

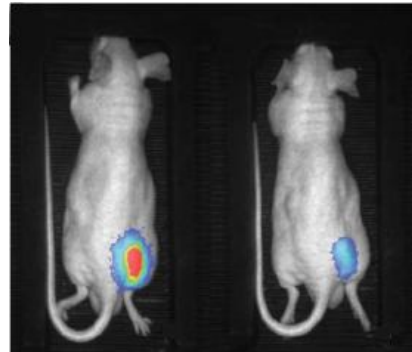
Luminescence imaging

Photonic Science delivers a new generation of cooled intensified detectors with photon counting sensitivity for luminescence imaging in small animals

Luminescence has been used extensively for reporting gene expression in transfected animals and plants. The photonic emission released in this process is very weak, including some absorption effects when propagating through tissues up to the detector. Photon counting sensitivity is therefore necessary for tracing each photon in real time.

In order to achieve such performance, the detector amplifies the incoming photon typically 250,000 fold. This raises the signal of an individual event far above the read out noise of a fast progressive scan cooled CCD. The latter performs simultaneous exposure and read out cycles, so that the camera is always integrating and allows multiples exposures for kinetic surveys without any losses of flux.

These detectors have proven to deliver exceptionally good sensitivity whilst maintaining real time sensing capabilities.



Near Infra Red fluorescence lifetime imaging

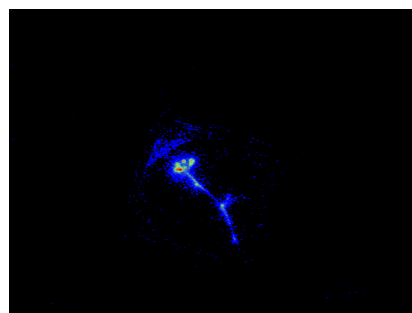
Photonic Science delivers a new generation of high sensitivity cooled Intensified CCD detectors for Near Infra Red and fluorescence Life Time Imaging applications

Intensified cooled CCD cameras that are used for real time luminescence imaging can also be used for fluorescence life time imaging.

The camera behaves like a very fast shutter with nanosecond resolution that can select excitation pulses travelling back from the animal to the detector, according to a certain penetration depth. This helps in discriminating between emissions from the surface and those deeper in the tissues by simply adjusting the delay that correspond to a given propagation range.

Synchronisation with a pulsed fluorescence source needs to be very accurate and flexible enough in order to generate the appropriate depth of focus.

The camera can of course integrate over a continuous time domain and deliver a standard integrated image as in the case of luminescence emissions.



Recommended Detectors

CoolView IDI