715
标题: Portable terahertz spectrometer with InP related semiconductor photonic devices
作者: Park, KH (Park, Kyung Hyun); Kim, N (Kim, Namje); Ko, H (Ko, Hyunsung); Ryu, HC (Ryu, Han-Cheol); Park, JW (Park, Jung-Woo); Han, SP (Han, Sang-Pil); Jeon, MY (Jeon, Min Yong)
编者: Sadwick LP; OSullivan CM
来源出版物: TERAHERTZ TECHNOLOGY AND APPLICATIONS V??丛书: Proceedings of SPIE??卷: 8261??文献号: 826103??DOI: 10.1117/12.907629??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: 16
摘要: We demonstrate several optical beating sources based on 1.55 mu m photonic devices. Broadband antenna-integrated, low-temperature-grown (LTG) InGaAs photomixers for widely tunable continuous-wave THz generation and detection are also verified. The novel optical beat sources show a beat frequency tuning range from 0.3THz to over 1.34 THz. The dual-mode laser diode (DML) consists of one phase and two active sections. Micro-heaters are used to independently tune the wavelengths of the two DML laser modes. Broadband antenna-integrated, LTG InGaAs photomixers are used as THz wave generators and detectors. This use of 1.55 mu m photonic devices could connect current THz and InP-based communication technologies because the well-developed InP-based optoelectronic technologies are already expected to enable the integration of tunable LD sources with other optical components such as semiconductor optical amplifiers (SOAs), electro-absorption modulators, and waveguide-type THz photomixers. As well as realizing an optical fiber-coupled THz time-domain spectroscopy (TDS) system, we also successfully achieved continuous frequency tuning of the CW THz emissions. Our results show that photomixing using the photonic devices is a promising approach to realize compact, cost-effective, and portable THz spectrometer.
入藏号: WOS:000305073700003
语种: English
文献类型: Proceedings Paper
会议名称: Conference on Terahertz Technology and Applications V
会议日期: JAN 25-26, 2012
会议地点: San Francisco, CA
会议赞助商 : SPIE
作者关键词: CW Terahertz; Semiconductor Laser; Photomixer
KeyWords Plus: GENERATION
地址: [Park, Kyung Hyun; Kim, Namje; Ko, Hyunsung; Ryu, Han-Cheol; Park, Jung-Woo; Han, Sang-Pil] ETRI, THz Photon Creat Res Ctr, Taejon 305700, South Korea
通讯作者地址: Park, KH (通讯作者),ETRI, THz Photon Creat Res Ctr, Taejon 305700, South Korea
电子邮件地址: khp@etri.re.kr
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: BAP69
ISSN: 0277-786X
ISBN: 978-0-8194-8904-3
29 字符的来源出版物名称缩写: PROC SPIE
来源出版物页码计数: 10