

WiRE™ 3.0 Raman software

Renishaw's launch of the latest version of its Windows®-based Raman Environment software (WiRE™, version 3.0) demonstrates its commitment to providing Renishaw's spectroscopy customers with the optimum software environment and the very latest tools for acquiring and analysing Raman spectra.

WiRE 3.0 builds on the success of earlier versions of WiRE, giving users a powerful software platform for handling all forms of Raman data: not only sets of single spectra and sequential data (from accessories such as hot-cold stages), but also the Raman images that are being used increasingly in fields such as the pharmaceutical and materials sciences. WiRE 3.0 maintains compliance with the US Food and Drug Administration Title 21 Code of Federal Regulations (Electronic records/electronic signatures) 21 CFR Part 11.

The key new features of WiRE 3.0 are:

Faster Raman image acquisition

Raman imaging is getting faster! WiRE 3.0's highly optimised data acquisition routines enable spectral acquisitions to be made up to five times faster than with WiRE 2, allowing larger areas to be imaged at higher resolutions.

Live imaging

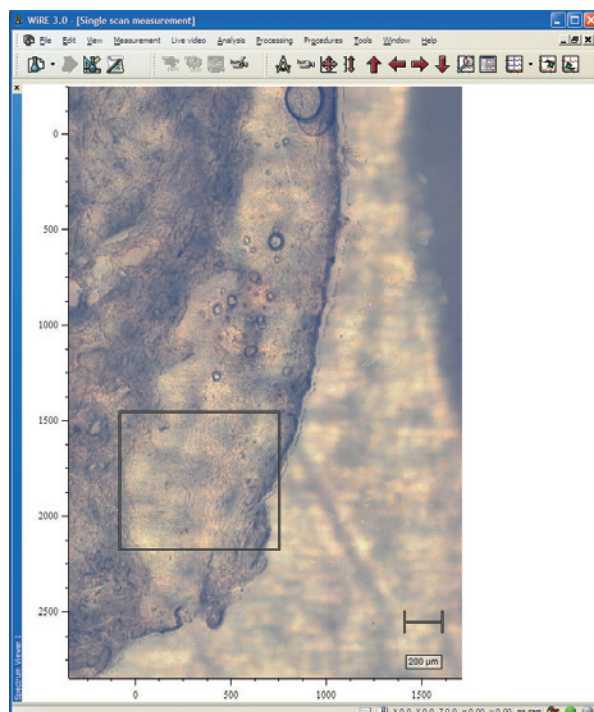
Raman image generation and display can now be performed during data acquisition, rather than post processing, enabling users to review information as it is collected ('live'). This can be performed using both univariate and multivariate methods such as curve fitting and component analysis (discrete component least squares, DCLS).

Microscope image montage

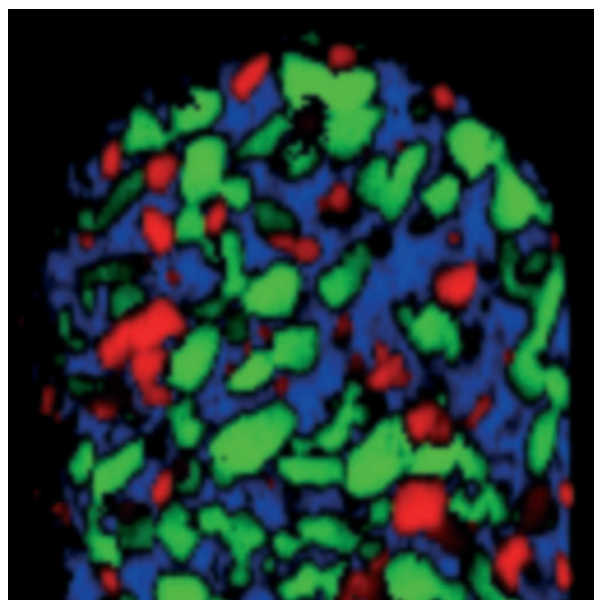
WiRE 3.0 can create composite white-light-illumination microscope images of large areas, rather than just the objective's field of view. These visible light images greatly facilitate the analysis of larger samples, simplifying the logging of points of interest and the definition of regions to Raman image.

Data review enhancements

Users can now overlay multiple Raman images to produce colour coded composite images. Spectrum review has also been enhanced; spectra may now be labelled with simple text labels and images and dynamic labels consisting of data 'mined' from within WiRE data files (file name, measurement parameter, user, etc.)



Montaged white-light-illumination image of biological tissue, giving a total image coverage of over 3 mm × 2 mm. The rectangular sub-area indicates the region about to be rapidly imaged with StreamLine™.



Composite image — made with StreamLine™ in approximately 10 minutes — of a pharmaceutical tablet. Colour coding: caffeine (red); aspirin (green); paracetamol (blue).

Extra features are available within additional WiRE 3.0 modules, namely:

StreamLine™ imaging

This module supports Renishaw's new StreamLine™ fast imaging technology, available on inVia Raman microscopes. StreamLine enables users to produce Raman chemical images up to 100x faster than has been possible before; images that used to take hours to produce can now be created in minutes.

CAP – Custom Analysis Package

CAP is aimed at users who want to employ their Raman instruments for QA/QC and other applications that require repeat measurements to be performed in a controlled manner. CAP enables users to configure both data acquisition and data analysis.

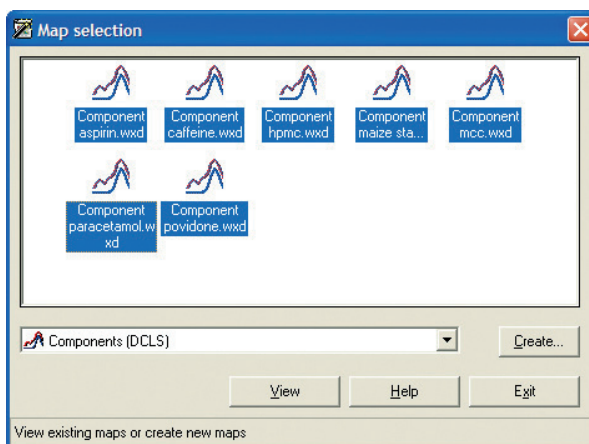
Chemometrics

This module incorporates powerful image analysis features that help users rapidly extract meaningful data from Raman images. It includes principle component analysis (PCA) and multivariate curve resolution analysis (MCR-ALS), multivariate noise filtering, and post acquisition cosmic ray removal (CRR).

A major achievement

Frank Gibbs, software manager at Renishaw's Spectroscopy Division, comments: "WiRE 3.0 is the product of a highly focused re-design of WIRE 2, and I view the result as a major achievement for the software team. We are introducing a range of new tools and, perhaps most importantly, significantly boosting data acquisition speeds."

Further details about WiRE 3.0 can be found at <http://www.renishaw.com/raman>



Using chemometrics to create images of a pharmaceutical tablet; in this case component analysis (DCLS) is being used to decompose each spectrum into components from a set of reference spectra.

Renishaw is continually improving its products and reserves the right to change specifications without notice.

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