

477.

标题: Influence of terahertz pulse width on two-dimensional terahertz spectroscopy

作者: Li, HQ (Li, Huquan); Liu, JS (Liu, Jinsong); Wang, KJ (Wang, Kejia); Yang, ZG (Yang, Zhengang); Du, ZM (Du, Zeming)

来源出版物: JOURNAL OF MODERN OPTICS 卷: 59 期: 10 页: 923-929 DOI: 10.1080/09500340.2012.679708 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: 30

摘要: The influence of the width of terahertz (THz) pulses on two-dimensional THz spectroscopy (2DTS) has been studied theoretically via a classical method in which the expressions for the second-order nonlinear polarizations with different nonlinear sources are derived by using a perturbation approach. Compared to the common disposal method in which the THz pulse is treated as a delta function, some terms that were of unknown physical meaning or vanished will come into force when the width is considered. Three types of nonlinear sources, i.e. anharmonicity, nonlinear damping and nonlinear coupling, are considered for a single mode system. The simulation results demonstrate that the width of the incident THz pulse can markedly affect the properties of 2DTS and that different sources have different influences. This study reveals a more practical insight for 2DTS and could provide much information, such as the optimal width and interval of THz pulses, to guide possible future experiments.

入藏号: WOS:000303657400009

语种: English

文献类型: Article

作者关键词: two-dimensional terahertz spectroscopy; pulse width; classical method; perturbative method

KeyWords Plus: VIBRATIONAL SPECTROSCOPY; RAMAN-SPECTROSCOPY; ENHANCEMENT; GENERATION; LIQUIDS; SYSTEM

地址: [Li, Huquan; Liu, Jinsong; Wang, Kejia; Yang, Zhengang; Du, Zeming] Huazhong Univ Sci & Technol, Wuhan Natl Lab Optoelect, Sch Optoelect Sci & Engn, Wuhan 430074, Peoples R China

通讯作者地址: Liu, JS (通讯作者), Huazhong Univ Sci & Technol, Wuhan Natl Lab Optoelect, Sch Optoelect Sci & Engn, Wuhan 430074, Peoples R China

电子邮件地址: jslu4508@vip.sina.com

出版商: TAYLOR & FRANCIS LTD

出版商地址: 4 PARK SQUARE, MILTON PARK, ABINGDON OX14 4RN, OXON, ENGLAND

Web of Science 分类: Optics

学科类别: Optics

IDS 号: 937KM

ISSN: 0950-0340

29 字符的来源出版物名称缩写: J MOD OPTIC

ISO 来源出版物缩写: J. Mod. Opt.

来源出版物页码计数: 7