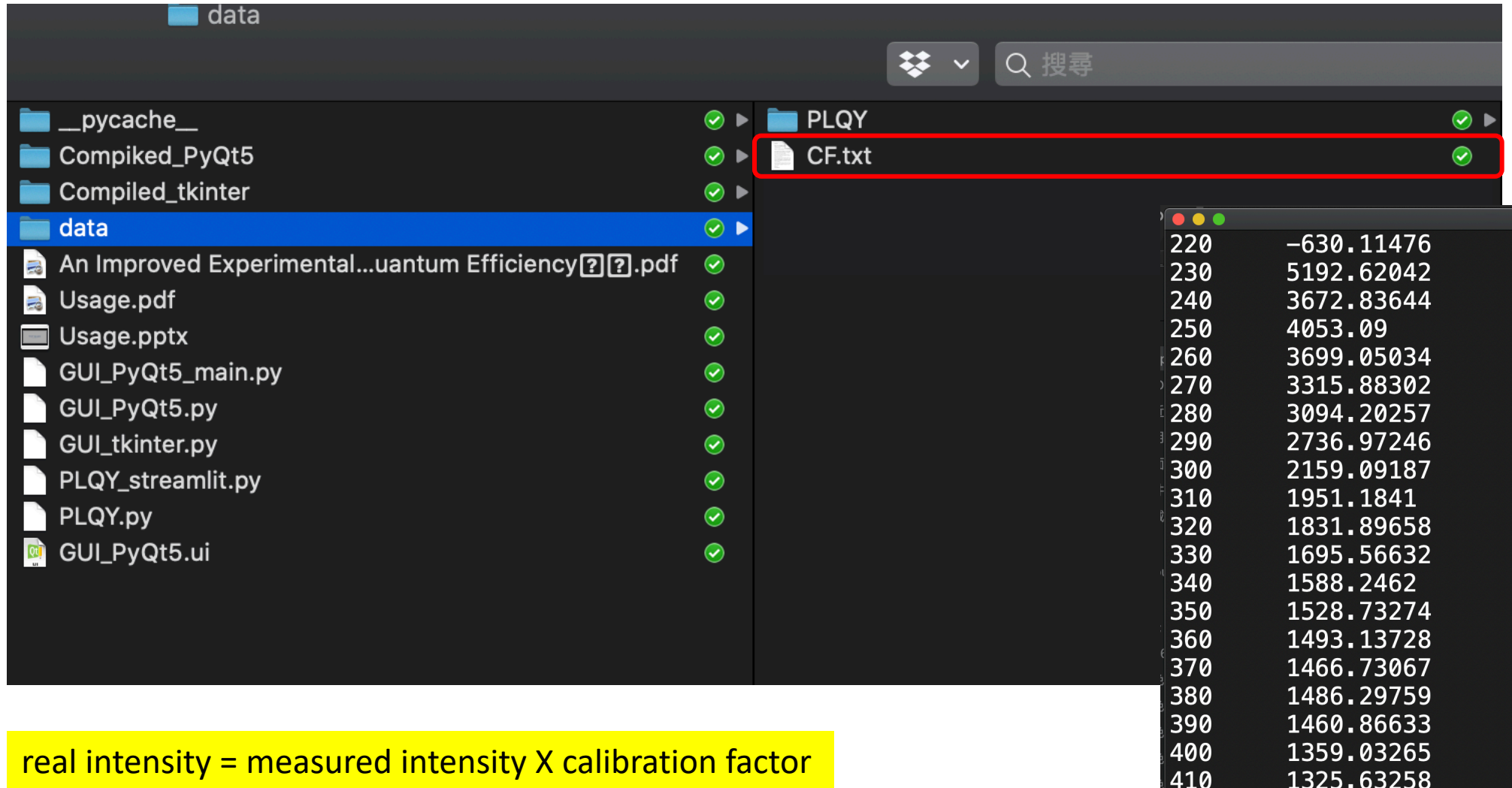


PLQY Calculator

Author: Wei-Kai Lee

Calibration File (necessary)



The screenshot shows a file explorer window with the 'data' directory selected. The file 'CF.txt' is highlighted with a red box. A small window in the bottom right corner displays a list of intensity values.

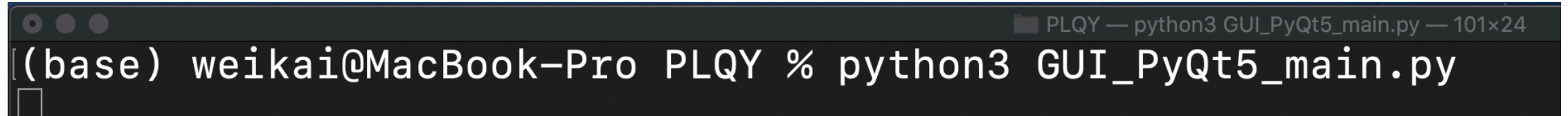
Intensity	Calibration Factor
220	-630.11476
230	5192.62042
240	3672.83644
250	4053.09
260	3699.05034
270	3315.88302
280	3094.20257
290	2736.97246
300	2159.09187
310	1951.1841
320	1831.89658
330	1695.56632
340	1588.2462
350	1528.73274
360	1493.13728
370	1466.73067
380	1486.29759
390	1460.86633
400	1359.03265
410	1325.63258

real intensity = measured intensity X calibration factor

PyQt5 or tkinter

How to execute the GUI (PyQt5 or tkinter)

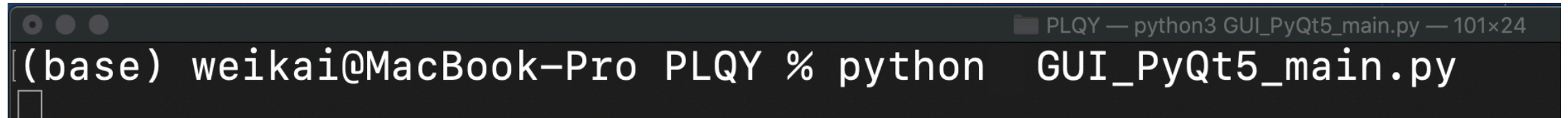
For mac/linux

A terminal window with a dark background. The title bar shows a folder icon, the text "PLQY — python3 GUI_PyQt5_main.py", and the dimensions "101x24". The terminal content shows the command "(base) weikai@MacBook-Pro PLQY % python3 GUI_PyQt5_main.py" with a cursor at the end of the line.

```
(base) weikai@MacBook-Pro PLQY % python3 GUI_PyQt5_main.py
```

or “GUI_tkinter.py”

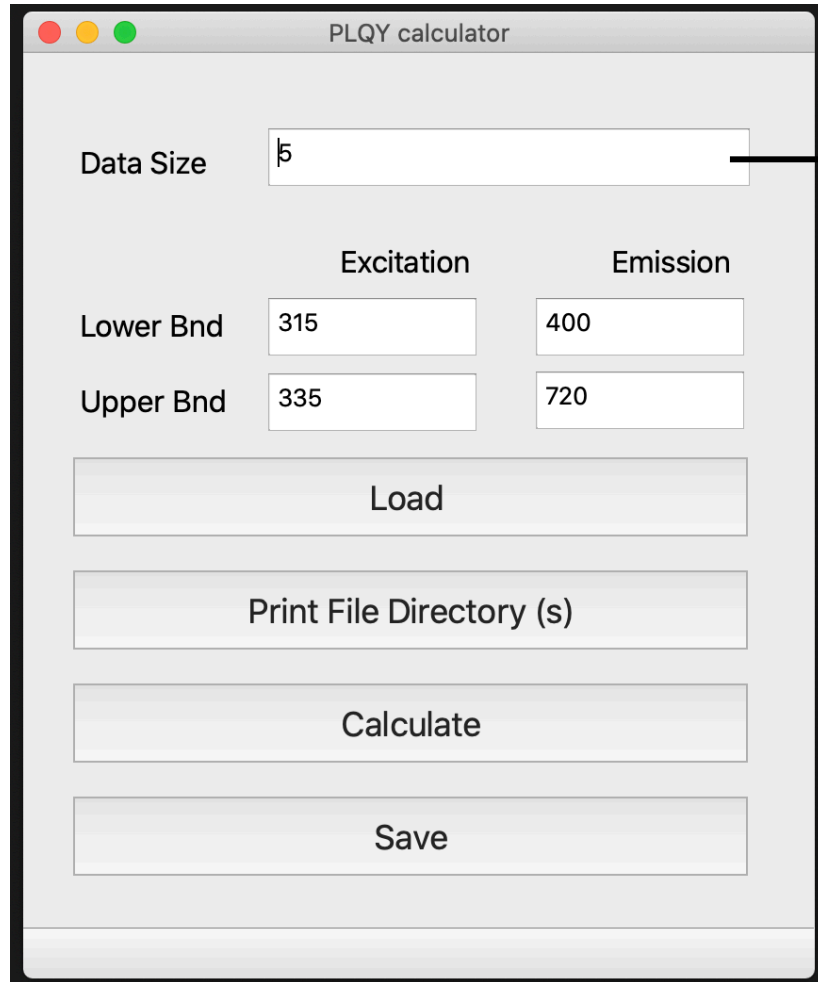
For windows

A terminal window with a dark background. The title bar shows a folder icon, the text "PLQY — python3 GUI_PyQt5_main.py", and the dimensions "101x24". The terminal content shows the command "(base) weikai@MacBook-Pro PLQY % python GUI_PyQt5_main.py" with a cursor at the end of the line.

```
(base) weikai@MacBook-Pro PLQY % python GUI_PyQt5_main.py
```

or “GUI_tkinter.py”

GUI (PyQt5 or tkinter)

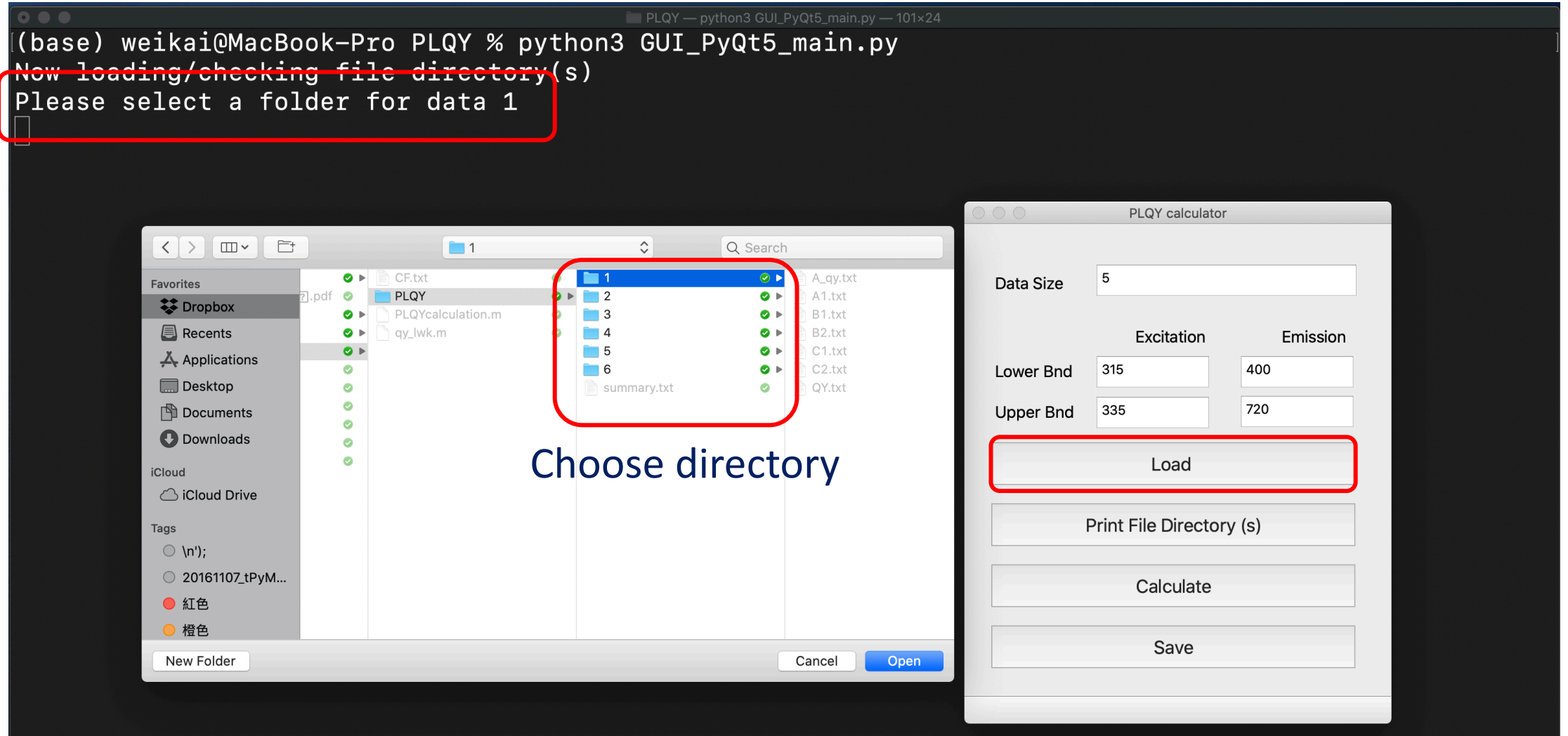


The image shows a screenshot of a GUI application titled "PLQY calculator". The window has a standard macOS-style title bar with red, yellow, and green window control buttons. The main content area contains several input fields and buttons. At the top, there is a "Data Size" label followed by a text input field containing the number "5". Below this, there are two columns of input fields. The first column is labeled "Excitation" and contains two fields: "Lower Bnd" with the value "315" and "Upper Bnd" with the value "335". The second column is labeled "Emission" and contains two fields: "Lower Bnd" with the value "400" and "Upper Bnd" with the value "720". At the bottom of the window, there are four buttons stacked vertically: "Load", "Print File Directory (s)", "Calculate", and "Save".

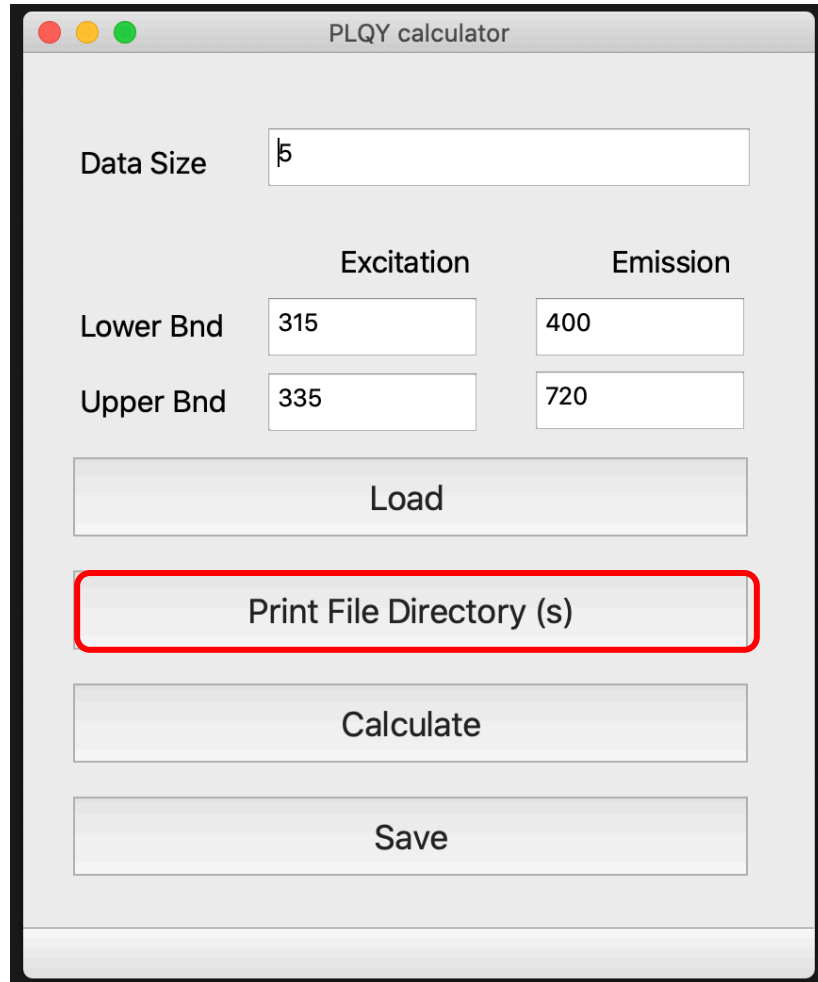
	Excitation	Emission
Lower Bnd	315	400
Upper Bnd	335	720

Number of measured data

Load Data (PyQt5 or tkinter)



After Loading (PyQt5 or tkinter)



The screenshot shows a window titled "PLQY calculator" with a light gray background. At the top left are three colored window control buttons (red, yellow, green). The main area contains several input fields and buttons. The "Data Size" field has the value "5". Below it, there are two columns of input fields: "Excitation" and "Emission". Under "Excitation", "Lower Bnd" is 315 and "Upper Bnd" is 335. Under "Emission", "Lower Bnd" is 400 and "Upper Bnd" is 720. Below these fields are four buttons: "Load", "Print File Directory (s)" (which is highlighted with a red rectangular border), "Calculate", and "Save".

	Excitation	Emission
Lower Bnd	315	400
Upper Bnd	335	720

```
Directory for data set 1 : /Users/weikai/Dropbox/PythonModule/PLQY/data/PLQY/1
Directory for data set 2 : /Users/weikai/Dropbox/PythonModule/PLQY/data/PLQY/2
Directory for data set 3 : /Users/weikai/Dropbox/PythonModule/PLQY/data/PLQY/3
Directory for data set 4 : /Users/weikai/Dropbox/PythonModule/PLQY/data/PLQY/4
Directory for data set 5 : /Users/weikai/Dropbox/PythonModule/PLQY/data/PLQY/5
```

Calculation (PyQt5 or tkinter)

PLQY calculator

Data Size

	Excitation	Emission
Lower Bnd	<input type="text" value="315"/>	<input type="text" value="400"/>
Upper Bnd	<input type="text" value="335"/>	<input type="text" value="720"/>

Now calculating the absorption and the PLQY.

	LowerBound	UpperBound
Excitation	315.000	335.000
Emission	400.000	720.000

Summary					
Absorption :	64.6%	64.9%	65.3%	64.7%	66.0%
Ave. :	65.1%		Std. :	0.5%	
Quantum Yield :	93.4%	90.8%	92.6%	92.9%	90.1%
Ave. :	92.0%		Std. :	1.3%	

Save summary

streamlit

How to execute the GUI (streamlit)

```
(base) weikai@MacBook-Pro PLQY % streamlit run PLQY_streamlit.py
```

You can now view your Streamlit app in your browser.

Local URL: <http://localhost:8501>

Network URL: <http://192.168.1.11:8501>

GUI

PLQY Calculator

This is a calculator to calculate PLQY proposed by prof. Richard H. Friend et. al.

Ref: <https://onlinelibrary.wiley.com/doi/abs/10.1002/adma.19970090308>

Measurement Condition

A1 : activation light wavelength range when there is **no sample** in the integrating sphere

B1 : activation light wavelength range when sample is in the sphere but light **does not** hit on the sample

B2 : emission light wavelength range when sample is in the sphere but light **does not** hit on the sample

C1 : activation light wavelength range when sample is in the sphere and light hits on the sample

C2 : emission light wavelength range when sample is in the sphere and light hits on the sample

Step 1: Load Data

Step 1 : Load Data (Maximum Data Size : 6)

default directory : /Users/weikai/Dropbox/PythonModule/PLQY

Insert Data Directory

/Users/weikai/Dropbox/PythonModule/PLQY

File A1.txt is not in /Users/weikai/Dropbox/PythonModule/PLQY.

File B1.txt is not in /Users/weikai/Dropbox/PythonModule/PLQY.

File C1.txt is not in /Users/weikai/Dropbox/PythonModule/PLQY.

File B2.txt is not in /Users/weikai/Dropbox/PythonModule/PLQY.

File C2.txt is not in /Users/weikai/Dropbox/PythonModule/PLQY.

Insert Data Directory

/Users/weikai/Dropbox/PythonModule/PLQY

File A1.txt is not in /Users/weikai/Dropbox/PythonModule/PLQY.

File B1.txt is not in /Users/weikai/Dropbox/PythonModule/PLQY.

File C1.txt is not in /Users/weikai/Dropbox/PythonModule/PLQY.

File B2.txt is not in /Users/weikai/Dropbox/PythonModule/PLQY.

No data in the specified directory.

Step 1: Load Data

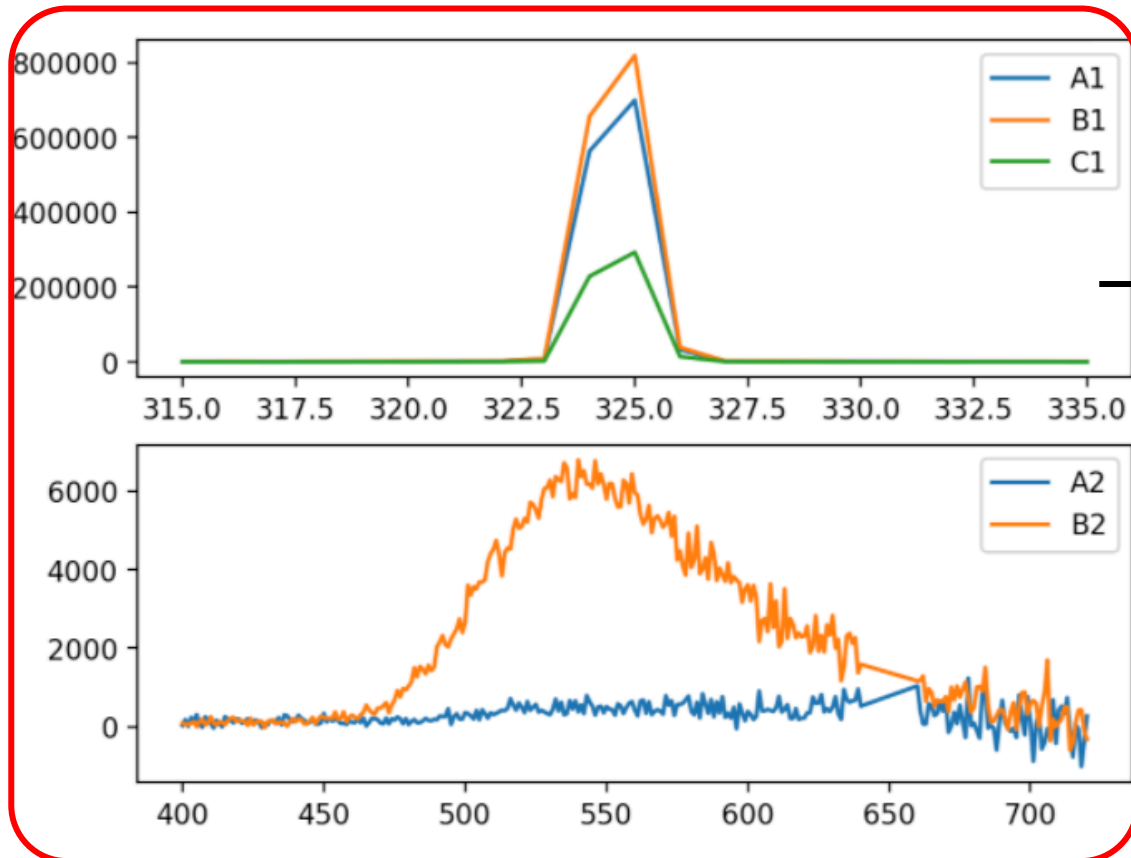
Step 1 : Load Data (Maximum Data Size : 6)

default directory : /Users/weikai/Dropbox/PythonModule/PLQY

Insert Data Directory

/Users/weikai/Dropbox/PythonModule/PLQY/data/PLQY/1

Insert the path of data



Measured data

Step 2~3: Set Excitation/Emission Range

Step 2 : Excitation Wavelength Range

Lower Bound

315

- +

Upper Bound

335

- +

Step 3 : Emission Wavelength Range

Lower Bound

400

- +

Upper Bound

720

- +

Step 4: Calculate PLQY

Step 4 : Calculate PLQY

Calculate

Data:

	Absorption (%)	PLQY (%)
0	64.5941	93.3865
1	64.8790	90.8430
2	65.2705	90.5941
3	64.7492	92.9342
4	65.9743	90.0557

Statistics:

	Absorption (%)	PLQY (%)
Average	65.0934	91.9602
Standard Deviation	0.4942	1.2841

Terminate Streamlit



```
^C  Stopping...  
(base) weikai@MacBook-Pro PLQY %
```