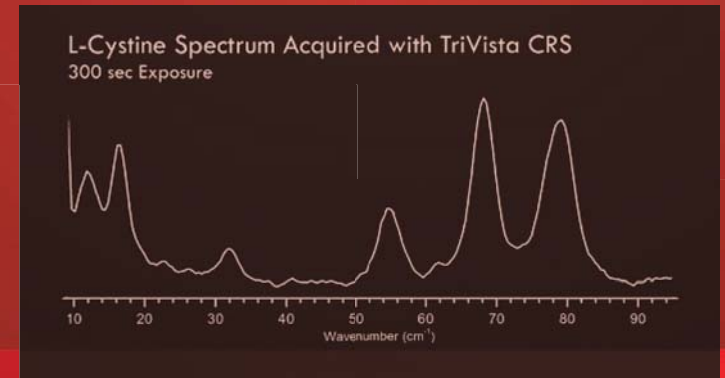
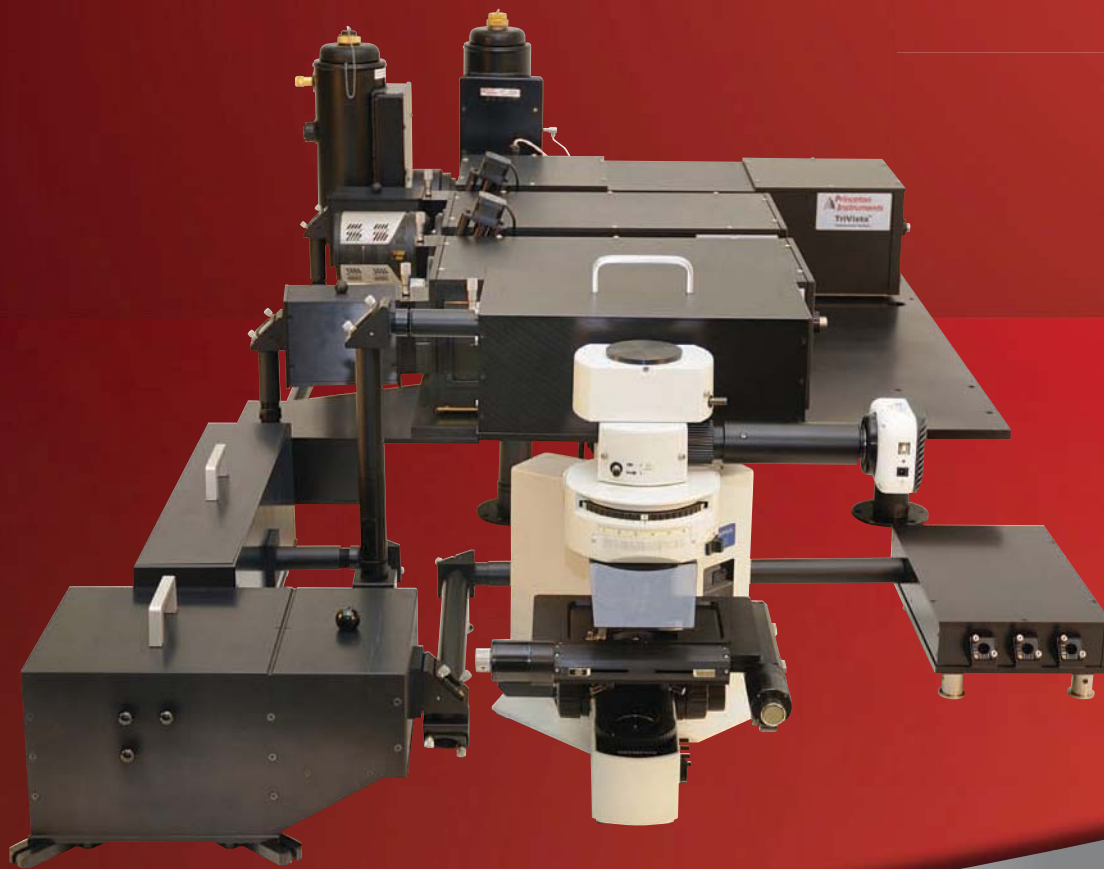


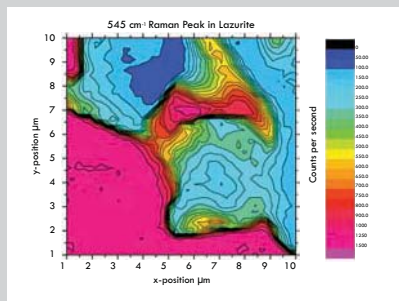
Confocal Raman Systems



MonoVista™ CRS Configuration Option



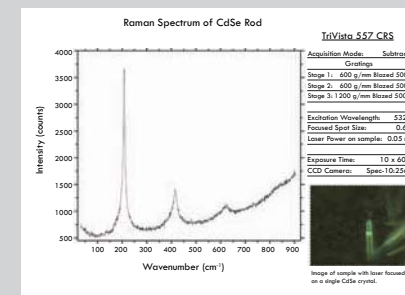
APPLICATION IMAGES



Contour map of 545 cm^{-1} in lazurite.



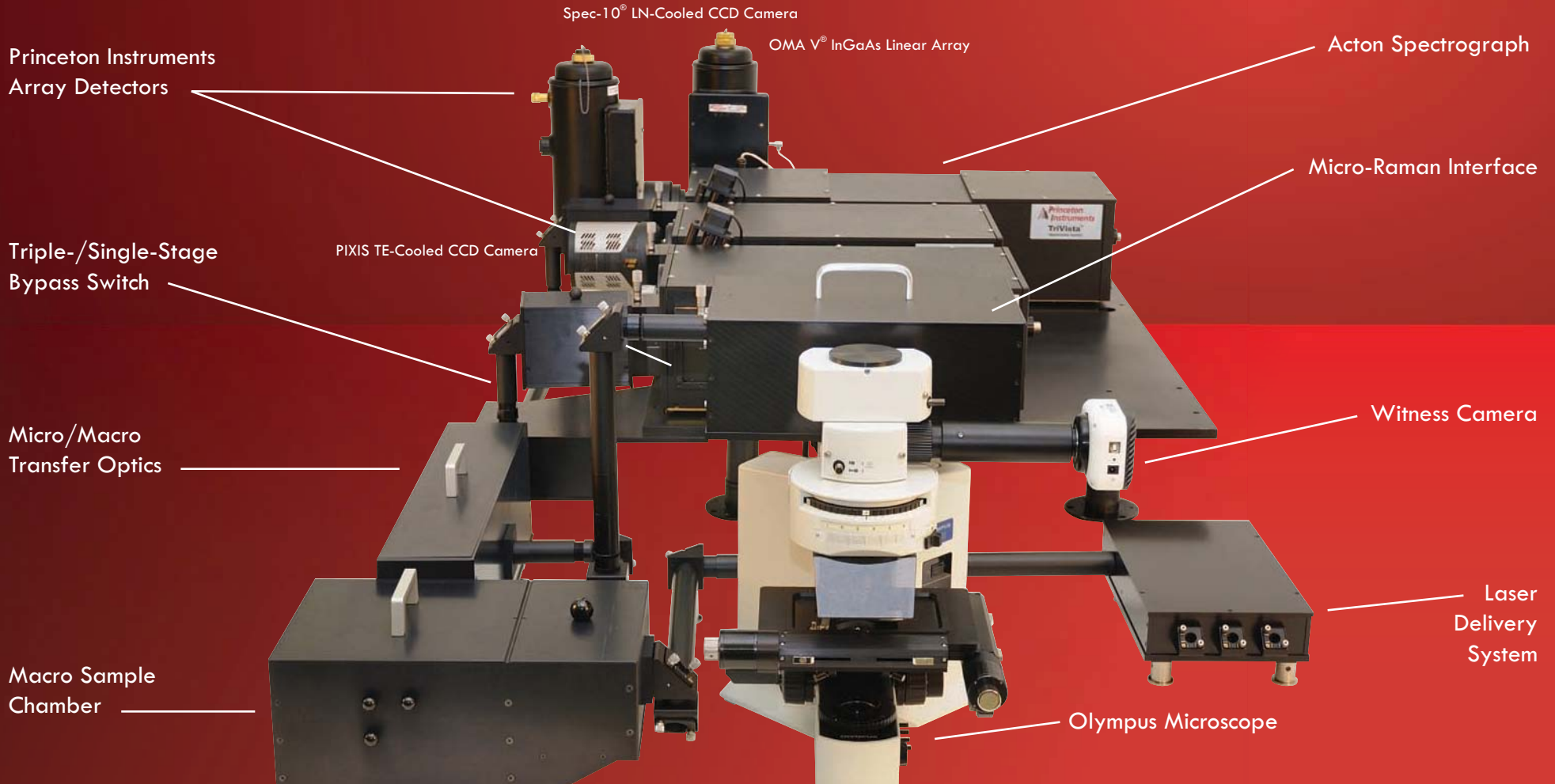
100x magnification image of a specimen of lapis lazuli. Lazurite mineral is seen in the image as the darker shaded regions.



Raman spectrum of CdSe rod with 532 nm excitation.

TriVista™ CRS Configuration Option

TriVista 557 CRS



- TriVista is the only triple spectrometer on the market that can switch between additive and subtractive modes with a single mouse click.
- Astigmatism-corrected spectrographs with toroidal mirrors provide outstanding imaging across the entire focal plane.
- Triple subtractive mode resolves Raman spectra to within 5 cm^{-1} of the laser line.
- Triple additive mode provides the resolution of a 1500 to 2250 mm instrument.
- Use as many as three entrances and four detectors on a single TriVista to accommodate multiple experiments and multiple users.
- Slit confocal design is easy to align and provides high throughput and outstanding out-of-focus light rejection for near-diffraction-limited Raman and luminescence imaging.

Confocal Raman System (CRS) Core Components

Acton Series Spectrographs

- TriVista: triple-spectrograph system; 555, 557, and 777 models available
- MonoVista: single-spectrograph system; 500 and 750 mm focal length models available
- Manual or motorized slits
- Dual entrance and exit ports
- Interchangeable triple-grating turrets



Microscopes

- Olympus BX51 upright
- Olympus IX71 inverted
- Wide variety of objectives



Witness Camera

- Motic® Moticam 1000 (1280 x 1204)
- Other cameras, including Photometrics® and QImaging® models, available on request



Detectors

- CCDs: PIXIS, Spec-10
- InGaAs: OMA V
- ICCDs: PI-MAX® 3
- EMCCDs: ProEM®
- Single-channel detectors: Si, InGaAs, etc.



Rayleigh Filters (Optional for TriVista)

- Subtractive mode of TriVista acts as notch filter with $\sim 5 \text{ cm}^{-1}$ cutoff
- MonoVista uses 4-position filter wheel with standard edge or notch filters and angular tilt adjustment



OPTIONS:

Optional Lasers

- 532 nm | 785 nm | other wavelengths
- Accommodates fixed-wavelength and tunable lasers from the deep UV to the short-wave IR

Motorized Scanning Stages

- X-Y stage step resolution = 100 nm
- X-Y-Z stage step resolution = 50 nm

Stokes/Anti-Stokes Accessory

- Designed to allow simultaneous low-frequency measurements of both Stokes and anti-Stokes data
- Interchangeable stop allows maximum throughput, rejection, or no rejection
- Variety of stop plates included



Optional Micro/Macro Transfer Optics

- Switch between micro- and macro-Raman experiments
- Accepts focused beam from macro sample chamber or collimated beam from remote experiment



Polarization Optics

- Includes waveplates/rhomb, linear polarizers, and polarization scrambler
- Complete solution for polarized Raman measurements

Laser Delivery System

- Multiplexes multiple lasers into a single system
- Includes laser clean-up filters, beam expanders, spatial filtration, and 8-position neutral density filter wheel
- Manual or motorized switch
- Pointing stability < 0.3 mrad

**Micro-Raman Interface**

- Couples collimated light into and out of the microscope
- Uses dichroic beamsplitters and/or pellicles for high efficiency and spectral coverage

**Height Limiter**

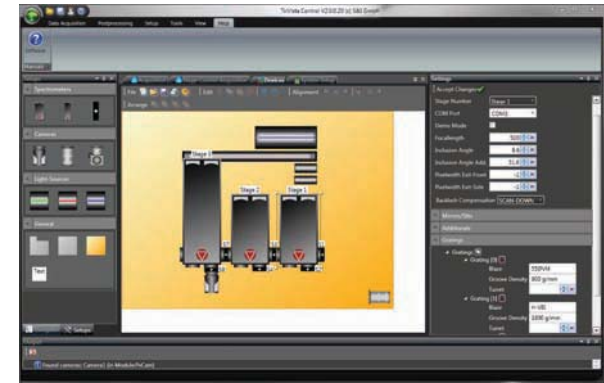
- Adjustable sliding beam stop reduces stray-light propagation between TriVista stages

**Acton Optics and Coatings**

- UV-enhanced aluminum Acton #1900 coating is standard and offers superior reflectivity from the deep UV through the visible range
- Optional protected silver, gold, and dielectric coatings from Acton can dramatically increase overall throughput in the visible and NIR ranges

**OPTIONS:****Macro Sample Chamber**

- Standard fused silica plano-convex lenses
- Specialized chambers available on request
- Optional aspheric achromatic lenses for optimum light delivery and collection

**Available Software for CRS**

S&I software offers complete control over additive, subtractive, and single-stage modes of the TriVista triple spectrograph.

**SOFTWARE:**

Mapping software with stage control, autofocus, and data processing

LightField™

New 64-bit data acquisition software with IntelliCal™

WinSpec

Industry-standard 32-bit data acquisition platform with thousands of users worldwide

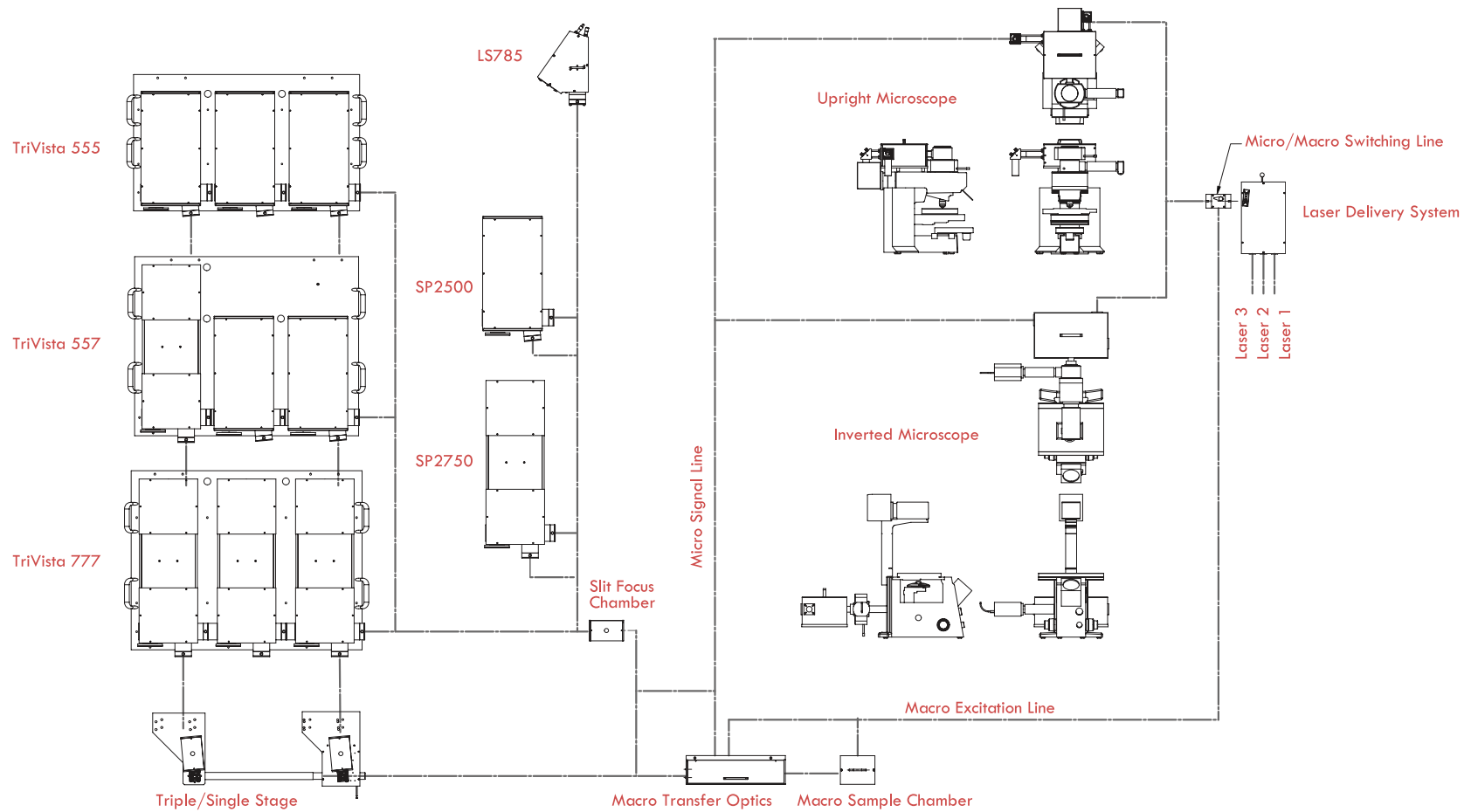
PICAM/PVCAM®

64- and 32-bit APIs for programmers

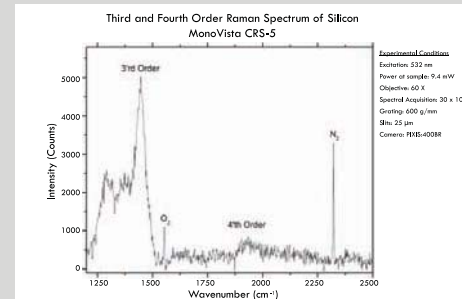
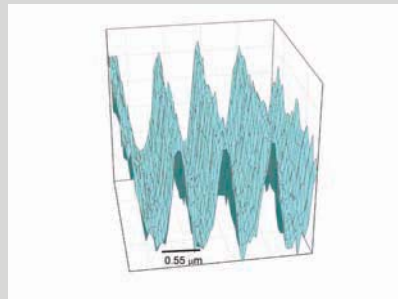
LabVIEW™ SITK

A collection of prewritten VI modules for easy integration into custom LabVIEW packages

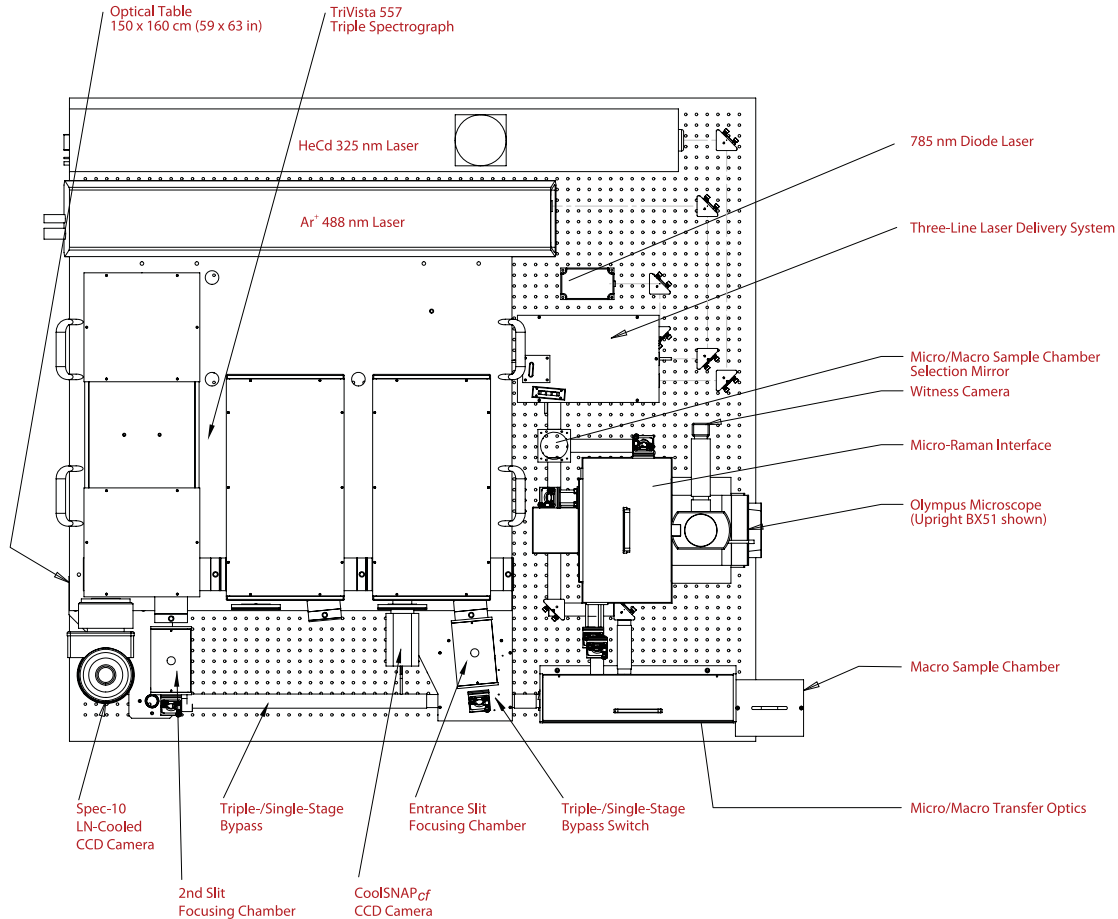
Schematic of Spectrograph and Microscope Options for CRS



APPLICATIONS

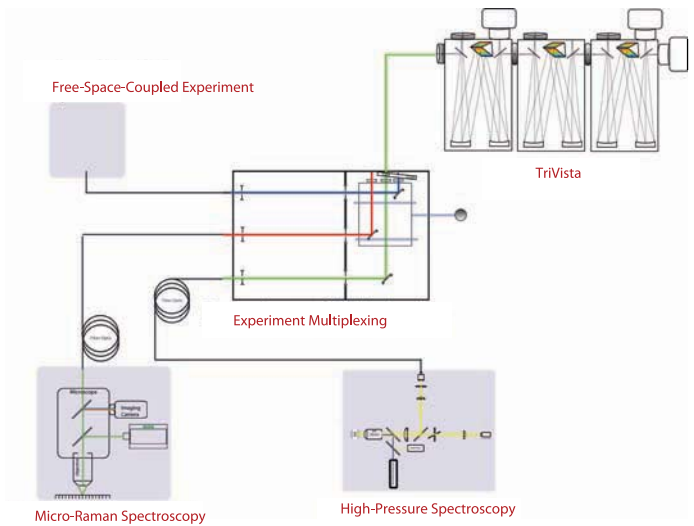


TriVista Table Example Layout



LASER DELIVERY SYSTEM

Experimental Multiplexing with the Laser Delivery System



- Separate grating drives and software-adjustable offsets ensure that every configuration is aligned and calibrated. Computer control of mirrors, gratings, and slits in a single window.
- Interchangeable triple-grating turrets provide experimental flexibility from the deep UV to the short-wave IR. A complete set of plane-ruled and holographic gratings ranging from < 50 to 3600 grooves/mm is available, providing spectral resolution of up to 0.1 cm^{-1} .

- MonoVista CRS offers confocal Raman and luminescence imaging and mapping in the same platform as TriVista CRS. This is ideal for users that do not require TriVista's flexibility, resolution, and high stray-light rejection.
- Acton #1900 UV-enhanced aluminum, protected silver, gold, or dielectric optical coatings are available for high light throughput.

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MonoVista™ CRS and TriVista™ CRS

Standard components:

- TriVista 555 – triple 500 mm spectrograph
- MonoVista 2560 – single-stage 500 mm spectrograph with dual array exits
- Olympus BX51 upright microscope
- 10X and 100X visible objectives
- Motic Moticam 1000 witness camera
- PIXIS:400B – eXcelon™ -enabled, TE-cooled CCD camera
- LDS-001 single-channel laser delivery system
- Micro-Raman interface
- Slit focus chamber
- Rayleigh filter carousel (MonoVista only)
- Computer and application software

Options:

- TriVista 557 or 777 – triple spectrograph with 750 mm stages
- MonoVista 2760 – single-stage 750 mm spectrograph
- Slit or array exit ports
- Olympus IX71 inverted microscope
- Wide range of UV, NIR, and reflective objectives
- Polarization optics
- Macro transfer optics
- Macro chamber
- Triple-/single-stage bypass switch
- Lasers
- Mapping stage
- Stage control software
- Stokes/anti-Stokes accessory
- Silver/gold/dielectric coatings

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