

```
In [3]: xdata, ydata = loadtxt('focus_output.dat', unpack=True)
```

This encodes the equation from IDL's GAUSSFIT, which is basically a Gaussian + quadratic:

$$z = \frac{x-A_1}{A_2}$$

$$y = A_0 e^{-\frac{z^2}{2}} + A_3 + A_4 x + A_5 x^2$$

See http://idlastro.gsfc.nasa.gov/idl_html_help/GAUSSFIT.html

```
In [1]: def fit_func(x, a0, a1, a2, a3, a4, a5):
        z = (x - a1) / a2
        y = a0 * exp(-z**2 / 2) + a3 + a4 * x + a5 * x**2
        return y
```

See http://docs.scipy.org/doc/scipy/reference/generated/scipy.optimize.curve_fit.html

```
In [2]: from scipy.optimize import curve_fit
```

```
In [7]: pars, cov = curve_fit(fit_func, xdata, ydata)
```

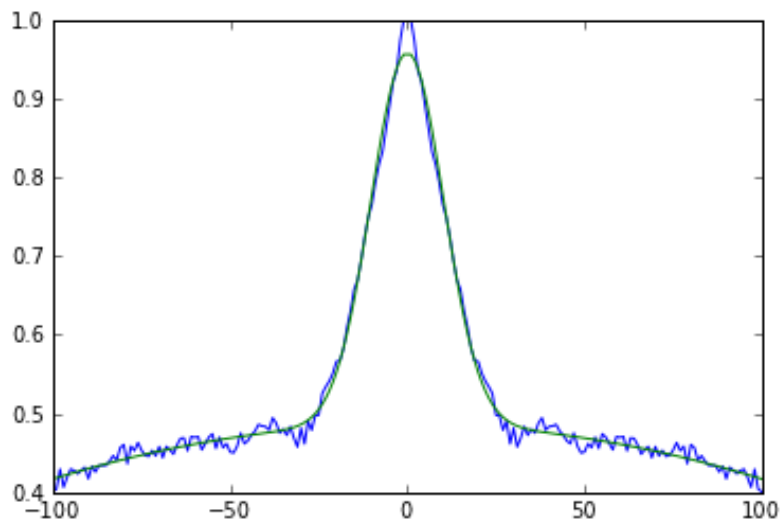
```
In [8]: print pars
```

```
[ 4.71793901e-01 -1.49255521e-04  5.92702808e+00  4.86118394e-01
 -1.76129091e-09 -6.91204323e-06]
```

```
In [9]: fitdata = fit_func(xdata, *pars)
```

```
In [10]: plot(xdata, ydata, xdata, fitdata)
```

```
Out[10]: [<matplotlib.lines.Line2D at 0x105430f50>,
          <matplotlib.lines.Line2D at 0x105430f90>]
```



```
In [ ]:
```