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Accession number:20122915253453

Title:Quantitative coherent scattering spectra in apertureless terahertz pulse near-field microscopes

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Source title:Applied Physics Letters

Abbreviated source title:Appl Phys Lett

Volume:101

Issue:1

Issue date:July 2, 2012

Publication year:2012

Article number:011109

Language:English

ISSN:00036951

CODEN:APPLAB

Document type:Journal article (JA)

Publisher:American Institute of Physics, 2 Huntington Quadrangle, Suite N101, Melville, NY 11747-4502, United States

Abstract:We present quantitative coherent measurements of scattering pulses and spectra in terahertz apertureless near-field microscopes. Broadband near-field image contrasts for both amplitude and phase spectra are measured directly from time-domain scattering signals with an unprecedentedly high single-scan signal-to-noise ratio (~ 48 dB), with approach curves for both short (200 nm) and long (up to 82 μm) ranges. By using the line dipole image method, we obtain quantitative broadband THz imaging contrasts with nanoscale resolution. \copyright 2012 American Institute of Physics.

Number of references:32

Main heading:Coherent scattering

Controlled terms:Time domain analysis

Uncontrolled terms:Approach curve - Coherent measurement - Image method - Nanoscale resolutions - Near-field - Near-field images - Phase spectra - Scattering signals - Tera Hertz - Terahertz pulse - THz imaging - Time domain

Classification code:711 Electromagnetic Waves - 921 Mathematics

DOI:10.1063/1.4733475

Database:Compendex

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