

## **EIGER2 CdTe - Hybrid Photon Counting for a wide range of X-ray energies**

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Hybrid Photon Counting (HPC) allows for direct detection of X-rays in single-photon counting mode. HPC provides a number of benefits such as a sharp point-spread function, the absence of detector background, and the potential for high framing rates and excellent quantum efficiency.

EIGER2 embodies one of the most advanced application specific integrated circuits for HPC, providing cutting-edge and unique features. Dual-energy discrimination enables suppression of high-energy background from cosmic radiation or higher order harmonics. With a total of four digital counters per pixel, simultaneous read-write for high frames rate and optimal duty cycle can be used even in combination with dual-energy discrimination. DECTRIS Instant Retrigger achieves class-leading count-rate performance and provides best accuracy for measuring high intensities as well as superior dynamic range.

High-Z sensor materials enable high quantum efficiencies for high X-ray energies and are essential for bringing the benefits of HPC to hard X-ray applications. With PILATUS3 CdTe, DECTRIS pioneered the wide-spread and successful use of HPC technology in hard X-ray applications. Now, EIGER2 CdTe gives the hard X-ray community access to the benefits of the latest HPC technology.

This presentation outlines the features and advantages of EIGER2 CdTe and shows examples of the benefits of HPC with CdTe sensors.