EasyTau 2

Fluorescence Spectrometer Control and Data Analysis Software

- Combined solution for hardware control, data acquisition and analysis in FluoTime 300 and FluoTime 250 spectrometers
- Three modes of operation depending on users requirements
- Powerful scripting language for automation (local or remote)
- Steady-state and global decay analysis with robust error analysis
- Fitting software for TCSPC electronics in histogramming mode

The latest newly released version, EasyTau 2.3, supports Prima and Taiko PDL M1 as light sources for FluoTime spectrometers.

The EasyTau 2 software is an intuitive though powerful tool to acquire and analyze fluorescence spectra and lifetime decays obtained from FluoTime 300 and FluoTime 250 spectrometers. It can also be used as merely an analysis add-on software for home-built set-ups using PicoQuant TCSPC electronics through importing ASCII or phu files. EasyTau 2 combines easy-to-use algorithms with efficient data management namely tree-structure that makes data dependencies visible at first glance.

The software is also equipped with a powerful report generator to create presentation-ready plots or tables as PDF or HTML files.

A wide range of measurements and analysis can be carried out using FluoTime spectrometers and single graphical user interface (GUI) including

- Steady-state emission and excitation spectra
- Fluorescence and phosphorescence lifetime decay
- Time-Resolved Photoluminescence (TRPL)
- Fluorescence anisotropy
- Absolute quantum yield
- Time-Resolved Emission Spectra (TRES)
- Excitation-Emission Matrix (EEM)
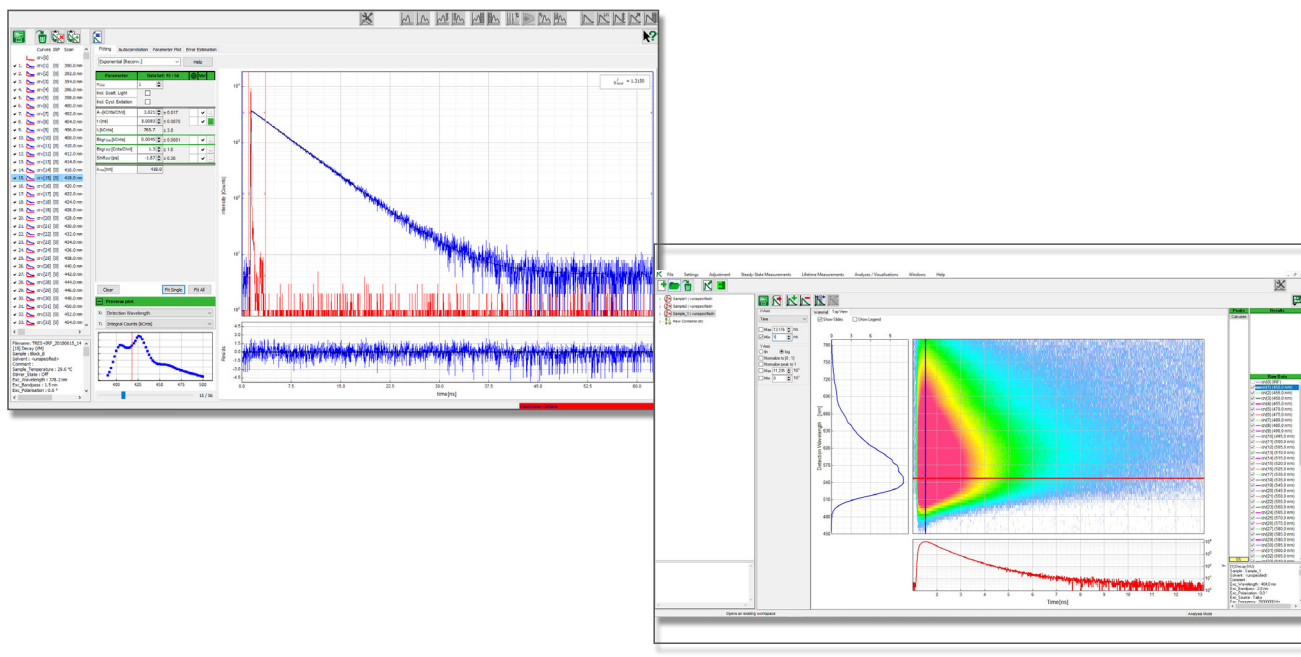
Operation modes

A unique and powerful feature of EasyTau 2 software is its three modes of operation that enable users to employ PicoQuant fluorescence spectrometers, FluoTime 300 and FluoTime 250, according to their working routines and requirements. Wizard mode provides step by step assistance, guides users through all the optimization steps and facilitates beginners to perform various complex measurements.Customized mode allows full control over the instrumental parameters. It is an ideal mode for advanced users who would like to precisely adjust the measurement criteria. Scripting mode allows automation of measurement routines which is especially useful for complex applications. Additionally, EasyTau 2 provides an interface for remote execution of scripts, so that the automation can be extended to third-party accessories such as robotic autosamplers.
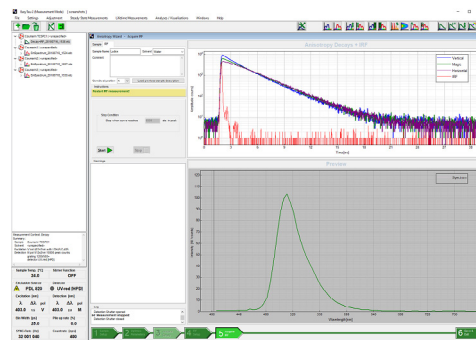
Versatile decay analysis

EasyTau 2 supports both tail fitting and numerical reconvolution. The latter is to account for the Instrument Response Function (IRF). The decay data can be fitted with various models including exponential decay (up to 5th order) and distribution models such as Gaussian, Lorenzian, and stretched exponential. All models support both global and batch mode fitting.
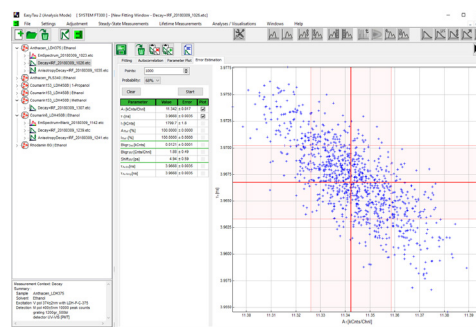
Current software version:

The latest version now supports PicoHarp 330, Prima and Taiko PDL M1 as excitation sources for FluoTime spectrometers as well as switching between different laser drivers at run time. There are also general improvements in the measurement und analysis scripts and a new chromaticity plot option. Note: the software is protected by a USB dongle and will not work without it. Please contact PicoQuant if you want to update EasyTau version 1.x or FluoFit to the latest version.

⬇ **Download Easy Tau**

Specifications

FluoTime 300 hardware control	
Included wizards	Excitation and emission spectrum, time course excitation and emission spectrum, anisotropy excitation and emission spectrum, intensity time trace scan, temperature mapped emission spectra, excitation / emission mapping, quantum yield Phosphorescence decay, fluorescence decay, time-resolved anisotropy, time course decay, time resolved emission scan
Operation modes	Assisted mode using Wizards for standardized measurements Customized mode with full control of all hardware parameters Scripting mode for automation of routine measurements Remote execution of scripts (extension of automation to 3rd party devices)
Basic data handling	Arithmetic operations (addition, subtraction, multiplication, division), derivation, integration, normalization, smoothing, …
Fitting module	
Exponential decay models	up to 5th order
Lifetime distributions	Gaussian, Lorentzian, stretched exponential (up to 5 peaks)
Anisotropy	up to 3rd order exponential decay model, tail fit of the anisotropy decay and anisotropy reconvolution
Decay parameters	amplitudes, lifetimes, distribution width, background
Anisotropy parameters	G-factor, amplitude, background
Reconvolution parameters	Background, time shift, scattered light contribution, pulse repetition rate
Algorithms	
Nonlinear least squares fitting / MLE	Marquardt-Levenberg, Monte Carlo, manual parameter variation
Correction for finite IRF	Iterative reconvolution
Error test / assessment	$\chi2$, distribution and autocorrelation of weighted residuals
Error analysis	Bootstrap
Global analysis / batch mode fitting	For all fitting models, number of data sets only memory limited
User interface	
Graphical user interface	Windows^{TM} based GUI
Data import	ASCII file or from Windows clipboard (PicoHarp 330, TimeHarp 260)
Operation	
Protection module	USB