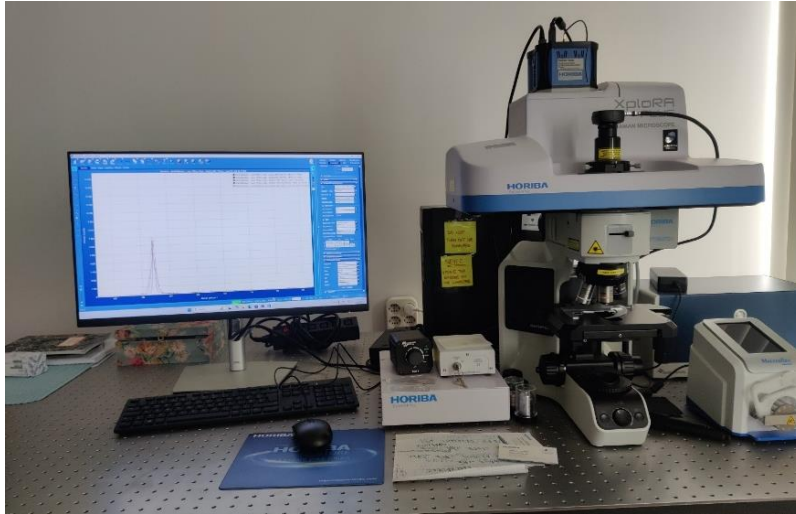
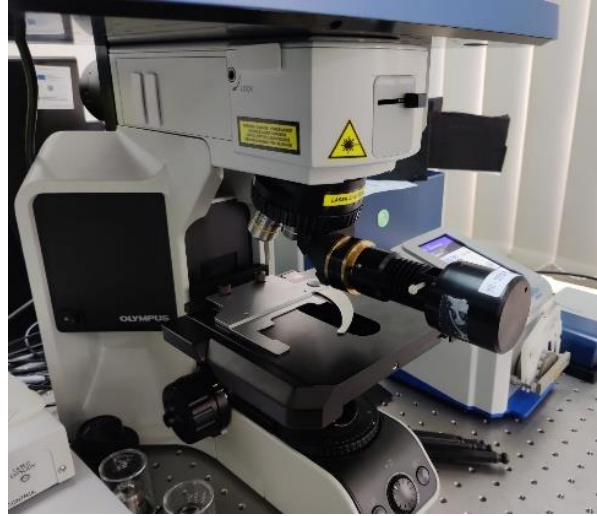


Confocal Raman Microscope Xplora (Horiba Scientific, France)



Specific components: The high-sensitivity confocal Raman microscope is used for structural and chemical analysis of solid, liquid, or biological materials. It is a fully automated system that includes:

- Multiple laser sources:
 - 638 nm (46 mW) and 785 nm (73 mW) diode lasers with automatic switching;
 - Density filters (0.007%–100%) for precise control of excitation power;
 - Dedicated Edge filters for each laser line.
- Olympus BX Series confocal optical microscope (upright configuration, reflection and transmission modes):
 - Objectives: 10x/0.25 NA (WD 10.6 mm), 50x/0.75 NA (WD 0.38 mm), 50x/0.5 NA Long working Distance, WD 10 mm 100x/0.90 NA (WD 0.21 mm);
 - Reflection and transmission illumination, adaptable for opaque or transparent samples.
- Adjustable confocal system:
 - Variable aperture diaphragms for control of axial and spatial resolution;
 - Adjustable slits for variable spectral resolution.
- High-resolution spectrograph:
 - Four motorized diffraction gratings (600, 1200, 1800, and 2400 gr/mm).
- Software:
 - LabSpec 6 suite for spectral acquisition, processing, and analysis (mapping, band deconvolution, fluorescence correction, polymorphism analysis, etc.).
- Additional Accessory:
 - Quartz cuvette holder for liquid measurements.



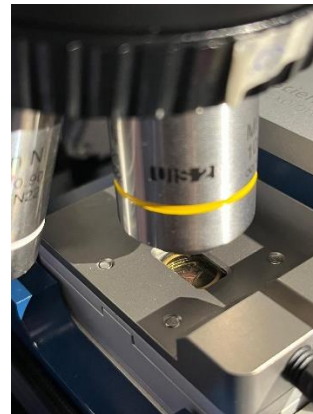
Performance:

- Spectral resolution up to 1.4 cm^{-1} (2400 gr/mm grating);
- High-precision lateral (x,y) and axial (z) resolution (for 638–785 nm lasers, 100× objective);
- Fully automated system for laser, grating, and filter switching;
- Capable of acquiring spectra from solid, liquid, and biological samples.

Total value: 812960 RON

Year of acquisition: 2024

Fields of application: Compositional and structural analysis of nanomaterials; identification of polymorphs, crystallinity degree, and structural defects; biological sample analysis; and study of molecular interactions. Chemical identification of microparticles and pharmaceuticals, quality control in beverages and food, assessing biotherapeutics stability, Raman imaging and mapping, DNA interaction studies: Coupling Raman Spectroscopy with QCM-D.



Availability for access and use:

Contact person: Assoc. Prof. PhD Monica Focşan

Available upon appointment by email or phone between 09:30–17:30 for a preliminary evaluation of sample complexity and estimation of analysis time.

Usage conditions: Exclusively operated by authorized technical personnel.

Analysis fees:

External users: Preliminary evaluation – free of charge; 500 RON/sample;

Internal UBB users: Free of charge.