GENERAL DESCRIPTION

The Raman Workstation, a single-stage Raman instrument, provides high throughput and less scatter. A total spectroscopy solution, the Workstation is completely assembled, tested and optimized for an application or wavelength range. Systems are available for laser lines from 325 to 830nm. For short ultraviolet wavelengths (< 325nm) the novel McPherson, Inc. prism predisperser is used as a sharp cut-off filter. Most systems include a solid-state laser (or use your own,) specialty filters, sample chamber with laser focusing and signal collection optics. Sample chambers with cryogenic sample holders for photoluminescence are also available.

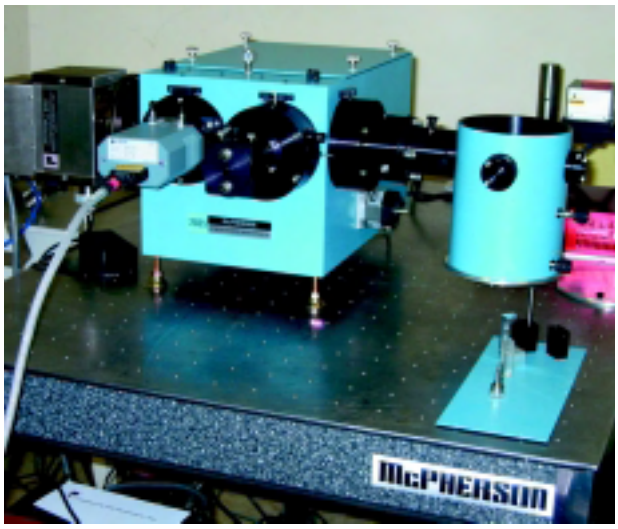
Workstation elements are mounted, aligned and integrated with a quality, research grade 350nm, f/4.8 spectrometer (longer focal length versions are available.) CCD readout and software for control and acquisition are standard. The precision optical sytem assures good signal to noise and ease of use for detection of Raman shifts above ~300cm^{-1}. Need to get closer to the laser line? McPherson also offers double and triple monochromator solutions. The McPherson Raman Workstation capitalizes on open architecture design and provides users room to grow, if need arises, and to modify operating conditions and alter or replace system elements. Accessible system components also ease instruction and operation. Use it for Raman or PL, it is ideally suited for research, analytical and teaching laboratories.

WIDE RANGE and GOOD RESOLUTION

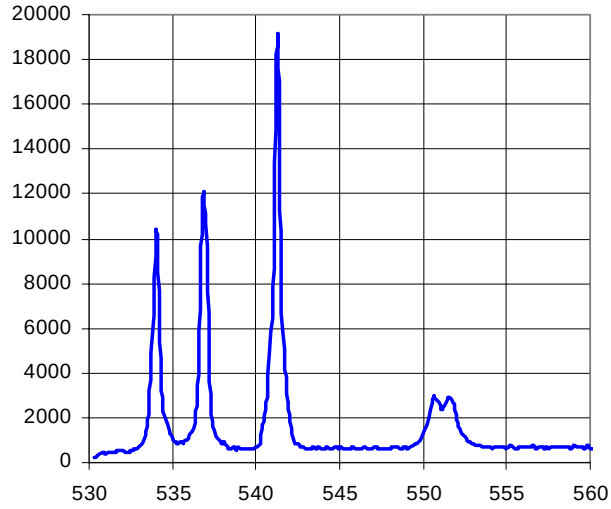
Use multiple gratings in the spectrometer and take advantage of wide range data collection and excellent spectral resolution.

FWHM* Resolution	Simultaneous Coverage**	Grating (g/mm)
4cm^{-1}	3300nm^{-1}	600
2cm^{-1}	1800cm^{-1}	1200
1.5cm^{-1}	1300cm^{-1}	1800
1cm^{-1}	950cm^{-1}	2400

* With 10um wide entrance slit.
** Assumes ~25mm wide CCD detector.



Raman Workstation shown with 50mW DPSS 532nm laser, macro sample chamber, 350mm f/4.8 spectrometer, cooled photomultiplier tube housing and CCD array detector.



Raman spectrum of Carbon Tetrachloride (CCL4) collected with the Workstation as pictured above.

LOW SCATTER and HIGH THROUGHPUT

Master optics are used throughout the Workstation. Refractive optics focus the laser and collect light from the sample. Reflective optics are used in the spectrometer and eliminate chromatic aberration. Our reflective optics feature 1/8th wave surface finish. Quality optics provide excellent performance throughout the UV-Visible and Infrared, scatter less and deliver more photons to the detector.

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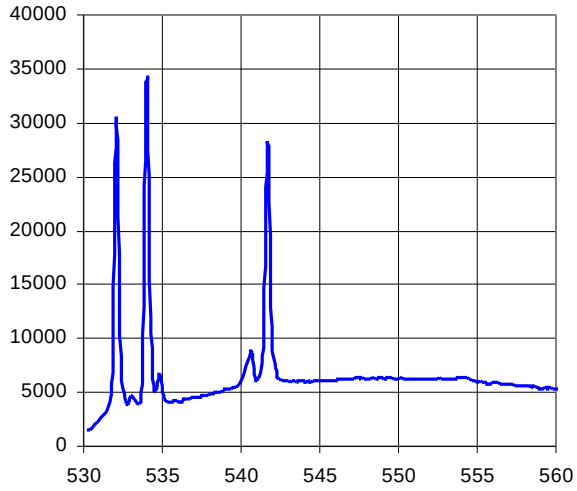
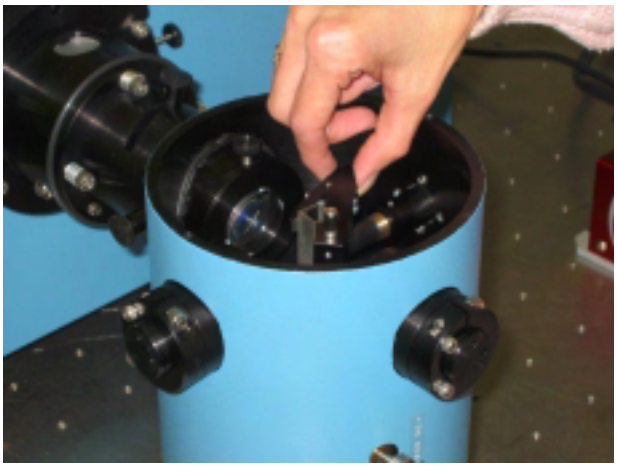
GENERAL SPECIFICATIONS

Excitation Laser	DPSS 532nm or others (e.g. 375,405, 473, 488, 514, 633, 785, etc.)
Detection System	TE cooled CCD array detector and/or cooled photomultiplier tube with photon counting for scanning
Spectrometer	350mm focal legth, f/4.8 (optionally 667 or 1000mm f/7 systems)
Resolution	$2cm^{-1}$ at 500nm with 1200g/mm and 10um slits
Wavelength Range	$1800cm^{-1}$ simultaneous acquisition with 1200g/mm
Dispersion	2nm/mm at detector with 1200g/mm (about $1.7cm^{-1}$ per pixel)
Wavelength Reproducibility	+/- 0.005nm with 1200 G/mm grating
Drive Mechanism	High accuracy sine bar scanning in 0.0002nm steps
Focal Plane	**30-mm** (multiply grating dispersion by the width of detector to calculate simultaneous wavelength range coverage for a particular set up)
Adjustable Slits	0.01 to 4 mm wide; 2 to 20 mm high
Grating Size	to 2X 68*68mm; select from many gratings including master holographic gratings



Raman spectrum of Sulfer powder collected with the Workstation sample chamber.



*Raman Workstation sample chamber accepts a variety of sample configurations, among them, 10*10mm cuvettes, miniature test tubes, micro capillaries. A variety of solid samples can also be measured with easy to use clip in mounts.*

Notch filters supporting specific analysis are ideal enhancers of SN and easy to use in our Raman and fluorescence instruments. Single- and multi-notch filters as well as extremely steep-edge, long pass are available for laser wavelenths 325nm and up. These filters provide >6 OD laser line blocking, narrow bandwidth, high transmission and durable, dielectric coatings.