

PML-Spec

Multi-Spectral Lifetime Detection

Multi-wavelength detection of fluorescence decay functions

16 simultaneously recording wavelength channels

Spectral range 300-850 nm

High time resolution: 180 ps fwhm IRF width

Useful count rate > 2 MHz

Ultra-high sensitivity

Short acquisition times

Greatly reduced pile-up

Works with all bh TCSPC modules

Biomedical fluorescence

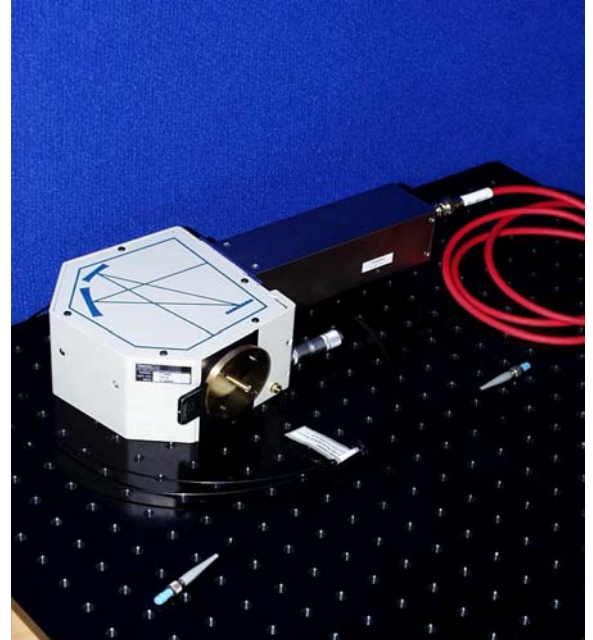
Autofluorescence of tissue

Time-resolved laser scanning microscopy

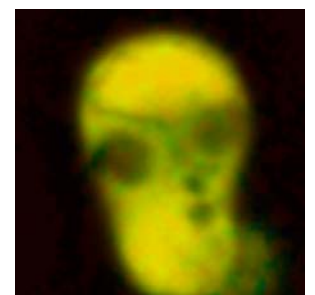
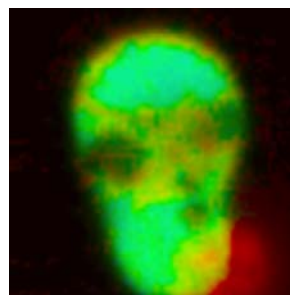
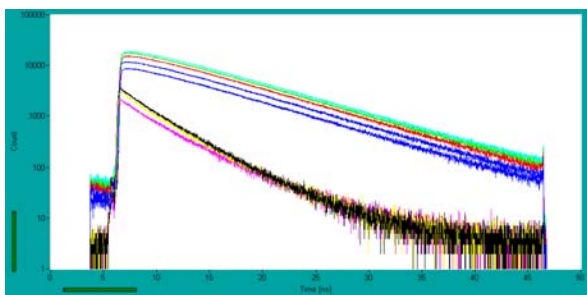
Multi-spectral lifetime imaging

Recording of chlorophyll transients

Stopped flow fluorescence experiments



The PML-SPEC uses bh's proprietary multi-dimensional TCSPC technique. The light is split into its spectrum by a polychromator. The spectrum is detected by a 16-channel multi-anode PMT. The single photons detected in the PMT channels are recorded in a bh TCSPC module. The TCSPC module builds up a photon distribution over the time in the fluorescence decay and the wavelength. The technique does not use any time gating, detector channel multiplexing, or wavelength scanning and therefore reaches a near-ideal counting efficiency.



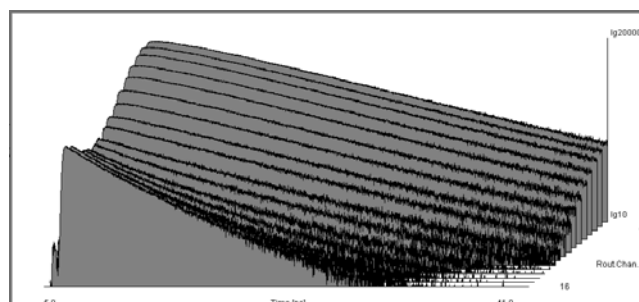
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Covered by patent DE 43 39 787

PML-Spec

Multi-Spectral Lifetime Detection

Specification

Optical System

Type of grating, lines/mm	400	600	1200
Recorded interval ¹ , nm	320	208	106
Wavelength channel width, nm	20	13	6.65
Spectral range of grating ² , nm	300-850	300-850	300-850
F number		F / 3.7	
Input slit width, mm		0.6	
Input slit height, mm		3	

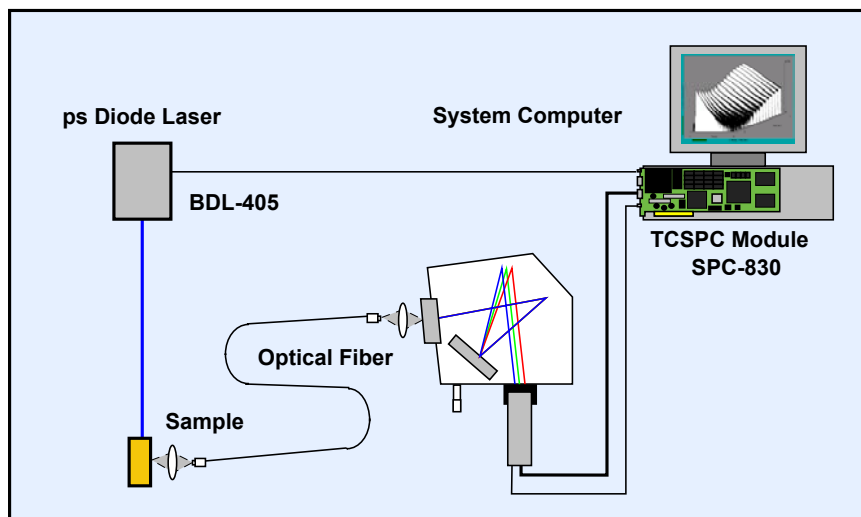
¹ any interval within spectral range of grating

² limited by spectral response of detector

Detector³

Cathode spectral response	bi-alkali, 300 to 600 nm	multi-alkali, 300 to 850 nm
Typical dark count rate, s ⁻¹	200	800
Number of spectral channels	16	
Timing output polarity of detector	negative	
Average timing pulse amplitude	40 mV	
Time resolution (FWHM)	150 to 200 ps	
Time skew between channels	< 40 ps	
Timing output connector	SMA, 50Ω	
Routing signal	4 bit + Count Disable Signal, TTL/CMOS	
Routing signal connector	15 pin Sub-D / HD	
Power supply	-800...-900V / 0.35 mA from external HV power supply	

³ please see data sheet and manual of PML-16 multichannel PMT head



Application

Wavelength-Resolved Fluorescence
Decay Measurement

Related Products and Accessories

SPC-134 through SPC-830 TCSPC boards, ps diode lasers, FLIM upgrade kits for scanning microscopes, fibre couplers, computer-controlled HV power supplies. Please see www.becker-hickl.com or call for individual data sheets.



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