

**New imaging techniques in Raman spectroscopy - Defining new standards for high speed image data acquisition.**

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Raman spectroscopy continues to provide analytical solutions in a variety of applications offering chemical specificity on a micrometer scale.

The ability to create chemical and compositional images by acquiring Raman spectra from an array of positions and then processing them to reveal the parameters of interest is a powerful technique. Traditionally, these spatially-related data have been collected by raster scanning the sample beneath the incident laser spot, typically in micrometer intervals. New approaches to Raman imaging have been developed that enhance the capabilities of modern Raman instruments.

A new method of acquiring confocal Raman images has been developed – ‘Streamline’. Spectra are collected in parallel, rather than in series using the traditional methods. Shorter total acquisition times result, with high quality individual spectra recorded in the order of fifty milliseconds. The method also benefits from ‘on the fly’ data analysis resulting in real time image creation. This innovative approach allows the technique to succeed where others have failed: producing uncompromised data and images for small or large areas at speeds much greater than possible with competing methods. A range of materials examples will be shown to illustrate the benefits of this method. For example large area samples can provide Raman chemical images in minutes, which offers real advantages for surveying and identifying the real areas of interest.

The presentation will also highlight some of the recent developments we have made in providing custom solution for users with very specific and demanding Raman requirements.