271. Title: Metal-grating-coupled terahertz quantum-well photodetectors

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Abstract: Three terahertz (THz) GaAs/AlGaAs quantum-well photodetectors with different 1-D metal gratings are fabricated for front-incident detection of THz waves. Photocurrent spectra are acquired and compared with 45 ° incident facet samples (without grating), and peak responsivities are determined with a calibrated blackbody radiation source. The results show that these gratings can couple THz waves into detectors effectively, resulting in good detector responsivities. The modal method is employed to simulate the light coupling efficiency and the optimization conditions of the gratings.