136
标题: Interferometric background reduction for femtosecond stimulated Raman scattering loss spectroscopy
作者: Dobner, S (Dobner, Sven); Cleff, C (Cleff, Carsten); Fallnich, C (Fallnich, Carsten); Gross, P (Gross, Petra)
来源出版物: JOURNAL OF CHEMICAL PHYSICS 卷: 137 期: 17 文献号: 174201 DOI: 10.1063/1.4764865 出版年: NOV 7 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: 21
摘要: We present a purely optical method for background suppression in nonlinear spectroscopy based on linear interferometry. Employing an unbalanced Sagnac interferometer, an unprecedented background reduction of 17 dB over a broad bandwidth of 60 THz (2000 cm(-1)) is achieved and its application to femtosecond stimulated Raman scattering loss spectroscopy is demonstrated. Apart from raising the signal-to-background ratio in the measurement of the Raman intensity spectrum, this interferometric method grants access to the spectral phase of the resonant chi((3)) contribution. The spectral phase becomes apparent as a dispersive lineshape and is reproduced numerically with a simple oscillator model. (C) 2012 American Institute of Physics. [http://dx.doi.org/10.1063/1.4764865]
入藏号: WOS:000310854000017
语种: English
文献类型: Article
作者关键词: high-speed optical techniques; light interferometry; Raman spectra; Sagnac interferometers
KeyWords Plus: SAGNAC INTERFEROMETER; MICROSCOPY; LASER; SENSITIVITY; TRANSITION
地址: [Dobner, Sven; Cleff, Carsten; Fallnich, Carsten; Gross, Petra] Univ Munster, Inst Appl Phys, D-48149 Munster, Germany
通讯作者地址: Dobner, S (通讯作者),Univ Munster, Inst Appl Phys, Corrensstr 2, D-48149 Munster, Germany.
电子邮件地址: s.dobner@wwu.de
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, Atomic, Molecular & Chemical
研究方向: Physics
IDS 号: 034EU
ISSN: 0021-9606
29 字符的来源出版物名称缩写: J CHEM PHYS
ISO 来源出版物缩写: J. Chem. Phys.
来源出版物页码计数: 5