Raman Microscopy – Bruker SENTERRA

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x, y, z – Sample Stage

Driving characteristics:

- Computer controlled Stage with an adjustment range of 75 mm x 50 mm
- Adjustment accuracy: 0.1 µm
- Repeatability: better than 1 µm
- Motorized z-axis with auto focus option

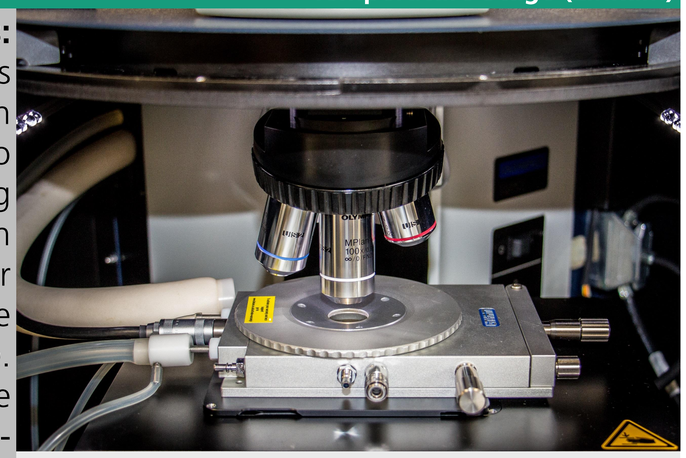
Applications:

2D chemical Raman mapping and 3D depth profiling can be generated. For the analysis of structured surfaces an autofocus is available. Numerous different 2D and 3D plot options for visualization of the data are available as well as multivariate analysis tools. In addition extensive Raman libraries with collections of organics, inorganics, semiconduc-tors etc., are accomplishing fast identification of measured Components.

Temperature Stage (Linkam)

Applications:

To minimize thermal noise, samples can be cooled down to -196 °C. On the other hand, for example to observe phase transitions, heating to 300 °C is possible. In combination with the computer controlled stage, temperature dependent mappings are possible. Furthermore the temperature stage possesses gas ports, if measurements under controlled atmospheric conditions are required.



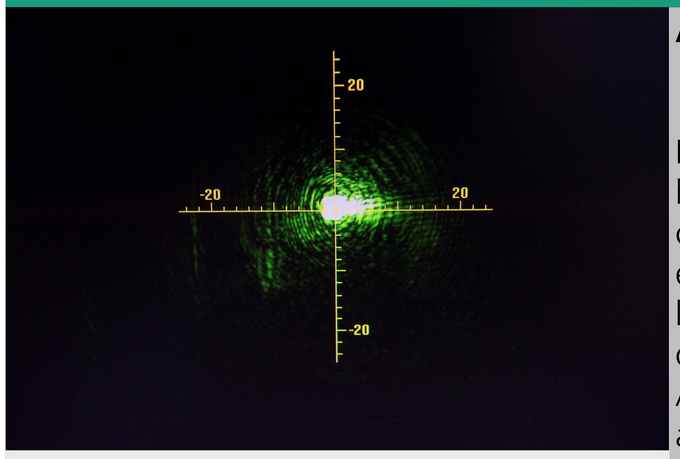
Characteristics:

- Temperature range: -196°C to 300°C
- Sample area 22 mm diameter
- Temperature accuracy: 0.1 °C
- Heating rate: up to 150 °C/min with no overshoot for very quick characterization
- Gas ports for atmospheric control

Material characterisation:

- Composition
- Crystallinity
- Crystal orientation
- Tension
- Doping
- Relaxation

Laser



Wavelength:

- 532 nm (green): 50-4.400 cm^{-1} Stokes shift
- 633 nm (red): 50-3.500 cm^{-1} Stokes shift
- 785 nm (IR): 50-3.500 cm^{-1} Stokes shift
- Continuous automated calibration – Sure_Cal
- Spectral resolution: < 3 cm^{-1}
- Spectral correction: automatic, NIST standards

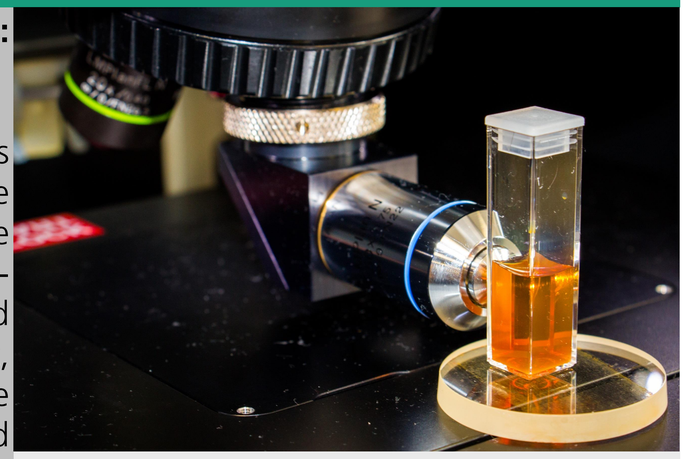
Applications:

Due to diverse excitation lasers a huge spectrum of different samples can be characterized. In addition easy switching between excitation lasers allows a quick measurement of one sample with different lasers.
A very high stability due continuous automated calibration guarantees highly accurate determination of band shifts as well as for routine identification in the quality assurance/quality control.

Various Lenses

Applications:

Based on the Olympus BX series optical microscope, all the necessary tools for excellent sample visualization and contrast enhancements like Koehler brightfield illumination, polarized light, Nomarski differential inter-ference contrast (DIC), darkfield and fluorescence are available.
With a special objective adapter, even liquids can be measured.



Magnifications:

- 4x, 10x, 20x, 20x (increaaed working distance), 50x, 100x
- Spatial resolution : 1 µm
- FlexFocus, computer selectable array of pinholes or slits for confocal or high throughput measurements

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