

RAMOS U120

Basic automated Raman confocal microscope



RAMOS U120 compact single-channel confocal Raman microscope is designed for microspectral measurements with capabilities at the level of high-end systems.

RAMOS U120 microscope has a rigid, moving parts-free design that requires no adjustments, has both high sensitivity and high spatial resolution.

Spectral measurements are provided by a highly efficient automated monochromator-spectrograph.

Wide possibilities, high reliability and compactness allow using RAMOS U120 for solving a wide range of scientific and industrial tasks.

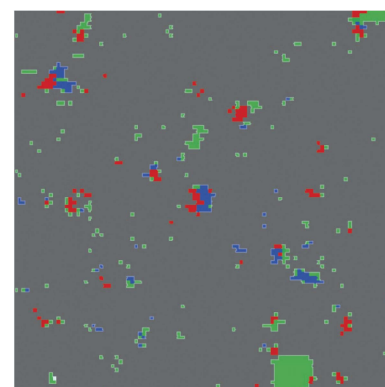
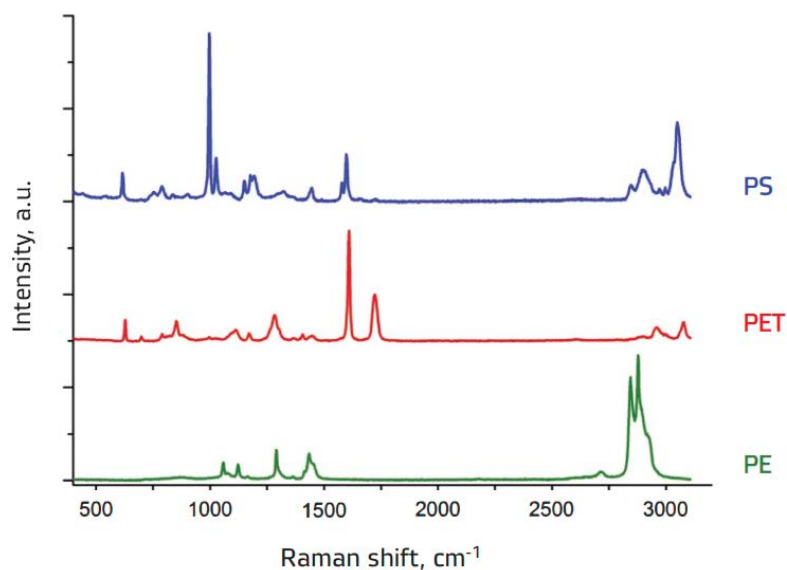
The objects for complex research can be semiconductors, minerals, polymers, pharmaceutical and biological substances, single molecules and nanoparticles.

Main features

- Research level optical microscope with advanced measurement techniques
- Submicron resolution due to confocal design
- High transmittance
- No moving parts in the spectrometer except laser shutter
- Compact
- Ability to connect fiber optic Raman probes
- Automatic adjustment of laser radiation power level
- Wide dynamic range and extremely high sensitivity of innovative sCMOS detector
- High-resolution color camera for selecting the investigation area on the sample
- Edge or Notch Filters for Stokes and Anti-Stokes Spectroscopy
- 3-position turret with mirrors for laser input/output
- Motorized sample stage
- Laser Safety Class I
- Advanced control software allows to perform various types of measurements: areas, lines, sections, profiles
- Library of over 10,000 spectra
- Integration of third-party spectral databases
- **The most affordable price in the Research Class segment of instruments**

Specification

- 488 nm, 514 nm, 532 nm, 633 nm, 638 nm or 785 nm single-mode laser selection option
- Laser power up to 130 mW
- Spatial confocal resolution $X, Y < 1 \mu\text{m}$, $Z < 2 \mu\text{m}$ (for 532 nm laser)
- Spectral range from 70 cm^{-1} to 4800 cm^{-1}
- Spectral resolution up to 4 cm^{-1} (for 532 nm laser)
- Motorized table, XY range $100 \times 75 \text{ mm}$, step $0.1 \mu\text{m}$
- 4096 pixel wide sCMOS detector with $7 \mu\text{m}$ pixels



Determination of microplastic particles, 500 x 500 μm
PS - blue,
PET - red,
PE - green

Application fields

Biology

Visualization of cellular components with minimum perturbation

Geology

Characterization of minerals, detection of components distribution and their phase transitions

Material science

Investigation of various materials with high spatial resolution - superconductors, polymers, coatings, composites, carbon nanotubes, graphene, etc.

Pharmaceutics

Identification and distribution of chemical components and molecular conformers in various drugs

Cosmetology

Promising technique for researching the composition of skin care products as well as their penetration ability

Heritage and Art, Gemology

Determination of pigments and binding agents used in painting

Polymers

Determination of polymers microstructure and composition, including qualitative analysis of copolymers, determination of additives and fillers (plasticizers, pigments, colorants, etc.)

Kinetics research: polymerization, destruction processes (chemical or thermal)

Forensics

Identification of unknown substances, different types of fibers, glasses, paints, explosive materials, inks, narcotic and toxic substances, proof of authenticity of documents

Spectroscopic analysis of archaeological samples (ceramics, glass, etc.) gives information on their origins and history

Rapid identification of precious and semi-precious stones, e.g. identification of natural and synthetic diamonds

and many more...

Ostec Instruments

+ 7 (800) 700-65-55
info@ostec-instruments.com
www.ostec-instruments.com



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