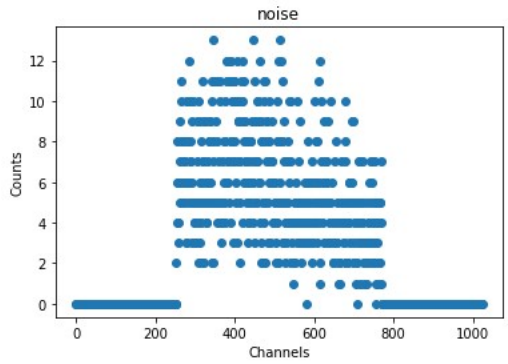
```
Python 3.7.0 (default, Jun 28 2018, 08:04:48) [MSC v.1912 64 bit (AMD64)]
Type "copyright", "credits" or "license" for more information.

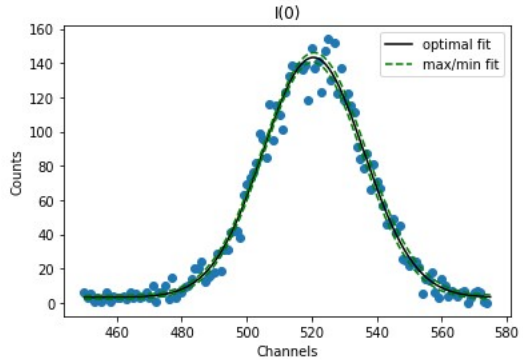
IPython 6.5.0 -- An enhanced Interactive Python.

Restarting kernel...
```

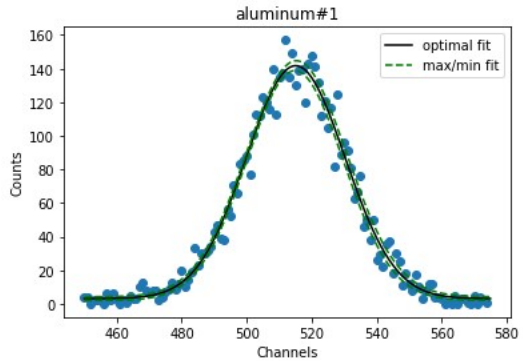
```
 C:\Users\samue\Anaconda3\lib\site-packages\ipykernel\parentpoller.py:116: UserWarning:
Parent poll failed.  If the frontend dies,
                the kernel may be left running.  Please let us know
                about your system (bitness, Python, etc.) at
                ipython-dev@scipy.org
  ipython-dev@scipy.org""")


In [1]: runfile('C:/Users/samue/Documents/GitHub/Advanced-Lab-PHY424/COMP/
compton_analysis.py', wdir='C:/Users/samue/Documents/GitHub/Advanced-Lab-PHY424/COMP')
```

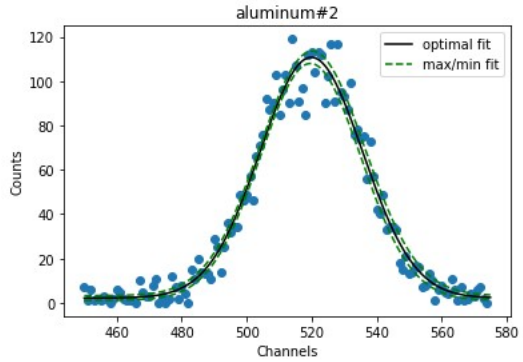




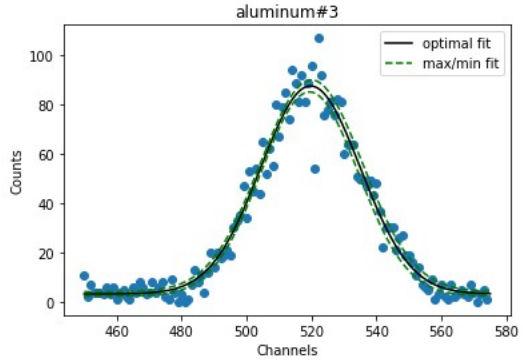

```
5865.157487464084 +/- 289.07272301752846
====================Aluminum Analysis============================
```



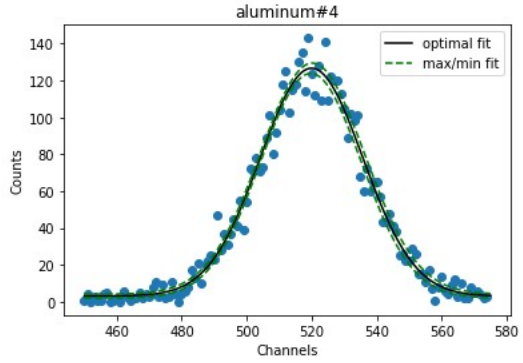
5667.023502803846 +/- 301.8092173538712



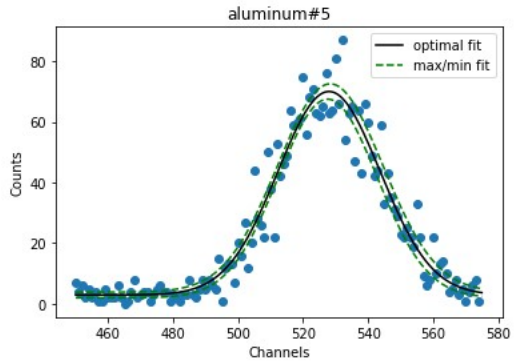
4575.126669922187 +/- 291.1192610361527



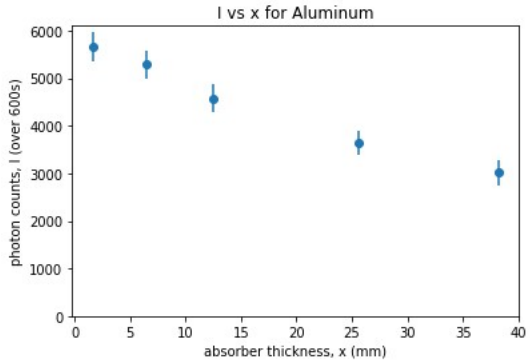
3643.0649401879878 +/- 248.94114269290912

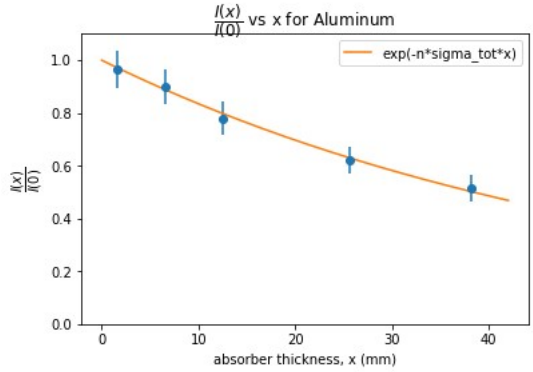


5283.146647915088 +/- 292.57502186024885

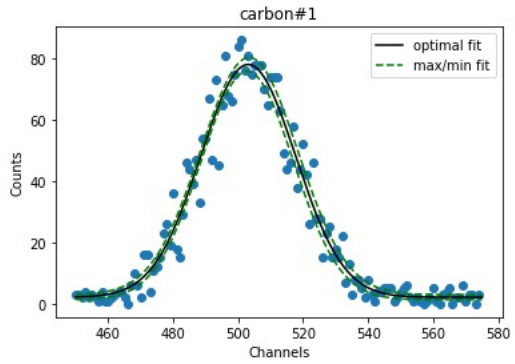


3010.400648714362 +/- 261.2075743540547

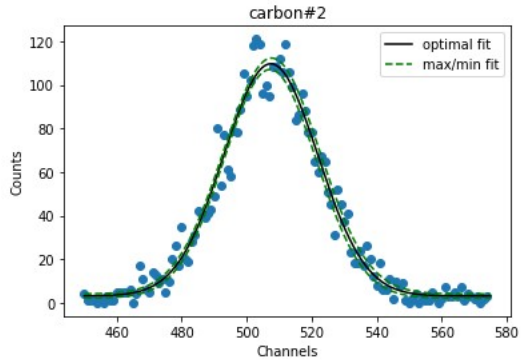




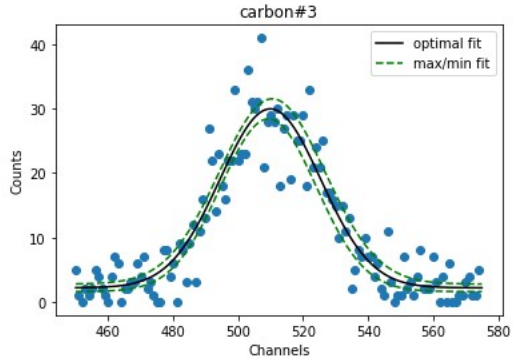
n*sigma_tot = 0.0180501521321533 +/- 0.00042175748150184657
n_Aluminum= 6.005166092805 6074e+19 +/- 4.3075844491978534e+17 mm^-3
sigma_tot = 3.0057706736501413e-22 +/- 7.346743168726315e-24 mm^2
sigma_tot = 3.005770673650141e-28 +/- 7.346743168726314e-30 m^2
sigma = 2.3121312874231855e-29 +/- 5.651340899020242e-31 m^2
r_electron = 2.677040410702497e-15 +/- 3.271628225357766e-17 m
alpha = 0.006932736924128198 +/- 8.47254218101469e-05
1/alpha = 144.24317710941435 +/- 1.7628051024549258
==========Carbon Analysis==========



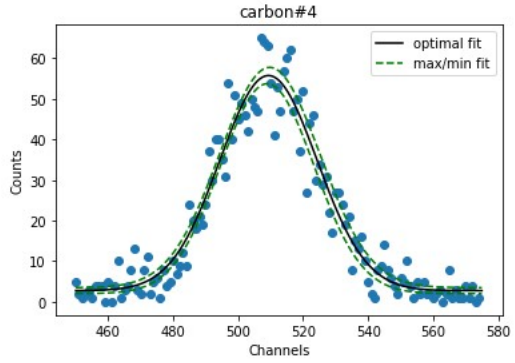
3044.950703883959 +/- 225.44890261046908



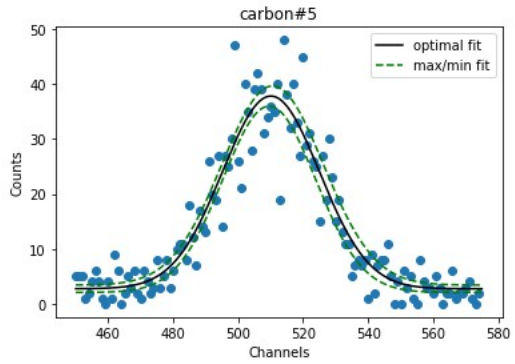
4253.981636744242 +/- 258.49471272854294



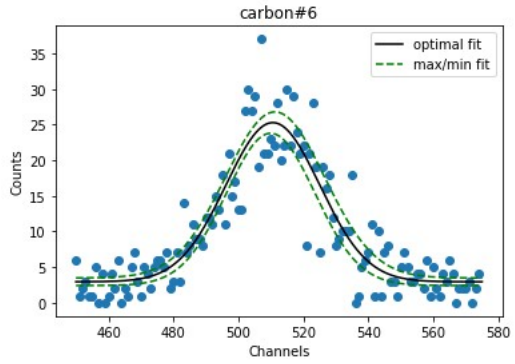
1351.994472080852 +/- 162.21948241971984



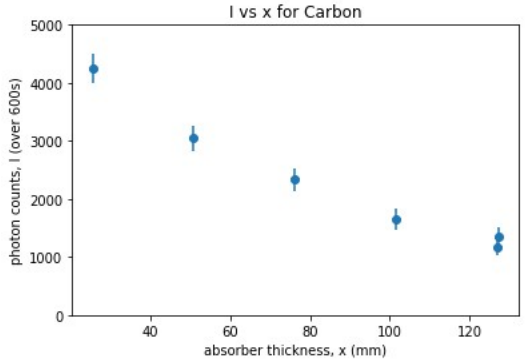
2331.9919474603566 +/- 203.1289225333312

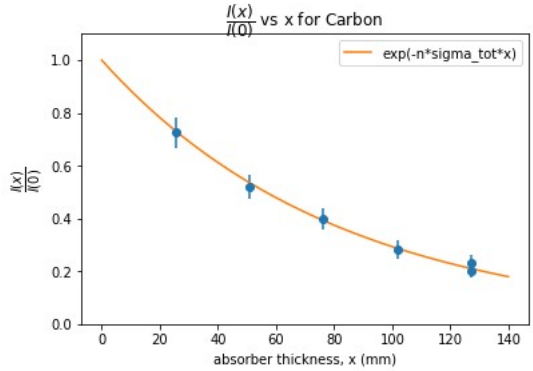


1655.9962116006698 +/- 185.67536433621888



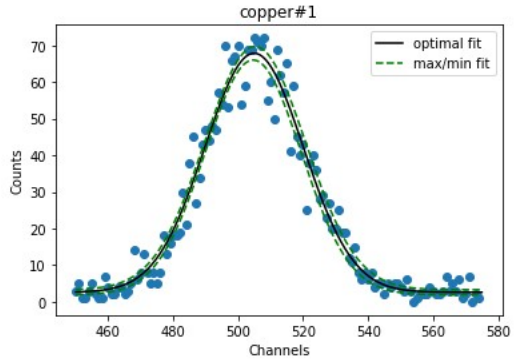
1177.9989363510253 +/- 147.91791424910457





n*sigma_tot = 0.01227196995670796 +/- 0.00021063821902307504
n_Carbon= 8.385397774809963e+19 +/- 3.4834544959986374e+17 mm^-3
sigma_tot = 1.4634928820637943e-22 +/- 2.5844892681105882e-24 mm^2
sigma_tot = 1.463492882063794e-28 +/- 2.5844892681105882e-30 m^2

```
sigma =  2.4391548034396568e-29 +/- 4.3074821135176465e-31 m^2
r_electron =  2.7495926855612624e-15 +/- 2.4278535531677045e-17 m
alpha =  0.007120625695934548 +/- 6.287417219079145e-05
1/alpha =  140.43709678082647 +/- 1.2400407747894757
====================Copper Analysis============================
```




```
2806.9556742690283 +/- 189.1275498754958
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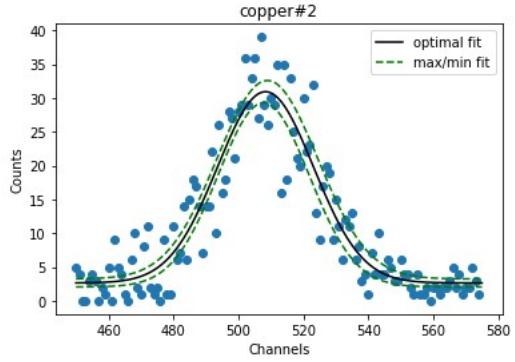
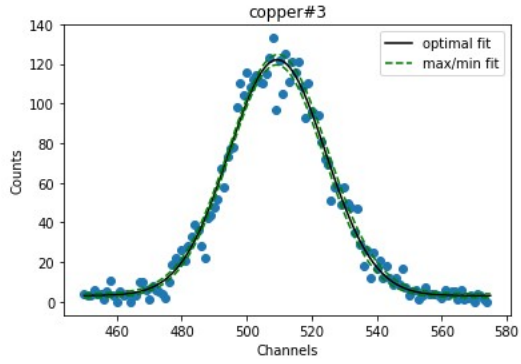



```
1376.994978967223 +/- 165.23098246191012
```

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4826.983973099681 +/- 259.20750737618437
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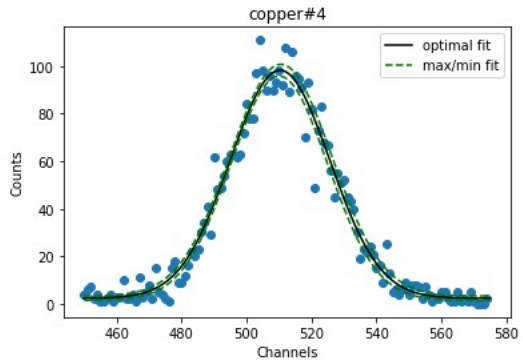
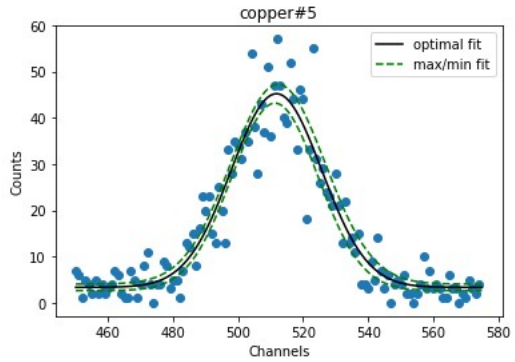
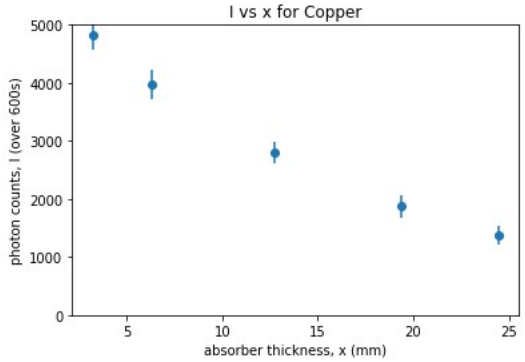
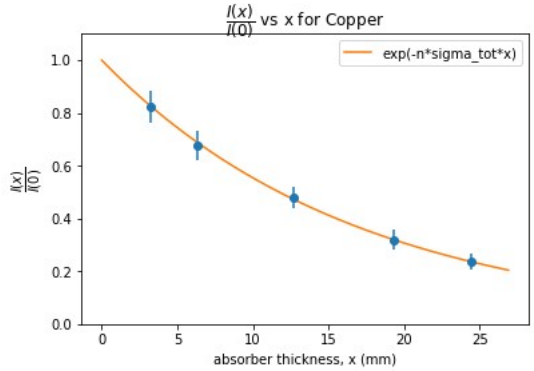


3972.9870934239293 +/- 254.40183332311676



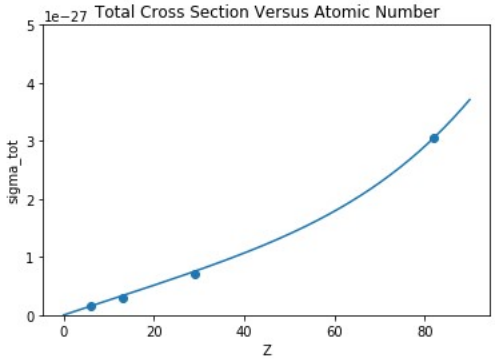
1874.9996907722925 +/- 195.0840633096126



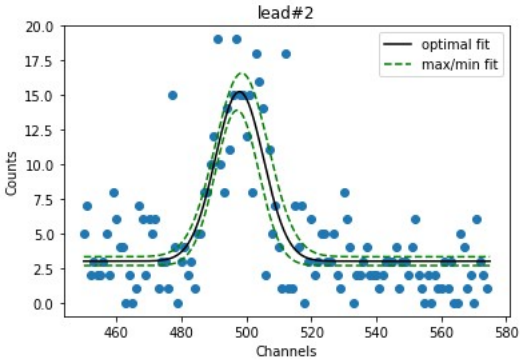


n*sigma_tot = 0.05905519648756071 +/- 0.0004192613369004852
n_Copper= 8.353017208972001e+19 +/- 3.695901759192339e+17 mm^-3
sigma_tot = 7.069923958031518e-22 +/- 5.9142781355198106e-24 mm^2
sigma_tot = 7.069923958031517e-28 +/- 5.9142781355198106e-30 m^2

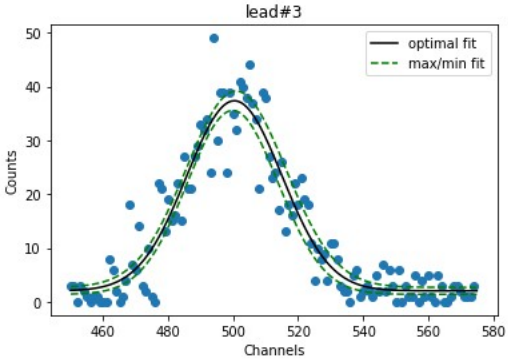
sigma = 2.4379048131143164e-29 +/- 2.039406253627521e-31 m^2
r_electron = 2.7488880552734085e-15 +/- 1.1497781743342632e-17 m
alpha = 0.007118800913463975 +/- 2.977582845554472e-05
1/alpha = 140.47309542098216 +/- 0.5875572084005993
==========Photoelectric Coefficient Analysis==========



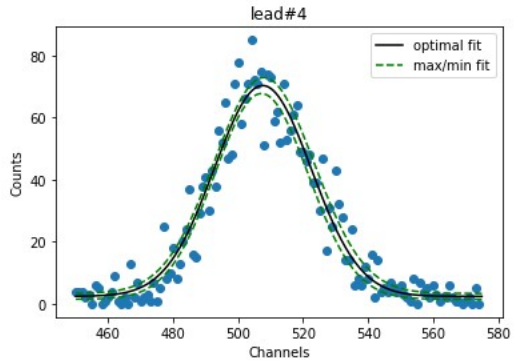
==========Lead Analysis==========



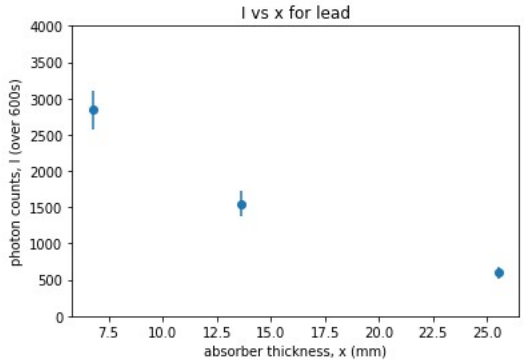
600.999999651951 +/- 81.7371858325389

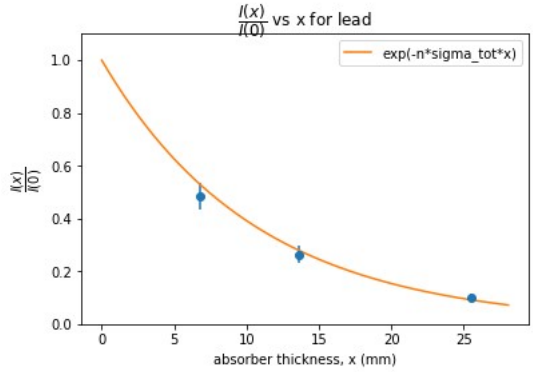


1547.9548300887793 +/- 179.33808743973282



2838.9822522195595 +/- 260.8891228600537





n*sigma_tot = 0.09366049023148373 +/- 0.004319266310127707
n_lead= 3.069609148382636e+19 +/- 1.4211407906311992e+17 mm^-3
sigma_tot = 3.051218761216979e-21 +/- 1.4141793456802073e-22 mm^2
sigma_tot = 3.051218761216979e-27 +/- 1.4141793456802072e-28 m^2
sigma = 2.553334959602355e-29 +/- 1.1834200839249754e-30 m^2
r_electron = 2.8132127530667324e-15 +/- 6.519341420154918e-17 m
alpha = 0.007285382712432091 +/- 0.0001688315155939166
1/alpha = 137.2611487236706 +/- 3.1808909272033405

In [2]: