

2018-Planck

This folder has some of the important files for measuring Planck's constant using LED's.

Teensy Code

The Teensy code is an Arduino sketch using the Arduino IDE. The name of the program is `PlanckLED_18a`. You have to have the Teensy program installed alongside the Arduino IDE. Unzip the file in the Arduino folder you work in, then you can upload it to your Teensy.

Controlling the Teensy with Python

The python program `Read_SCPI_18c.py` will interface with the Teensy. You need to have the file `serialPorts.py` in the same folder. This program has to run on the same computer the Teensy is connected to, so you have to have python installed on that computer. I recommend the Anaconda distribution.

Fitting the LED I-V Data

The Teensy takes current *versus* voltage data for an LED. The python program runs the Teensy and creates a data file. Each I-V curve has to be fit to find the forward voltage for LED turn on. A student version of an IPython notebook named `plotData-Student.ipynb` does most of the work.

Fitting Data to Get Planck's Constant

Finally the results from fitting the I-V data must be typed into a `.csv` data file, then that data fit to a straight line. The slope of that line is a measurement of Planck's constant.