Zyla - The Physicist’s Choice

Technical Article

Zyla sCMOS has become a well-established detector amongst physicists, biophysicists and astronomers, the advanced combination of speed, sensitivity and dynamic range enabling new ground to be broken.

sCMOS image courtesy of Jin Ma, Xinglong Observatory National Astronomical Observatory of Chinese Academy of Sciences

Performance and adaptability…

- **Dual Amplifier** – novel pixel architecture means you don’t need to pre-select gain. Access lowest read noise and full well depth simultaneously.
- **> 1000 fps** – Access extremely fast frame rates through user definable Region of Interest control, suited to many applications within the physical sciences.
- **Global Shutter** – Zyla 5.5 offers this important mode that completely avoids spatial distortion.
- **Low darkcurrent** – Low read noise is complimented by extremely competitive darkcurrent, also ensuring minimized hot pixel blemishes.
- **Cooling options** – Standard camera air cools to 0 0C up to +35 0C ambient. Water cooled option available on request.
- **Blemish correction maps and advanced control** – Upon request, Andor provide bespoke capability to turn off/on blemish correction, for those who prefer to perform this themselves. Blemish maps can be provided.
- **Compact and Light** – the extremely small volume footprint of Zyla renders it adaptable to intricate optical set-ups.
- **Direct data access** – intercept data directly for real time processing, for example in adaptive optics.

Example areas of application…

- **Lucky / Speckle Imaging** – Zyla’s fast frame rate and large field of view are ideal for this resolution enhancing technique.
- **Adaptive Optics** – Accessing > 1000 fps using ROIs renders the Zyla and ideal Wavefront detector. Use with data splitter to enable direct data access.
- **Solar Astronomy** – Fast frame rates, wide dynamic range and great linearity present a very formidable solution to the specific detector needs of next generation large solar telescopes.
- **Fluorescence Correlation Spectroscopy** – superb temporal resolution from small ROIs are excellent for accurately measuring diffusion coefficients.
- **Bose Einstein Condensation** – the QE profile of Zyla is very good in the red/NIR region, ideal for BEC of Rb.
- **X-ray / Neutron Tomography** – The Zyla can be readily lens coupled to scintillators and phosphors, presenting a high resolution, sensitive and fast solution for tomography.*
- **Blemish correction maps and advanced control** – Andor provide capability to turn off/on blemish correction, for those who prefer to perform this themselves. Bespoke blemish maps can be provided.

* Fiber-Optic coupled Zyla – please enquire for details on Andor’s new Fiber-Optic coupled Zyla, superb for fast indirect X-ray applications such as tomography.