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Title:Asymmetric fabry-perot oscillations in metal grating-coupled terahertz quantum well photodetectors
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Abstract:Asymmetric Fabry-Perot oscillations are observed in a high-resolution photocurrent spectrum of a 1-D metal grating-coupled terahertz quantum well photodetector (THzQWP). This behavior is carefully studied through analysis of the field in the device obtained by the finite element method. It is found that such asymmetric oscillation is a pure near-field effect caused by the phase shift of the reflected wave at the grating surface. Our findings also indicate that, because of the long wavelength in the THz range, the near field properties of a microstructured surface could be extracted through the photocurrent measurement on a THzQWP. © 2012 IEEE.
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