

Low Noise Detectors for X-ray Applications

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The detection of electromagnetic radiation is important to answer many scientific questions. At the same time, it presents numerous challenges for scientific grade detectors. This is particular true for the detection of light in the UV, EUV and soft x-ray range of the electromagnetic spectrum. Key attributes such as low noise, high sensitivity, and high dynamic range are important to render a detector suitable. Based on a new and unique platform concept that we have developed, our detectors offer a portfolio of scientific cameras with vacuum interface for imaging and spectroscopy applications in the VUV, EUV, as well as soft and hard X-ray range. Incident photons are directly detected by the CCD sensor without an energy converter. Besides the precise measurement of high energy radiation, the detectors also exhibit a high sensitivity in the ranges NIR, VIS and UV as well. Example images can be found as figure 1 and figure 2 below.

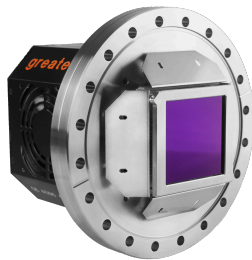


Figure 1



Figure 2

We here present several detectors and outline key functionality as well as potential applications. As the detectors provide a rich set of functionalities for flexible binning, various trigger and synchronization options, software selectable gain as well as advanced temperature monitoring of the sensor and the thermoelectric cooler, we would like to show that greateyes detectors can be used to master the most challenging experiments. In addition, we will share our vision and an outlook on future detection technology that will benefit x-ray scientists in the years to come.