824
标题: InAs/GaAs quantum dots for THz generation
作者: Daghestani, NS (Daghestani, N. S.); Cataluna, MA (Cataluna, M. A.); Berry, G (Berry, G.); Ross, G (Ross, G.); Rose, MJ (Rose, M. J.)
编者: Walther M
来源出版物: PHYSICA STATUS SOLIDI C: CURRENT TOPICS IN SOLID STATE PHYSICS, VOL 9, NO 2??丛书: Physica Status Solidi C-Current Topics in Solid State Physics??卷: 9??期: 2??DOI: 10.1002/pssc.201100253??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 report pulsed terahertz generation from InAs/GaAs quantum-dot based photoconductive devices. For 800 nm optical excitation, the dots act as recombination centres for carriers generated in the GaAs layers. Using photoreflective pump-probe measurements we demonstrate that the photogenerated carrier lifetime decreases when a lateral bias is applied. This can be attributed to an increase in the capture area of the dots when under bias. Two types of antenna metallization were investigated; non-Ohmic, and quasi-Ohmic contacts. Non-Ohmic antennae displayed resilience to Joule heating when operated at a field strength of 46 MV/m. The breakdown field of the devices was 48 MV/m, which is comparable to the breakdown field of bulk GaAs (similar to 50 MV/m). The maximum estimated infrared-to-THz conversion efficiency is similar to 1x10(-5).

入藏号: WOS:000301540900017
语种: English
文献类型: Proceedings Paper
会议名称: 38th International Symposium on Compound Semiconductors (ISCS)/23rd International Conference on Indium Phosphide and Related Materials (IPRM)/Compound Semiconductor Week
会议日期: MAY 22-26, 2011
会议地点: Berlin, GERMANY
会议赞助商 : IEEE, IEEE Photon Soc, European Photon Ind Consortium, Laytec, u2t Photon, AXT Inc, CS Clean Syst, Dockweiler Chem GmbH, Renatech
作者关键词: terahertz generation; ultrafast processes in semiconductors; quantum confined materials
KeyWords Plus: SPECTROSCOPY
地址: [Daghestani, N. S.; Cataluna, M. A.; Berry, G.; Rose, M. J.] Univ Dundee, Sch Engn Phys & Math, Carnegie Lab Phys, Dundee DD1 4HN, Scotland
通讯作者地址: Daghestani, NS (通讯作者),Univ Dundee, Sch Engn Phys & Math, Carnegie Lab Phys, Dundee DD1 4HN, Scotland
电子邮件地址: n.daghestani@dundee.ac.uk
出版商: WILEY-V C H VERLAG GMBH
出版商地址: PAPPELALLEE 3, W-69469 WEINHEIM, GERMANY
Web of Science 分类: Physics, Applied
学科类别: Physics
IDS 号: BZG62

ISSN: 1862-6351
29 字符的来源出版物名称缩写: PHYS STATUS SOLIDI C
来源出版物页码计数: 4