MultiRAM FT-Raman Spectrometer

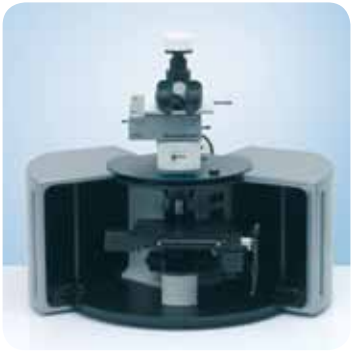
Key Features

- Stand-alone FT-Raman spectrometer
- Automatic Accessory Recognition (AAR) and Automatic Component Recognition (ACR)
- Can be upgraded with FT-Raman and dispersive Raman microscope
- Stokes shift down to 50 cm^{-1}
- Second excitation line available
- Full line of internal and external accessories
- Permanently aligned RockSolid™ interferometer for highest robustness
- Industry standard Ethernet TCP/IP connection
- 21 CFR Part 11 compliance and validation

Bruker added FT-Raman capabilities to its product line shortly after the technique was first reported in late 1980s. Since then, continual hardware and software improvements, as well as the development of various sampling accessories, helped Bruker maintain the tradition of innovation and excellence in this scientific instrumentation technique.

Design

Bruker´s MultiRAM is a stand-alone high performance Fourier transform Raman spectrometer. When sample fluorescence is a problem, 1064 nm FT-Raman analysis with near infrared excitation is the only solution. As sample fluorescence can be orders of magnitude more intense than Raman scattering, the presence of fluorescence often precludes observation of Raman scattering. The MultiRAM has a large sample compartment to utilize an extensive range of pre-aligned sampling accessories that are designed to accommodate all types of sample formats; from powders to liquids in vials. Bruker offers various internal and external accessories to enhance the performance of the MultiRAM, including the RamanScopeIII FT-Raman microscope for micro-analysis.



RamanScopeIII FT-Raman microscope can be coupled to the MultiRAM for micro-analysis.

HTS/Raman accessory for high throughput FT-Raman spectroscopy.

RamProbe FT-Raman fibre probe with immersion tube.

The intuitive, easy-to-use OPUS software controls all data collection and manipulation functions for the MultiRAM. The real-time spectrum display permits software control of the analysis conditions, including optimization of the laser power and the sample position.

High Performance

Combine advanced digital electronics with Bruker's high quality optics and you have the ultimate in a high performance FT-Raman system. The heart of the MultiRAM is Bruker's well-proven RockSolid™ interferometer with gold coated optics and permanent alignment, which provides the superb stability and throughput required for demanding emission experiments.

Sampling Flexibility

For ultimate flexibility, the MultiRAM can accommodate a second 785 nm laser and detection system, automated polarization accessory, and two-fiber optic coupling ports. Additional features include easy switching between 90° and 180° scattering geometry, and defocusing optics (necessary for colored samples which can be heated by the laser beam). A motorized sample stage for sample position optimization, and a white light source to correct the spectra for instrument responses are included in the standard configuration of the MultiRAM. Additional sampling accessories, such as automatic sample changers, low and high temperature stages are optional.

Sensitivity and Stability

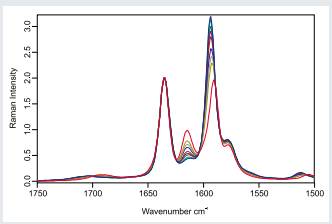
Equipped with a broad-range quartz beamsplitter, Bruker's frictionless RockSolid™ interferometer provides high sensitivity and stability. The standard diode-pumped, air-cooled Nd:YAG laser source is fully software controlled. The system can be equipped with either or both room-temperature InGaAs detector (Si diode for 785 nm excitation) and a proprietary high-sensitivity Ge diode detector. High throughput optics and Bruker's unique liquid nitrogen cooled Germanium detector offer ultra-low signal detection with minimal noise assuring excellent sensitivity.
The long hold time of the refrigerant provides hassle free operation for an entire week.

Technologies used are protected by one or more of the following patents:
US 5923422; DE 19704598

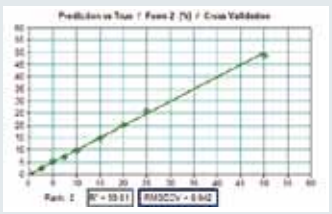
Laser safety classification: LASER CLASS 1
Depending on accessories adapted the classification of the FT-Raman spectrometer MultiRAM may equal the classification of the exciting laser and exceed class 1.

MultiRAM In Details

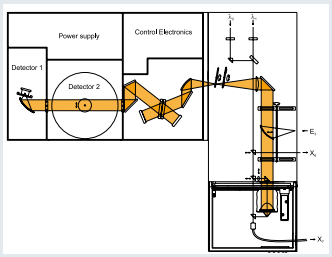
Easy-to-use OPUS/LAB interface for automated FT-Raman measurements with HTS/Raman high throughput accessory.



Typical FT-Raman spectra of pharmaceutical mixtures for quantitative studies of polymorph concentrations.



Quantifications of mixtures by univariate or multivariate methods.



Optical beam path of the MultiRAM FT-Raman spectrometer.

Bruker Optics is ISO 9001 certified.

www.bruker.com/optics

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