299
Accession number:20125115826456
Title:Slowing down the speed of terahertz guiding modes of a metal air-gap waveguide by using a coupled plasmonic cavity
Authors:Lee, Sun-Goo (1); Su Lee, Eui (2); Jeon, Tae-In (2); Kee, Chul-Sik (1)
Author affiliation:(1) Nanophotonics Laboratory, Advanced Photonics Research Institute, GIST, Gwangju 500-712, Korea, Republic of; (2) Division of Electrical and Electronics Engineering, Korea Maritime University, Busan 606-791, Korea, Republic of; (3) Center for Subwavelength Optics, Seoul 151-747, Korea, Republic of
Corresponding author:Jeon, T.-I.(jeon@hhu.ac.kr)
Source title:Journal of Applied Physics
Abbreviated source title:J Appl Phys
Volume:112
Issue:11
Issue date:December 1, 2012
Publication year:2012
Article number:113114
Language:English
ISSN:00218979
CODEN:JAPIAU
Document type:Journal article (JA)
Publisher:American Institute of Physics, 2 Huntington Quadrangle, Suite N101, Melville, NY 11747-4502, United States
Abstract:We present numerical and experimental demonstration of slowing down the speed of terahertz guiding modes of a metal air-gap waveguide by using a one-dimensional coupled plasmonic cavity. The speed of terahertz guiding modes gets slower as a distance between metal plates of the waveguide decreases because the coupling strength between cavities gets weaker as the distance decreases. The coupled plasmonic cavities in a metal air-gap waveguide could be useful in enhancing the interaction between the guiding modes and matters and manipulating terahertz waves in a time domain. © 2012 American Institute of Physics.
Number of references:29
Main heading:Waveguides
Controlled terms:Plasmons - Terahertz waves
Uncontrolled terms:Air-gaps - Coupling strengths - Guiding mode - Metal plates - Plasmonic - Tera Hertz - Time domain
Classification code:711 Electromagnetic Waves - 712.1 Semiconducting Materials - 714.3 Waveguides
DOI:10.1063/1.4768916
Database:Compendex
Compilation and indexing terms, Copyright 2012 Elsevier Inc.