



Room 113C: Monday, February 12

2:30 PM – 4:00 PM

PicoQuant Photonics North America Inc

Making Confocal Fluorescence Microscopy a Tool for Every Biophysicist

Quantitative time-resolved fluorescence techniques like FLIM, FCS and single molecule FRET (smFRET) are increasingly employed in biophysical research in fields like dynamic structural biology, mechanisms driven by phase separation and cellular environment sensing.

PicoQuant's new confocal microscope Luminosa combines state-of-the-art hardware with cutting edge software to deliver high quality data while simplifying daily operation. The software includes several features including context-based workflows, sample-free auto-alignment and excitation laser power calibration which improve the reproducibility of experiments. Still, if required for method development every optomechanical component can be accessed.

In this talk two use cases will be presented:

- We will show how Luminosa brings smFRET to a new level. For example, FRET efficiency (E) and stoichiometry (S) are calculated online, corrected according to the standard procedure of the community, and displayed live in an E/S histogram during the measurement. In addition, the ability to vary the detection volume with a single click of a button will give researchers more flexibility regarding determining dynamic structural changes.
- We will describe how FLIM is streamlined. It's rapidFLIM hardware can record several frame per second with high photon count rates, which the software handles with a novel dynamic binning format. In combination with GPU-accelerated algorithms, this enables high-speed automated analysis of FLIM images with minimal user interactions.

As an outlook we will demonstrate how Luminosa can combine FLIM with super-resolution imaging modalities.

Speakers

Marcelle Koenig, Senior Scientist R&D, PicoQuant GmbH

Evangelos Sisamakos, Product Manager Microscopy, PicoQuant GmbH