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Title: Measurements of Schottky-Diode Based THz Video Detectors.
Authors: Hairui Liu, Junsheng Yu, Peter Huggard and Byron Alderman.
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Abstract: Schottky barrier diodes have several advantages when used as millimetre wave and terahertz video, or power detectors. These include their inherent small physical size, a broadband spectral response, a sub-nanosecond response time and room temperature operation. This paper describes the use of air-bridged GaAs Schottky diodes, fabricated at the STFC Rutherford Appleton Laboratory, as such rectifying detectors. Incoming radiation is coupled to the forward biased diodes via a hemispherical silicon lens and a broadband planar bow-tie antenna: the rectified signal then passes to a low noise amplifier. A compact, high speed, photonic system, based on 1.55 μm wavelength fibre-optic telecoms components and a waveguide photomixer, provides the test signal. The spectral dependence of responsivity and noise performance of the detectors will be reported.
Keywords: Schottky diodes, THz, Detector