INSTITUTE OF ELECTRONICS - BAN

Spectrofluorometer FluoroLog 3 (HORIBA, Jobin Yvon, France)

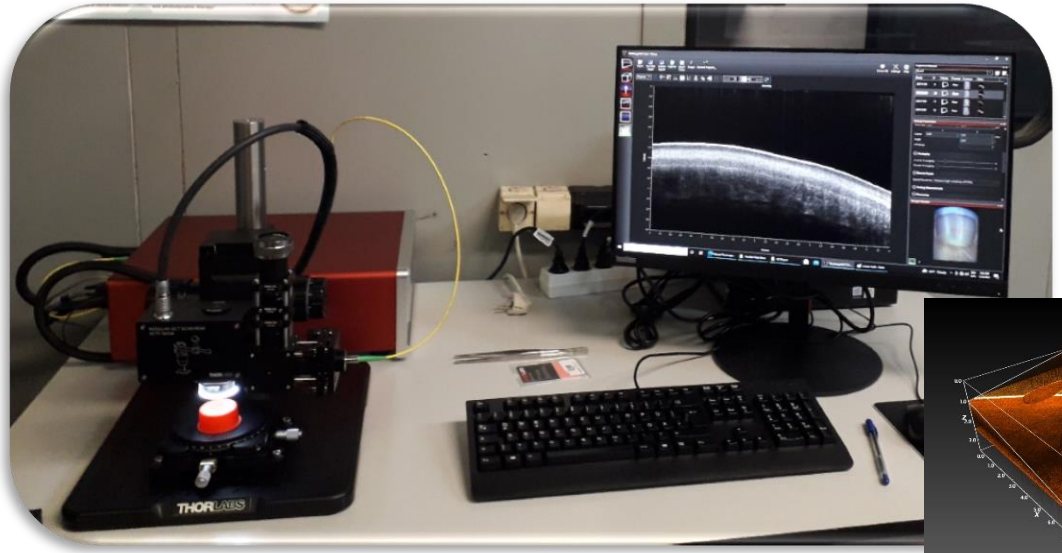
An automated modular system for all types of steady-state fluorescence research in quantum chemistry, materials science, biology, analysis, and quality control. It offers the highest sensitivity among products available on the market. The system allows measurement of emission from liquid, solid, including very thin layers, and powder samples. FluoroLog 3 is equipped with an additional fiber-optic module “F-3000” for conducting measurements of biological samples outside the cuvette space.

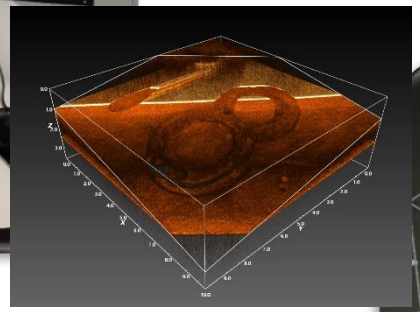
Two double monochromators with diffraction gratings in the excitation and emission lines, covering the range 230–850 nm. TCSPC module for measuring fluorescence lifetime with NanoLed pulsed sources at wavelengths of 368, 405, and 630 nm.

IE - BAS	**Assistant prof. Aleksandra Zhelyazkova** alexandra_jivkova@abv.bg **Assistant prof. Tsanislava Genova** ts.genova@gmailcom

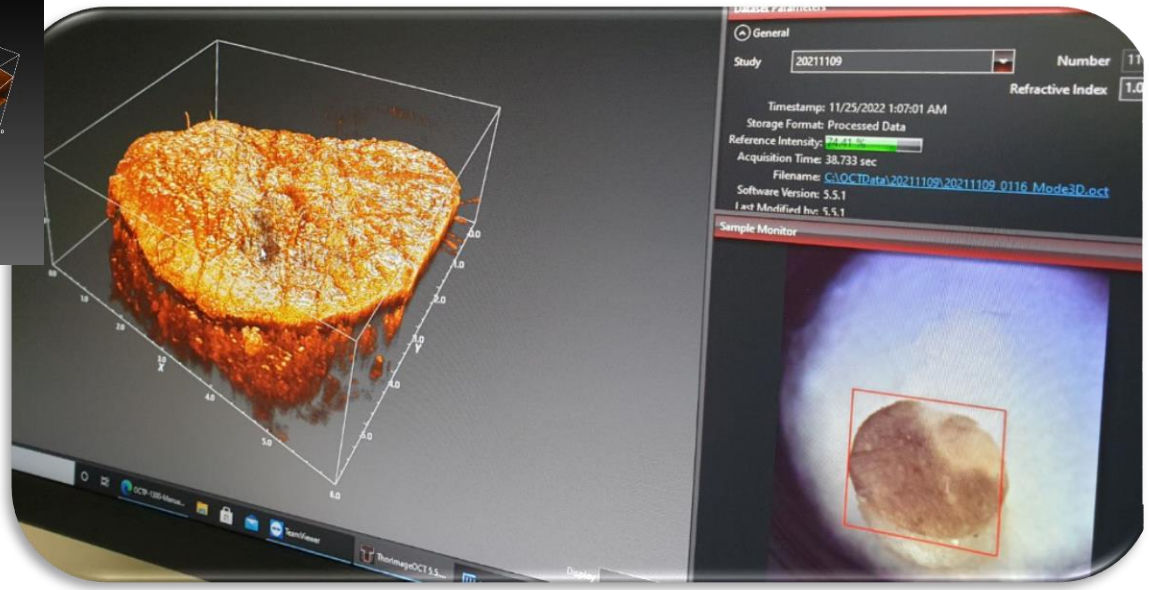
INSTITUTE OF ELECTRONICS - BAN

System for Spectral Optical Coherence Tomography





- Working wavelength – 1300 nm, FWHM > 100nm
- Scanning speed – 5,5 kHz до 75 kHz
- Penetration depth – 3,5 mm
- Axial resolution – 5,5 µm
- Lateral resolution – 13 µm

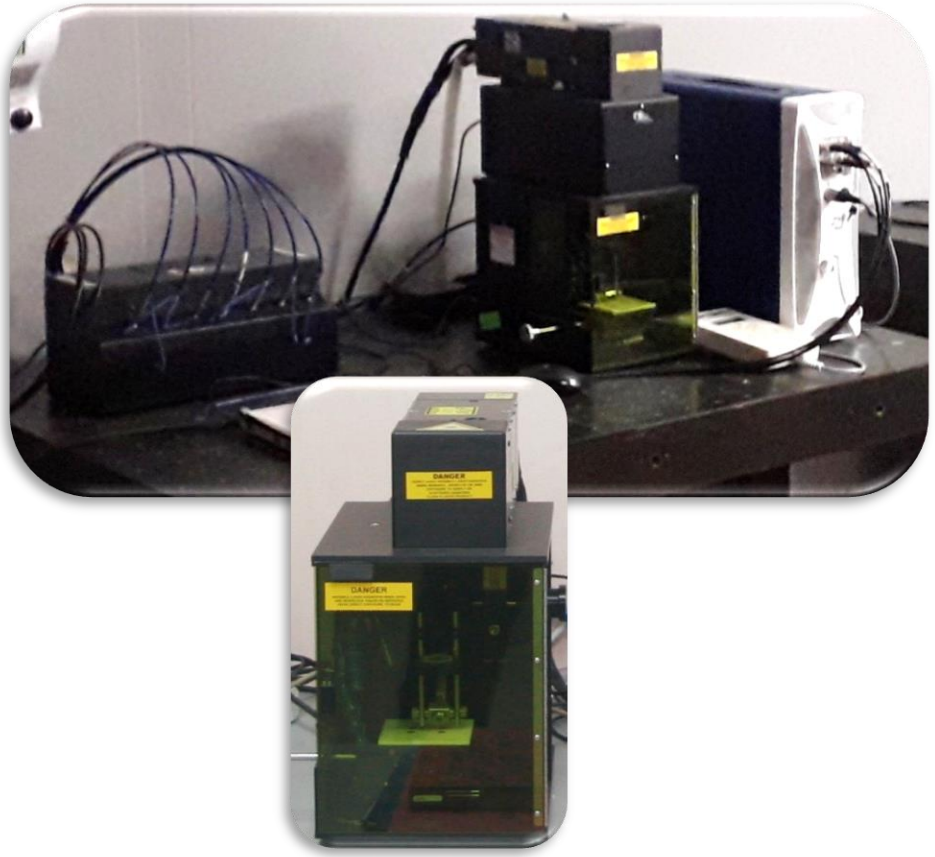


Ability to measure layer thickness; obtaining 3D images

IE - BAS	**Assistant prof. Aleksandra Zhelyazkova** alexandra_jivkova@abv.bg **Assistant prof. Tsanislava Genova** ts.genova@gmailcom

INSTITUTE OF ELECTRONICS - BAN

LIBS - Laser Induced Breakdown Spectroscopy



The LIBS 2500Plus system (Ocean Optics Inc.), consisting of a 7-channel spectrometer in the range of 200 - 980 nm with a resolution of 0.1 nm, light guides for the seven detector channels, optical input/output lenses, a sample ablation chamber and a sample imaging module. The excitation and generation of plasma is carried out with a pulsed Q-switched Nd:YAG laser with a wavelength of 1064 nm, pulse energy up to 200 mJ (adjustable) and a duration of 10 ns. The system is effective for determining quantitative elemental composition with the ability to work with solid, liquid and gaseous samples.

IE - BAS	**Assistant prof. Aleksandra Zhelyazkova** alexandra_jivkova@abv.bg **Assistant prof. Tsanislava Genova** ts.genova@gmailcom

INSTITUTE OF ELECTRONICS - BAN

Spectrometric Complex "Ocean Optics"

A spectrometric complex that allows characterization by transmission, absorption, diffuse reflectance spectroscopy and polarimetry of liquid and solid samples.

Spectrometers:

- **NIRQUEST256-2.1**: working range 900- 2100 nm; integration time from 1 ms to 1s, detector linearity >99.8%;
- **MAYA2000PRO**: working range 200-1100 nm; resolution of 1.5 nm, minimum integration time 6 ms; detector linearity >99.7%;
- **QE65000**: working range 200-950 nm; integration time from 8 ms to 15 min;

OTS – system for transmission spectroscopy of optical filters, glasses and lenses. Operating range 380 – 780 nm. Halogen lamp in the range 360 – 2000 nm. **Sample size**: thickness up to 25 mm, diameter from 10 to 76 mm.

IE - BAS	**Assistant prof. Aleksandra Zhelyazkova** alexandra_jivkova@abv.bg **Assistant prof. Tsanislava Genova** ts.genova@gmailcom

INSTITUTE OF ELECTRONICS - BAN

Femtosecond Laser Laboratory "Coherent"

System of the company COHERENT INC. including: pumping single-frequency laser with a power of 5 W, femtosecond oscillator with wavelength tuning from 700 to 1000 nm, output power for a wavelength of 800 nm of 600 mW and pulse duration of 120 fs. Second harmonic generator, coordinated with the oscillator, laser power meter.

Upcoming equipment includes: a pre-compensation dispersion system for the use of optical fiber for multiphoton fluorescence and microscopy; devices for single pulse separation and mechanical modulation, a motorized translational "XYZ" stage for precise sample processing.

IE - BAS	**Assistant prof. Aleksandra Zhelyazkova** alexandra_jivkova@abv.bg