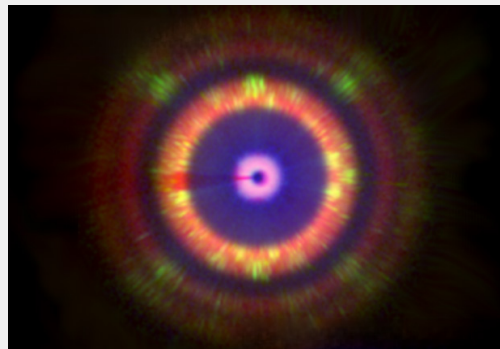


Application Fields

Biology Spectral Imaging

The high sensitivity of photon counting detectors to low energy photons makes them useful for imaging low X-ray attenuating objects (i.e. light objects, such as tissue.) Thus, these detectors are ideal for bio-related applications. The low X-ray energy sensitivity (starting from ~3 keV) together with the high dynamic range reveals features in samples that remain hidden to other types of X-ray imaging detectors.

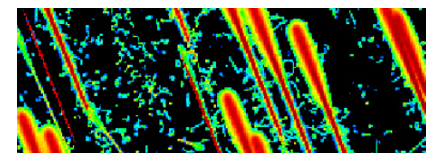


XRD and Crystallography

ADVACAM's spectral detectors based on Timepix3 chip with high resolution makes the diffraction system fast and compact. The sample analysis can be performed 100 times faster compared to the conventional systems. Due to fast speed of the analysis large areas of the sample can be analysed by scanning.

Charge particle tracking and space dosimetry

ADVACAM cameras are used in the International Space Station (ISS) to track charged particles and measure their energy deposited to study and surveil the radiation exposure that astronauts face in space.



Education

Students can explore variation of the air radioactivity during the day, hunt for cosmic muons and check their directions, see how altitude affects presence of radiation types. They can construct shielding and check the laws of radioactive decay. Students can directly observe how different radiation types interact with matter.



Photon Counting Detectors for NDT Applications



MINIPIX TPX3

Sensor Material:	Si or CdTe
Sensor Thickness:	100 µm, 300 µm and 500 µm for Si; 1 mm CdTe
Sensitive Area:	14 mm x 14 mm
Time Resolution:	1.6 ns
Readout Speed:	2.35 Million hits/s
Frame Rate:	16 fps
Number of pixels:	256 x 256
Pixel Pitch:	55 µm
Energy Resolution:	0.5-1 keV (Si) and 1.1-3.6 (CdTe)
Min Detectable Energy:	3 keV (Si) and 5 keV (CdTe)
Readout Chip:	Timepix3
Pixel Mode of Operation:	Time-over-Threshold, Time-of -Arrival
Connectivity:	USB 2.0
Weight:	30 g
Dimensions:	80 mm x 21 mm x 14 mm
Software:	Pixet Pro



ADVAPIX TPX3

Sensor Material:	Si or CdTe
Sensor Thickness:	100 µm, 300 µm and 500 µm for Si; 1 mm CdTe
Sensitive Area:	14 mm x 14 mm
Time Resolution:	1.6 ns
Readout Speed:	40 Million hits/s
Number of pixels:	256 x 256
Pixel Pitch:	55 µm
Energy Resolution:	1 keV
Min Detectable Energy:	3 keV for X-rays
Readout Chip:	Timepix3
Pixel Mode of Operation:	Time-over-Threshold, Time-of -Arrival
Connectivity:	USB 3.0 (Super-Speed)
Weight:	503 g
Dimensions:	125 mm x 79 mm x 25.5 mm
Software:	Pixet Pro

