357
Accession number:20122915253134
Title:T-ray topography by time-domain polarimetry
Authors:Yasumatsu, Naoya (1); Watanabe, Shinichi (1)
Author affiliation:(1) Department of Physics, Faculty of Science and Technology, Keio University, 3-14-1 Hiyoshi, Kohoku-ku, Yokohama, Kanagawa 223-8522, Japan
Corresponding author:Watanabe, S.(watanabe@phys.keio.ac.jp)
Source title:Optics Letters
Abbreviated source title:Opt. Lett.
Volume:37
Issue:13
Issue date:July 1, 2012
Publication year:2012
Pages:2706-2708
Language:English
ISSN:01469592
E-ISSN:15394794
CODEN:OPLEDP
Document type:Journal article (JA)
Publisher:Optical Society of America, 2010 Massachusetts Avenue NW, Washington, DC 20036-1023, United States
Abstract:We demonstrate a method for substantially improving the axial resolution of terahertz time-of-flight measurements by analyzing the time-dependent polarization direction of an elliptically polarized single-cycle terahertz electromagnetic (T-ray) pulse. We show that, at its most sensitive, the technique has an axial resolution of ˜/1000 (<1 μm) with a subsecond measurement time, and very clear T-ray topographic images are obtained. Such a very high axial resolution of the T-ray topography opens the way for novel industrial and biomedical applications such as fine metalworking and corneal inspection in a safe manner. © 2012 Optical Society of America.
Number of references:13
Main heading:Time domain analysis
Controlled terms:Medical applications
Uncontrolled terms:Axial resolutions - Biomedical applications - Measurement time - Polarization direction - Single cycle - Tera Hertz - Time domain - Time of flight measurements - Time-dependent - Topographic images
Classification code:461.1 Biomedical Engineering - 921 Mathematics
DOI:10.1364/OL.37.002706
Database:Compendex