HowTo's and Tutorials

Instrumentation

Fluorometer

- EasyTau
- Interfacing a time-resolved spectrometer (FluoTime 300) with a microscope (MicroTime 100)
- Measuring the Quantum Yield with the Integrating Sphere Assembly for the FluoTime 300

Microscopy

- Configuring SymPhoTime64
- FLIM Measurement Using a Nikon A1 with a FLIM and FCS Upgrade
- FLIM Measurement Using a Zeiss LSM710/LSM780/LSM880 with a FLIM and FCS Upgrade
- FLIM Measurements Using an Olympus FV3000 with a PicoQuant FLIM Upgrade
- FLIM-FRET Measurement Using an Olympus FV1200 with a FLIM and FCS Upgrade
- How to Avoid the Pile-up Effect in FLIM Measurements
- How to Check the Overlap of Different Color Confocal Volumes
- How to exchange the main dichroic of the MicroTime 200
- How to Measure the Instrument Response Function (IRF)
- How to Perform Antibunching Measurements
- How-to select the correct pinhole size
- Image on the beam diagnostics camera during focusing
- MT200 Daily Alignment
- MT200 FCS Measurement
- MT200 Fundamental Alignment
- Nikon AX: NIS-Elements FLIM Examples
- Nikon AX: Phasor-Based Structural Separation Using FLIM
- Performing a FCS measurement with an Olympus FV1200 Upgrade Kit
- Recording a Fluorescence Lifetime Image (FLIM) Stack with a LSM Upgrade Kit on a Nikon A1

SymPhoTime64 / Analysis

The SymPhoTime tutorials rely on the sample workspace downloadable here (1.5GB).

General

- Antibunching Analysis
- Determination of the Focal Width

- How to create a time-gated Image in SymPhoTime
- How to Work with Instrument Response Functions (IRFs) Measured with a Microscope
- Intensity Time Trace Analysis
- Registering New Scripts in the SymPhoTime 64
- Static Anisotropy Analysis for Images
- SymPhoTime 64 Analysis Tips and Tricks
- SymPhoTime Lifetime Fitting

FLIM

- Lifetime Fitting Using the FLIM Analysis
- Lifetime-Fitting Using the FLIM Analysis (updated for SymPhoTime V 2.5 and above)
- Lifetime-Fitting Using the Rapid Reconvolution Model
- Pattern Matching
- Phasor Analysis
- ROI Fitting Using the FLIM Analysis
- ROI Fitting Using the FLIM Analysis (updated for SymPhoTime v2.5)
- Visualizing Dynamics Using the Multi Frame FLIM Analysis
- Visualizing Dynamics Using the Multi Frame FLIM Analysis (updated for SymPhoTime v2.5 and above)

FRET

- Calculate Ratiometric FRET Images
- Calculate Ratiometric Single Pair FRET Distributions
- Calculate Ratiometric Single Pair FRET Distributions Using PIE-FRET
- FLIM-FRET Calculation for Multi Exponential Donors
- FLIM-FRET Calculation for Single Exponential Donors

FCS / Correlation

- Burst duration and FCS diffusion time
- Calculate and Fit FCS Traces with the FCS Script
- Calculate FCCS Traces with the Grouped FCS Script
- Calibrate the Confocal Volume for and with FCS
- Separation of 2 Species with Different Lifetimes Using FLCS
- Spectral Crosstalk Removal via FLCCS

EasyTau2 / Analysis

- Measurement results obtained by FluoTime series spectrometers controlled with EasyTau 2 software are directly stored in a workspace in `.etc` data containers. This is also the case when TimeHarp260, PicoHarp300, HydraHarp400 or MultiHarp150 is controlled via EasyTau 2. Such `.etc` files can be opened directly, using the  button.
- It is also possible to use the native software of the timing electronics for data acquisition, instead of control via EasyTau 2. Recent versions of `TimeHarp260.exe`, `PicoHarp.exe`, `HydraHarp.exe` and `MultiHarp.exe`, started from Windows Start menu, store the histograms in `.phu` data format. Older software versions of various timing electronics may use other data file formats. Possible file name extensions are `.thd, .nhd, .phd` and `.hhd` In order to analyze such files, they have to be imported

into an already existing EasyTau2 workspace.

- Data file import
- Reconvolution fit

Samples

- Diamond NV Centers

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