

AFE characterization

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CBPM meeting: May 12, 2023

Where we are at

Previously: unity gain AFE with less attenuation and deployed network filter

x beam characterization on Tuesday April 25: [instr elog 2102](#)

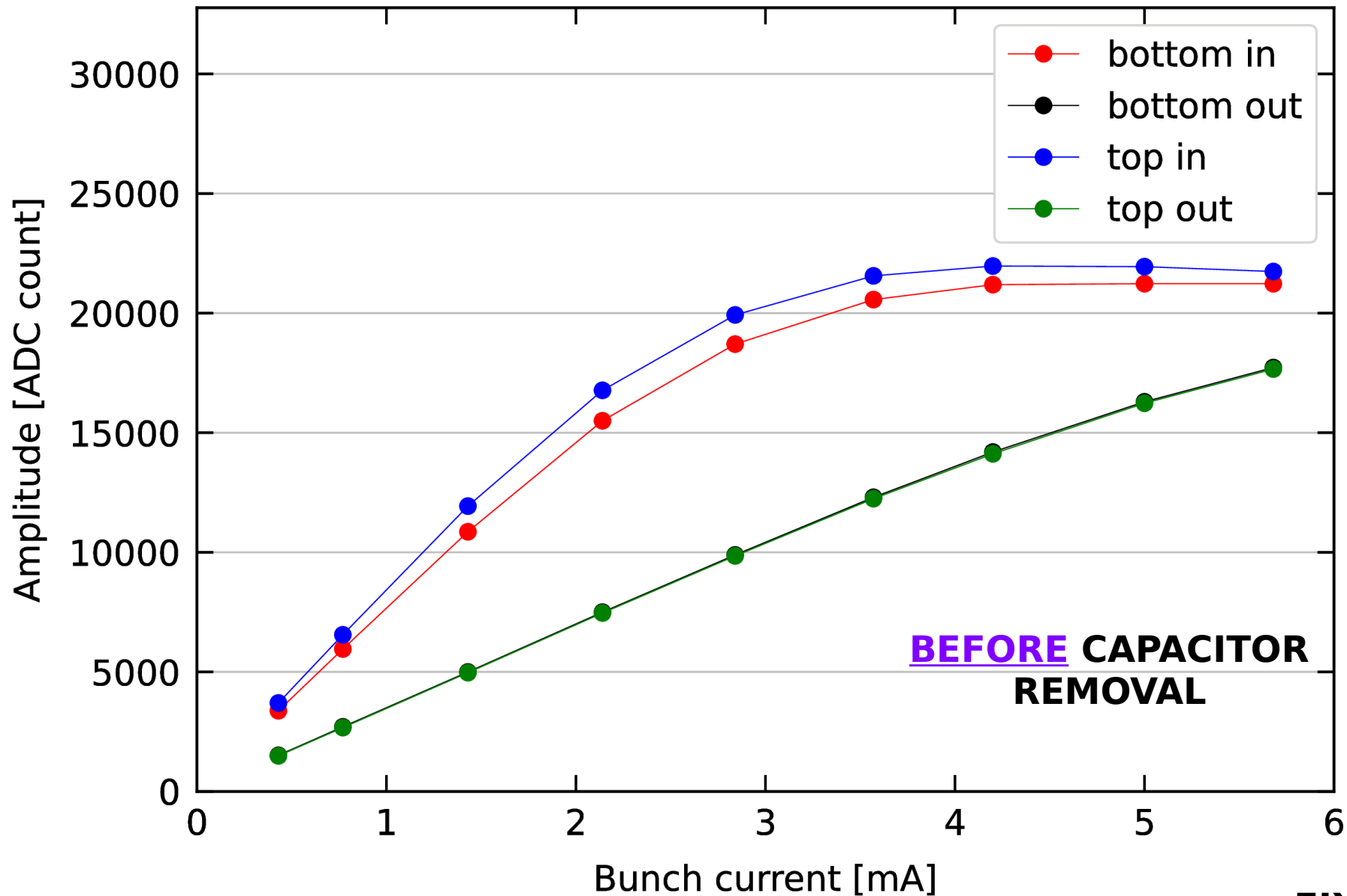
Now: 10 pF capacitors (C146 and C147 forming a voltage divider) were removed

x factor ~ 2 amplification expected

x beam characterization on Tuesday May 9: [instr elog 2115](#)

Amplitude vs bunch current

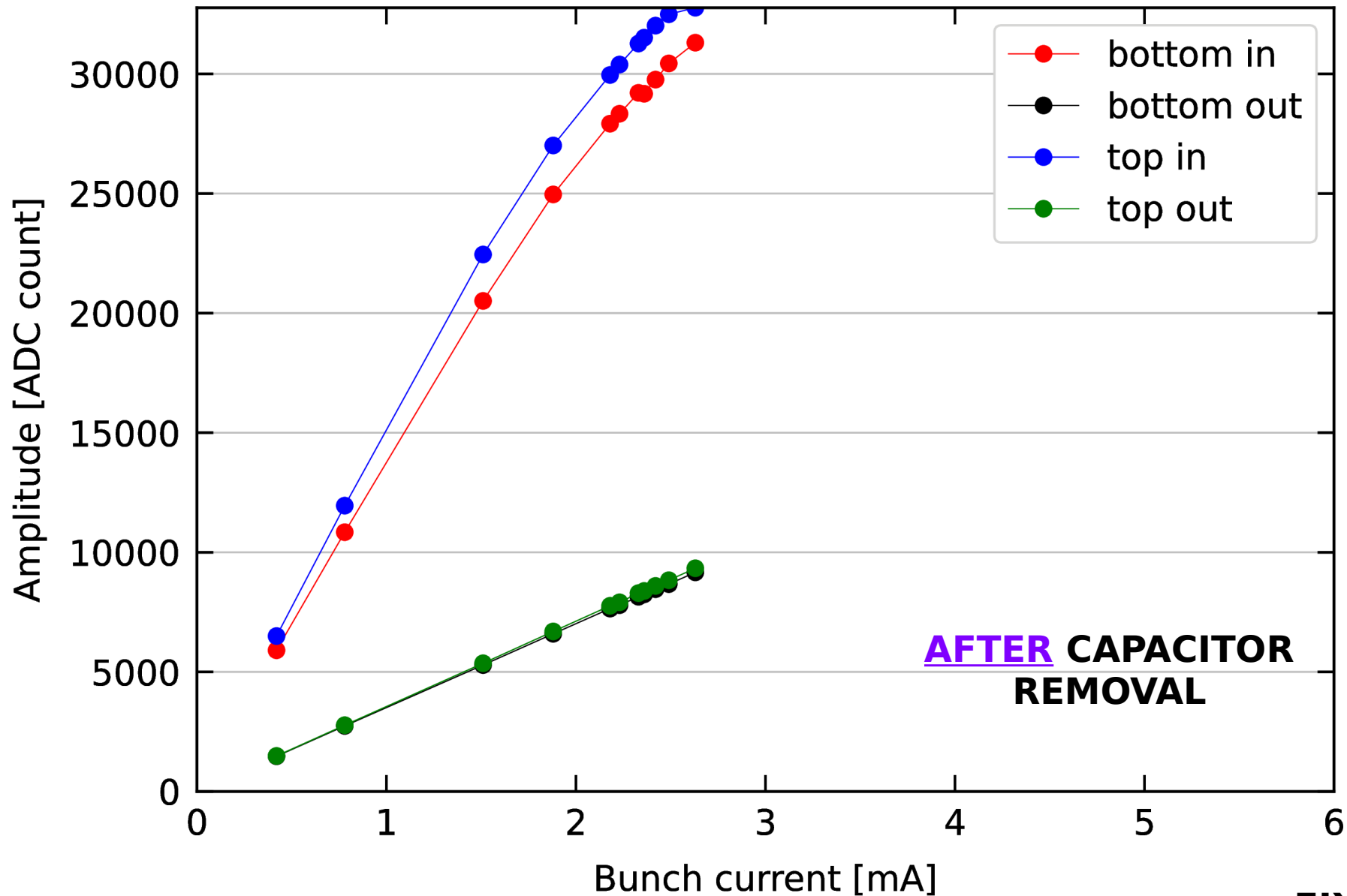
12W (ctactf133), peak-aligned at each current step - Tuesday **4/25**



FIXED GAIN

Amplitude vs bunch current

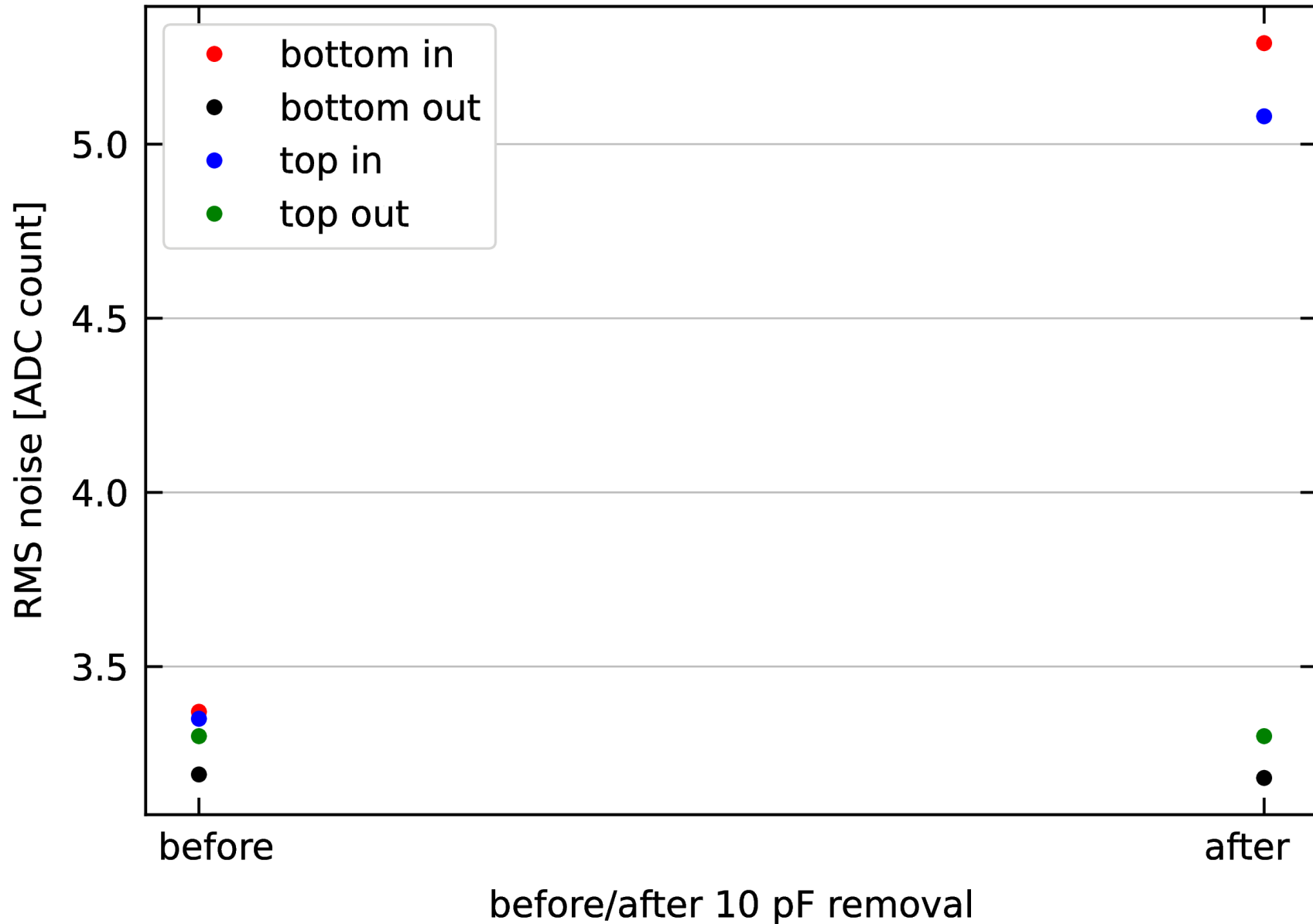
12W (ctactf133), peak-aligned at each current step - Tuesday **5/9**



FIXED GAIN

RMS noise

12W (ctactf133), CESR hot but no beam



Takeaway

Signal amplitude increased by factor ~ 2

RMS noise increased by factor ~ 1.7 : **why?** upstream noise amplified?

As it now stands for RMS noise:

\times undamaged/unmodified AFE: ~ 9 ADC count

\times undamaged/modified AFE: ~ 5 ADC count

Signal-to-noise ratio will depend on signal amplitude (i.e. bunch current)

Additional materials