29
Accession number:20123715427505
Title:Terahertz imaging of inhomogeneous electrodynamics in single-layer graphene embedded in dielectrics
Authors:Paul, M.J. (1); Tomaino, J.L. (1); Kevek, J.W. (2); Deborde, T. (1); Thompson, Z.J. (1); Minot, E.D. (1); Lee, Yun-Shik (1)
Author affiliation:(1) Department of Physics, Oregon State University, Corvallis, OR 97331-6507, United States; (2) Laboratory of Atomic and Solid-State Physics, Cornell University, Ithaca, NY 14853, United States
Corresponding author:Paul, M.J.
Source title:Applied Physics Letters
Abbreviated source title:Appl Phys Lett
Volume:101
Issue:9
Issue date:August 27, 2012
Publication year:2012
Article number:091109
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 investigate electron transport properties in large-area, single-layer graphene embedded in dielectric media, using free-space terahertz (THz) imaging and time-domain spectroscopy. Sandwiched between a thin polymethyl methacrylate (PMMA) layer and a Si substrate, graphene layers of different growth recipes exhibit distinctive spatial inhomogeneity of sheet conductivity. The non-contacting, non-destructive THz probe reveals that the PMMA layer induces a small, yet noticeable reduction in conductivity. © 2012 American Institute of Physics.
Number of references:20
Main heading:Graphene
Controlled terms:Dielectric materials - Electron transport properties
Uncontrolled terms:Dielectric media - Graphene layers - Non destructive - Si substrates - Single layer - Spatial in-homogeneity - Terahertz imaging - Time domain spectroscopy
Classification code:708.1 Dielectric Materials - 761 Nanotechnology - 804 Chemical Products Generally - 932 High Energy Physics; Nuclear Physics; Plasma Physics
DOI:10.1063/1.4749280
Database:Compendex