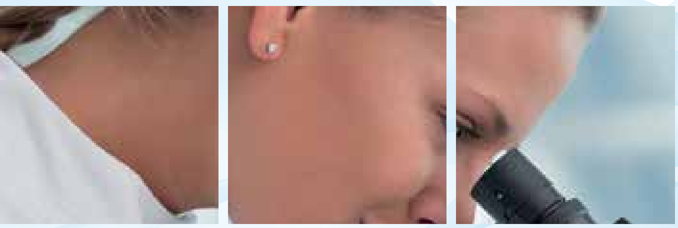
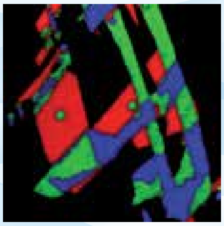
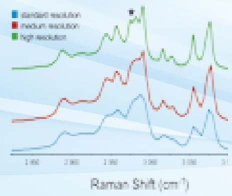
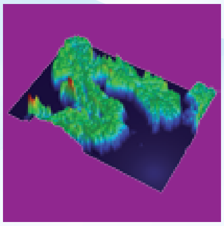
HORIBA
Scientific

XploRA Series

Simply Better Raman

Chemical Analysis & Imaging for Research & Industry

JOBIN YVON
Technology

Why Raman ?

Advantages

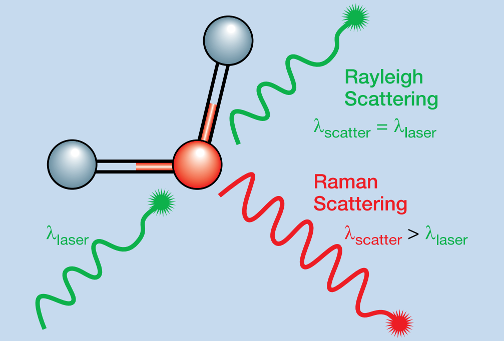
- Non-destructive
- Non-contact/*In-situ* sampling
- Reduced sample preparation
- Water/aqueous phase sampling
- Organic/inorganic molecules
- Amorphous/crystalline

Raman is an ideal technique for research and industry offering high quality data, reliability, versatility and improved value for money over other analytical techniques. Benefits not only include the range of samples that are suitable for analysis but also in the information content that is provided.

- Chemical identification
- Quality testing
- Process/product troubleshooting
- Contamination and inclusion analysis
- Raw materials inspection

Principle

Interaction of laser light with a sample results in a Raman spectrum - a detailed chemical fingerprint. Combined with an optical microscope, this provides sample identification and chemical imaging on a microscopic scale.

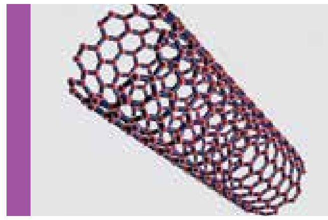


The sensitivity and spectroscopic performance of the XploRA product line

enables the broadest range of sample analysis.

Pharmaceuticals

Nano-materials



Semiconductors

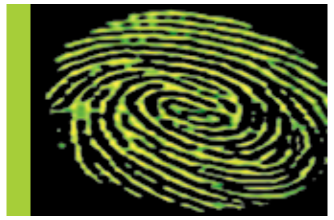
Polymers

Geology

Chemicals

Art and Museum

Forensics



XploRA Series

XploRA PLUS: Research

Raman imaging has never been so fast!

The XploRA PLUS incorporates unique and powerful functions in a reliable, high performance system, ideally suited to the research and analytical lab.
It is **fully confocal**, not compromising image quality, spatial or depth resolution. The **SWIFT™ Fast Raman images** are the fastest fully confocal Raman images available, typically 10x faster than conventional Raman imaging.
The simplicity and power of the XploRA PLUS is unmatched with an enhanced range of options such as multiple laser wavelengths, EMCCD detection, Raman polarisation and even Raman-AFM combination.

It is the best platform for multi-sample and multi-user environments.

- Fastest confocal imaging
- Automated laser wavelength switching with just a single mouse click
- Large range of options and accessories

XploRA ONE: Analytical

Raman analysis has never been so easy!

The XploRA ONE offers new capabilities to the industrial and analytical user, providing the highest performance Raman, in a **cost effective and robust instrument package.**

It is ideal for routine analytical, research and quality testing applications.

- OneClick operation
- Auto-calibration in OneCheck
- Regulatory compliance: 21 CFR11

XploRA INV: Life Science

Hybrid biological imaging and analysis made easy!

The XploRA INV Raman microscope is the only **truly analytical inverted Raman microscope.** Configured for high sensitivity bio-Raman spectroscopy. It offers TRUE confocal performance with low maintenance and dedicated software for ease of operation.

The uniquely integrated system design ensures stability, optimizing the imaging workflow. The integrated inverted microscope enables multi-modal analysis, such as **fluorescence, Raman, laser tweezing and even TERS analysis** to be conducted upon the same instrument and at the same sample position.

- Inverted life-science microscope
- Fast and simple sample imaging
- Multi-modal analysis

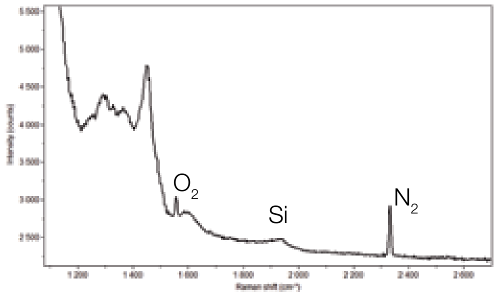
The XploRA At a Glance

Innovation provides improved productivity and extended reliability.

Technical design offers automation and class leading ease of operation.

Improved Detection and Sensitivity

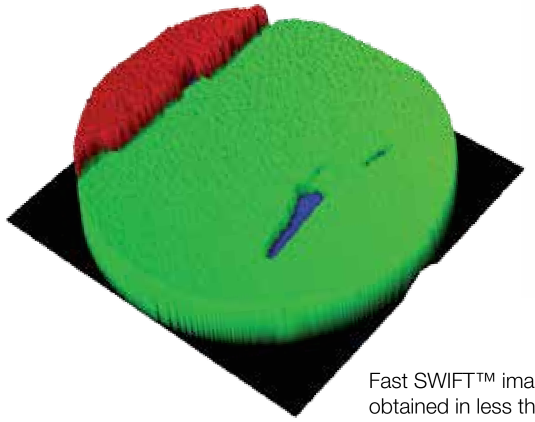
- Superior CCD for Class leading S:N
- Easier and faster analysis
- Requiring far less laser power on the sample, preserving sample integrity
- Ability to detect thin films, small particles, and dilute solutions



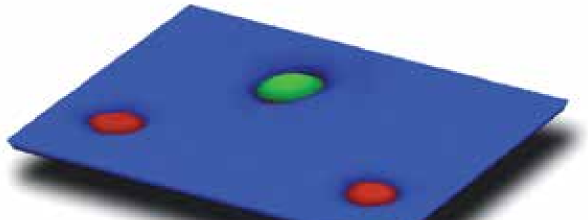
Silicon (Si) 4th order sensitivity

SWIFT™ Raman Imaging 10x Faster

- Suitable for all laser wavelengths
- Scaleable to large area and micron scale imaging for maximum image detail
- Means faster and more reliable Raman imaging at the click of a button
- Fully confocal for improved image detail

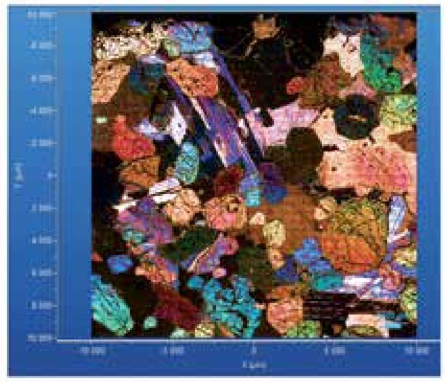


Fast SWIFT™ image of semiconductor defect, obtained in less than 2 minutes



Particulate contamination Raman SWIFT™ Image

Full Optical Microscopy To See Your Sample

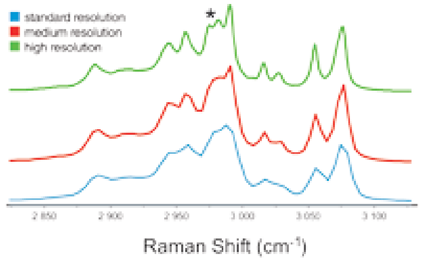


Extended polarized light microscope image

- All modes of microscopy, transmission and reflection illumination
- Options for DIC, phase, epifluorescence, dark field and polarized light microscopy
- Automated Extended Video Montage
- Range of options such as Autofocus, and ParticleFinder (auto-location) will never limit the scope of the optical microscopy

Maximum Detail, Resolution and Range

- Optimized range and resolution in one-shot for all lasers
- Full range optics enables detail over the complete Raman spectrum
- The high resolution ability of the XploRA PLUS and INV, provide the highest spectroscopic detail whilst optimizing the Raman sensitivity



Raman spectra of pharmaceuticals and organics can often show subtle information in the 2800-3400 cm^{-1} region

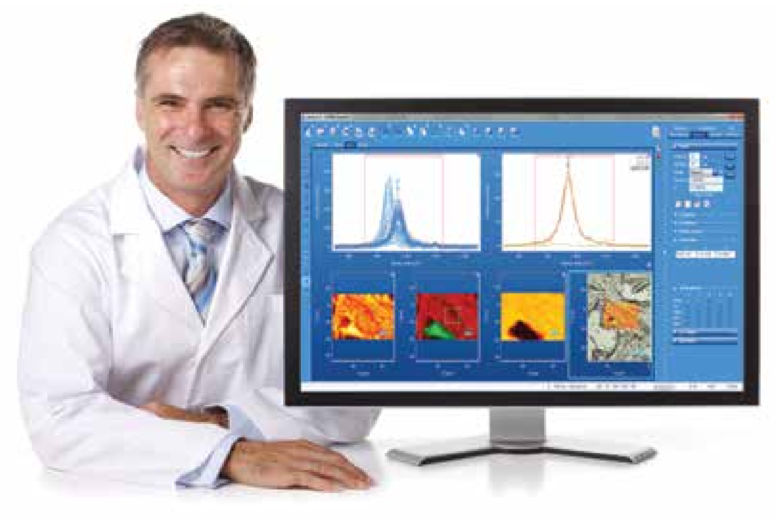
Raman Data in Seconds: For Industrial Quality Control, Research and Analytical Testing

The XploRA Series offer full spectral analysis in OneClick Operation.

Simple operation, speed, low maintenance and push button results enables you to optimize productivity and efficiency.

The XploRA Series are driven by LabSpec's intuitive user interface enabling logical workflow through an experiment.

- HORIBA OneClick Raman operation
- Autocalibration
- Enhanced multi-page analysis reports
- Augmented help and troubleshooting
- Sample methods for routine repetition
- User login accounts for system security
- 3D volume and topography imaging
- Enhanced on-the-fly image generation
- Support of multi-screen PC environments
- Extended microscope image correction
- Extensive spectral database/libraries
- Easier chemometric processing
- ParticleFinder for automated particle location



Easily Expand your Analytical Technique

Benefits of XploRA Raman Microscopy in Research and Industrial Analysis		Compared to
• No sample preparation • Full optical microscope • Water based samples • Sub-micron scale analysis	• Non-contact analysis • Multi-layer analysis • Inorganics • Polymer backbone characterization	FTIR
• Non-destructive analysis • No sample preparation • Solids/surface analysis	• Molecular/crystal structure • Fast analysis times typically > 2 seconds • Low maintenance	Mass Spectrometry
• Crystalline and amorphous materials • Single particle analysis	• In-situ environmental stages (heating/cooling/relative humidity) • Small benchfootprint	XRD
• Chemical information and chemical images		Optical Microscopy
• No sample preparation • Environmental conditions: no vacuum, heating/cooling/relative humidity controlled stages • Fast analysis times and sample throughput	• Fast start-up and ready to analyze time in less than 10 minutes from off • Multi-layer samples • Small bench footprint	SEM

Simplified Workflow With LabSpec 6 Spectroscopy suite

Auto-Calibration OneCheck

Input Sample No preparation

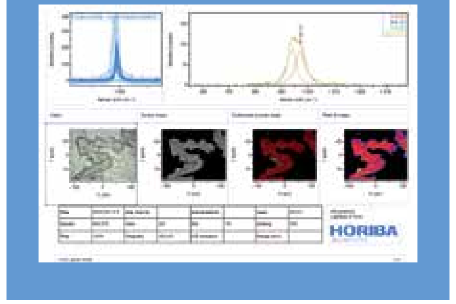
Focus Microscope

Raman Acquisition

Obtain Result Match to Library

Report Result

OneClick Raman Acquisition



Simplified Calibration and Validation

The patented calibration objective tool uses a certified reference material and ASTM method for system validation and ensures fast, easy calibration and validation of the instrument.

OneCheck and the system is ready to run.

Impressively fast start-up time, less than 10 minutes from cold, removes the need for any lengthy start-up procedures, adjustment or the need for the system to be continually powered on. Ideal for laboratory efficiency, running costs and the environment!

OneClick Raman Acquisition

OneClick Raman acquisition optimizes acquisition parameters and signal processing in OneClick, including baseline corrections, fluorescence rejection and noise reduction.

XploRA Series Specifications

	Industrial	Research	Bio/Life science	Nano Raman
	XploRA™ One	XploRA™ PLUS	XploRA™ INV	XploRA™ Raman-AFM
10x faster Raman SWIFT™ Imaging	YES with XY stage	YES with XY stage	YES with XY stage Optional DuoScan™ imaging	YES Optional XY stage & DuoScan™ depending upon version
Confocal Imaging	1 µm XY	0.5 µm XY	0.5 µm XY	0.5 µm XY 10 nm* with TERS
Routine operation Automation	OneClick Auto/Raw	OneClick Auto	Methods and scripts	Integrated Raman-AFM software
Full Microscope	Upright	Upright	Inverted	Upright and/or inverted
Resolution	Standard 6.5 cm^{-1} FWHM	Standard + High > 1.4 cm^{-1} FWHM	Standard + High > 1.4 cm^{-1} FWHM	Standard + High > 1.4 cm^{-1} FWHM
Multi-laser Options	Single laser 532 and 638 nm	532, 638, 785 nm others on request	532, 638, 785 nm others on request	532, 638, 785 nm others on request

* Requires suitable tip coating and TERS sample conditions

XploRA NanoRaman

- Raman-AFM module
- XploRA PLUS and INV versions
- TERS Ready: 10 nm resolution*
- Multi-sampling geometry: upright-inverted-side axis
- SWIFT™ Nano-Raman images
- High performance AFM functionality
- Integrated control and construction
- Stability and reliability

The XploRA PLUS and INV can add the NanoRaman extension to probe nanometer structures and single molecules in a single compact, high performance system.

λ = (400 nm - 800 nm) P ≤ 150 mW
VISIBLE AND/OR INVISIBLE LASER RADIATION
AVOID EXPOSURE TO BEAM
CLASS 3B LASER PRODUCT

Find out more at www.horiba.com/xplora

www.horiba.com/scientific
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