In this post, I show a sample code along with a YouTube tutorial that can be used to fit a set of data-points using a non-linear fitting function with multiple fitting parameters.

I believe the code is pretty much self explanatory, and the YouTube video goes through all the details, so I won't write much.

Enjoyyy

CODE:

```
import matplotlib.pyplot as plt
from scipy.optimize import curve_fit
import numpy as np

#Fitting function
def func(x, a, b):
    return a*np.exp(b*x)
    #return a*x+b

#Experimental x and y data points
xData = np.array([1, 2, 3, 4, 5])
yData = np.array([1, 9, 50, 300, 1500])

#Plot experimental data points
plt.plot(xData, yData, 'bo', label='experimental-data')

# Initial guess for the parameters
initialGuess = [1.0,1.0]

#Perform the curve-fit
popt, pcov = curve_fit(func, xData, yData, initialGuess)
print(popt)

#x values for the fitted function
xFit = np.arange(0.0, 5.0, 0.01)

#Plot the fitted function
plt.plot(xFit, func(xFit, *popt), 'r', label='fit params: a=%5.3f, b=%5.3f' %
tuple(popt))

plt.xlabel('x')
plt.ylabel('y')
plt.legend()
plt.show()
```

YouTube Tutorial

SciPy Documentation

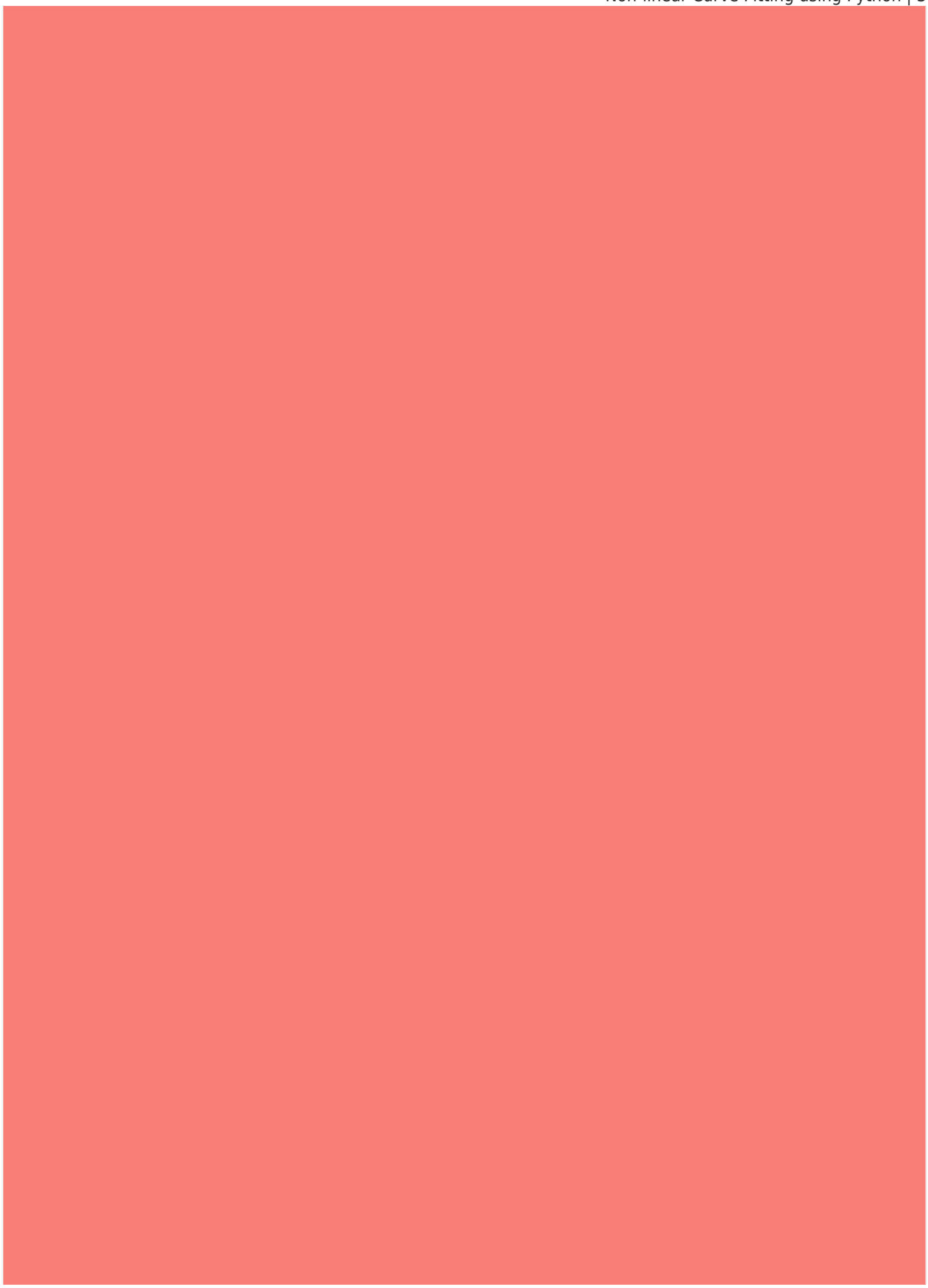
https://docs.scipy.org/doc/scipy/reference/generated/scipy.optimize.curve_fit.html

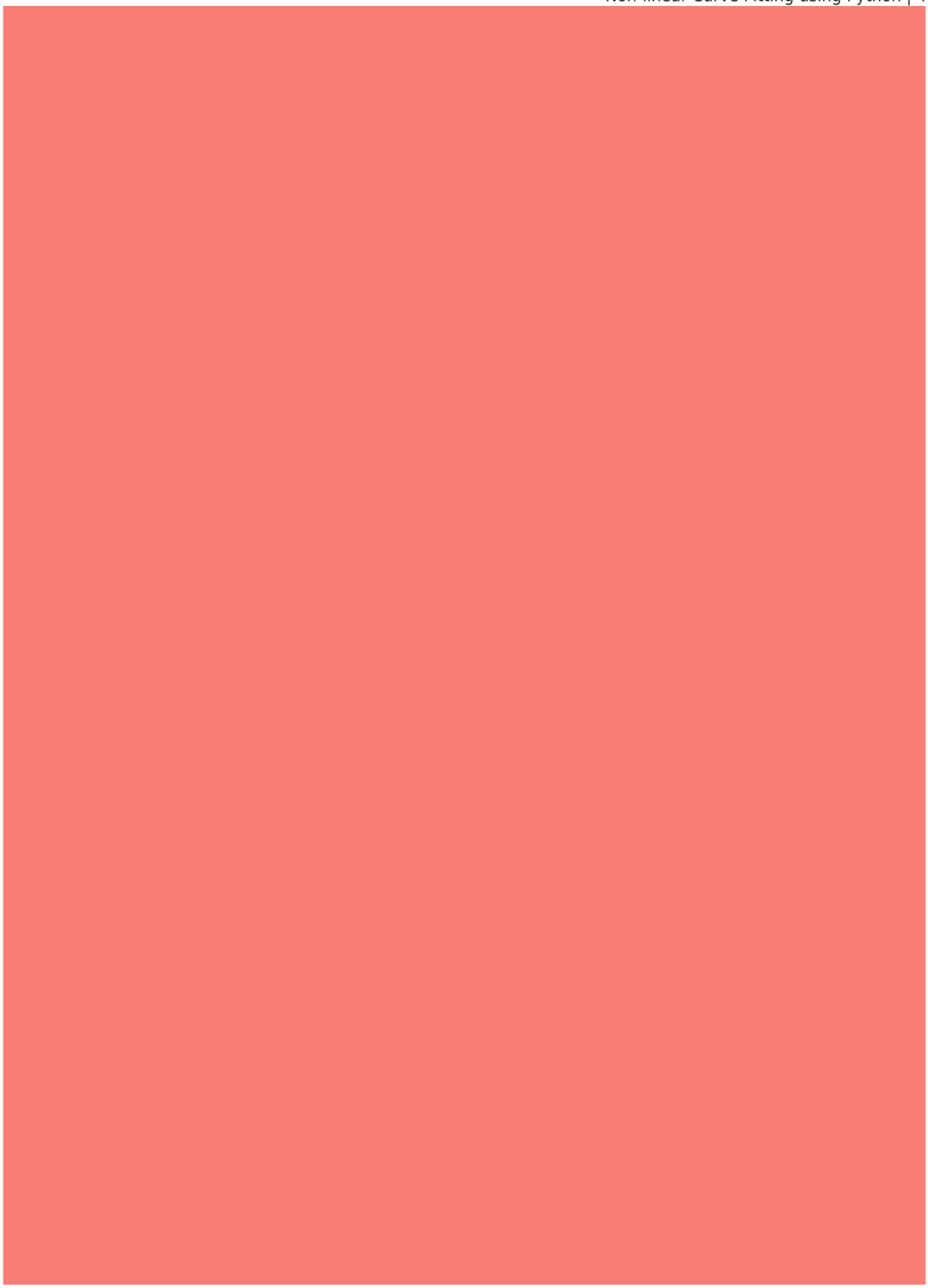


Manas Sharma

I’m a physicist specializing in computational material science with a PhD in Physics from Friedrich-Schiller University Jena, Germany. I write efficient codes for simulating light-matter interactions at atomic scales. I like to develop Physics, DFT, and Machine Learning related apps and software from time to time. Can code in most of the popular languages. I like to share my knowledge in Physics and applications using this Blog and a YouTube channel.

manas.bragitoff.com/







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