

Abstract Submitted
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Voltage Tunable, Plasmon Meditated Detection of THz Radiation WALTER BUCHWALD¹, Air Force Research Laboratory, ROBERT PEALE², JUSTIN CLEARY³, University of Central Florida — Resonant excitation of plasmons in the two dimensional electron gas, (2DEG), of a high electron mobility transistor provides a means to detect THz radiation. Because the allowed resonance is strongly dependant on the sheet charge concentration of the 2DEG, an external bias can be used to control the wavelength detected. This class of frequency agile THz detector is expected to find use in “spectrometer on a chip” applications where a simple voltage ramp can be used to alter the device response by over a 1 THz bandwidth. Because of its microelectronic type size and weight, as well as the potential for array fabrication, the device is believed suitable for satellite based THz imaging applications. Recent theoretical and experimental progress on the development of such a device will be discussed.

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