EOS Nanosecond Transient Absorption Spectrometer

Broad Probe Spectral Range

350 - 2200 nm

Sub-ns Time Resolution

Automated

EOS is a unique (Patent No.: US 7,817,270 B2) broadband pump-probe nanosecond Transient Absorption Spectrometer designed to work with a wide variety of pulsed lasers. A complete turn-key system, EOS measures transients with sub-ns time resolution over an easily adjustable time window. At any time, the EOS time resolution can be improved to femtosecond by integrating it with HELIOS, our broadband femtosecond transient absorption spectrometer.

Features

- Advanced user-friendly LabVIEW based software for instrument control and data acquisition
- A virtually unlimited time window
- Large sample area – 300 x 300 mm
- Parabolic reflectors for probe management ensure uniform focusing of all wavelengths
- Fiber coupled high-speed spectrometers
- Optional computer controlled filter wheel for varying pump energy, etc.
- Sample holder with a magnetic stirrer. Easily interchangeable with an optional XY rastering sample holder

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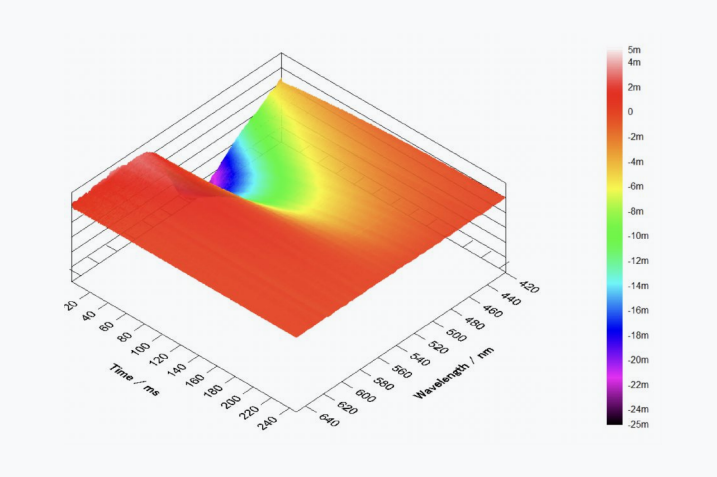
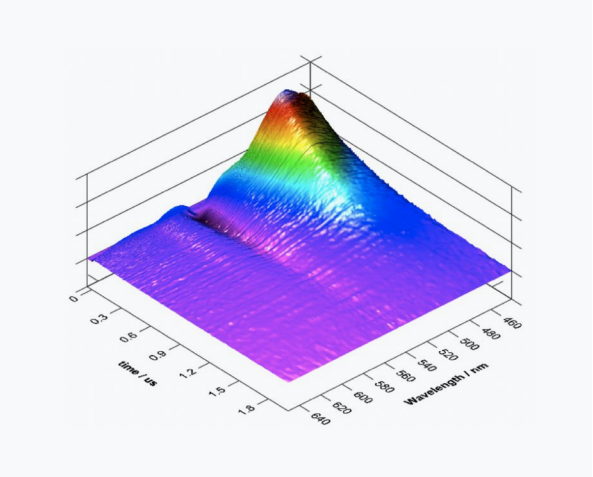
Dynamic Surface of Congo Red



Dynamic Surface of ZnTPP



Broad probe spectral range

350 - 950 nm	800 - 1600 nm	1600 - 2200 nm

Sub-ns resolution with a flexible time window

In contrast to conventional flash photolysis based on the continuous photoelectric method, EOS is a pump-probe spectrometer. It utilizes a sub-nanosecond pulsed probe light source – a PCF (photonic crystal fiber) based supercontinuum laser. The pulse duration of this probe light source determines the time resolution of the spectrometer (< 1 ns). This eliminates the need for fast photodetectors, fast digitizers and high power probe light sources. In EOS the pump-probe delay is controlled electronically, and the maximum time window is close to the repetition period of the pump laser. The time window can be extended further by lowering the pump laser repetition rate.

Lower probe and pump power on the sample

Focusing the probe tightly onto the sample allows to reduce the excitation energy and minimize sample degradation. This is particularly important with solid state samples (thin films, etc.). Especially those that cannot be easily translated during the experiment. In the standard configuration the EOS probe beam waist in the sample is <100 µm. As a result, the minimum excitation energy required is hundreds of nJ/pulse. Additionally, this beam size permits studying small samples.

Large sample area

The spacious (300 mm x 300 mm) sample compartment allows for easy mounting of cryostats and temperature-controlled sample holders. Also, simply having more space around the sample makes working with your samples easier.

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