

TIME-CORRELATED SINGLE PHOTON IMAGING

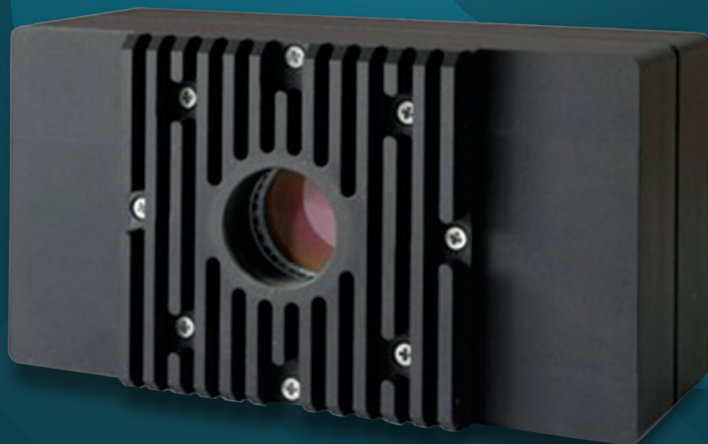
LINCam

Ultra-fast optical camera with picosecond resolution for lifetime imaging

The LINCam is an easy to use event-based camera that can detect single photons on the picosecond scale. Paired with a pulsed light source, the LINCam can turn any conventional microscope into a powerful lifetime imager.

The unique combination of low dark count rate, high quantum efficiency and high read-out speed enables quality lifetime images in a short time and at low laser power density.

PHOTONIS
EXOSENS GROUP

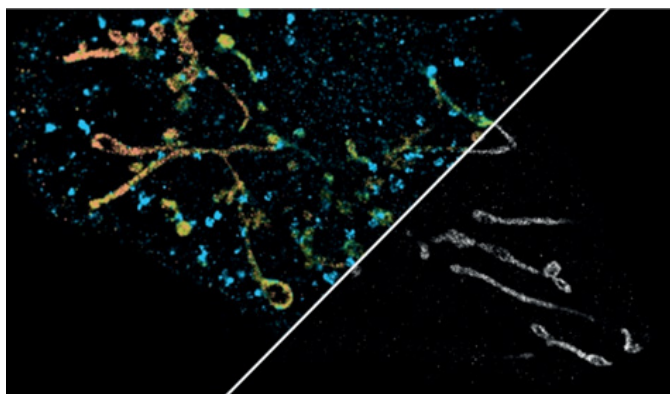


**In collaboration with* Photonscore.

Key Features

- ◆ High Time Resolution
- ◆ Broad Spectral Range
- ◆ Fast Read Out Speed
- ◆ Live View Functionality
- ◆ High Spatial Resolution
- ◆ Intuitive to Use Software
- ◆ Event-Based Camera

Single Molecule Imaging



Different types of single molecules are often spectrally unresolvable. However, they can be characterized and separated by their corresponding fluorescence lifetimes. With LINCam, it is possible to create a contrast between different single molecule emitters with an accuracy of $<200\text{ps}$ in high-resolution widefield lifetime images.

Applications

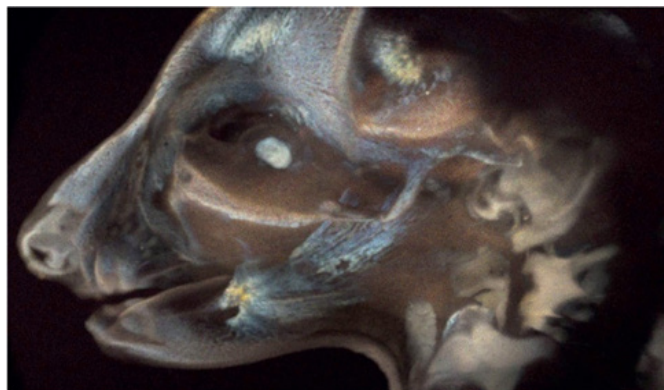
- ◆ (3D) Light sheet FLIM & FRET
- ◆ Metabolic & NADH Imaging
- ◆ Single Molecule Imaging
- ◆ Time Resolved Raman Spectroscopy
- ◆ Quantum Optics

Contact us for expert advice on your application

Widefield / Light Sheet FLIM

In Widefield Fluorescence Microscopy (FLIM) the whole field of view is illuminated simultaneously, in contrast to confocal imaging.

Widefield FLIM enables fast detection of fluorophores under low light conditions with high temporal resolution. Using LINCam, you can analyze complex fluorescence decays and generate high quality FLIM images and movies of living samples.



LINCam Specifications

Detector Specifications

Active Area Diameter	17 mm
Spatial Resolution	17 μm
Temporal Resolution	17 ps, σ (Gaussian)
Dark Count	HI-QE UV, Blue, Green: <15 cps, HI-QE Red <200 cps
Deadtime	250 ns
Maximal Count Rate	1 MHz
Microscope Mount	C-Mount
Dimension Detector Head	145 x 78 x 50 mm
Cooling	Thermo Electrical
Reference Input	Positive or Negative NIM
Computer Interface	USB 3.0 / Ethernet
Operating System	Microsoft Windows 7/10/11 (64bit)

Cathode Specifications

Input Window	Quartz, Glass, MgF_2
Photocathode	HI-QE UV, Blue, Green, Red (other types available upon request)

LINCam Overview

The LINCam is a product from PhotonScore, a spin-off from the Leibniz Institute for Neurobiology. The LINCam is made possible by Exosens who produces crucial components in the camera: high time resolution, position sensitive MCP-PMT.

Working Principle

In contrast to frame-based cameras, the LINCam is event-based, meaning it will readout the location with picosecond timing resolution for each detected photon. This enables a high detection rate. A photon hitting the photocathode releases an electron which is then accelerated to the MCP stack where it is multiplied to an electron avalanche. The electron avalanche then hits the segmented anode structure which gives the spatial information.

Lifetime Estimator

Choose between mean and median estimation

Pipette

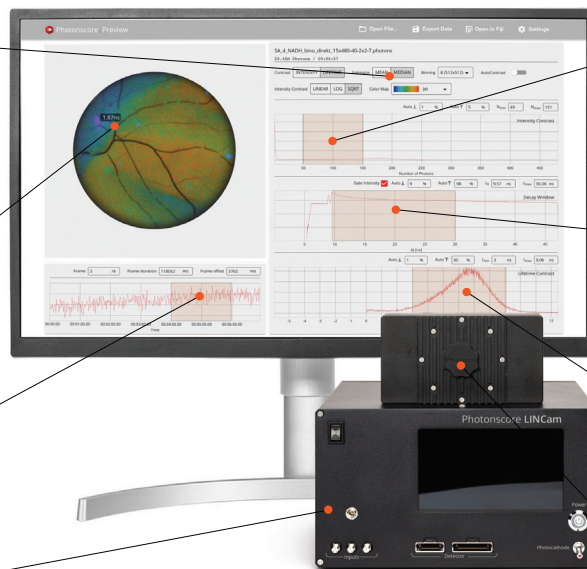
Know the lifetime of any given position of the image

Timeline

Select your image frames independently from a scanner

Electronic Module

Connect the electronics to your computer and start your FLIM measurement



Intensity Contrast

Tune your image for best brightness and visibility

Decay Selector

Select the decay you want to observe and remove reflexes by gating the utilized photons

Intensity Contrast

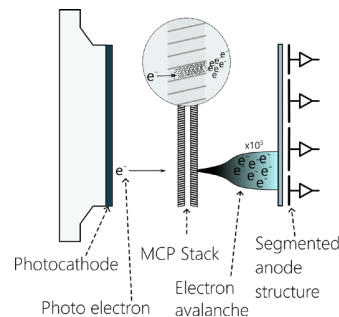
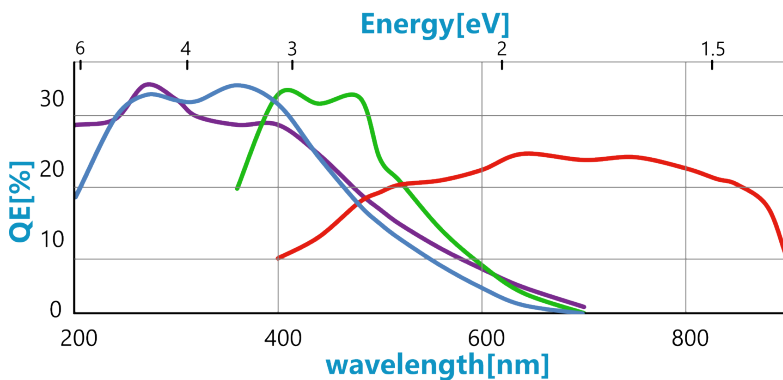
Tune your image for best brightness and visibility

Detector Head

Attach the detector to any C-Mount port at your existing microscope setup

Photocathode Overview

— HI-QE UV — HI-QE Blue — HI-QE Green — HI-QE Red



To Learn More About LINCam



www.photonscore.de

science@exosens.com



exosens.com



PHOTONIS
EXOSENS GROUP

© Photonis. The information furnished is believed to be accurate and reliable, but is not guaranteed and is subject to change without notice. No liability is assumed by Photonis for its use. Performance data represents typical characteristics as individual product performance may vary. Customers should verify that they have the most current Photonis product information before placing orders. No claims or warranties are made as to the application of Photonis products. Texts and pictures may not be considered as contractually binding. This document may not be reproduced, in whole or in part, without the prior written consent of Photonis.