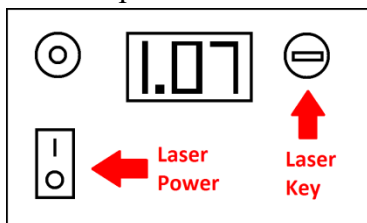


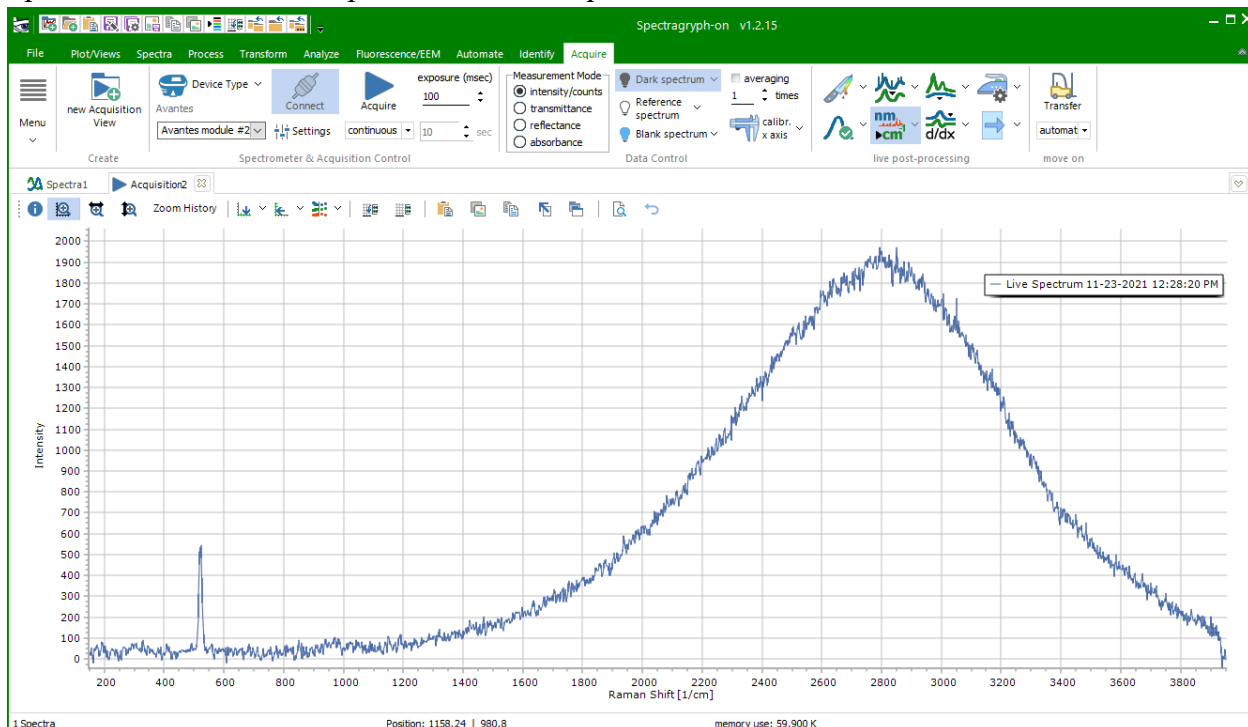
## Operation manual for

### Thunder Optics TO-RM-S-785

1. log onto the computer connected to the Raman spectroscopy system.
2. Turn the power on the laser control box to “on” and turn the ignition key to “on”.



3. Place the sample on microscope stage within range of the laser.
4. Open the *SpectralGryph* application. Select “Device Type” -> “Avantes”. If the device is not connected (virtually), click “Connect”. Be sure to focus the sample before collecting data.
5. To obtain a Raman spectrum, click the “Acquire” tab. Select “single shot” for a single exposure or “continuous” to observe the Raman spectrum over time. To collect a background spectrum, turn laser off, rotate objective lens to blank, and then select Dark Spectrum -> Set as Dark Spectrum -> Dark Spectrum.



6. Once you are done with the Raman system, turn off the laser by turning the key to “off”, turn off the laser power, close SpectralGryph, and log out of the computer.
7. Fill your name, date, time in and time out on logbook.

Learning Materials:

[1] A fundamental introduction to Spectroscopy: from definition to applications. [Session 1: The Basic Physics of Spectroscopy - Light-Matter Interaction for Fun and Profit- Oxford Instruments \(oxinst.com\)](#) (from 8:22 to 50:00)

[2] A principle overview on Raman spectroscopy:  
<https://drive.google.com/drive/folders/173EeV7Dq5yDZkquSPWIWWaoAdPRMKN27?usp=sharing> (from page 18 - 29)