**McPherson/Princeton Raman Control Software**

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**Getting Started**

**First Tab: Monochromator Control**

This tab handles control of the monochromator, which is used to select for different wavelengths/wavenumbers/energies.

Laser wavelength is preset to 532 nm, however a different wavelength may be entered if required.

[LASER IMAGE]

Initial calibration of the software must be performed for correct function. To do this, the current counter number (found next to the PyLoN CCD on the side of the monochromator) must be input. This will update the current monochromator position. Counter and monochromator wavelength are related by a factor of 2/3. Monochromator settings are specific to each Raman system. In the future specific software packages may be developed for each. For now, ensure that the data in ‘mono.cfg’ match specifications in the monochromator controller manual for the system of interest.

[CALIBRATION IMAGE]

After calibration has been performed, monochromator can be moved to the desired position. Note, the position given is the center location.

Homing of the monochromator **DOESN’T ALWAYS WORK RIP**.

[MONO MOVEMENT IMAGE]

**Second Tab: CCD Control**

This tab handles control of the CCD imager which is used to collect data.

The PyLoN CCD performs best at 80–120 °C. To achieve this, liquid nitrogen is poured into the dewar. Some fizzing and geysering may occur as the dewar walls cool down, thus it is important to carefully pour in LN2. Also, due to the Leidenfrost effect, LN2 can easily spill out of the funnel if it is poured in too quickly or filled too much. Cooling of the CCD from room temperature takes about 30(?) minutes, and current temperature is displayed in the software.

CCD exposure time can be changed. For bright samples, values around 1s or less are sufficient; for dim samples, this can be set to tens of minutes or hours.

[CCD SETTINGS IMAGE]

The software offers two snapshot modes, which take a 1D spectrum or a 2D image of the detector at the moment. These are intended for reference use but can also be used to collect data if only a narrow region is of interest. These do not save automatically.

[SNAPSHOT IMAGE]

There is also an imaging mode intended for wider spectra. This works by taking spectra at different monochromator positions and then stitching them together. This will automatically save data to the active folder (see Tab 3).

[RAMAN IMAGE]

**Third Tab: File Saving**

This tab handles file saving.

First, an active folder must be selected. This is the location that any selected data will save to. Then, a valid file name (no extension) must be entered. When taking multiple spectra, ensure that this name is updated each time to prevent data getting overwritten.

[FILE IMAGE]

**Fourth Tab: Shift Calculator**

This tab provides a convenient means of calculating Raman shift, going from wavenumber to wavelength or vice versa.

**Planned updates:**

* Dropdown menu for laser wavelengths
* Two software versions, one for each Raman system
* Save most recent data to a temp location, maybe in documents?