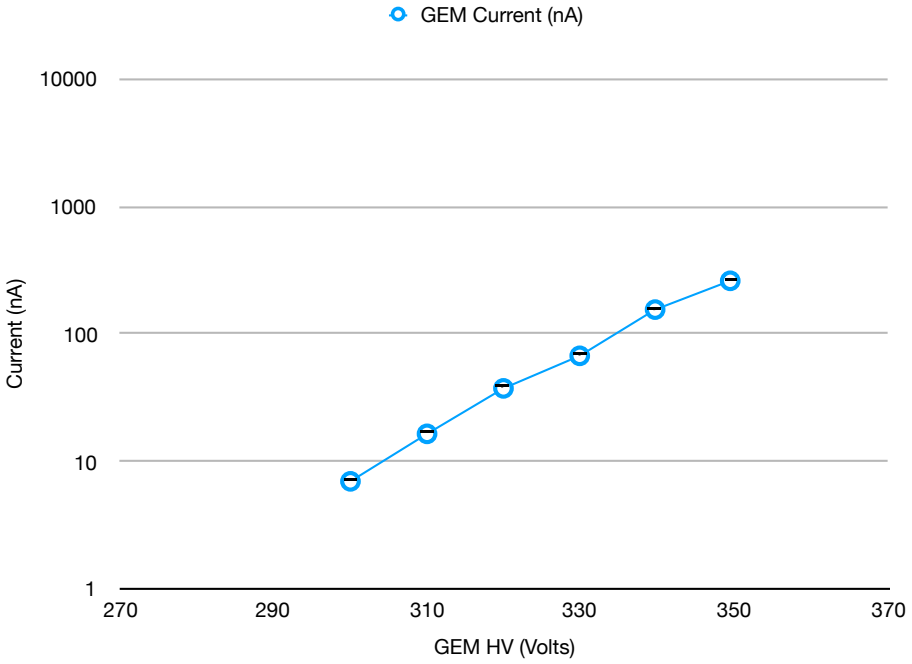
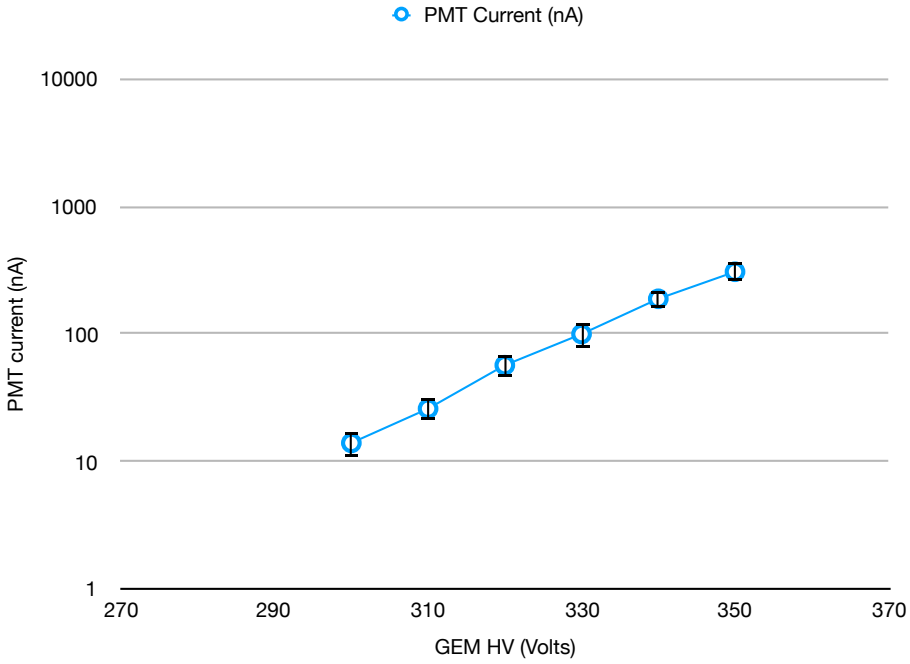
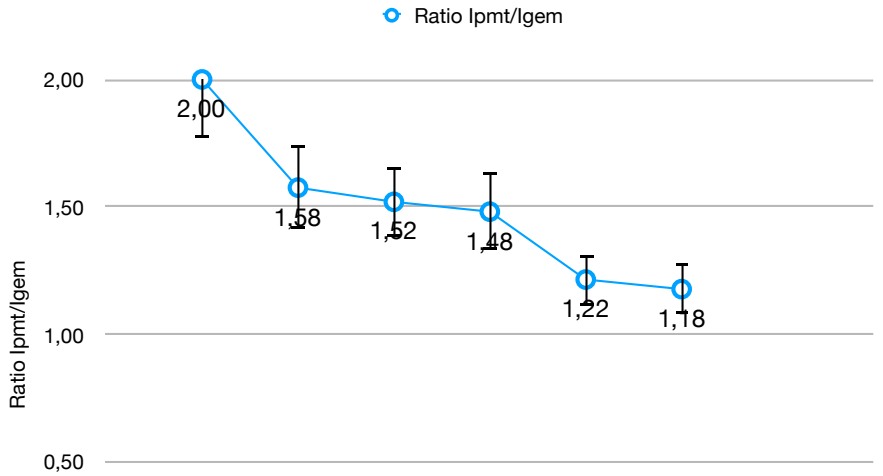
Orange measurements with eco-Gas

He-CF4 (60-40)



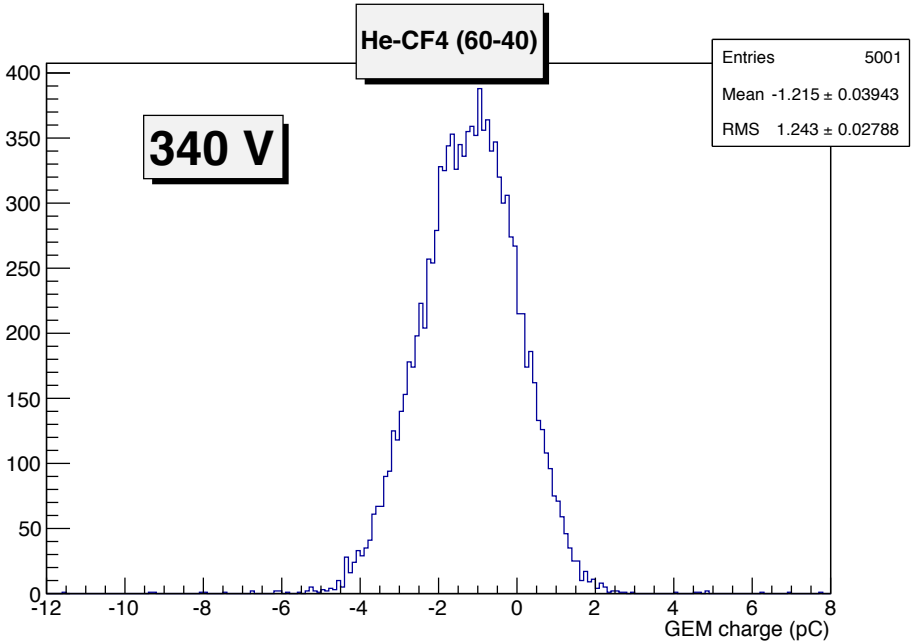


Xray Gun current 5
PMT voltage 1400 V

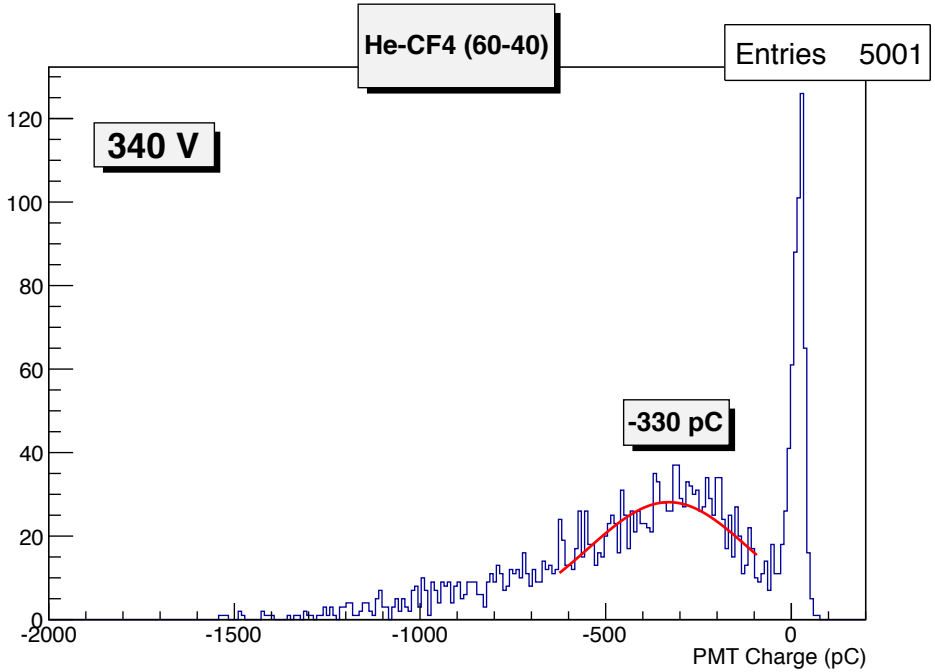


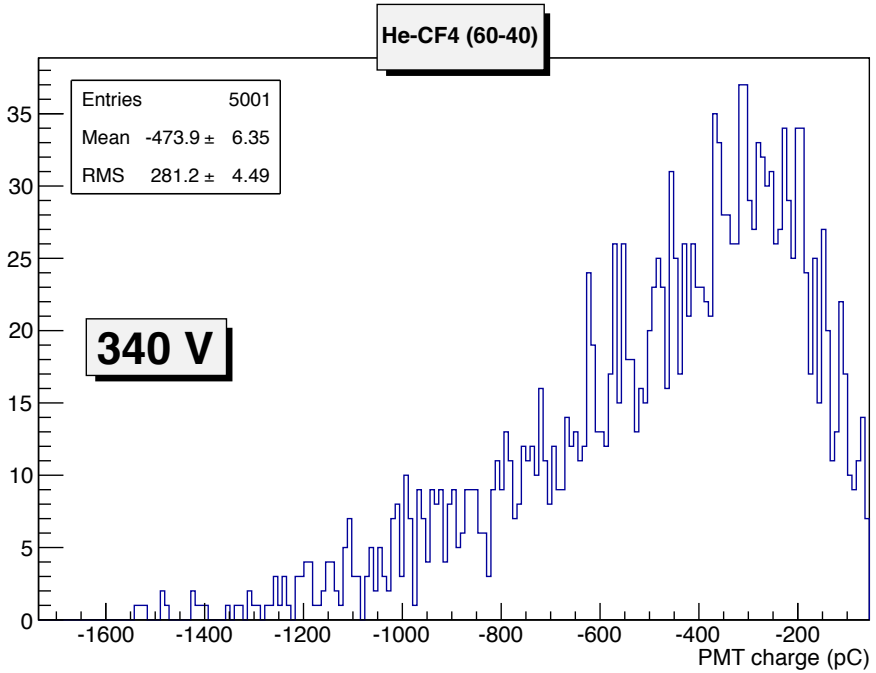
He-CF4 (60-40)

GEM @ 340 V

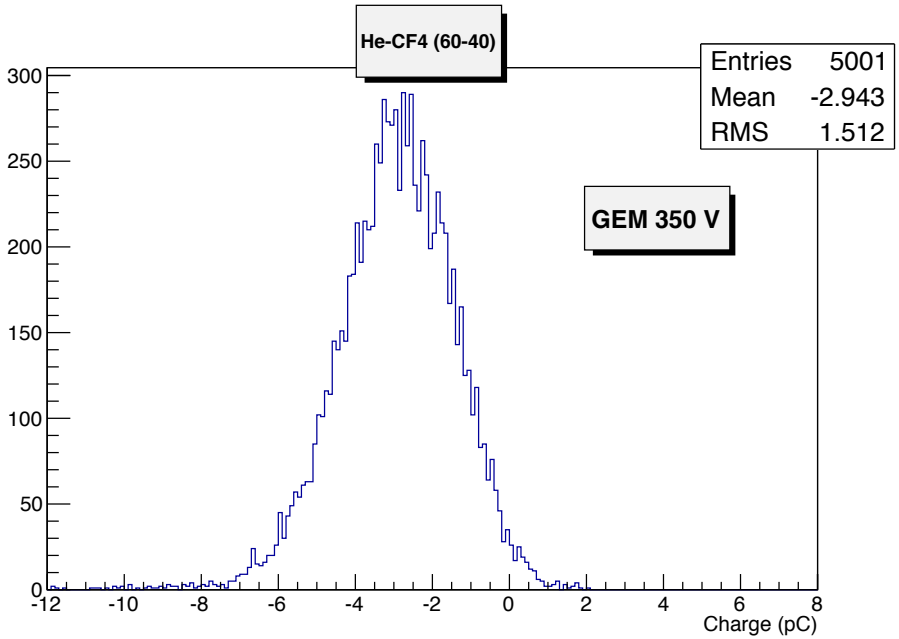


Xray Gun current 5
PMT voltage 1400 V

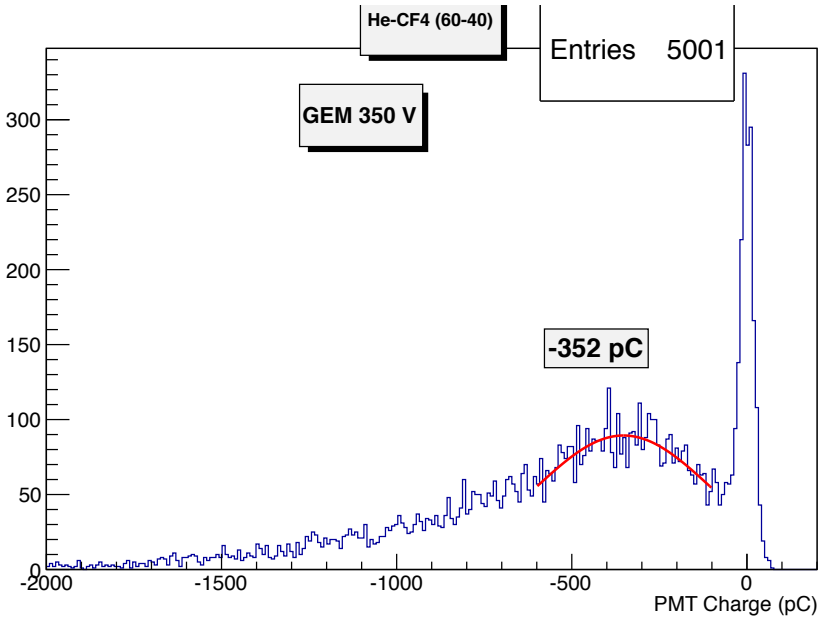


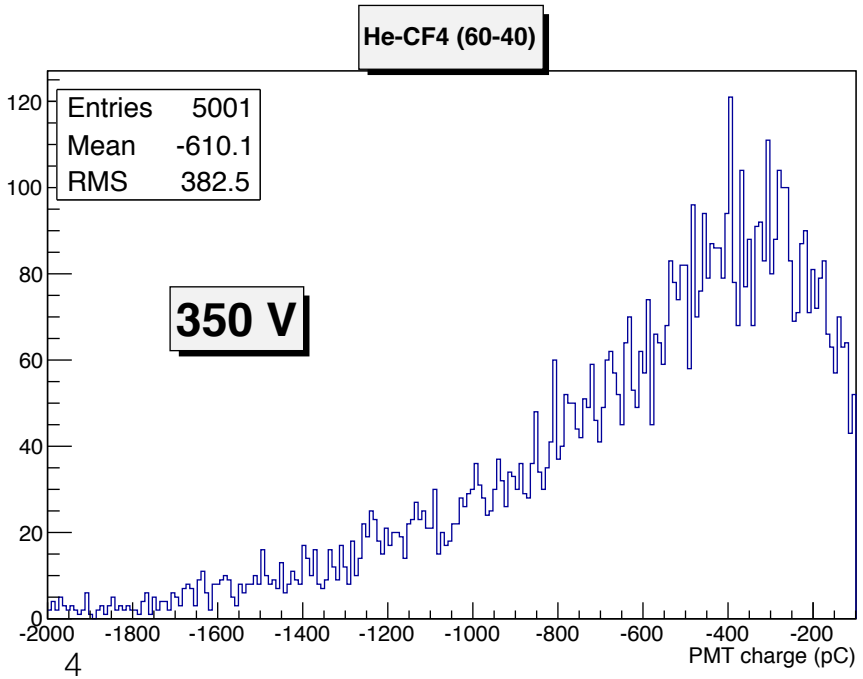


He-CF4 (60-40) GEM @ 350 V



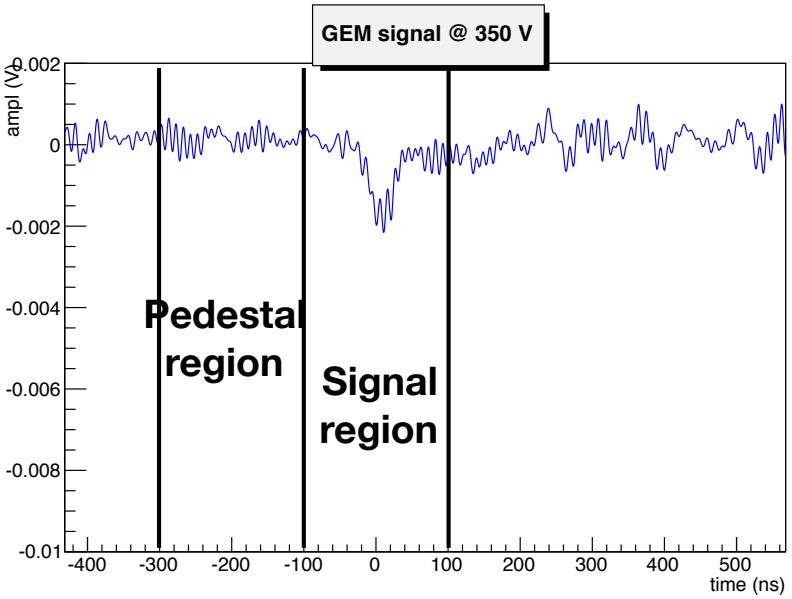
Xray Gun current 5
PMT voltage 1400 V





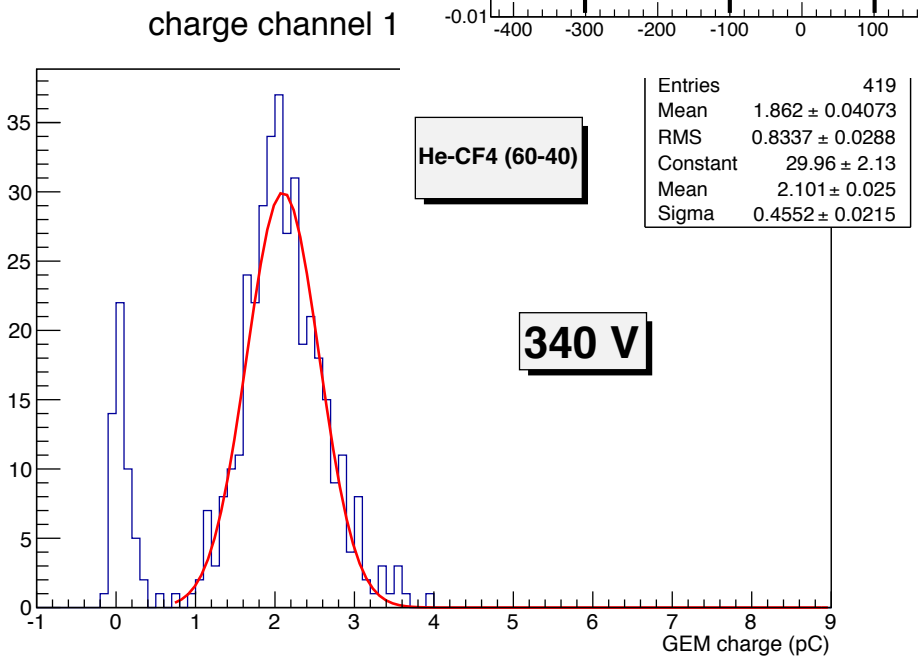
He-CF4 (60-40)

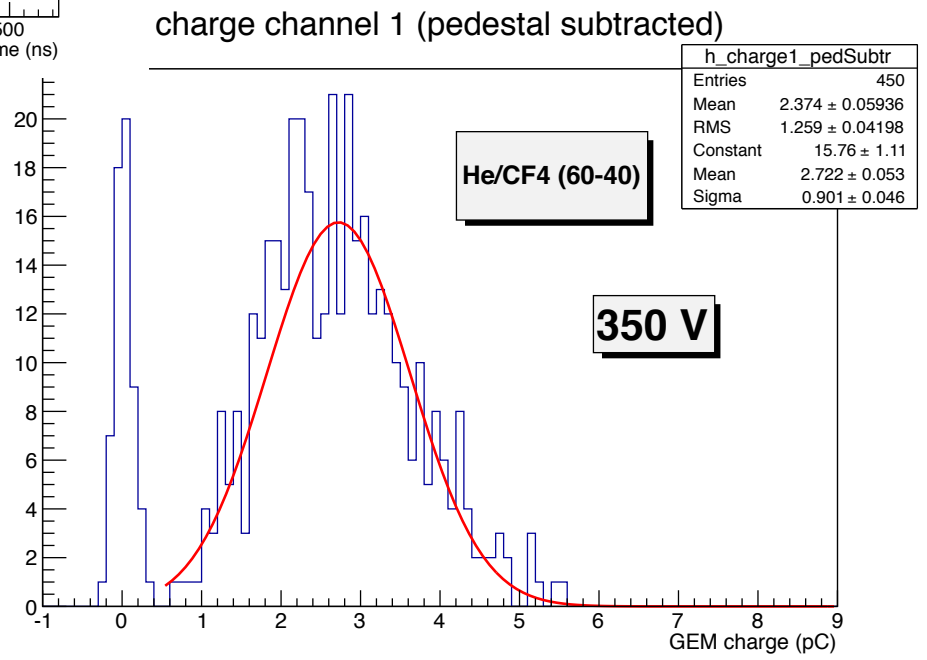
WAVEFORMS analysis



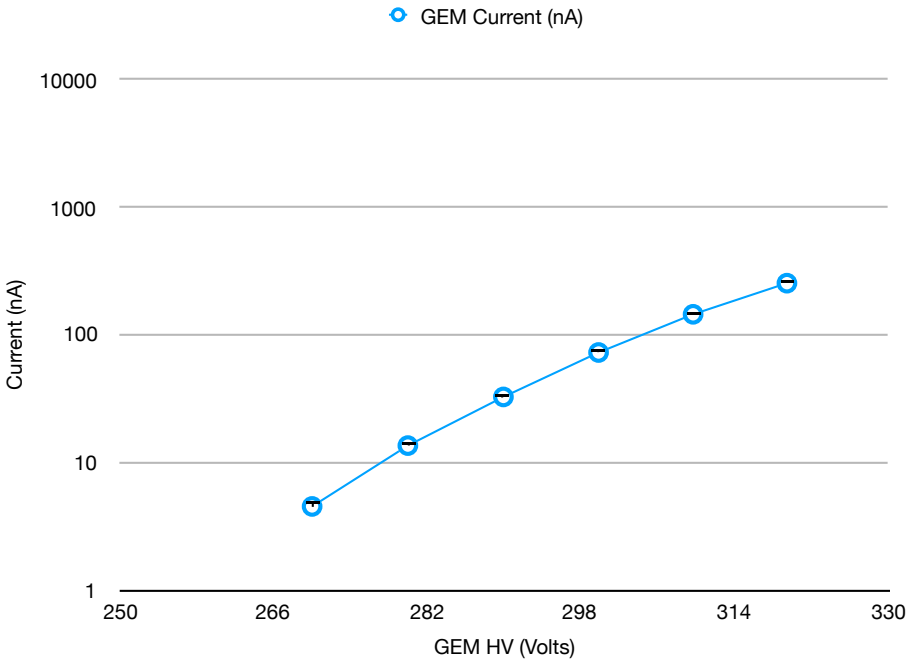
Waveforms not available for next measurements.

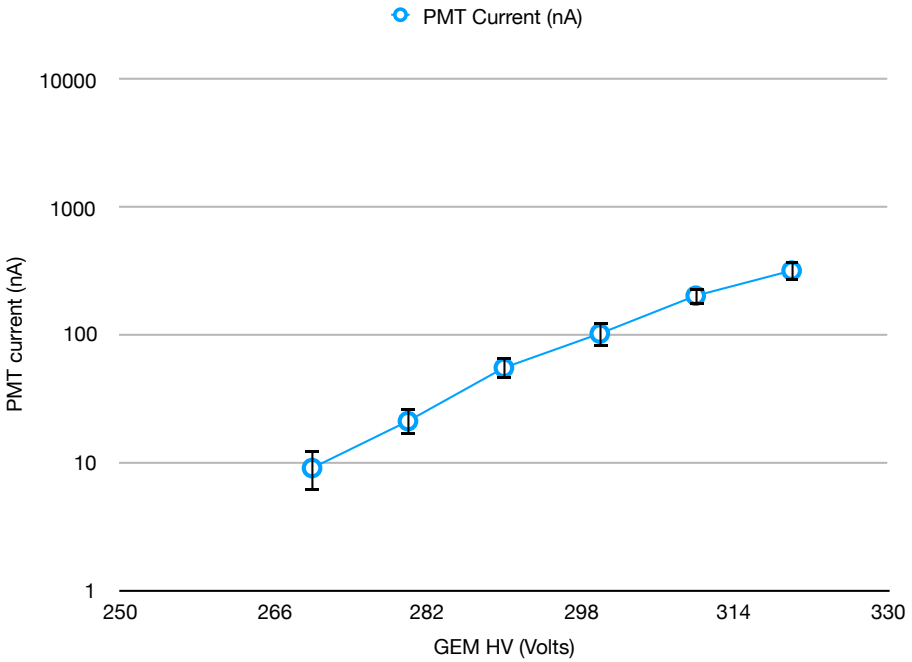
Best way for the future



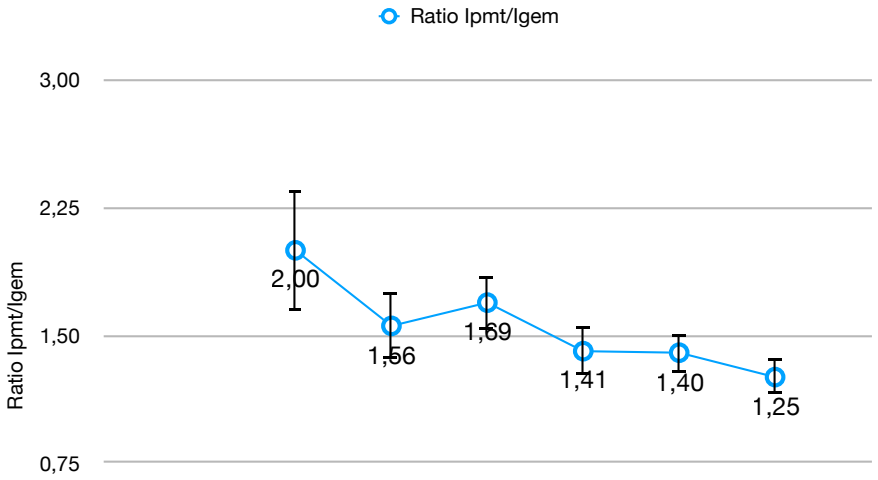


He-CF4 (70-30)



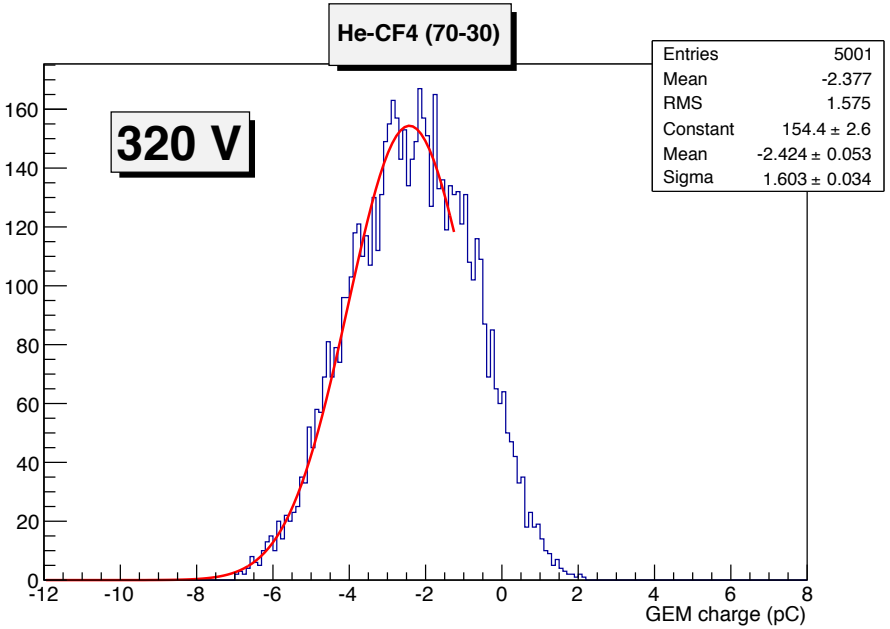


Xray Gun current 5
PMT voltage 1400 V

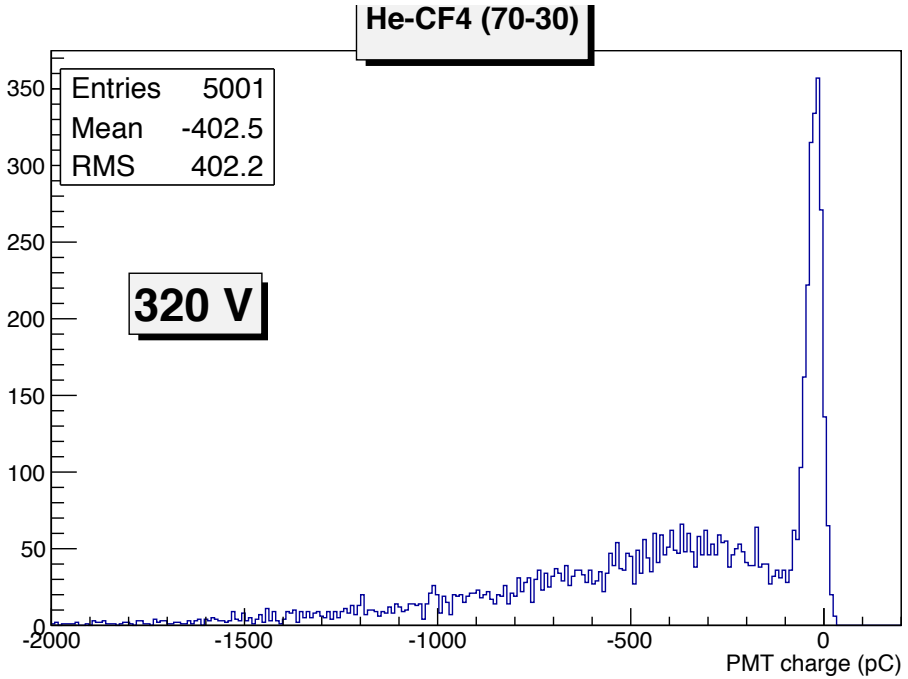


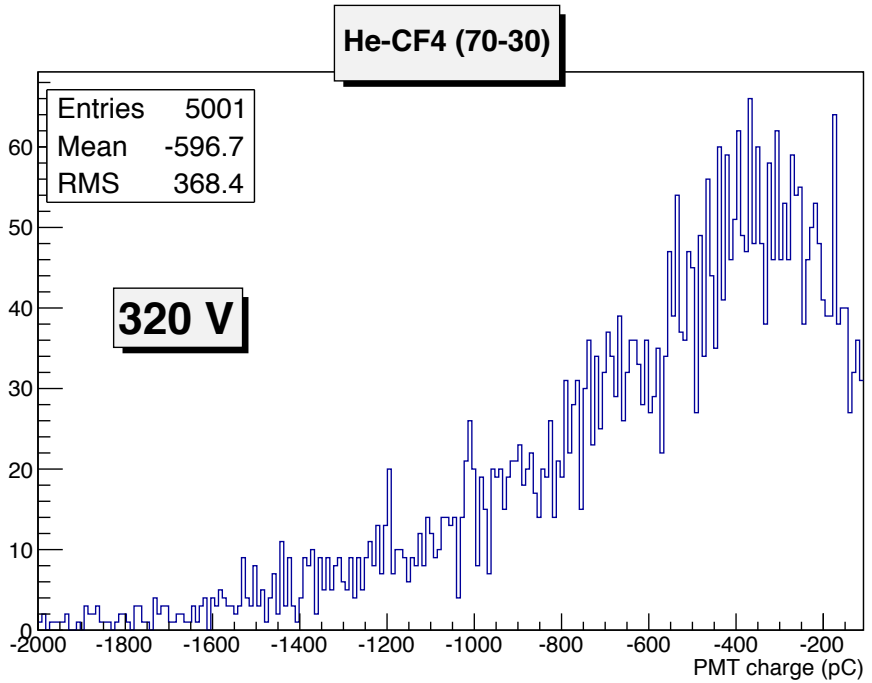
He-CF4 (70-30)

GEM @ 320 V

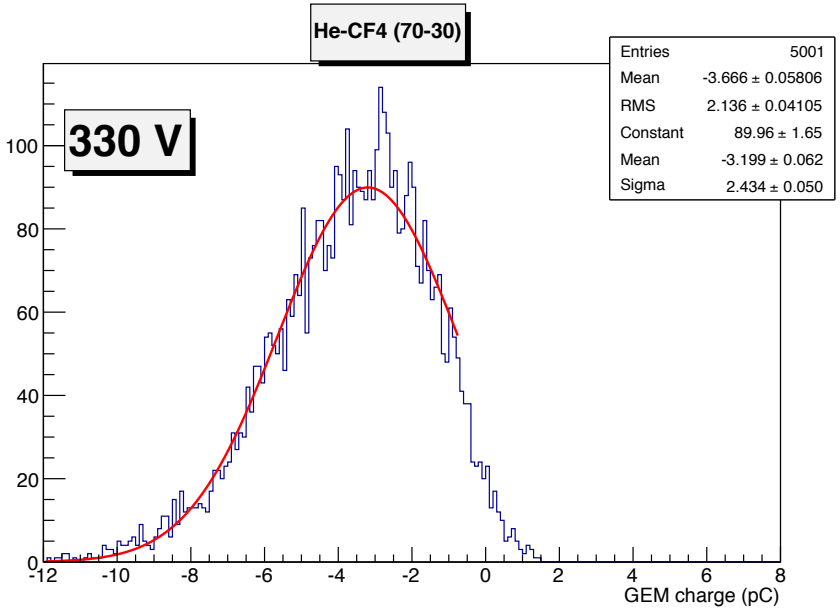


Xray Gun current 5
PMT voltage 1400 V

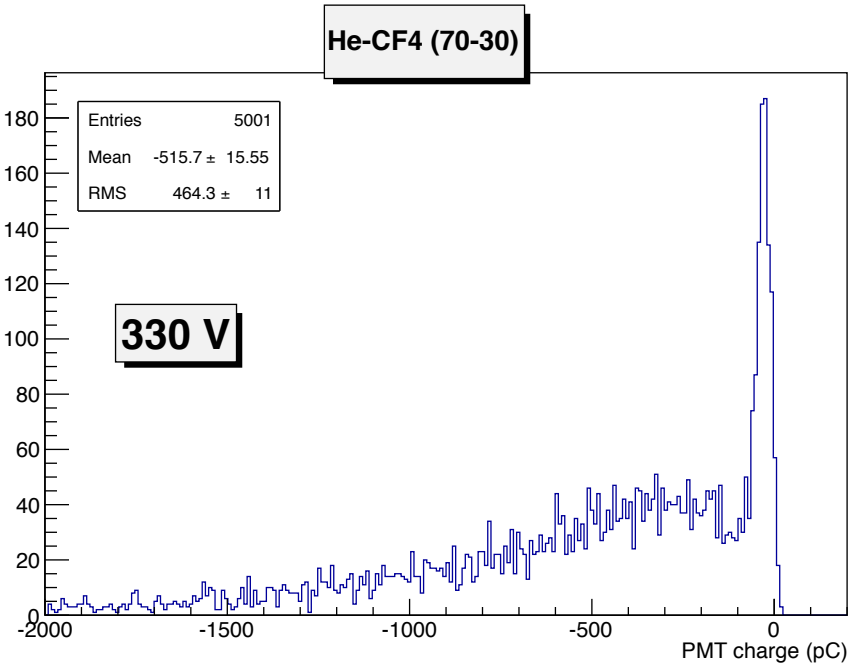


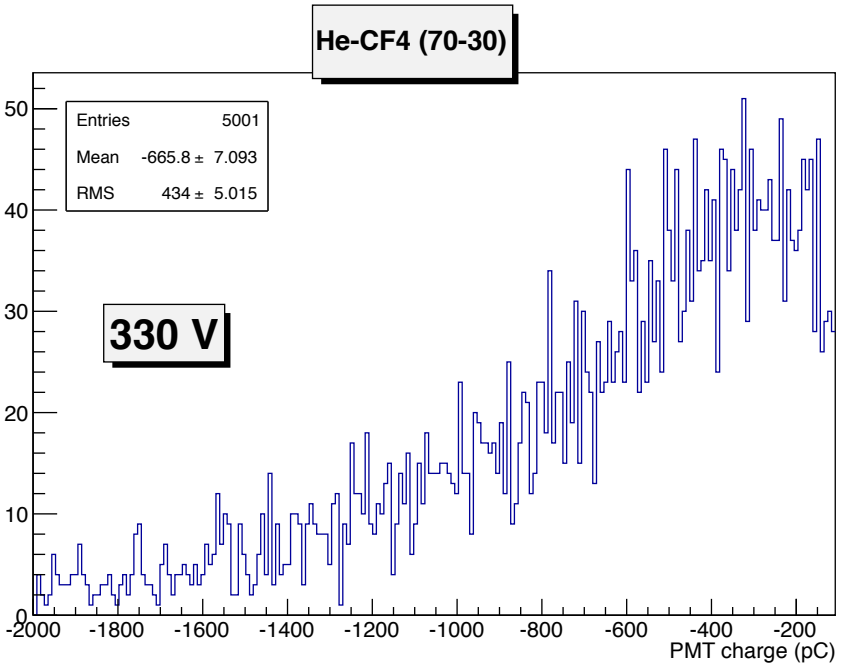


He-CF4 (70-30) GEM @ 330 V

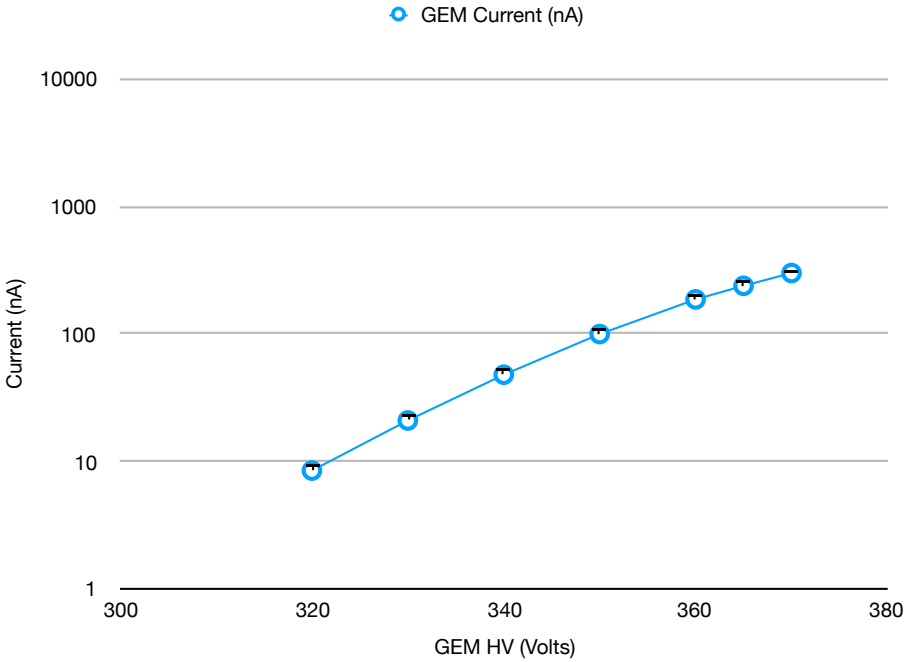


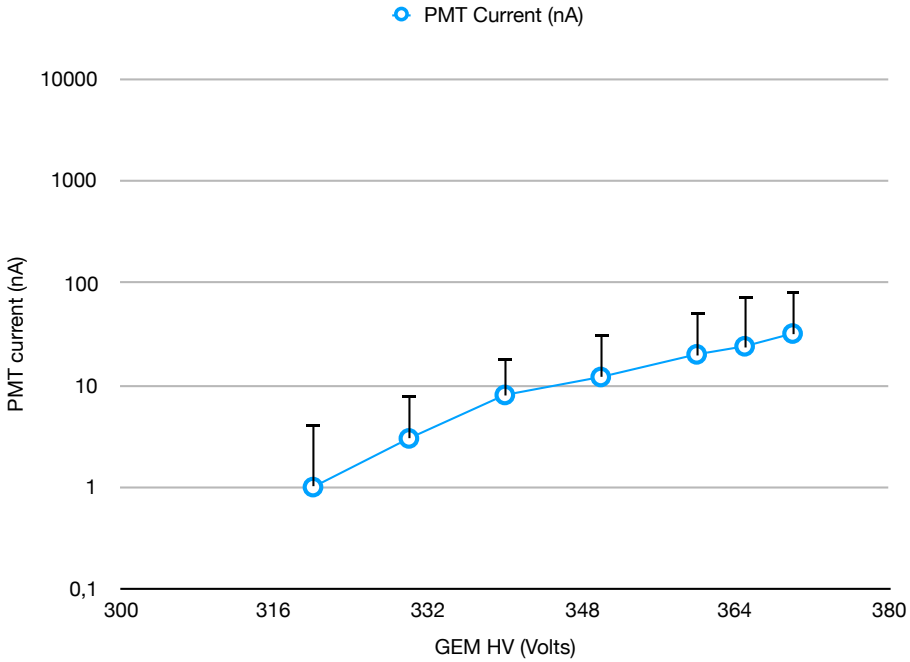
Xray Gun current 5
PMT voltage 1400 V



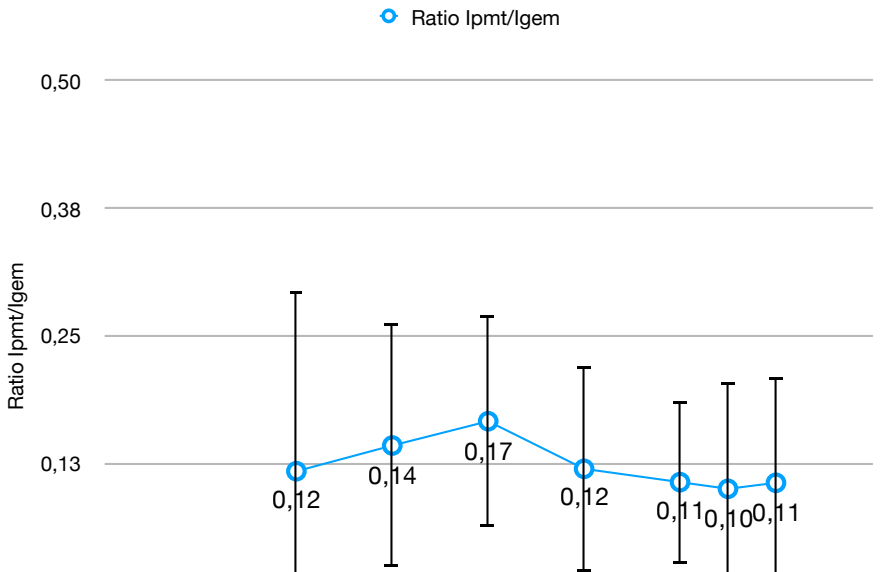


He-CF4-HFO (70-20-10)

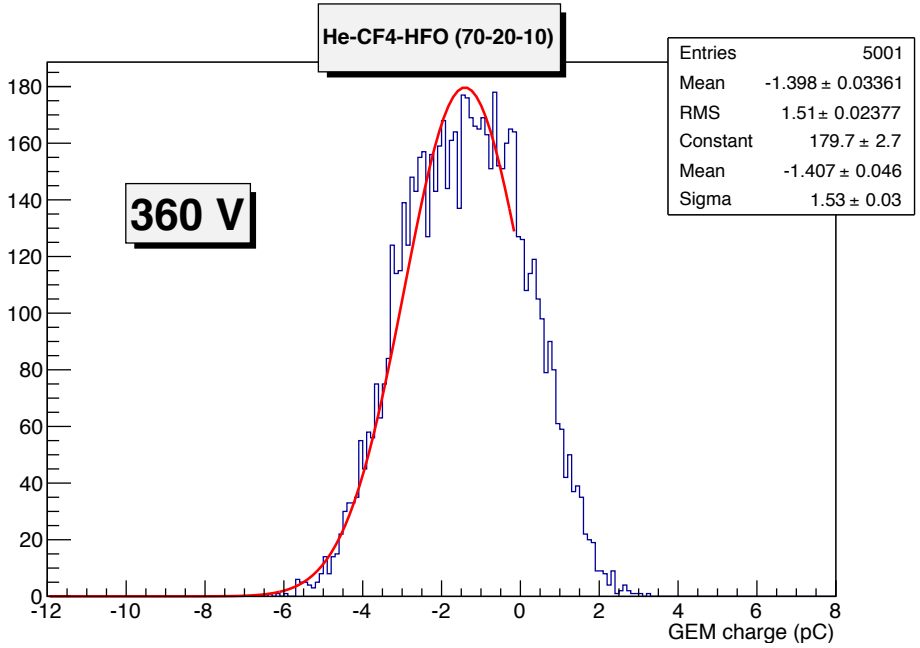


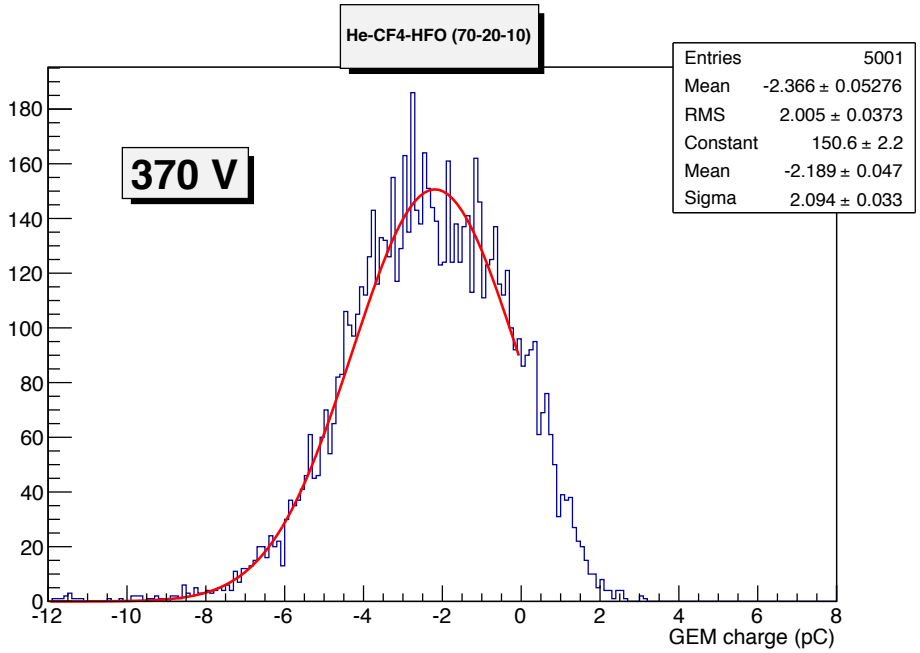


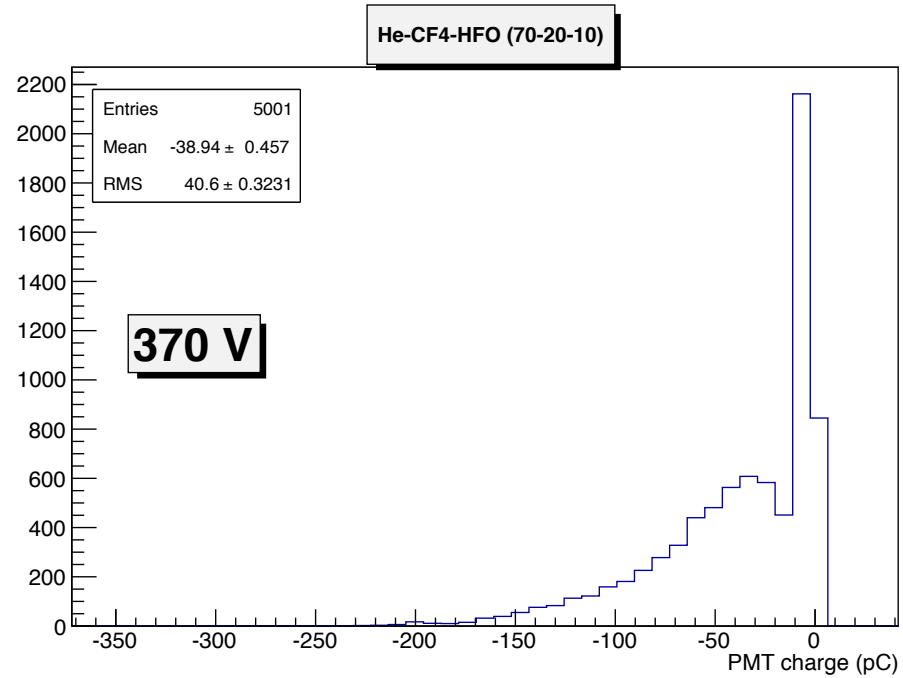
Xray Gun current 5
PMT voltage 1400 V

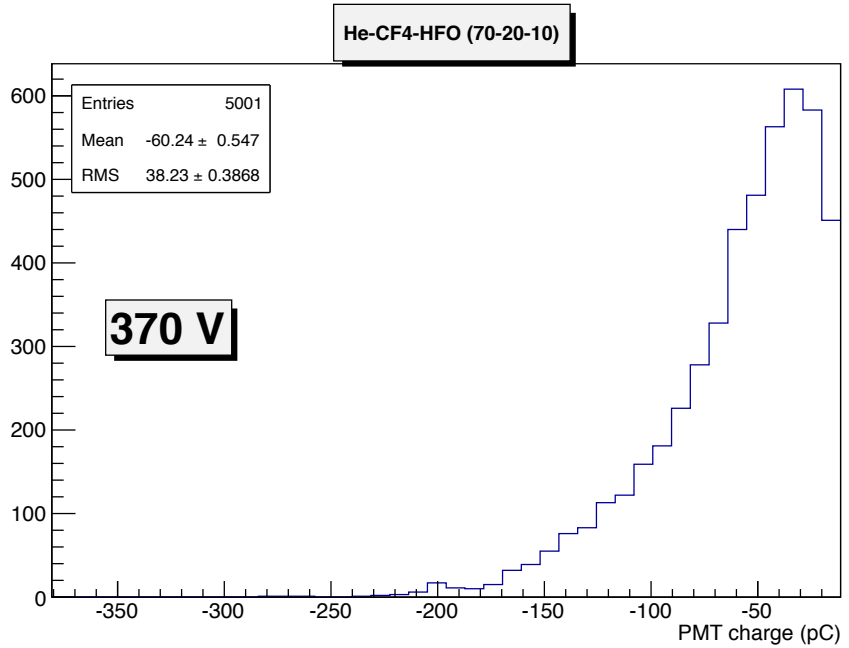


He-CF4-HFO (70-20-10)



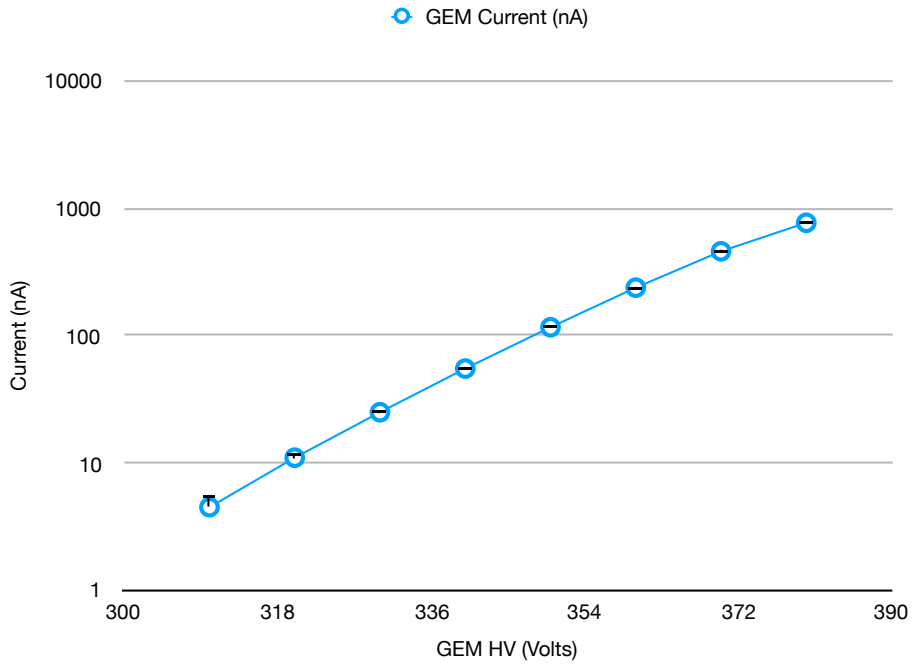






He-HFO (80-20)

PRELIMINARY



Xray Gun current 50
PMT voltage 1400 V

Xray gun intensity 10x respect to previews measurements

No detectable light

Scope waveforms not available

Gain estimation

He-CF4 (60-40) Wi = 46,6 eV
He-CF4 (70-30) Wi = 45 eV
He-CF4-HFO (70-20-10) Wi not available (assume 45 eV)

PRELIMINARY

Xray Gun Energy about 22 keV
Ne- per Xray = 470-490 e-

Mix	HV GEM	<Qgem> (pC)	G (10^4)
He-CF4 (60-40)	340	-1.2	1.6
He-CF4 (60-40)	350	-2.9	3.9
He-CF4 (70-30)	320	-2.4	3.2
He-CF4 (70-30)	330	-3.1	4.1
He-CF4-HFO(70-30-10)	360	-1.4	1.9
He-CF4-HFO(70-30-10)	370	-2.2	2.9

Conclusions

- Consistency of data taken to be xchecked
- For the future the analysis should be done with waveforms
- Fractions at level of 10 % of HFO reduce light emission of about a factor 10
- Purely ecological mixtures have been tested up to low gains. Work in progress if possible.