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Accession number:20113414251277
Title:Directionality of terahertz emission from photoinduced gas plasmas
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Source title:Optics Letters
Abbreviated source title:Opt. Lett.
Volume:36
Issue:16
Issue date:August 15, 2011
Publication year:2011
Pages:3166-3168
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:Forward and backward terahertz emission by ionizing two-color laser pulses in gas is investigated by means of a simple semianalytical model based on Jefimenko's equations and rigorous Maxwell simulations in one and two dimensions. We find the emission in the backward direction has a much smaller spectral bandwidth than in the forward direction and explain this by interference effects. Forward terahertz radiation is generated predominantly at the ionization front and is thus almost not affected by the opacity of the plasma, in excellent agreement with results obtained from a unidirectional pulse propagation model.
Number of references:12