293
Accession number:20125215839942
Title:Non-Drude terahertz conductivity in nanomaterials: Overview and applications to nanosilicon and nanogold
Authors:Shimakawa, K. (1); Itoh, T. (1); Naito, H. (3); Kasap, S.O. (4)
Author affiliation:(1) Center of Innovative Photovoltaic Systems, Gifu University, Gifu, Japan; (2) Nagoya Industrial Science Research Institute, Nagoya, Japan; (3) Department of Physical Electronics, Osaka Prefecture University, Sakai, Japan; (4) Department of Electrical Engineering, University of Saskatchewan, Saskatoon, Canada
Corresponding author:Shimakawa, K.(koichi@gifu-u.ac.jp)
Source title:Physica Status Solidi (C) Current Topics in Solid State Physics
Abbreviated source title:Phys. Status Solidi C Curr. Top. Solid State Phys.
Volume:9
Issue:12
Issue date:December 2012
Publication year:2012
Pages:2602-2605
Language:English
ISSN:18626351
E-ISSN:16101642
Document type:Journal article (JA)
Publisher:Wiley-VCH Verlag, P.O. Box 101161, Weinheim, D-69451, Germany
Abstract:It is shown that a series sequence of transport involving grains and grain boundaries produces non-Drude THz conductivity in nanomaterials. The present model represents a different point of view than the well accepted Drude-Smith model. In this paper we review and describe how the complex conductivity is calculated and the real and imaginary parts of THz conductivity are obtained. We use two examples: nanoporous Si and nanogold. © 2012 WILEY-VCH Verlag GmbH & Co. KGaA, Weinheim.
Number of references:25
Main heading:Nanostructured materials
Controlled terms:Grain boundaries
Uncontrolled terms:Complex conductivity - Imaginary parts - Nano-gold - Nano-porous - Nano-silicon - Tera Hertz
Classification code:761 Nanotechnology - 933.1 Crystalline Solids
DOI:10.1002/pssc.201200424
Database:Compendex
Compilation and indexing terms, Copyright 2012 Elsevier Inc.