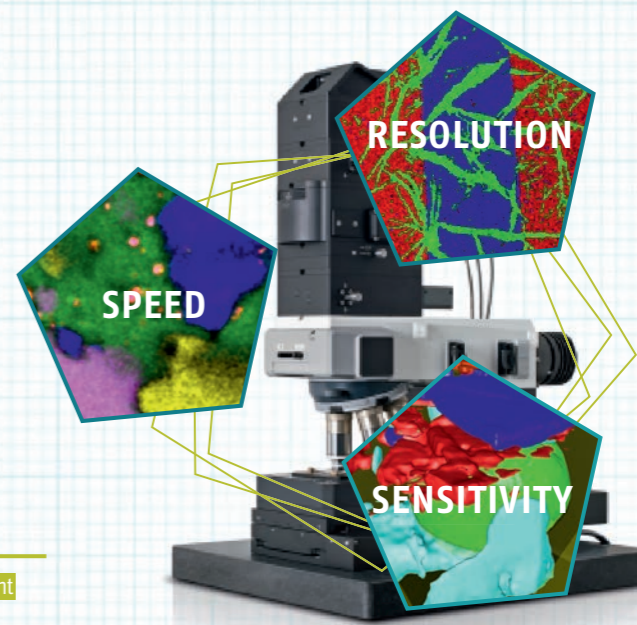


# RAMAN MICROSCOPY & 3D RAMAN IMAGING

The combination of a confocal microscope with a high-throughput Raman spectrometer enables the generation of images that reveal the three-dimensional distribution of chemical compounds. This nondestructive imaging technique can be applied to a wide variety of inorganic and organic samples such as semiconductors, low-dimensional materials, thin films, polymers, drug delivery systems, minerals, living cells or biological tissues.



Confocal Raman microscopes routinely deliver 3D Raman images and depth profiles of exceptional spectral and spatial resolution. This performance in speed, sensitivity and resolution can be realized simultaneously without compromise.

## Detector

For detection, several different types of CCD cameras with quantum efficiencies exceeding 90% can be selected.

## Optical Fibers

Beam delivery with optical fibers is the only way to provide a diffraction-limited point light source, virtually lossless energy transmission and maintenance of the polarization direction while enabling the most flexible lab layouts.



## Spectrometer

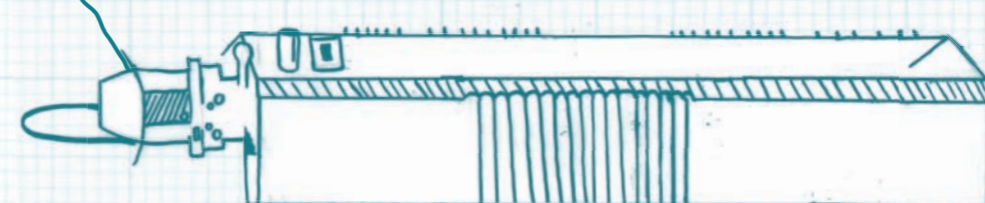
The Raman spectrometers of the WITec UHTS series are available in different focal lengths. All variants feature an automated three-grating turret to accommodate multiple laser excitation wavelengths and spectral resolution requirements for the most demanding Raman imaging experiments.

## Lenses

A spectrometer with lenses as focusing elements delivers ultra-sharp and symmetric Raman peak shapes with exceptional spectral precision.

## Laser

Excitation laser sources can be individually chosen ranging from the UV to the NIR to fulfill a variety of experimental requirements. Software-controlled absolute laser power determination allows adjustment in 0.1 mW steps.



## Pinhole

For high-resolution depth profiles and 3D Raman imaging, the pinhole size is critical and should be as small as possible while also being matched to the overall optical setup.

## Filters

High-quality and variable filter sets ensure effective blocking of the excitation wavelength, which allows the detection of low-frequency Raman shifts down to below 10 wavenumbers.

## Objectives

The high-transmission objectives used by WITec provide throughput approximately 15% higher than other commonly-used objectives.

