303.
Accession number:20113614313179
Title:THz dielectric anisotropy of metal slanted columnar thin films
Authors:Hofmann, T. (1); Schmidt, D. (1); Boosalis, A. (1); Khne, P. (1); Skomski, R. (2); Herzinger, C.M. (3); Woollam, J.A. (3); Schubert, M. (1); Schubert, E. (1)
Author affiliation:(1) Department of Electrical Engineering, Nebraska Center for Materials and Nanoscience, University of Nebraska-Lincoln, Lincoln, NE 68588-0511, United States; (2) Department of Physics and Astronomy, Nebraska Center for Materials and Nanoscience, University of Nebraska-Lincoln, Lincoln, NE 68588-0511, United States; (3) J.A. Woollam Co. Inc., 645 M Street, Lincoln, NE 68508-2243, United States
Corresponding author:Hofmann, T.(thofmann@engr.unl.edu)
Source title:Applied Physics Letters
Abbreviated source title:Appl Phys Lett
Volume:99
Issue:8
Issue date:August 22, 2011
Publication year:2011
Article number:081903
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:The anisotropic optical dielectric functions of a metal (cobalt) slanted columnar thin film deposited by electron-beam glancing angle deposition are reported for the terahertz (THz) frequency domain using generalized spectroscopic ellipsometry. We employ a simple effective medium dielectric function homogenization approach to describe the observed optical response. The approach describes isolated, electrically conductive columns which render the thin film biaxial (orthorhombic). Our findings suggest controlled variability of dielectric polarizability and anisotropy in the THz spectral range by choice of geometry, material, and structure.
Number of references:23