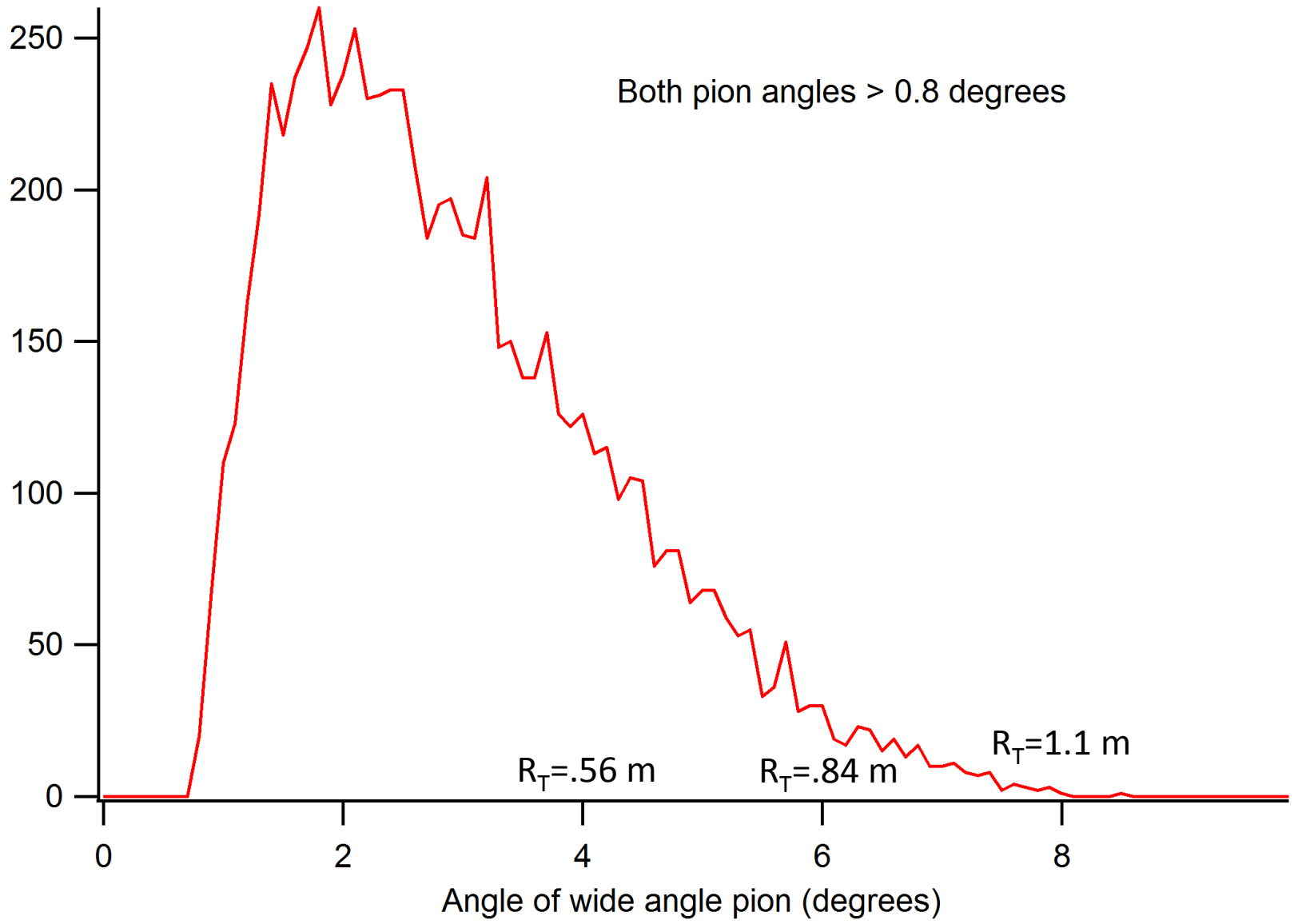
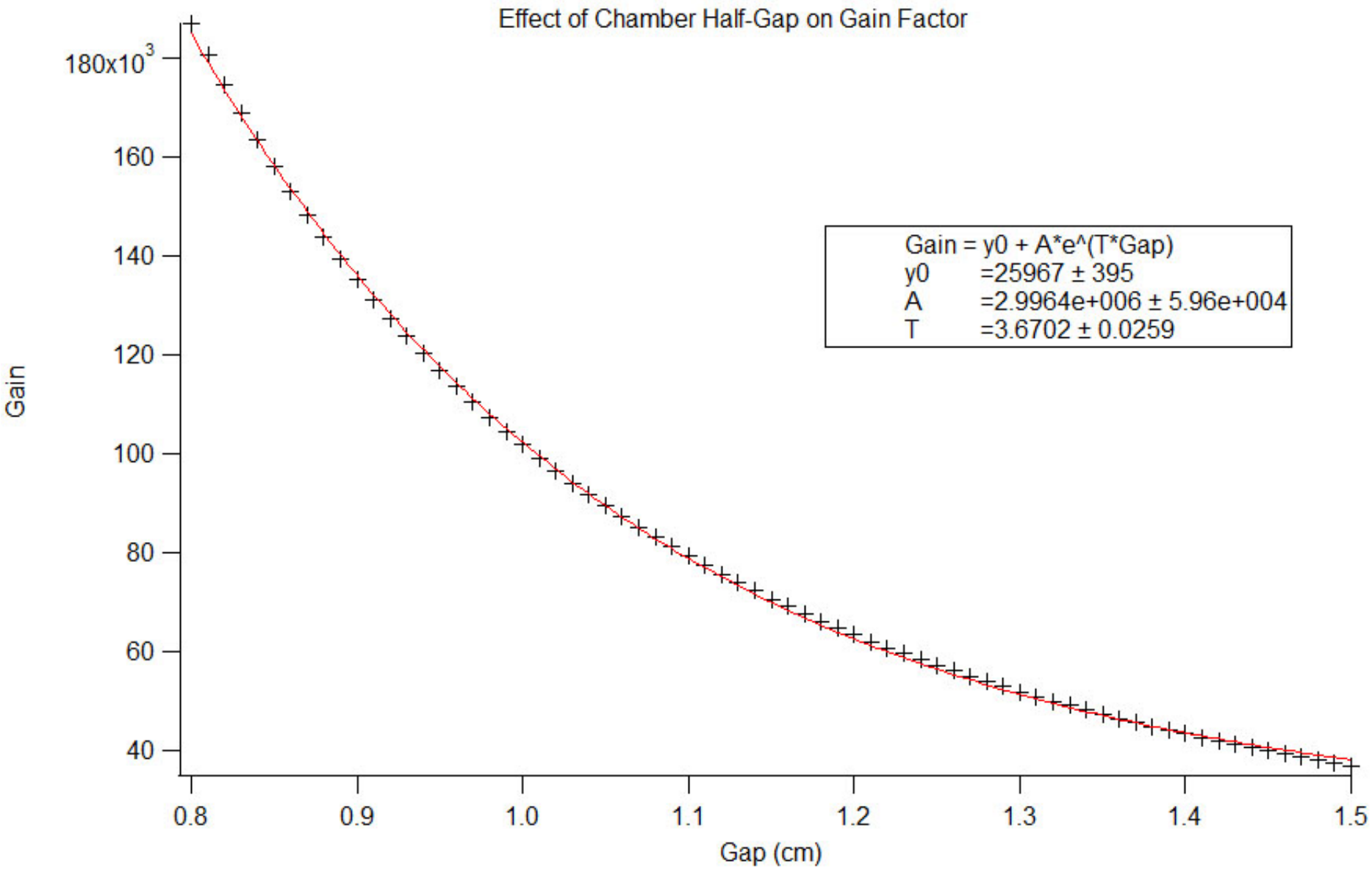

Both pion angles > 0.8 degrees
250
200
150
100
50
0
0
2
4
6
8
R_T=.56 m
R_T=.84 m
R_T=1.1 m
Angle of wide angle pion (degrees)

$Z_\mu - Z_T = 8$ m


Effect of Chamber Half-Gap on Gain Factor
Gain = y0 + A*e^(T*Gap)
y0 =25967 ± 395
A =2.9964e+006 ± 5.96e+004
T =3.6702 ± 0.0259
Gain
180x10^3
160
140
120
100
80
60
40
0.8
0.9
1.0
1.1
1.2
1.3
1.4
1.5
Gap (cm)

Volume flow rate and chamber pressure

$$\frac{dV}{dt} = \frac{\pi r^4 \Delta P}{8\eta L}$$

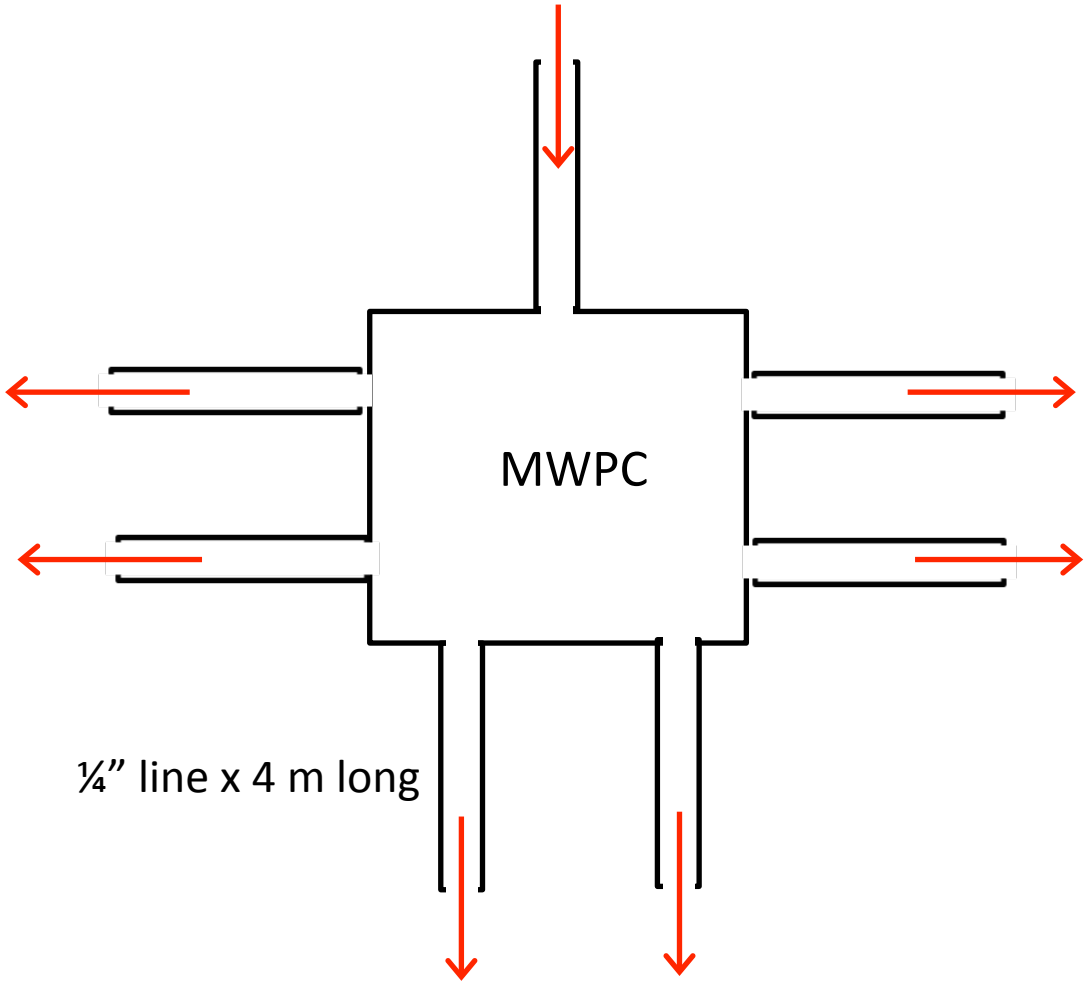
Flow rate = 5 cc/s

Volume exchange time = 4.4 hrs

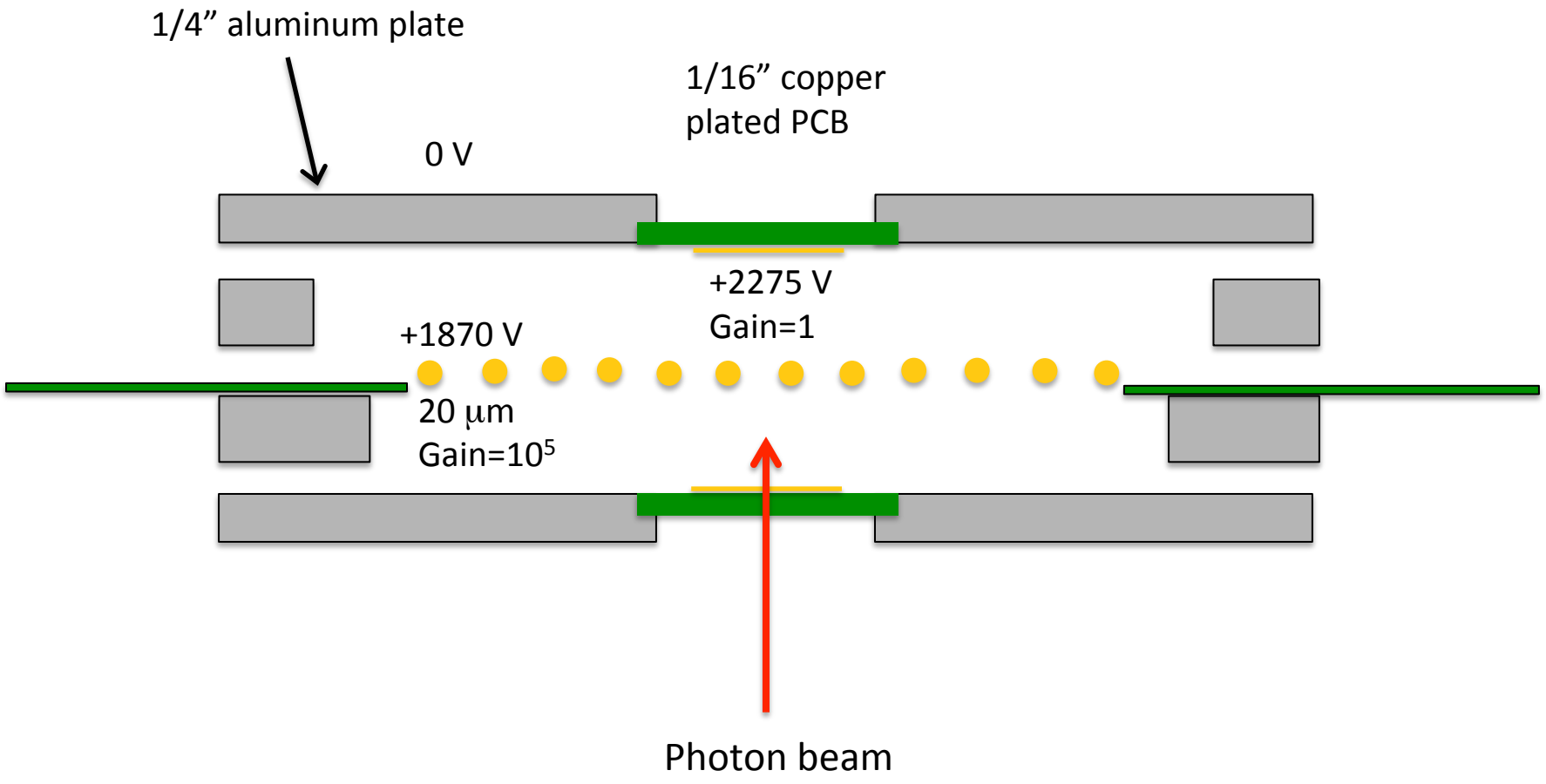
Time to reduce O_2 to 0.1% = 24 hrs

Chamber pressure = .007 inches H_2O

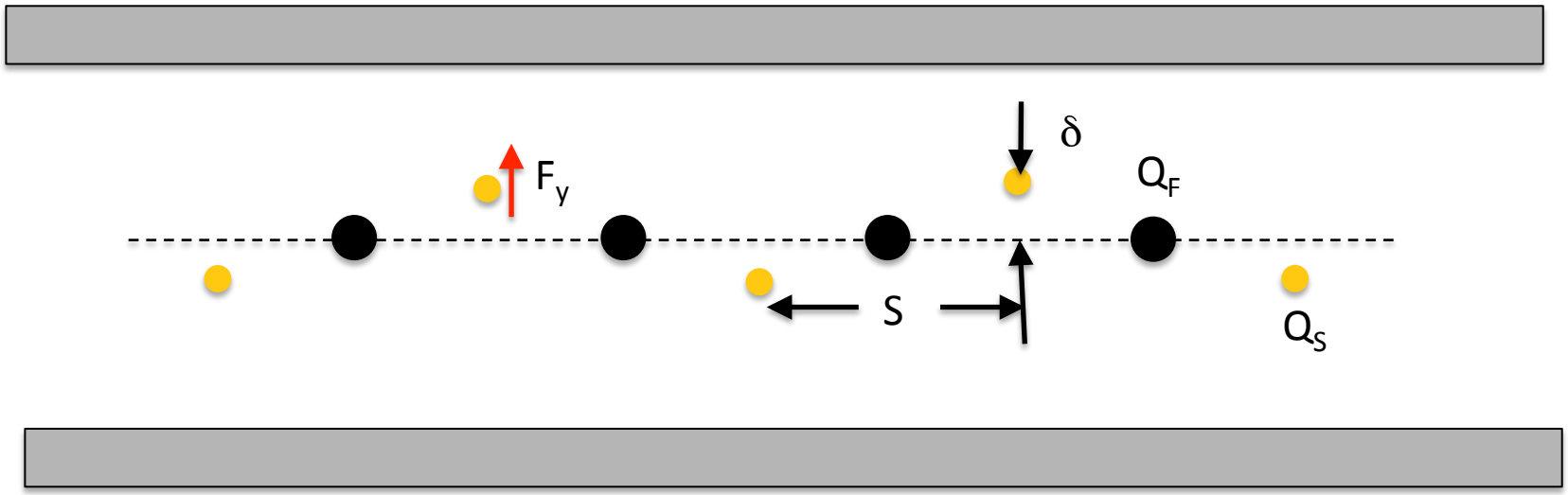
Bowing of ¼" aluminum plate at the center = .07 mm



Sense wire “deadening” near the photon beam-line



Wire tension to overcome vertical displacement

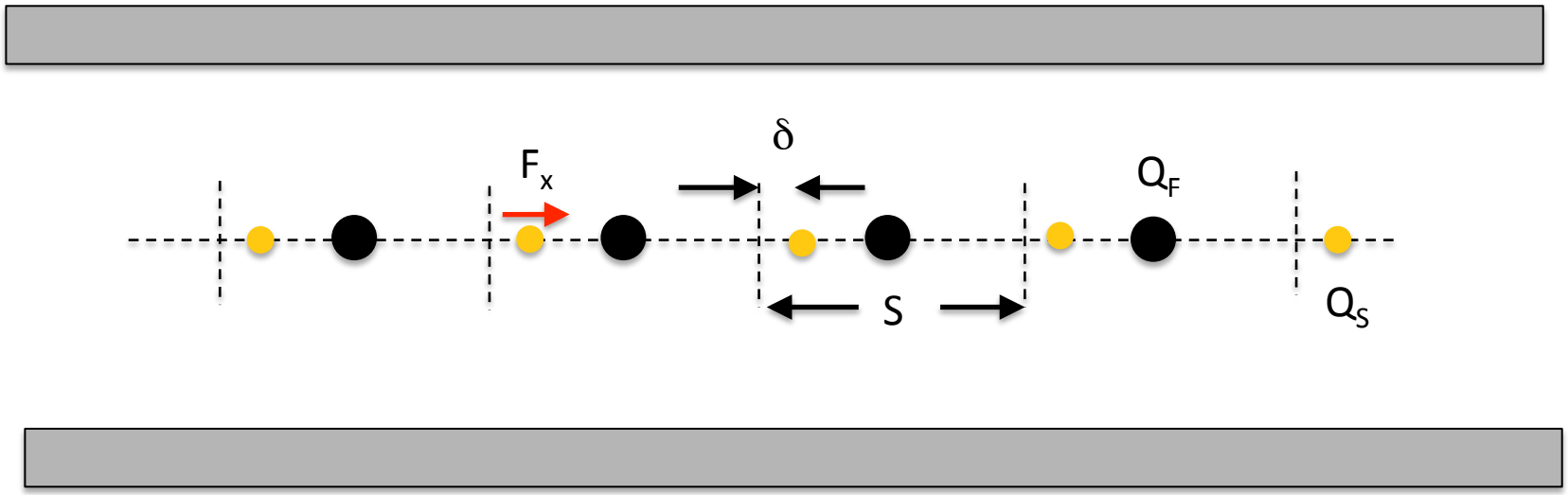


$$T \geq \frac{Q_S^2 L^2}{4\pi\varepsilon_0 s^2}\left[1+2\frac{Q_F}{Q_S}\right]$$

L=2 m, s=1 cm, and Voltage = +1800 V

T > 2.4 g

Wire tension to overcome horizontal displacement

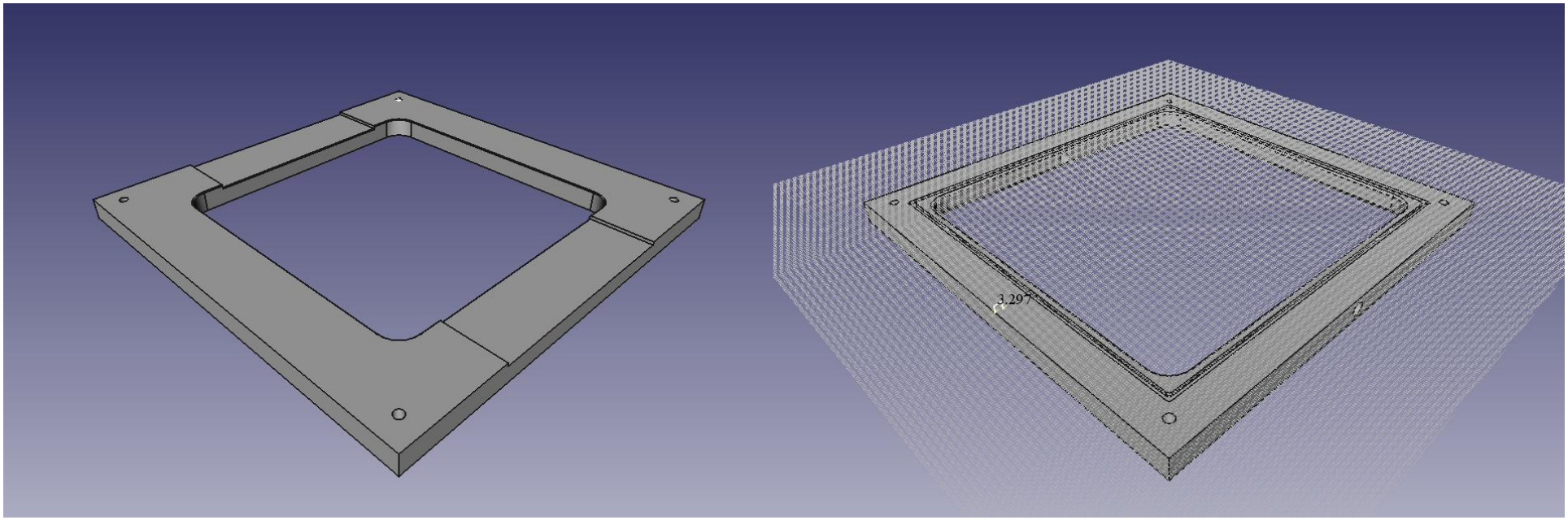


$$T \geq -\frac{Q_S Q_F L^2}{2\pi\varepsilon_0 s^2}$$

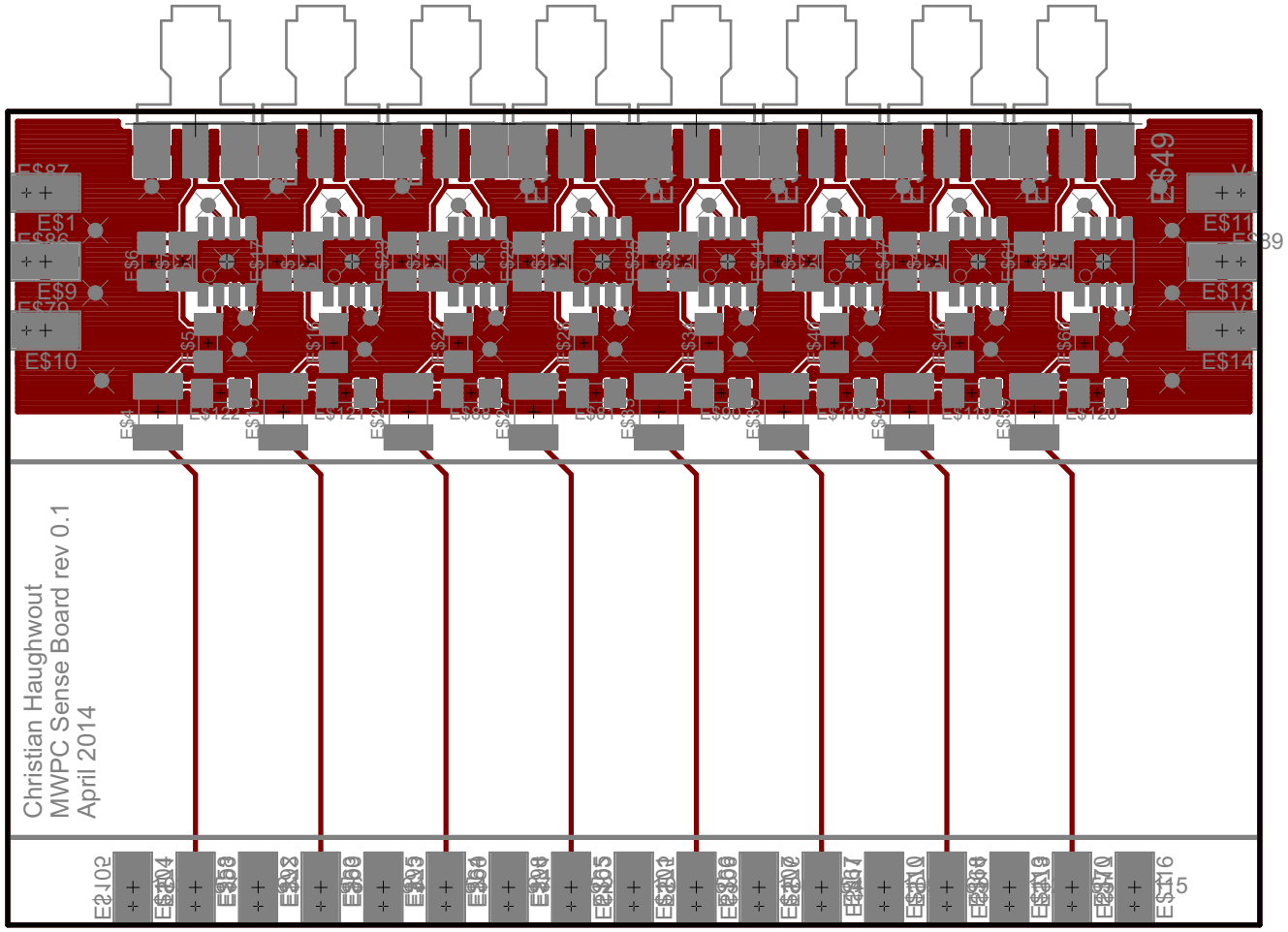
L=2 m, s=1 cm, and Voltage = +1800 V

T > 5 g

Small prototype detector



Chamber mounted preamp PCB layout



4/15/2014 11:32:17 AM f=2.55 C:\Users\User\Desktop\MWPC4\Sense_board_rev_ev2.brd

Test of lepton universality in e^+e^- and $\mu^+\mu^-$ pair production