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标题: Evidence for interlayer electronic coupling in multilayer epitaxial graphene from polarization-dependent coherently controlled photocurrent generation
作者: Sun, D (Sun, Dong); Rioux, J (Rioux, Julien); Sipe, JE (Sipe, J. E.); Zou, Y (Zou, Yang); Mihnev, MT (Mihnev, Momchil T.); Berger, C (Berger, Claire); de Heer, WA (de Heer, Walt A.); First, PN (First, Phillip N.); Norris, TB (Norris, Theodore B.)
来源出版物: PHYSICAL REVIEW B 卷: 85 期: 16 文献号: 165427 DOI: 10.1103/PhysRevB.85.165427 出版年: APR 13 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: 36
摘要: Most experimental studies to date of multilayer epitaxial graphene on C-face SiC have indicated that the electronic states of different layers are decoupled as a consequence of rotational stacking. We have measured the third-order nonlinear tensor in epitaxial graphene as a novel approach to probe interlayer electronic coupling, by studying THz emission from coherently controlled photocurrents as a function of the optical pump and THz beam polarizations. We find that the polarization dependence of the coherently controlled THz emission expected from perfectly uncoupled layers, i.e. a single graphene sheet, is not observed. We hypothesize that the observed angular dependence arises from weak coupling between the layers; a model calculation, treating the interlayer coupling as bilayer coupling with variable strength, qualitatively reproduces the polarization angular dependence, providing evidence for coupling.
入藏号: WOS:000302798600004
语种: English
文献类型: Article
KeyWords Plus: FEW-LAYER GRAPHENE; CARBON NANOTUBES; GRAPHITE
地址: [Sun, Dong; Zou, Yang; Mihnev, Momchil T.; Norris, Theodore B.] Univ Michigan, Ctr Ultrafast Opt Sci, Ann Arbor, MI 48109 USA
[Rioux, Julien; Sipe, J. E.] Univ Toronto, Dept Phys, Toronto, ON M5S 1A7, Canada
[Berger, Claire; de Heer, Walt A.; First, Phillip N.] Georgia Inst Technol, Sch Phys, Atlanta, GA 30332 USA
[Zou, Yang] Univ Sci & Technol China, Key Lab Quantum Informat, Hefei 230026, Peoples R China
通讯作者地址: Norris, TB (通讯作者),Univ Michigan, Ctr Ultrafast Opt Sci, Ann Arbor, MI 48109 USA
电子邮件地址: tnorris@eecs.umich.edu
出版商: AMER PHYSICAL SOC
出版商地址: ONE PHYSICS ELLIPSE, COLLEGE PK, MD 20740-3844 USA
Web of Science 分类: Physics, Condensed Matter
学科类别: Physics
IDS 号: 925YN
ISSN: 1098-0121
29 字符的来源出版物名称缩写: PHYS REV B
ISO 来源出版物缩写: Phys. Rev. B
来源出版物页码计数: 4