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Accession number:20112814130471
Title:Percolation-enhanced generation of terahertz pulses by optical rectification on ultrathin gold films
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Source title:Optics Letters
Abbreviated source title:Opt. Lett.
Volume:36
Issue:13
Issue date:July 1, 2011
Publication year:2011
Pages:2572-2574
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:Emission of pulses of electromagnetic radiation in the terahertz range is observed when ultrathin gold films on glass are illuminated with femtosecond near-IR laser pulses. A distinct maximum is observed in the emitted terahertz amplitude from films of average thickness just above the percolation threshold. Our measurements suggest that the emission is through a second-order nonlinear optical rectification process, enhanced by the excitation of localized surface plasmon hot spots on the percolated metal film.
Number of references:18