324. Title:Terahertz digital holography using angular spectrum and dual wavelength reconstruction methods

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Abstract:Terahertz digital off-axis holography is demonstrated using a Mach-Zehnder interferometer with a highly coherent, frequency tunable, continuous wave terahertz source emitting around 0.7 THz and a single, spatially-scanned Schottky diode detector. The reconstruction of amplitude and phase objects is performed digitally using the angular spectrum method in conjunction with Fourier space filtering to reduce noise from the twin image and DC term. Phase unwrapping is achieved using the dual wavelength method, which offers an automated approach to overcome the 2π phase ambiguity. Potential applications for nondestructive test and evaluation of visually opaque dielectric and composite objects are discussed.