743. 标题: THz gas sensor based on one-dimensional photonic crystal
作者: Liu, PG (Liu, Pingan); He, JL (He, Jinlong); He, YL (He, Yalan); Hong, Z (Hong, Zhi)
编者: Yao J; Zhang XC; Yan D; Liu J
来源出版物: PHOTONICS AND OPTOELECTRONICS MEETINGS (POEM) 2011: LASER AND TERAHERTZ SCIENCE AND TECHNOLOGY??丛书: Proceedings of SPIE??卷: 8330??文献号: 833011??DOI: 10.1117/12.919002??出版年: 2012??
在 Web of Science 中的被引频次: 0
被引频次合计: 0
引用的参考文献数: 10
摘要: We proposed a sensitive gas sensor based on one dimensional photonic crystal (1D-PC) cavity in terahertz frequency range. The cavity Consists of stacks of high-resistivity silicon layers and air spacers, and has a very high quality factor exceeding 1200. The defect modes are very sensitive to the small change of the refractive index of materials in the cavity. The resonant mode shifts about 34MHz when the air in cavity is replace by CO2. Such shift of frequency is attributed to the refractive index change of air in the cavity. The frequency shifts for different ratio mixture of air and CO2 are also measured. Thus, the cavity can be used to measure components ratio of mixed gas.
入藏号: WOS:000304667100034
语种: English
文献类型: Proceedings Paper
会议名称: 4th International Photonics and Optoelectronics Meetings (POEM) - Laser and Terahertz Science and Technology/10th International Conference on Photonics and Imaging in Biology and Medicine (PIBM)
会议日期: NOV 02-05, 2011
会议地点: Wuhan, PEOPLES R CHINA
会议赞助商 : Wuhan Natl Lab Optoelect, Huazhong Univ Sci & Technol, China Hubei Prov Sci & Technol Dept, Wuhan E Lake Natl Innovat Model Zone (Opt Valley China, OVC), Opt Soc, Hubei Prov Foreign Experts Affairs Bur, Natl Nat Sci Fdn Comm (NNSFC)
作者关键词: Terahertz; gas sensor; photonic crystal; cavity
KeyWords Plus: TERAHERTZ
地址: [Liu, Pingan; He, Jinlong; He, Yalan; Hong, Zhi] China Jiliang Univ, Ctr Terahertz Res, Hangzhou 310018, Zhejiang, Peoples R China
通讯作者地址: Liu, PG (通讯作者),China Jiliang Univ, Ctr Terahertz Res, Hangzhou 310018, Zhejiang, Peoples R China
电子邮件地址: JLhe@cjlu.edu.cn
出版商: SPIE-INT SOC OPTICAL ENGINEERING
出版商地址: 1000 20TH ST, PO BOX 10, BELLINGHAM, WA 98227-0010 USA
Web of Science 分类: Optics
学科类别: Optics
IDS 号: BAM23
ISSN: 0277-786X
ISBN: 978-0-8194-8987-6
29 字符的来源出版物名称缩写: PROC SPIE
来源出版物页码计数: 5