IMPACT FACTOR 2.033

sensors

Special Issue Book

Photon-Counting Image Sensors

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Photon-counting image sensors represent a possible paradigm shift in solid-state image sensors. In these devices, photons are individually sensed and counted. To count photons, the devices must have high quantum efficiency, deep sub-electron read noise and the ability to read-out in digital form at high speed. This all-invited content from the top image sensor researchers around the world, reviews the state of the art of photon-counting image sensors in a variety of configurations, including CMOS image sensors and devices using avalanche multiplication, and for visible photons as well as higher energy photons such as ultraviolet and x-rays. New methods of creating image information from photon-counting image sensors is also described. This new emerging technology will have applications in low-light scientific imaging for aerospace and defense, and in the life sciences. It may also have applications in cryptography, communications, security cameras, 3D imaging and photography.

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