132
Accession number:20122915253191
Title:Terahertz emission from a metallic surface induced by a femtosecond optic pulse
Authors:Suvorov, E.V. (1); Akhmedzhanov, R.A. (1); Fadeev, D.A. (1); Ilyakov, I.E. (1); Mironov, V.A. (1); Shishkin, B.V. (1)
Author affiliation:(1) Institute of Applied Physics Russian Academy of Sciences, 46 Ul'yanov Street, Nizhny Novgorod, 603950, Russia
Corresponding author:Fadeev, D.A.(fadey@appl.sci-nnov.ru)
Source title:Optics Letters
Abbreviated source title:Opt. Lett.
Volume:37
Issue:13
Issue date:July 1, 2012
Publication year:2012
Pages:2520-2522
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:Results of experimental and theoretical investigations on generation of terahertz radiation at the interaction of femtosecond laser pulses with a metal surface are presented. Investigations are performed with the laser pulse intensities higher compared with that used in papers [Opt. Lett. 29, 2674 (2004); Opt. Lett. 30, 1402 (2005)]. The most effective generation is observed for p-polarized optical pulses with incidence angles in the range 5°-10° (from the surface), depending on the kind of metal. For the copper, the exponential growth of terahertz pulse energy with the increase of optical pulse energy was registered. Theoretical interpretation for some of the experimental results is proposed based on the model of free electrons in metal. © 2012 Optical Society of America.
Number of references:13
Main heading:Terahertz waves
Controlled terms:Optics - Optoelectronic devices
Uncontrolled terms:Exponential growth - Femtosecond optics - Free electron - Incidence angles - Laser pulse intensity - Metal surfaces - Metallic surface - Optical pulse energy - P-polarized - Terahertz emissions - Terahertz pulse - Terahertz radiation - Theoretical investigations
Classification code:711 Electromagnetic Waves - 741.1 Light/Optics - 741.3 Optical Devices and Systems
DOI:10.1364/OL.37.002520
Database:Compendex