190
标题: Ultrabroadband terahertz conductivity of Si nanocrystal films
作者: Cooke, DG (Cooke, D. G.); Meldrum, A (Meldrum, A.); Jepsen, PU (Jepsen, P. Uhd)
来源出版物: APPLIED PHYSICS LETTERS 卷: 101 期: 21 文献号: 211107 DOI: 10.1063/1.4767145 出版年: NOV 19 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: 25
摘要: The terahertz conductivity of silicon nanoparticles embedded in glass with varying density is studied with ultra-broadband terahertz spectroscopy on picosecond time scales following fs optical excitation. The transition from relatively isolated charge carriers to densities which allow inter-particle transport is clearly observed. For the times immediately following carrier injection, we observe Drude-like long range transport that is rapidly replaced with a localized response on picosecond time scales. The localized response can be very well described by a phenomenological Drude-Smith model, verifying the applicability of this simple model to the conductivity of nanoparticle ensembles over the entire THz spectral window. (C) 2012 American Institute of Physics. [http://dx.doi.org/10.1063/1.4767145]
入藏号: WOS:000311477600007
语种: English
文献类型: Article
KeyWords Plus: TIME-DOMAIN SPECTROSCOPY; THIN-FILMS; SILICON
地址: [Cooke, D. G.] McGill Univ, Dept Phys, Montreal, PQ H3A 2T8, Canada
[Meldrum, A.] McGill Univ, Dept Phys, Edmonton, AB T6G 2M9, Canada
[Jepsen, P. Uhd] Tech Univ Denmark, Dept Photon Engn, DK-2800 Lyngby, Denmark
通讯作者地址: Cooke, DG (通讯作者),McGill Univ, Dept Phys, 3600 Univ St, Montreal, PQ H3A 2T8, Canada.
电子邮件地址: cooke@physics.mcgill.ca
出版商: AMER INST PHYSICS
出版商地址: CIRCULATION & FULFILLMENT DIV, 2 HUNTINGTON QUADRANGLE, STE 1 N O 1, MELVILLE, NY 11747-4501 USA
Web of Science 类别: Physics, Applied
研究方向: Physics
IDS 号: 042NJ
ISSN: 0003-6951
29 字符的来源出版物名称缩写: APPL PHYS LETT
ISO 来源出版物缩写: Appl. Phys. Lett.
来源出版物页码计数: 4