The image shows a Thermo Scientific DXRxi Raman Imaging Microscope. The microscope is a large, white and black instrument with a blue control panel on the left side. It features a microscope head with two eyepieces and a camera. The base is a large, black and white unit. To the right of the microscope is a separate unit labeled "DXR 532 nm LASER". The background is a collage of colorful Raman spectra and microscopy images. A purple banner at the top right contains the text "Thermo Scientific DXRxi Raman Imaging Microscope".

Thermo Scientific  
DXRxi Raman Imaging Microscope

Accelerate your work

**Visualize your answers**

**Thermo**  
SCIENTIFIC

# Raman imaging evolved

- **Walk-up-and-run** ease of use
- **Visually driven** image acquisition
- **A microscopy-first approach** to spectroscopic analysis
- **Incredible speed to answers** about materials and samples
- Rich and meaningful **information in real-time**
- **Expert level performance** over a wide range of sample types



## Interdisciplinary Academic Research Laboratories

- Allows multiple users to focus on their research, not the technique
- Simple operation accommodates users of all skill levels
- Enables rapid progress in the new research directions you want to take



## Industrial Research and Product Development

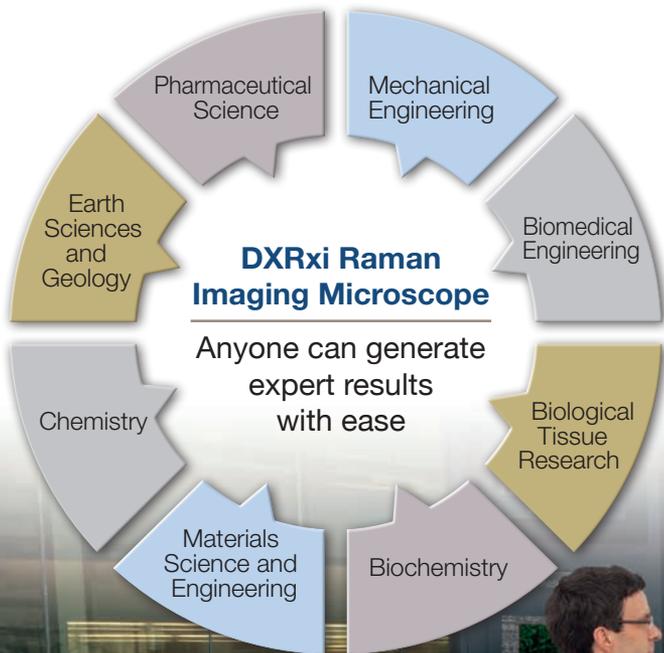
- Designed from the ground up to ensure stable results and confidence in your data
- Intuitive workflow maximizes throughput for the most demanding applications
- World-class service and support keeps you running around the clock

The Thermo Scientific™ DXR™xi Raman imaging microscope pushes Raman microscopy to the next level. High performance chemical imaging is now accessible to all, accelerating research for new and experienced users alike. Optimize imaging parameters in real-time to visualize your data faster using the comprehensive Thermo Scientific™ OMNIC™xi imaging software. With its automatic feature recognition and powerful component identification, the DXRxi Raman imaging microscope will transform the way you approach materials analysis.



# Advance your research without the learning curve

Spend time applying your skills and imagination to advancing scientific research rather than learning the tools to get you there. Whether preparing data for that high-impact publication in a peer-reviewed journal or to be the first to market with your next product, the DXRxi Raman imaging microscope is designed to keep you ahead of the competition.

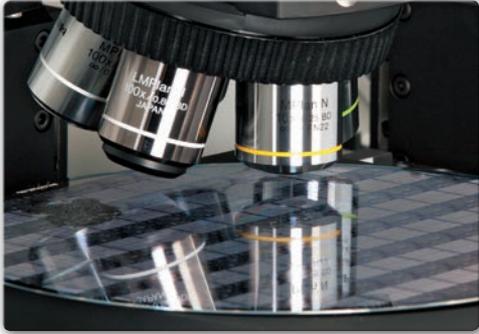


## Accelerate progress across your organization

If your organization shares instrumentation or you must rely on a wide range of tools to conduct your research, you want to obtain results fast, using equipment that needs little technical expertise. This means having a system that does not require an expert to set up the instrument, collect your data for you or interpret the results. With the DXRxi imaging microscope, you can use Raman imaging to advance your knowledge and reputation in your own field of work without mastering a new scientific technique. Expertise is built in to let you focus on getting answers. You'll see more users generate more results, faster with the DXRxi microscope.



# Expertise designed into the DXRxi Raman imaging microscope



## Meaningful results without trial and error

- Sophisticated autofocus that tracks location and manages uneven samples
- Fine laser power control provides the best available tuning between sample and instrument sensitivity
- Automatic backgrounds compensate for natural electronic and optical system conditions and ensure you are looking at pure sample information

## Stability, precision, and simplicity

- Visually driven software is intuitive and makes parameter optimization easy
- Autoalignment and calibration ensures scientifically accurate measurements, without tools or manual procedures
- Three-path fine beam autoalignment maintains peak performance and sampling integrity
- Laser power regulation ensures consistent sample excitation over the lifetime of the laser
- Advanced spectrograph design with no moving parts simplifies use and makes the detection system and calibration robust



## Adaptability to any application, configurable by any user

- Pre-aligned and lock-in-place components use automatic recognition and stored alignment, allowing any user to reconfigure an instrument in seconds
- Data standardization between excitation laser wavelengths
- Lasers and other components can be interchanged and shared with every instrument in the DXR Raman family

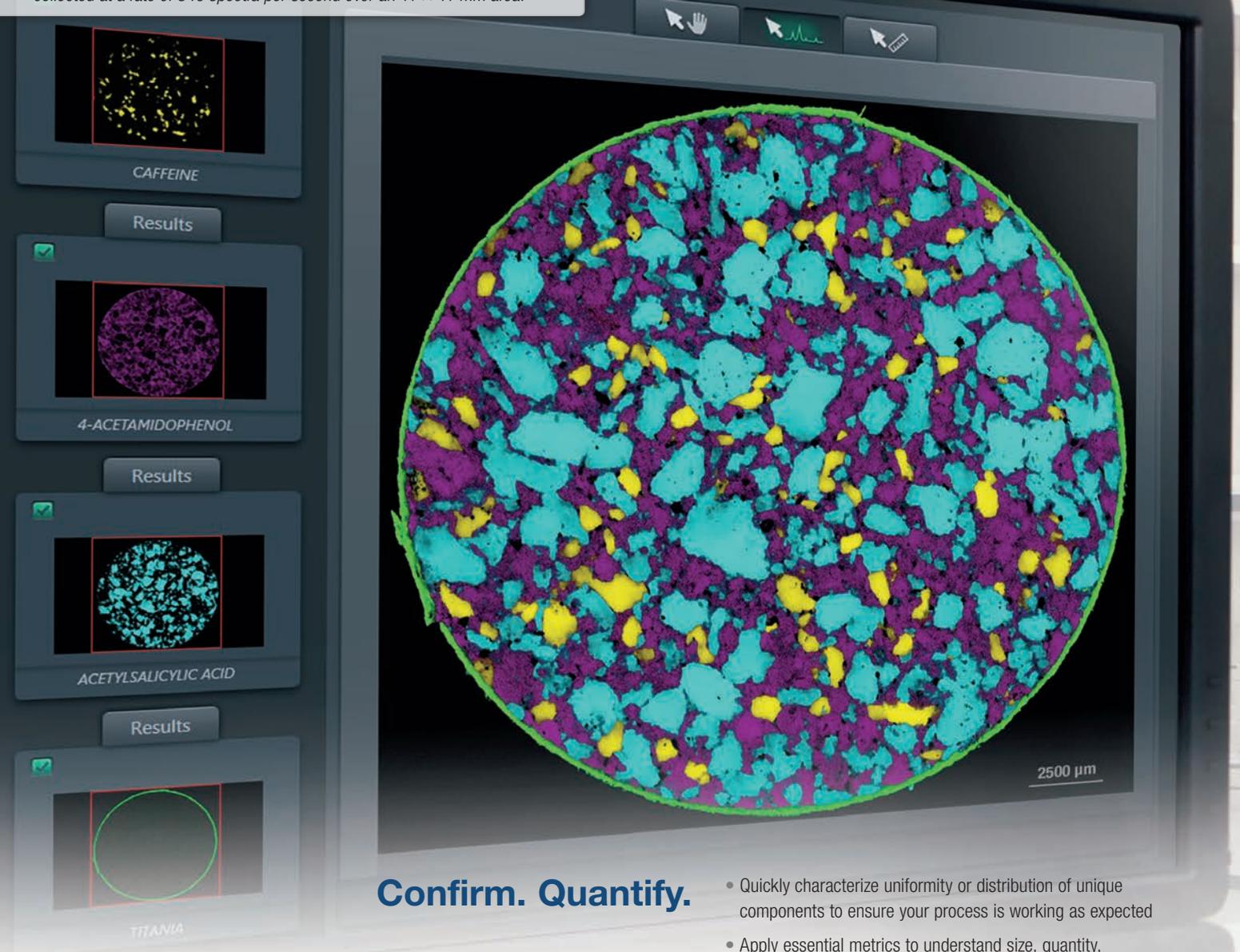


# Reveal meaning in seconds, turning data into answers

Leave the hunting, data processing, and guesswork behind. Our unique OMNICxi software builds a powerful set of spectroscopic algorithms directly into image-driven analysis.

- Automatically transform rich hyperspectral data into meaningful visual representations
- Effortlessly switch between views to highlight subtle differences, identify patterns in your sample, or probe for a specific feature or spectral characteristic
- Focus on the smallest chemical or physical detail to explore unknown features and anomalies

High-spatial resolution image of pain-relief medication visually pinpoints the location and quantity of four components with built-in MCR. 5.4 million spectra collected at a rate of 540 spectra per second over an  $11 \times 11$  mm area.

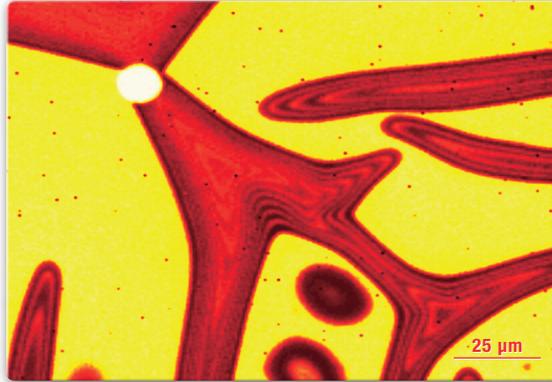


## Confirm. Quantify.

- Quickly characterize uniformity or distribution of unique components to ensure your process is working as expected
- Apply essential metrics to understand size, quantity, or spatial variation – even across the entire sample area

## Characterize. Predict.

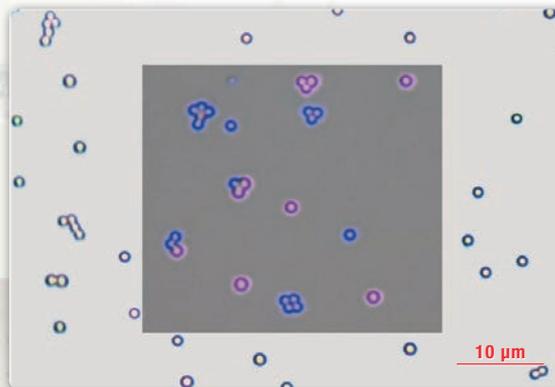
- Find the hidden answer to your problem immediately with spectral interpretation tools that highlight chemical, structural, and morphological changes
- Develop a detailed understanding of how processing parameters affect the properties of your material



The biaxial stress state induced by deposition of a semiconductor thin film on a lattice mismatched substrate illustrates the interplay between processing and physical properties.

## Locate. Identify.

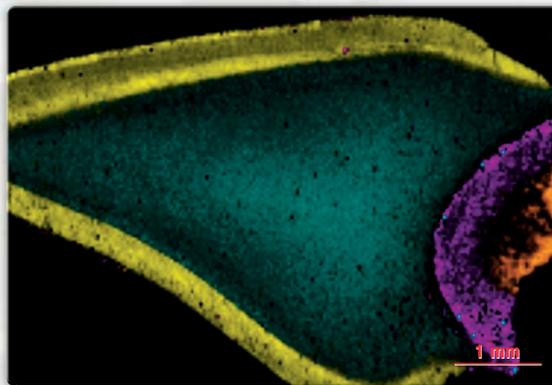
- Statistical processing, including automatic component identification and correlation analysis, enables you to quickly elucidate components, structure, or traits
- Extensive spectral databases provide one-click identification of unknowns without interrupting data collection



The DXRxi microscope is ideal for pinpointing the source of contaminants, combining visual details with rich chemical analysis. Immediate differentiation between 1 μm PMMA and polystyrene beads illustrates the power of Raman chemical imaging.

## Investigate. Reveal.

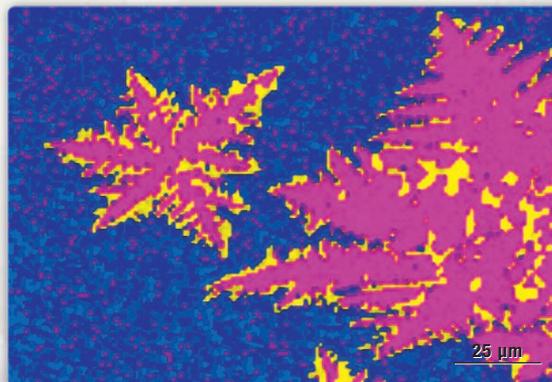
- High spectral sensitivity means more spectra in less time, providing a complete picture of your sample in minutes
- Move rapidly from data collection to analysis to communicating your ideas, with confidence



Even weak Raman scatterers like biological tissues can reveal dramatic differences, allowing researchers to quickly uncover abnormalities or diagnose disease states. The human tooth shown here exhibits a healthy distribution of dentine and enamel.

## Discover. Explore.

- Minimal sample preparation and real-time imaging lets you learn about your sample as quickly as possible
- Swiftly move between sample locations and explore regions from several millimeters to a few microns, all with a few mouse clicks



Understanding structure-property relationships in new materials demands a complete picture of subtle variations across an entire sample. Here defects at the band edge of dendritic partial-growth graphene are apparent and quickly characterized with over 72 thousand spectra in a 150 × 125 micron area.

# Capture the smallest details in the big picture

Understanding your sample requires much more than looking at points in isolation. For advanced materials analysis, the relevant details might be extremely small but only found or understood within the context of a larger sample. With the DXRxi Raman imaging microscope, a single sweep of the cursor lets you evaluate samples many times larger than the microscope field of view and with spatial resolution smaller than the laser. The result is a seamless, large scale image in full detail without complexity, hardware reconfiguration, or data size limitations.

Our intelligent approach to data collection lets you rapidly explore the entire sampling area and find exactly what you are looking for. The DXRxi Raman imaging microscope reveals visual information with speed and simplicity.



## The performance advantage of **FINE DETAIL**

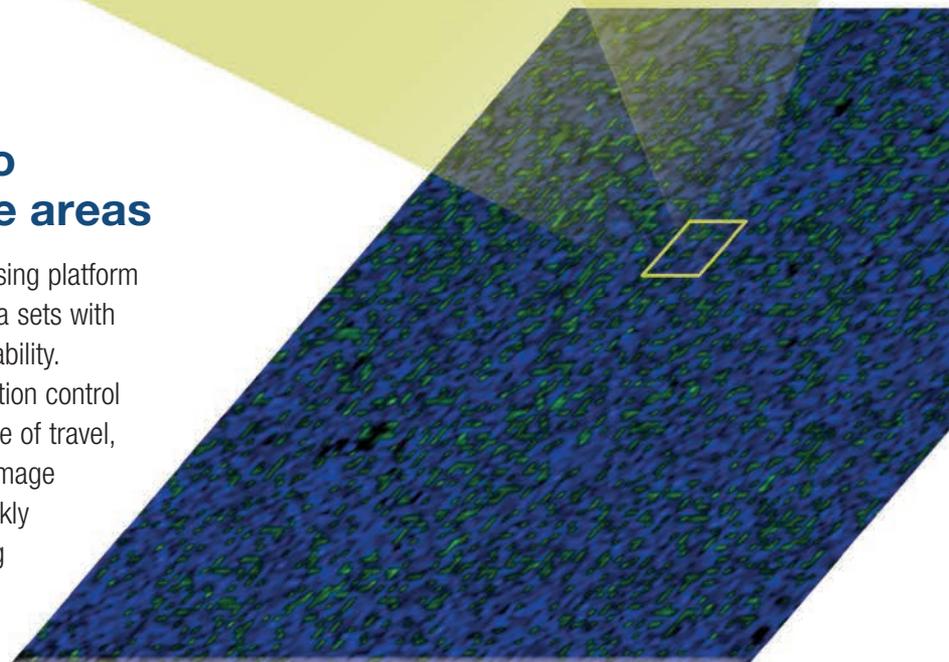
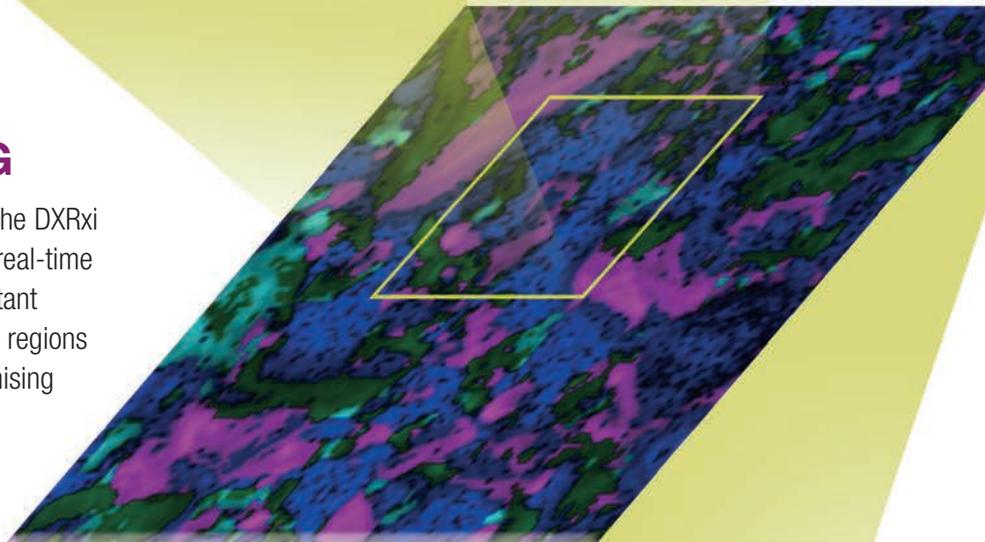
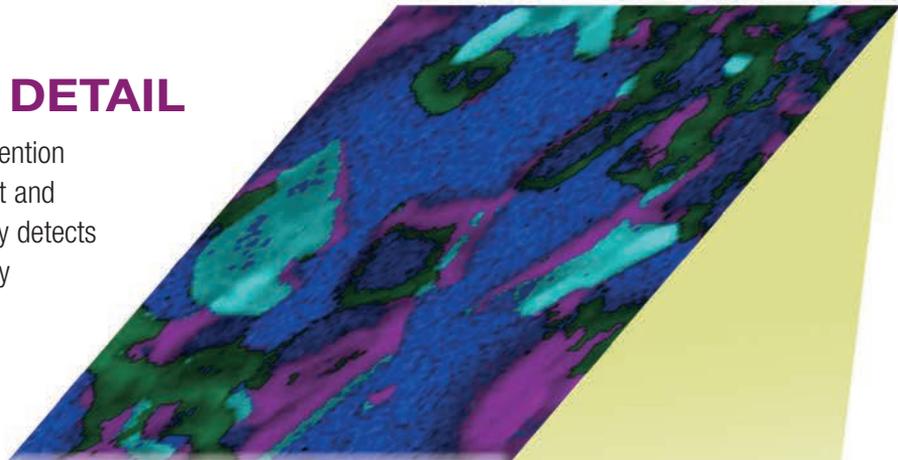
Sub-micron spatial resolution calls attention to even the smallest features. Ultrafast and adaptive data processing automatically detects variations to extract the detail that only high-resolution imaging can provide.

## The agility of **RAPID IMAGING**

Leveraging an EMCCD camera, the DXRxi microscope couples speed with real-time data visualization to give you instant answers. Quickly survey multiple regions of your sample without compromising image quality.

## The **POWER** to look over large areas

Our proprietary data processing platform handles extremely large data sets with unprecedented ease and stability. Powered by closed-loop motion control with impressively large range of travel, the DXRxi microscope can image macroscale samples to quickly scan for anomalies requiring further study.

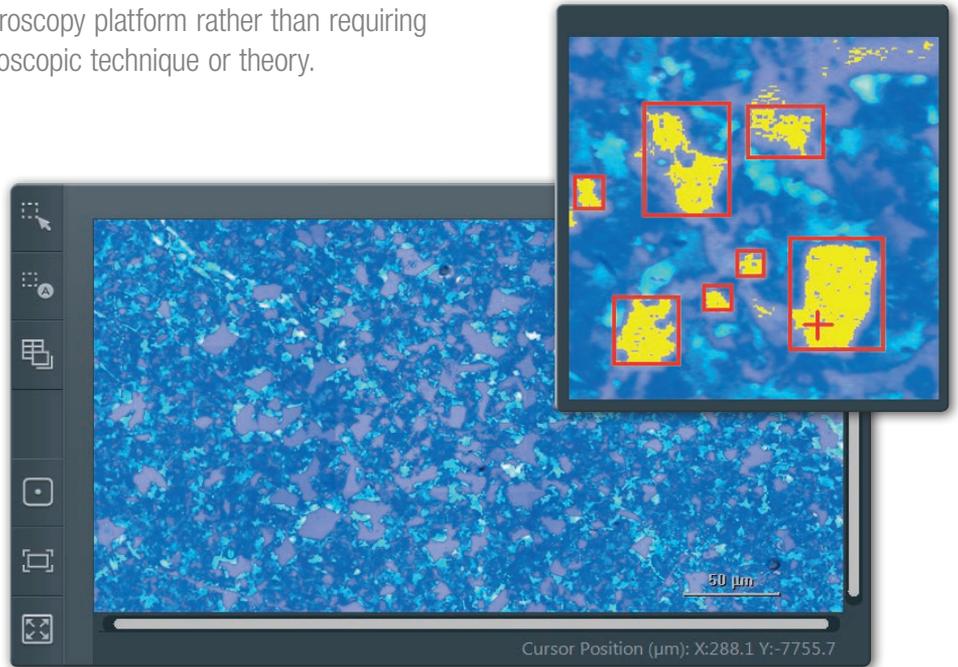


# Visually driven microscopy, powered by spectroscopy

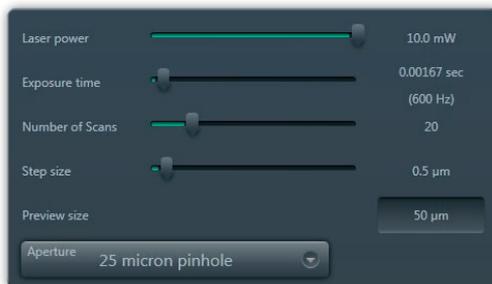
Inspired by optical, scanning electron, and atomic force microscopy, the DXRxi Raman imaging microscope is driven through simple yet powerful image-centric software. The DXRxi microscope naturally complements the tools you use today, operating more like a microscope than a spectrometer. The chemical and morphological analysis is built into a microscopy platform rather than requiring you to learn a new spectroscopic technique or theory.

## 1 Rapid, single-click sample targeting

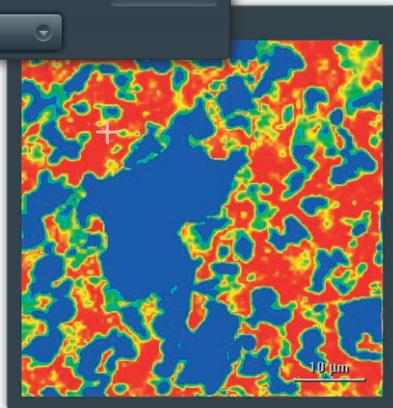
Quickly identify regions of interest for Raman imaging. Automatically find and target particles, defects, contaminants, and other unique features for detailed chemical analysis. *Spend less time looking and more time understanding.*



Automatic particle and feature targeting helps define analysis regions



Real-time parameter tuning with immediate visual display

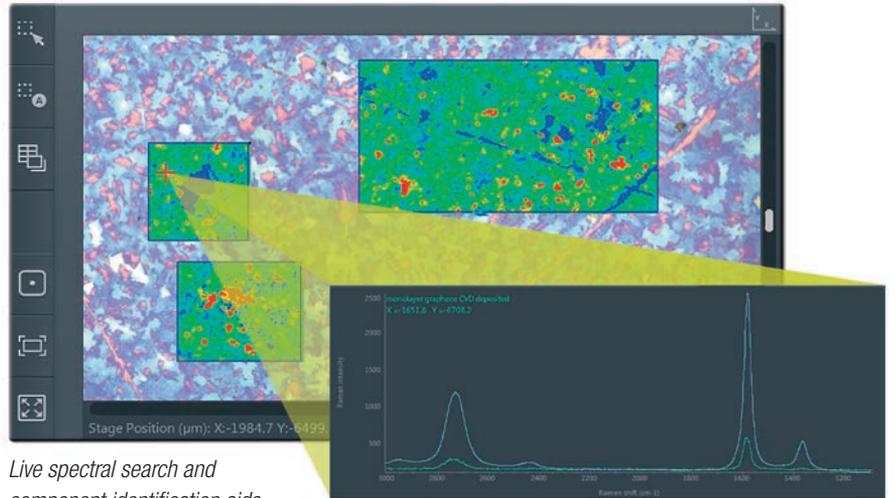


## 2 Confidently optimize settings with intuitive controls

Simple, fast measurement setup with same-screen controls. *Visual feedback from live spectral and chemical displays ensure accurate results the first time.*

# 3 Quickly prioritize multiple regions of interest and run

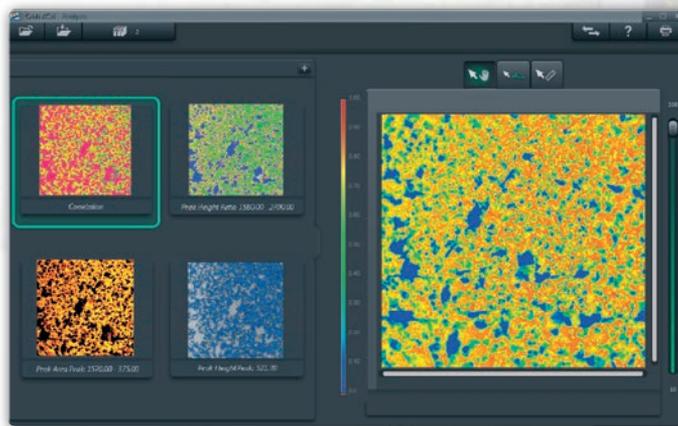
Rapidly extend your analysis to larger areas and obtain a complete picture of your sample. Use real-time component and domain identification to focus on the features that matter the most. *Scan more regions faster* to drive your work forward in record time.



*Live spectral search and component identification aids multiple region selection*

# 4 Information-rich images reveal a multitude of material characteristics

Effortlessly image chemical and physical traits of your material. *Images are easily navigated and interpreted*, from a global to a microscopic view. Present your research with stunning images that convey meaningful insights and discoveries.



*Analysis window displaying multiple material traits (Correlation, Peak Height Ratio, Peak Area, Peak Height) in independent images*



# The Thermo Scientific DXR Raman Family

We have been designing and producing Raman products since 1989. Today, we sell more Raman-based instruments than any supplier in the world. The Thermo Scientific DXR Raman product line represents a culmination of experience in molecular spectroscopy, catering to applications in academic research, materials science, and analytical problem solving for industry. Our innovation is driven by our customers' need to push research boundaries and improve productivity. This is why we strive to perfect performance, reliability, usability, and service of our instruments.

## DXRxi Raman Imaging Microscope

Highly usable, ultra-fast chemical imaging that speeds research across a broad range of disciplines making it ideal for multi-user research facilities.



## DXR Raman Microscope

Workhorse research-grade microscope offering superior combination of performance and ease of use. Offers high spatial resolution point-and-shoot Raman for the most demanding analytical tasks.



## DXR SmartRaman Spectrometer

Built for dedicated bulk sample analysis and designed for busy multi-purpose analytical labs. Provides reproducible and accurate results in a dependable, low-maintenance platform.



[www.thermoscientific.com](http://www.thermoscientific.com)

The DXRxi Raman imaging microscope, in its default configuration, is a Class 1 laser-safe product. Installation of a fiber optic probe launcher and fiber probe will convert it to Class 3b laser-safe. DXRxi Raman imaging microscope may be manufactured under or covered by US Patents 7233870, 7345760, 7688530, and 8111392.

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