

Quick Procedure for Raman-Micro Spectroscopy (Model: Renishaw 1000 Raman Spectroscopy)

*“Please make sure to ask **Nevin Naguib** (X 2327) or **Slava Domnich** (X 6630) for reservations prior to your session and specify if you need to use the Red or the Green laser.”*

1- Turn the system on:

- Start the Laser (turn the key on the switch box) and turn the fan on (in the back).
- Check the power on the switch box, make sure it is 50mV, and Run mood (Not Stand By)
- Switch on the external monitor and the controller box.
- If the computer, computer monitor or the microscope is off, turn them on.

2- Start the Renishaw Wire software.

For the next 5 min, the system will be checking positions and referencing motors. If there is a message “Rack not detected”, push the green button on the spectrometer frame (next to the microscope).

3- Put your calibration sample (Silicon Wafer) on the XYZ stage and focus with an X50 objective (short or long, but remember to be consistent every time with your calibration). Two wheels just above the objectives allow switching from laser to white light mode.

4- Open the “Experimental Setup” window (Alt + C + E) or click on Collect and then experimental setup.

5- Set the Calibration experiment parameters as follows:

- Type of grating spectrum: Static
- Center at 520 for Silicon
- Units: cm^{-1} Shift
- Time: 1 sec
- Gain: High
- Accum: 1
- Cos. Ray Rem.: off
- Power: 100
- Obj: 50
- Focus: 0
- Descriptor: Si Calibration

Click then “Apply”. Minimize the “Experimental Setup” Window.

6- Set the laser on the sample. Make sure you have the smallest possible light spot.

7- Get the spectrum, by clicking on “Collect” and then “Get”. Check the intensity of the peak. If the peak is lower than 1000 counts for Red Laser, or 2000 counts for Green laser, then the system needs to be re-aligned. Contact Nevin Naguib or Slava Domnich.

8- Draw a box around the line at 520 cm^{-1} and left click inside the box (i.e., zoom in). Check the position of the Silicon line. If it is not in the $520\text{-}521\text{ cm}^{-1}$ range, open the calibration menu by clicking on “Collect” and then “Application” or by Alt + C + P and “Calibrate System” and input the required shift (520.5 minus the actual peak position). Then click “Apply” and finally click on “Done”.
Get the spectrum again. Repeat this step, calibration, until the silicon line is within $520\text{-}521\text{ cm}^{-1}$ range.

9- Once the system is calibrated, save the latest silicon spectrum in your current directory for future reference. This can be done by clicking on “File” , then “Save As” or save (Alt + F + A).

10- The system now is ready for Data Acquisition.