RAMOS S120
Dual-channel automated Raman confocal microscope

RAMOS S120 compact dual-channel confocal Raman microscope is designed for microspectral measurements with capabilities at the level of high-end systems.

RAMOS S120 microscope has a rigid, moving parts-free design that requires no adjustments, has both high sensitivity and high spatial resolution, and can be equipped with two single-mode lasers simultaneously, 488/633 nm or 532/785 nm.

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

Wide possibilities, high reliability and compactness allow using RAMOS S120 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
- One or two integrated single-mode lasers
- Fully automated change of lasers/gratings without additional system alignment
- No moving parts in the spectrometer except laser shutters
- Two non-switching spectral gratings (one for each laser)
- Compact
- Automatic adjustment of laser radiation power level
- Wide dynamic range and extremely high sensitivity of innovative sCMOS detector

- Ability to connect fiber optic Raman probes
- Edge or Notch Filters for Stokes and Anti-Stokes Spectroscopy
- Ultra Low Frequency Raman (THz-Raman) from 10 cm^{-1}
- High-resolution color camera for selecting the investigation area on the sample
- 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

- One or two built-in single-mode lasers 488/633 nm or 532/785
- Power of lasers up to 500 mW
- Spatial confocal resolution X,Y < 1 µm, Z < 2 µm (for 532 nm laser)
- Spectral range from 70 cm^{-1} to 4800 cm^{-1}

- Standard 100 cm^{-1} Edge filters , 50 cm^{-1} optional
- Spectral resolution up to 4 cm^{-1} (for 532 nm laser)
- Low frequency cut-off up to 10 cm^{-1}
- Motorized table, XY range 100 x 75 mm, step 0.1 µm
- 4096 pixel wide sCMOS detector with 7 µm pixels
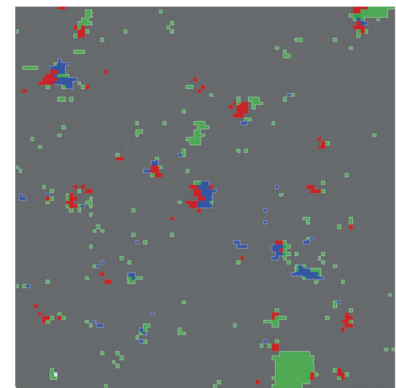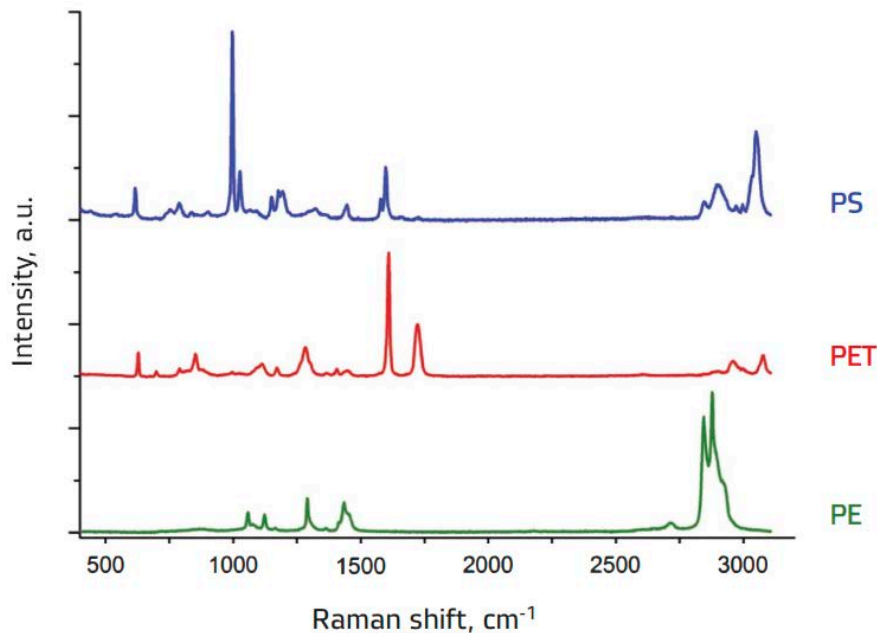
Determination of microplastic
particles, 500 x 500 µm
PS - blue,
PET - red,
PE - green

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

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

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

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

and many more...

ostec

future's
in the making