

ABSTRACT

POLARIZATION SELECTIVE, FREQUENCY SELECTIVE, AND WIDE DYNAMIC RANGE DETECTORS, IMAGING ARRAYS, READOUT INTEGRATED CIRCUITS, AND SENSOR SYSTEMS

This relates to sensor systems, detectors, imagers, and readout integrated circuits (ROICs) configured to selectively detect one or more frequencies or polarizations of light, capable of operating with a wide dynamic range, or any combination thereof. In some examples, the detector can include one or more light absorbers; the patterns and/or properties of a light absorber can be configured based on the desired measurement wavelength range and/or polarization direction. In some examples, the detector can comprise a plurality of at least partially overlapping light absorbers for enhanced dynamic range detection. In some examples, the detector can be capable of electrostatic tuning for one or more flux levels by varying the response time or sensitivity to account for various flux levels. In some examples, the ROIC can be capable of dynamically adjusting at least one of the frame rate integrating capacitance, and power of the illumination source.

[Figure 4F]