

# plotting\_filtered\_Franck.py

```
01 | import matplotlib.pyplot as plt
02 |
03 | def plot_data_with_uncertainty(file_path):
04 |     x_data = []
05 |     y_data = []
06 |     x_uncertainty = []
07 |     y_uncertainty = []
08 |
09 |     # Read data from the file
10 |     with open(file_path, 'r') as file:
11 |         for line in file:
12 |             parts = line.strip().split()
13 |             x_data.append(float(parts[0]))
14 |             y_data.append(float(parts[1]))
15 |             x_uncertainty.append(float(parts[2]))
16 |             y_uncertainty.append(float(parts[3]))
17 |
18 |     # Plot the data points with error bars
19 |     plt.errorbar(x_data, y_data, xerr=x_uncertainty,
yerr=y_uncertainty, fmt='o', capsize=5, color='black',
ecolor='lightgreen')
20 |     plt.xlabel('Accelerating Voltage (V)')
21 |     plt.ylabel('Electron Current (A)')
22 |     plt.title('Franck-Hertz Data of Electron Current vs
Accelerating Voltage')
23 |     plt.grid(True)
24 |     plt.show()
25 |
26 | # Example usage:
27 | file_path = "filtered_data_final10.txt" # Replace this
with the actual file path
28 | plot_data_with_uncertainty(file_path)
29 |
```