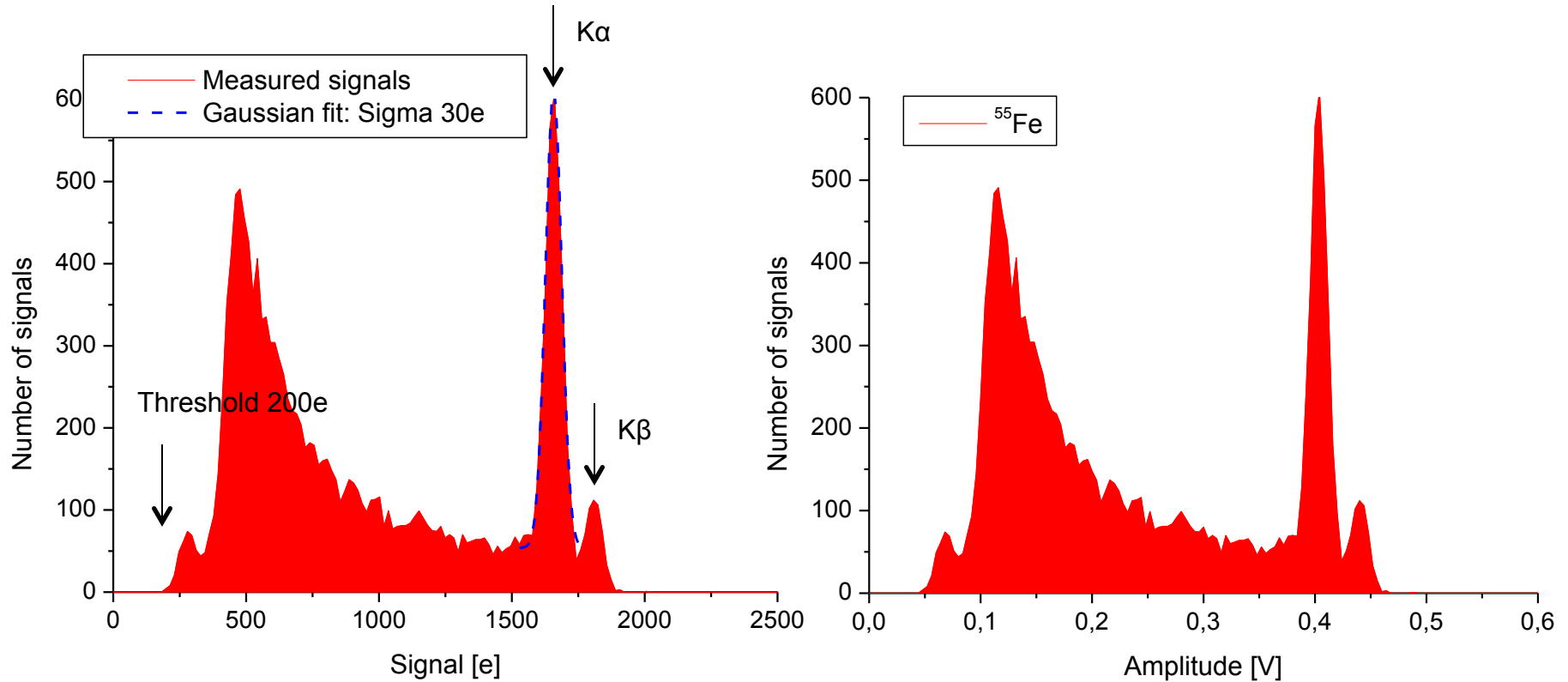


HV-CMOS CCPDV3 status

- ATLAS Type A (as in CCPDV2 and v1) with the preamplifier made entirely of enclosed T and linear long feedback – no passivation opening - pad with capacitor, sub pixel size 33um x 125um
- ATLAS Type “NewPixel” - new type of pixel with separated electronic and electrode, sub pixel size 25um x 125um
- CLIC pixels, size 25 x 25um



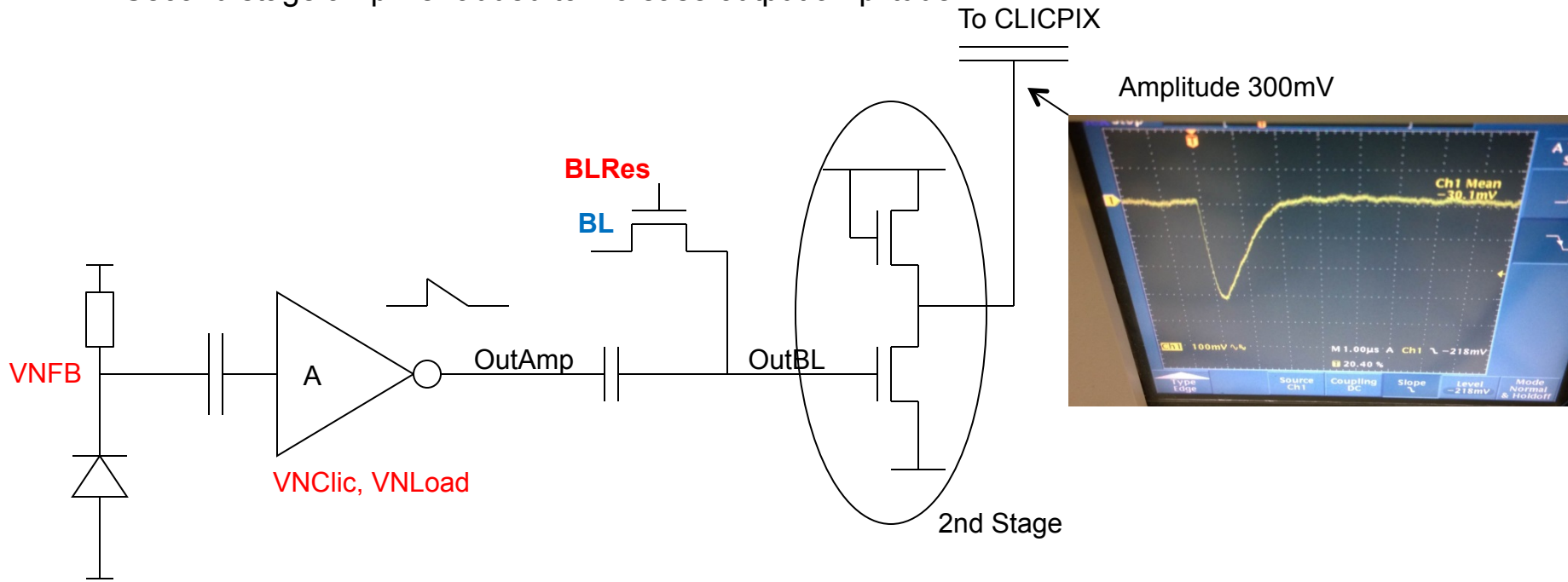
- CLIC pixels



Settings: VN: 60, VNFB: 1, VNFOLL: 10, VNLoad: 10: HV: -35V

Simulated noise: 18e, 46e (1nA detector leakage current)

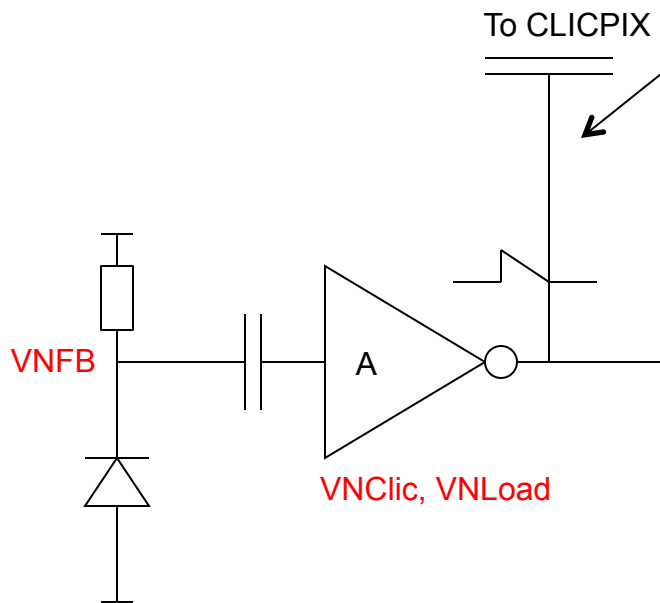
- CLIC Pixel
- Size: 25um x 25um
- Analog signal is transferred to CLICPIX readout chip, no discriminator in pixel
- Simple and small pixels, small capacitance, smaller noise
- Spatial resolution can be improved and ime-walk can be corrected by measuring of signal amplitudes
- Second stage amplifier added to increase output amplitude



RED: Bias Voltages generated internally

BLUE: External Voltages

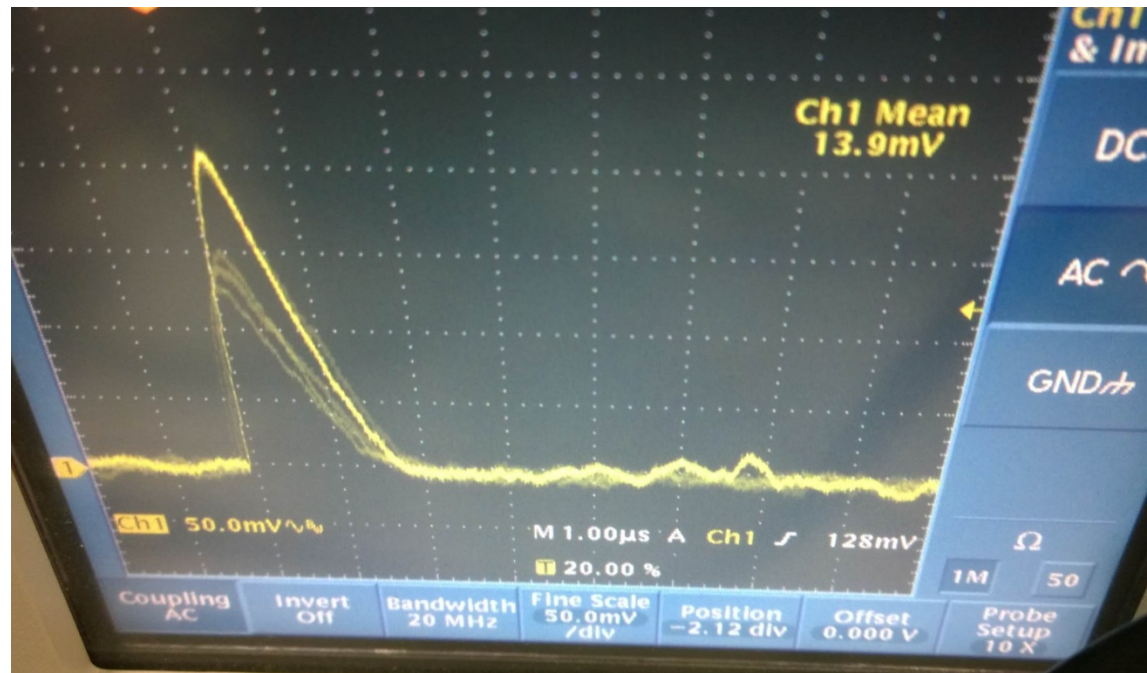
- Four columns have the output of first stage connected to CCPD electrode



RED: Bias Voltages generated internally

BLUE: External Voltages

Amplitude 200mV



- Jian Liu: CPPM Measurements

Setting:

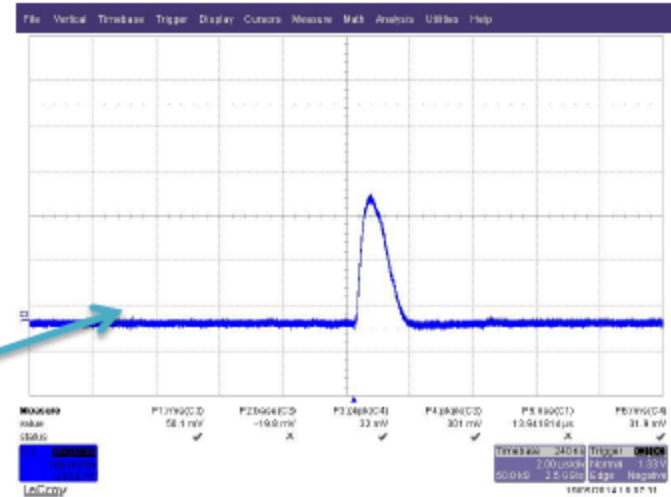
BLBias 10
 VNNew 60
 BLRes 10
 THRes 0
 VNCLIC 30
 VN 0
 VNFb 15
 VNFoll 1
 VNLoad 10
 VNDAC 0
 VPUp 10
 VPComp 10
 VNCompLd2 0
 VNComp 10
 VNCompLd 5
 VNCOut1 30
 VNCOut2 30
 VNCOut3 30
 VNBuffer 30
 VPFoll 30
 VNBias 10

Using PCBV4a Board D04
Controlled by DE2

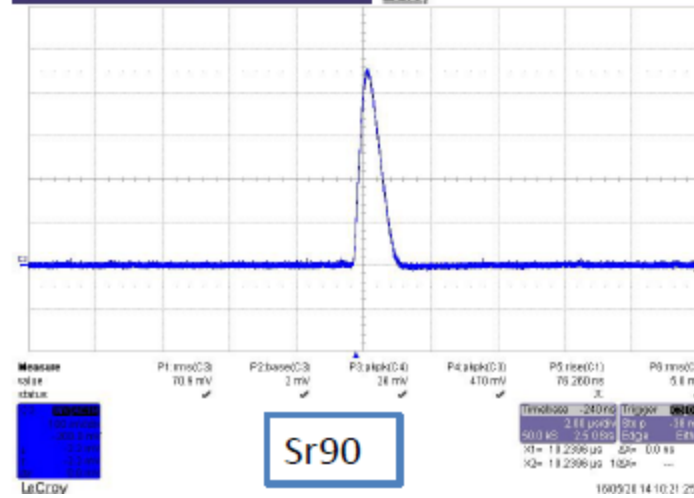
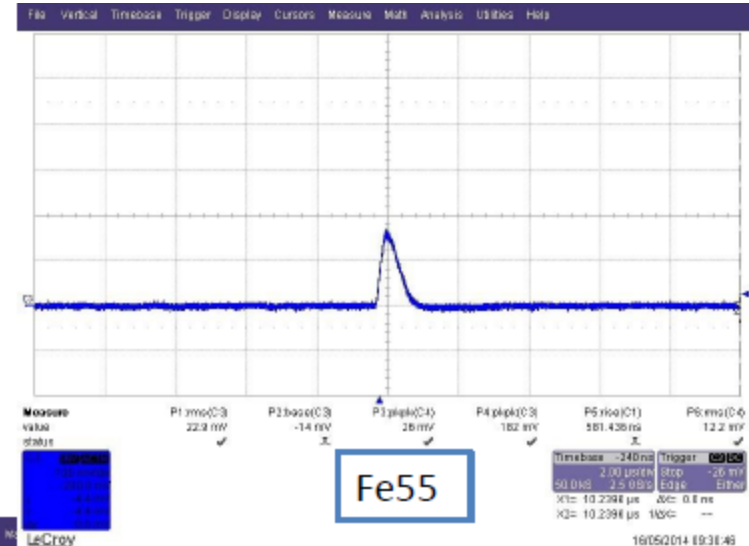
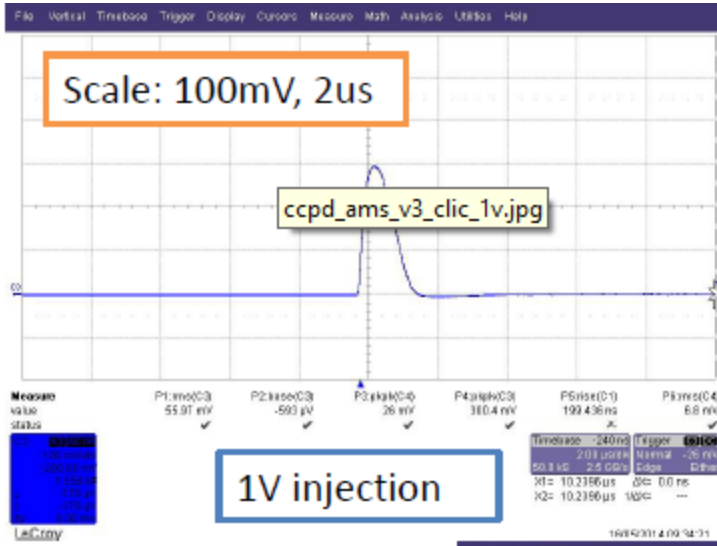
Noise : lacks of decoupling capacitors of HV input on the PCBV4a board.
 Now the noise reduced.
 CLIC:ENC ~35e

Power consumption :

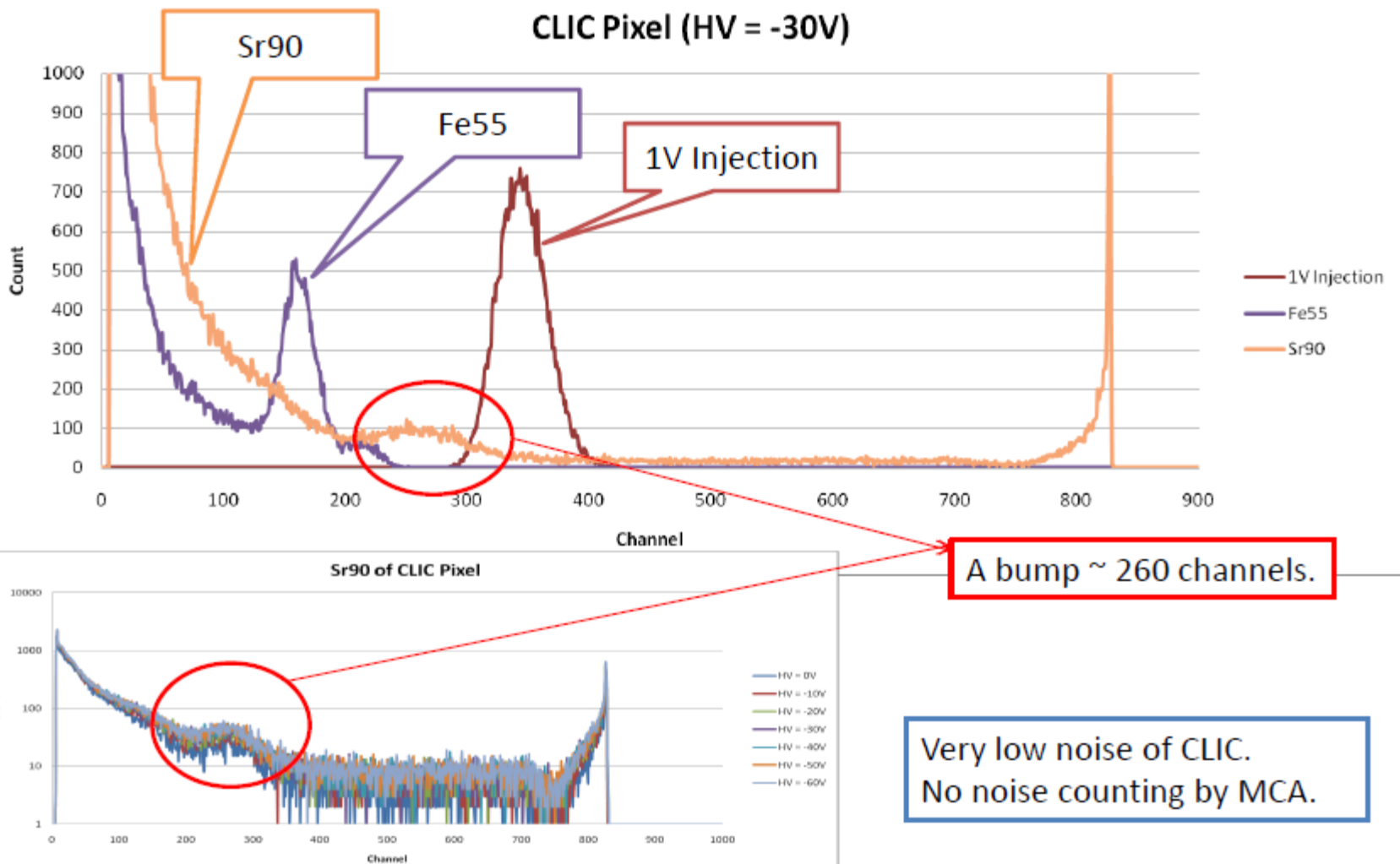
Vssa = 1.5V $I_{ssa}=7mA$
 Vdda = 1.8V $I_{dda}=21mA$
 Vdd = 1.8V
 BL = 0.38V
 TH = 1V
 Gate = 2.1V
 HV=-30V $I_{hv}=\sim 1nA$



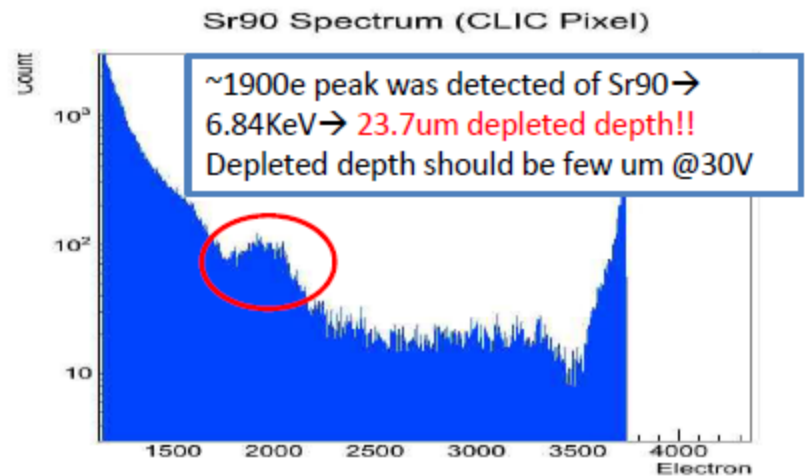
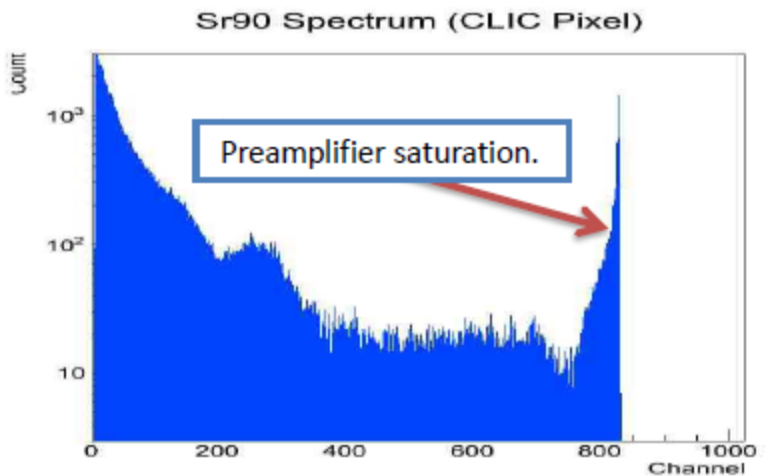
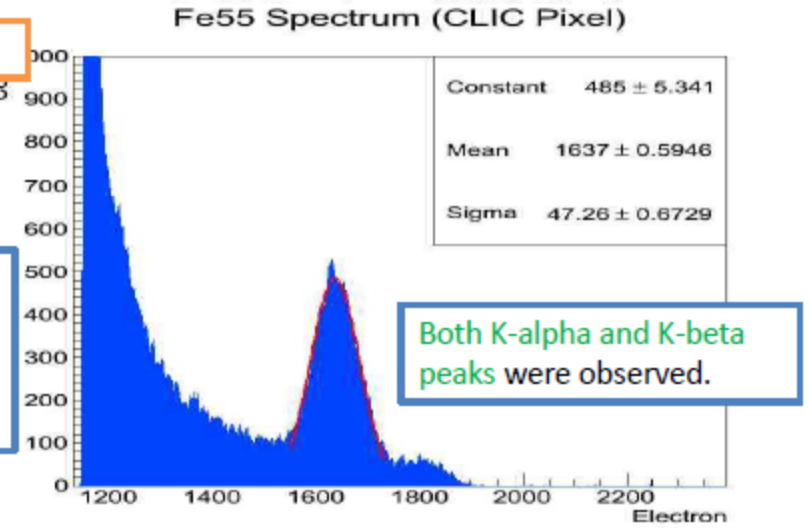
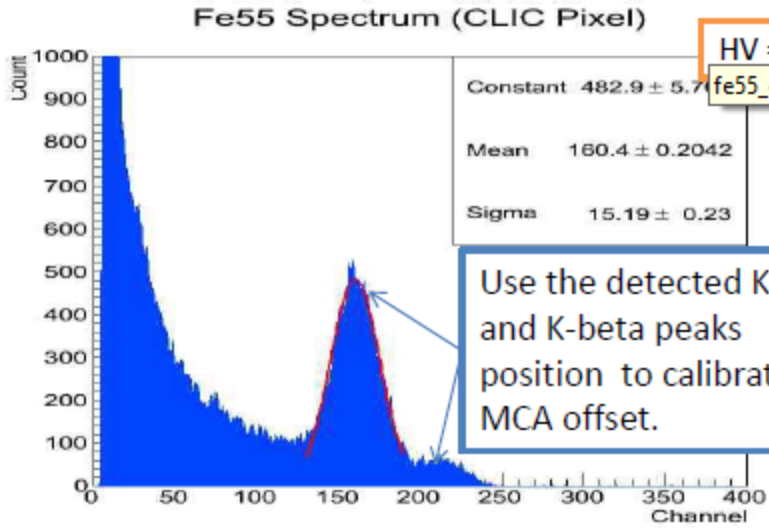
- Jian Liu: CPPM Measurements



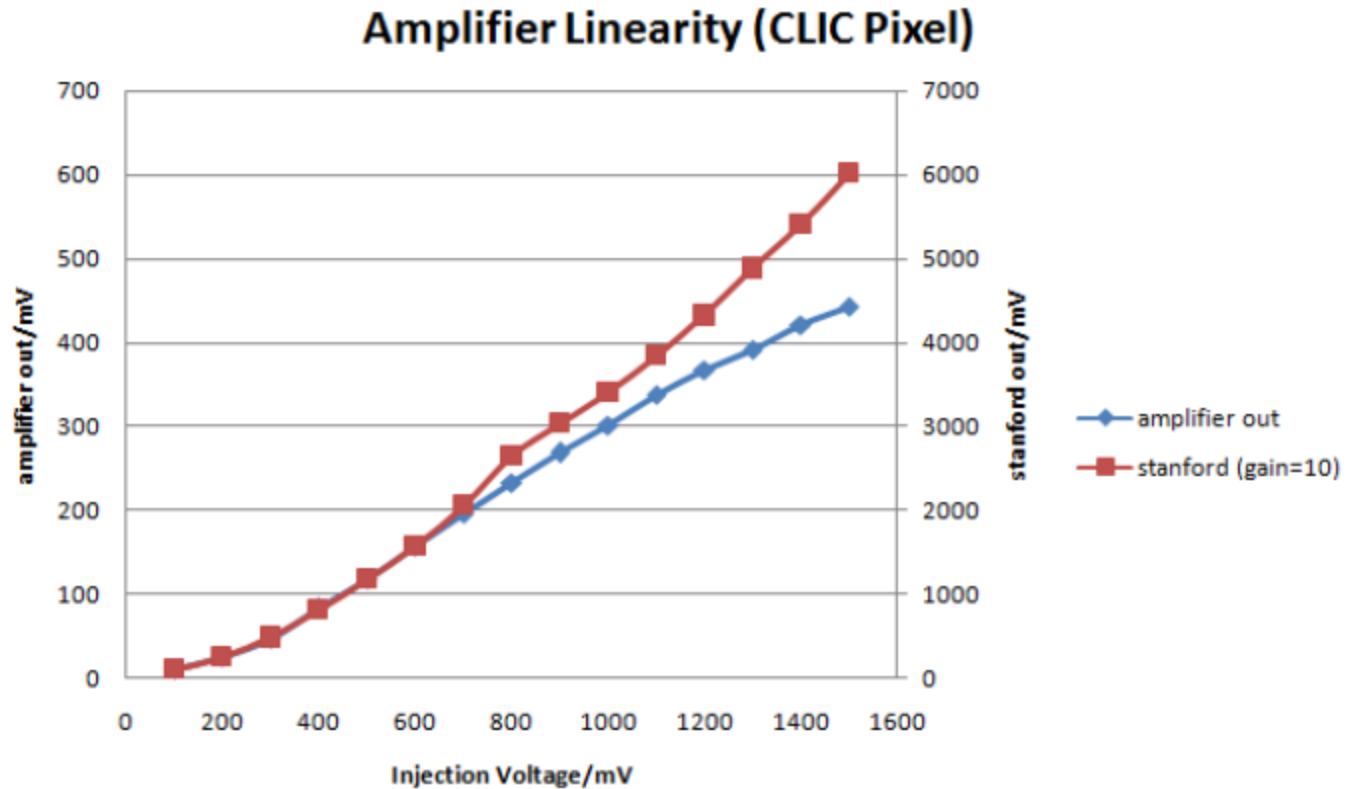
- Jian Liu: CPPM Measurements



- Jian Liu: CPPM Measurements



- Jian Liu: CPPM Measurements



The chip amplifier has good linearity.
 When the injection over 800mV (stanford output > 2.5V), the gain of stanford amplifier becomes bigger than 10.