

5

Accession number:20115014593221

Title:Nanostructured plasmonic medium for terahertz bandwidth all-optical switching

Authors:Ren, Mengxin (1); Jia, Baohua (3); Ou, Jun-Yu (1); Plum, Eric (1); Zhang, Jianfa (1); MacDonald, Kevin F. (1); Nikolaenko, Andrey E. (1); Xu, Jingjun (2); Gu, Min (3); Zheludev, Nikolay I. (1)

Author affiliation:(1) Optoelectronics Research Centre, Centre for Photonic Metamaterials, University of Southampton, SO17 1BJ, United Kingdom; (2) Key Laboratory of Weak Light Nonlinear Photonics, Nankai University, Tianjin 300457, China; (3) Center for Micro-Photonics and CUDOS, Swinburne University of Technology, VIC 3122, Australia

Corresponding author:Plum, E.(erp@orc.soton.ac.uk)

Source title:Advanced Materials

Abbreviated source title:Adv Mater

Volume:23

Issue:46

Issue date:December 8, 2011

Publication year:2011

Pages:5540-5544

Language:English

ISSN:09359648

E-ISSN:15214095

CODEN:ADVMEW

Document type:Journal article (JA)

Publisher:Wiley-VCH Verlag, Buhringstrasse 10, Berlin, D-13086, Germany

Abstract:Periodic nanostructuring can enhance the optical nonlinearity of plasmonic metals by several orders of magnitude. By patterning a gold film, the largest sub-100 femtosecond nonlinearity is achieved, which is suitable for terahertz rate all-optical data processing as well as ultrafast optical limiters and saturable absorbers.

Number of references:36