**Direct Detector**

**Features**

- **Radiation hardened CMOS**: detector custom designed to withstand radiation from high energy particles and photons with as little dark current increase as possible.

- **Area detector**: 3k x 4k pixels, greater than 18 x 24mm in size.

- **High frame rate**: twenty-five frames per second full frame, and higher for smaller regions of interest possible.

- **Direct Detection** of high energy particles or photons allows the complete omission of a phosphor, scintillator or fiber optic for high resolution, distortion free acquisition of images.

- **Small 6 µm pixels** with a high fill factor allow film-like resolution; larger pixels available as well.

- **Counting mode**: sensor is capable of framing fast enough to count particle events at pixels and greatly increase signal to noise under low flux conditions.

- **Camera**: controlled via a client/server architecture using sockets communication; the SI provided server can be controlled by the user’s client, or by the intuitive GUI-based open-source client provided by SI.

- **Retractable** camera body available if necessary to remove detector from beam path for other experiments.

**Spectral Instruments** specializes in the design and manufacture of custom scientific cameras for challenging imaging requirements. Direct Detection will alter the paradigms of imaging with ionizing radiation where, until now, inefficient indirect methods were required. The CMOS sensor described here was custom designed to enhance the radiation hard characteristics of CMOS and allow direct detection of particles or photons that normally damage the silicon sensor causing increased dark current over time. Talk with SI to see how direct detection can help with your application.