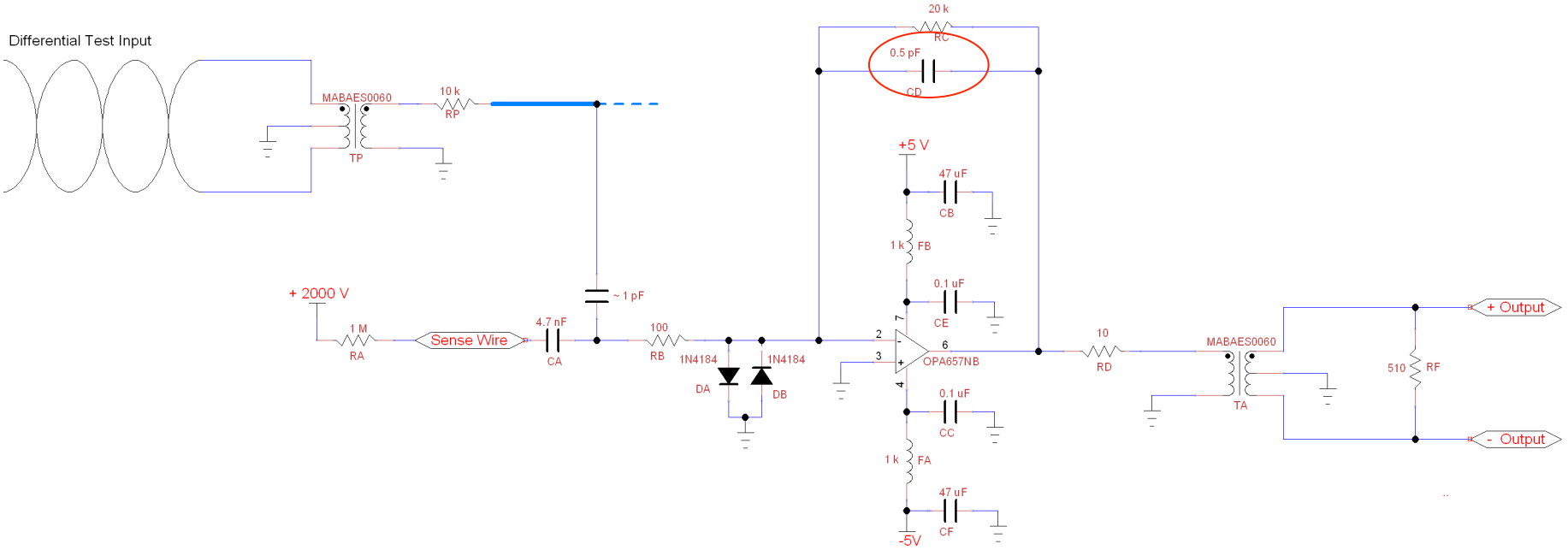
Project sequence	Project	Number needed	Number completed	Project finished
1	Epoxy G10 slats to wire plates	8	8	✔
2	Epoxy G10 slats to spacer plates	8	7	
3	Sand preamp cards to correct size	48	0	
4	Sand HV cards to correct size	48	0	
5	Attach HV capacitors to preamp card, test preamp card	48	1	
6	Epoxy preamp and HV bias cards to wire plates	8	0	
7	(a) Bolt together wire and spacer plates, (b) attach wheels, (c) move to Physical Science Building (PSB)	8	0	
8	In PSB clean-room: (a) string carbon-tube wires and in-between field wires, (b) HV test, (c) string remainder of sense and field wires, (d) close detector, flow gas, bias HV and LV, fix problems	8	0	
9	Prepare MWPCs for shipment to JLab	8	0	

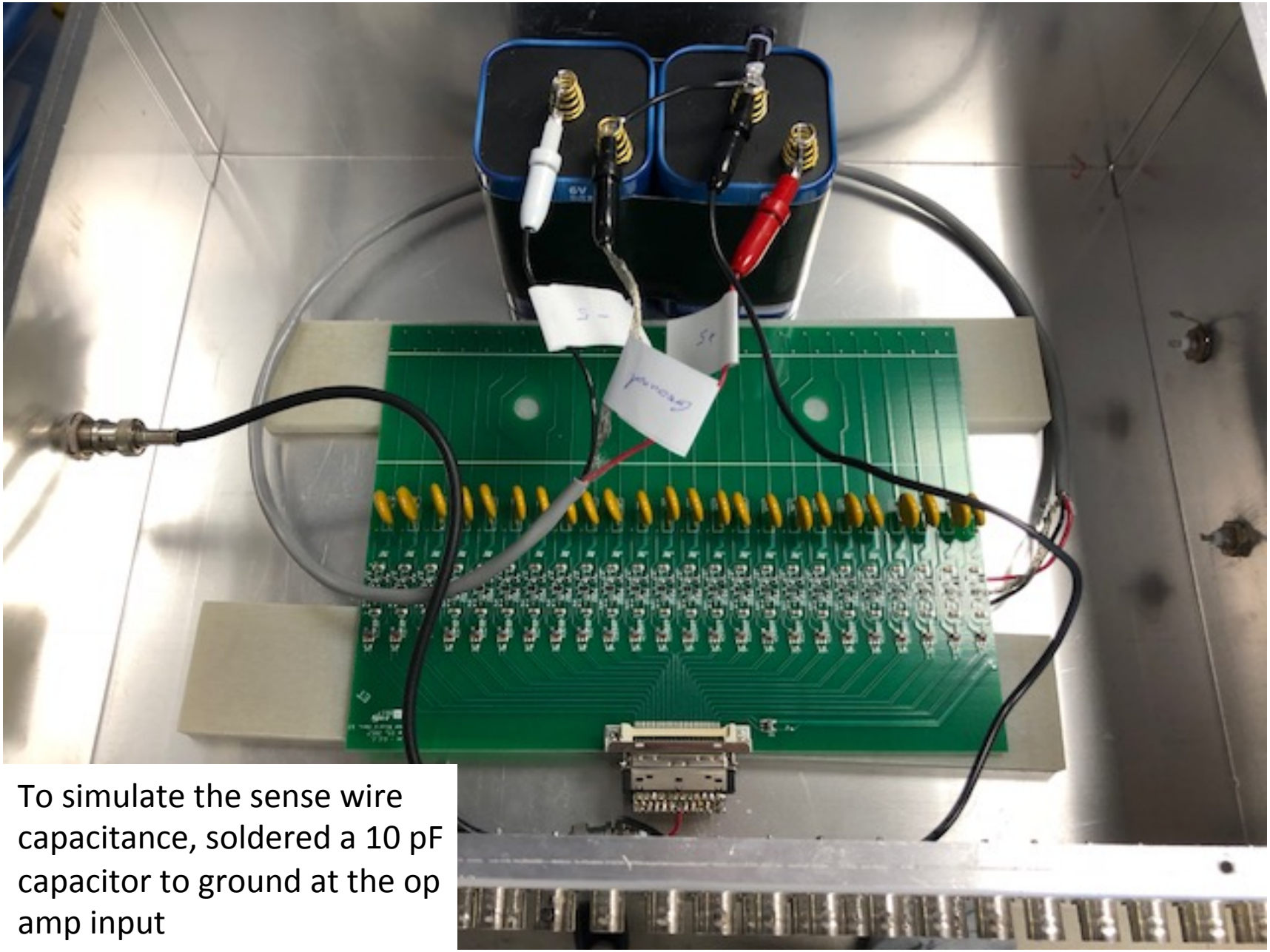
$$1/(2\pi R_F C_F) = \sqrt{(GBP/(4\pi R_F C_D))}$$

C_F = 0.3 pF

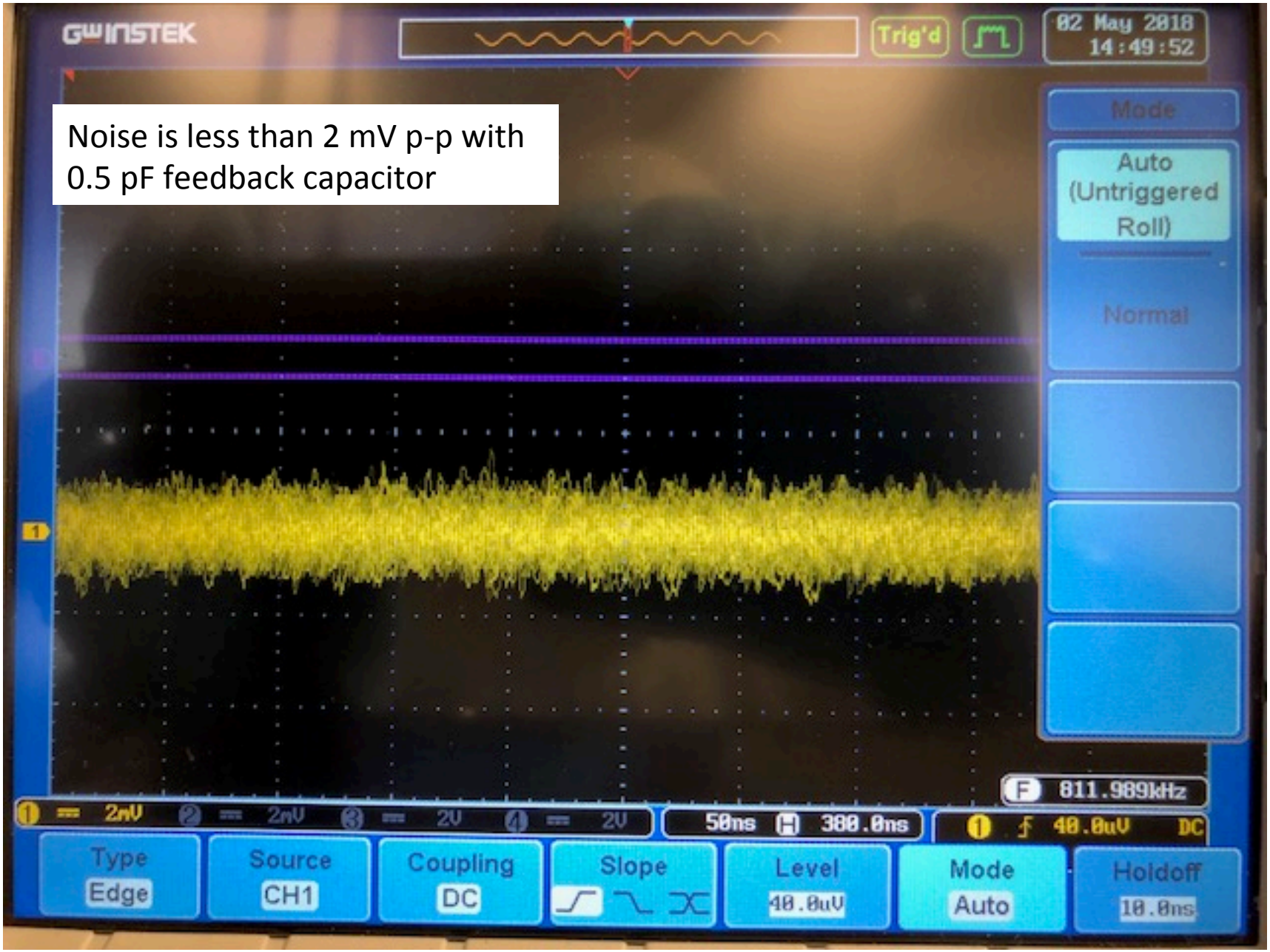
C_F is predicted to increase with the square root of C_D



Title Sense Channel Circuit		
Author Bobby Johnston UMass MENP		
File C:\Users\Bobby\Desktop\Sense_Schematic		Document
Revision 12	Date June 19, 2017	Sheets 1 of 1



To simulate the sense wire capacitance, soldered a 10 pF capacitor to ground at the op amp input


GW INSTEK
Trig'd
02 May 2018
14:49:52
Noise is less than 2 mV p-p with
0.5 pF feedback capacitor
Mode
Auto
(Untriggered
Roll)
Normal
F 811.989kHz
2nV
2nV
2V
2V
50ns
380.0ns
40.0uV
DC
Type
Edge
Source
CH1
Coupling
DC
Slope
Level
40.0uV
Mode
Auto
Holdoff
10.0ns

Conclusion:

- Optimizing the feedback capacitance value will have a marginal effect on the electronics noise, already less than 2 mV p-p.
- Little benefit to be gained in replacing 24 feedback capacitors per board.

Plan for moving forward

- Size the electronics cards using a belt sander. Bobby did this by hand using sandpaper
- Attach the HV blocking capacitors to the preamp cards
- Test preamp cards
- Epoxy the preamp and HV cards to the wire plates.