lambda
Large Area Medipix3 Based Detector Array

Spectrum

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Lambda at a glance:

- **Medipix3** read out chip
- Effectively zero noise (photon counting)
- 55 µm pixel size
- Up to 2000 frames per second
- Deadtime-free readout
- Up to 300 million counts per second (with correction)
- Up to 1536 by 1536 pixels (85 mm by 85 mm)
- Energy binning capability
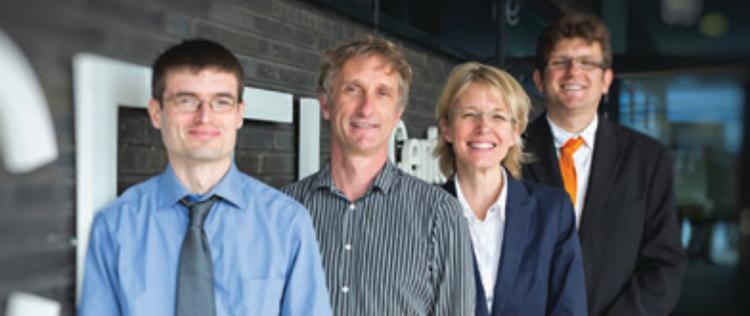- Available with Si, GaAs or CdTe sensors

*The fastest large format cameras based on the **Medipix3** readout chip*

Spectrum

LAMBDA

LAMBDA cameras are the fastest large format cameras based on the **Medipix3** RX chip. As a spin-off of the German synchrotron facility DESY, which originally developed LAMBDA, X-spectrum not only provides the camera itself, but also dedicated IT equipment and software for seamless integration into the most common synchrotron beamline control systems. Our team is experienced in setting up detectors on many different beamlines and we believe in support to the experimentalist.

Easy as 1-2-3

1 chip
The Medipix3 chip has 55 µm pixels and provides noise free photon counting at up to 2000 fps without dead time between images.
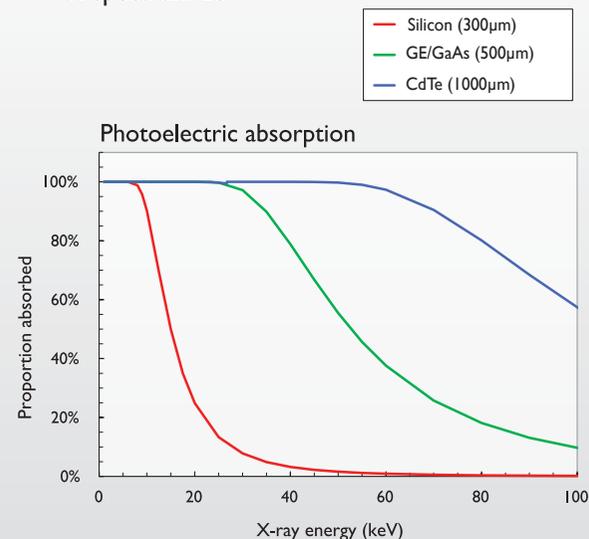
2 sizes
Available as 780k single module or as a 2.3M system.

3 types of sensors
Silicon, GaAs (75% QE at 40keV) or CdTe (75% QE at 80keV) as a sensor material.

For full specs and more information visit us at: www.x-spectrum.de

——	Silicon (300µm)
——	GE/GaAs (500µm)
——	CdTe (1000µm)

Photoelectric absorption

LAMBDA key features

The LAMBDA pixel detector is designed for high-end X-ray experiments, particularly at synchrotron sources. It achieves an extremely high image quality by combining effectively noise-free photon-counting operation with a small pixel size of 55 µm. For fast and time-resolved experiments, LAMBDA can be read out at up to 2000 frames per second with no time gap between images. LAMBDA cameras are available with more than 2.3 million pixels. LAMBDA is based on the **Medipix3** readout chip, which provides additional features such as energy binning for "colour imaging" applications.

Si, GaAs or CdTe sensors

The LAMBDA pixel detector is available with different sensor layers for different X-ray energy ranges. For hard X-ray detection, the GaAs and CdTe LAMBDA systems replace the standard silicon sensor layer in LAMBDA with a "high-Z" (high atomic number) sensor. This provides high quantum efficiency at high X-ray energies (75% QE at 40 keV for GaAs, 75% QE at 80 KeV for CdTe), while retaining single-photon-counting performance and a frame rate over 100 times higher than a standard flat-panel hard X-ray detector. For experiments below 20 keV, the standard silicon LAMBDA system is available.