# FLIM Measurement Using a Zeiss LSM710/LSM780/LSM880 with a FLIM and FCS Upgrade

This tutorial shows the recording of FLIM images using an LSM upgrade kit, in this case a Zeiss LSM710. In FLIM-measurements, the fluorescence lifetime of a component can be determined which can be used e.g.

- to distinguish different tissue or cell constituents
- to monitor concentration changes using a reporter dye
- To monitor interactions between two molecules via FRET.

The data acquisition is analogous also for upgrades on an LSM780 or LSM880, and the general principles of the data acquisition are analogous in all LSM upgrade kits.

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- How to measure the Instrument Response function (IRF)

- FLIM-FRET Calculation for Multi Exponential Donors
- FLIM-FRET Calculation for Single Exponential Donors
- 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)

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