Renishaw Raman Microscope SOP

1. Turn on laser
   1. Switch on power supply to the laser. This is located underneath the table.
   2. Make sure switch on box is on standby
   3. Turn key to “I” and wait for laser to come on, it will take about 55 seconds
   4. Once laser is on the then switch from standby to run. Current should be around 7.2 A and power around 11.1 mW.
2. Turn on spectrometer: do this at least 20 minutes before you’re planned measurement
3. Launch Wire 2.0 software (accept the default settings for referencing of the motors when the dialog box pops up by clicking ok)
4. Calibrate your wavelength by doing a quick calibration using the silicon standard
   1. Place silicon card on sample start and focus on the silicon. When focusing have the dials on the microscope in the 4,1 positions.
   2. The focal point for the 20X objective is around 3 mm from the sample surface. **Do not** approach closer than this or you’ll crash the objective into the sample.
   3. After focusing switch the dials on the front of the microscope to the 1,4 positions. Check to see if the laser top of the bottom crosshair in the software (as of 7/29/2021 the center of the crosshairs was not correct). If the laser is not in the correct position notify the SIL staff and they will realign the laser.
   4. After focusing go Tools 🡪 Calibration 🡪 Quick Calibration
      1. When this is finished the dialog box should say “Quick Calibration Complete”.
5. Analyze your sample
   1. Place your sample on the microscope stage
   2. If your sample is very thick you may need to move the stage down. Just below the sample stage on the right-hand side there is a lever. Before unlocking the lever move the microscope stage take all the way down using the focus knobs. Once all the way down unlock the lever and move the stage with your sample on it so that your sample is around 10 mm from the 20X objective lens and then lock the lever. If you’re having difficulty focusing on your sample, mark a portion of your sample with a sharpie and focus on the sharpie. Then translate the stage to a sample point after focusing.
6. Record a spectrum
   1. Using the drop-down box on the New Measurement icon select Spectral acquisition
   2. You can collect data in two modes
      1. Static: fix spectral width and fixed monochrometer. You can specify where you want the center of your spectral width, along with a exposure time (1 second default) and signal averaging (1 spectrum by default)
      2. Extended: you can specify the spectral width and collect a larger spectral width by rotating the monochrometer. This is a slower scan. You can also supply an exposure time (10 seconds by default) and a how many spectrum scans you want to average together to get one spectrum (1 scan by default).
      3. Click apply and ok to accept any changes you’ve made
      4. Click the run icon to collect the data
      5. Once finished save your data
   3. If you want to modify your settings click the Setup Measurement button (has triangle on it) to modify them and then apply and ok to accept modifications. Click the run button to recollect the data.
   4. If you want to abort a run in progress, click the abort button (has red beaker on it)
7. Shutting down the instrument
   1. Remove the sample and clean-up any mess you’ve made around the microscope
   2. Place the laser in standby
   3. Turn off the power to the laser on the remote
   4. Turn off the power to the laser power supply
   5. Turn off the power to the spectrometer
   6. Make you turn off the microscope illumination light