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Title:A Compressed Terahertz Imaging Method
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Abstract:A compressed terahertz imaging method using a terahertz time domain spectroscopy system (THz-TDSS) is suggested and demonstrated. In the method, a parallel THz wave with the beam diameter 4cm from a usual THz-TDSS is used and a square shaped 2D echelon is placed in front of an imaged object. We confirm both in simulation and in experiment that only one terahertz time domain spectrum is needed to image the object. The image information is obtained from the compressed THz signal by deconvolution signal processing, and therefore the whole imaging time is greatly reduced in comparison with some other pulsed THz imaging methods. The present method will hopefully be used in real-time imaging.
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Inspec controlled terms:data compression - deconvolution - diffraction gratings - image coding - terahertz spectroscopy - terahertz wave imaging
Uncontrolled terms:compressed terahertz imaging method - terahertz time domain spectroscopy system - square shaped 2D echelon - image information - compressed terahertz signal - deconvolution signal processing - size 4 cm
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Numerical data indexing:size 4.0E-02 m
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