**PLQY Standard Operating Procedure**

Hardware:

(This should all be configured automatically, but if any connections fail, check these)

* Laser Diode Control connected to reference out “SINE OUT” from Lock in amplifier FYGEN 2300 channel 1.
* If using FYGEN 2300, connect channel 2 to reference in on lock in
* Lock-in amplifier is connected to PLQY cable from photodetector under signal input

A group of electronic devices

Description automatically generated

* Turn on TEC control on Laser Diode Control
* Turn on Laser Diode Control

A close up of a machine

Description automatically generated

* Gain set to close to max on photodetector

A black device with a dial and buttons

Description automatically generated

* Place sample into integrating sphere sample holder.

A person holding a piece of paper

Description automatically generated

**Software instructions:**

**Type into terminal/command line:**

ipython

from PLQY import control

plqy = control.PLQY(810)

cd /into/a/directory

**To take PLQY:**.

* Use take\_PLQY function
  + Type “plqy.take\_PLQY(‘sample\_name”, max\_current = 760)
  + Max\_current = 760 roughly equals 1 sun illumination
  + This will take PLQY at ~1 sun, or any intensity you set it to, based on max\_current value between 300 and 780 mA

To take implied JV curve (intensity dependent PLQY):

* Use take\_iJV function
  + Type “plqy.take\_iJV(‘sample\_name’)”
  + This will take PLQY from ~1 sun down to ~1e3 suns on default settings)
  + Optional arguments include:
  + plqy.take\_iJV(Sample\_name="sample", start\_current=780, end\_current=300, step=-20):
  + Adjust start\_current, end\_current, and step size as necessary

**Export data as needed- e.g. copy paste into Synology Drive.**

**Turn of Laser and TEC when finished measuring samples.**

A close up of a machine

Description automatically generated