

InGaAs detector for inVia Raman microscopes

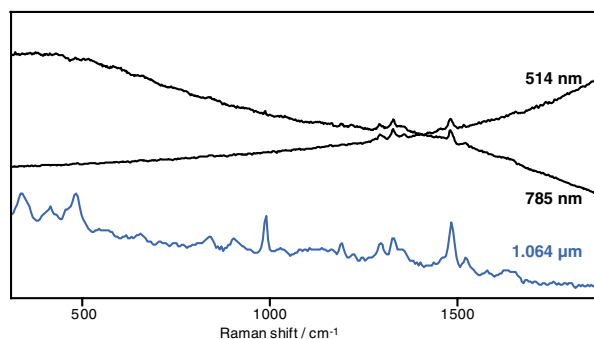
Dispersive NIR-Raman spectroscopy

Renishaw has worked with Princeton Instruments/Acton to develop a highly-efficient Raman microscope system capable of using an InGaAs array detector.

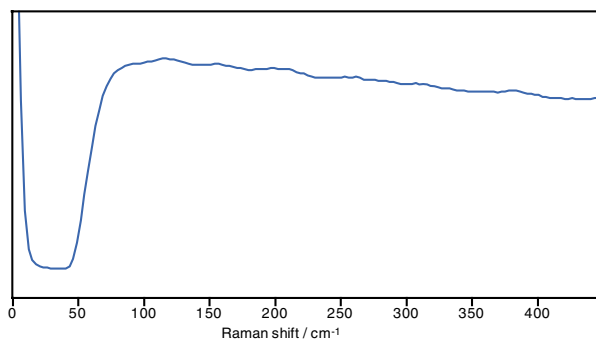
This system provides both fluorescence-free Raman spectra using 1.064 μm laser excitation and photoluminescence spectra out to 1.7 μm . It is available as a second detector option on all of Renishaw's inVia and RM-series Raman spectrometers.

This system offers:

- Close-to-the-laser-line performance: edge transmission >90% @ $\sim 70\text{ cm}^{-1}$,
- Ultimate fluorescence rejection
- Ultimate sensitivity for photoluminescence spectroscopy to 1.7 μm using visible laser excitation
- Spatial resolution of $\sim 2\text{ }\mu\text{m}$ with fully optimised collection and detection
- High spectral resolution:
< 1.5 cm^{-1} (1200 groove mm^{-1} grating)
< 2.8 cm^{-1} (830 groove mm^{-1} grating)



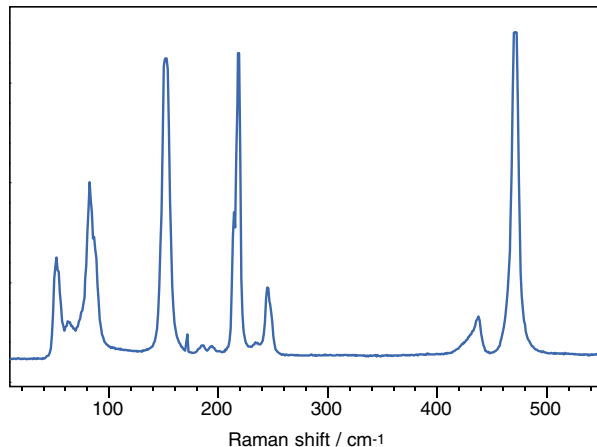
Ultimate fluorescence rejection. Rose madder pigment examined with three different excitation wavelengths: only 1.064 μm excitation gives a clear spectrum.



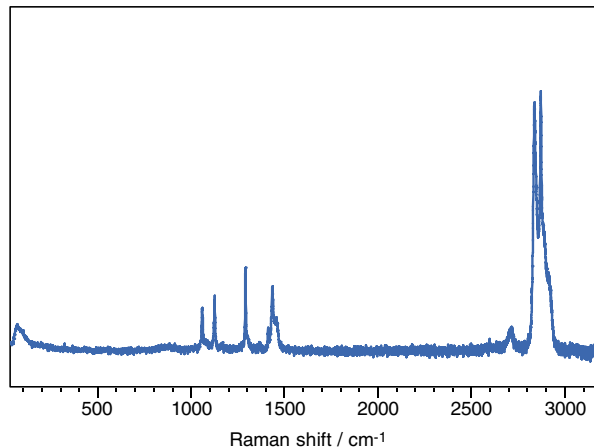
White light spectrum, showing the excellent close-to-the-laser-line performance



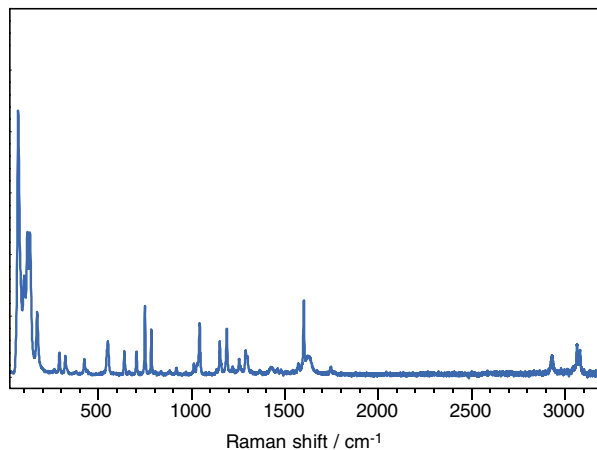
Example spectra



Sulfur spectrum, showing the excellent close-to-the-laser-line performance



Spectrum of yellow polyethylene - no fluorescence, short acquisition time



Spectrum of aspirin

Acknowledgements

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