690.
标题: Photoinduced coherent acoustic-phonons in Fe/Si film
作者: Zhang, ZB (Zhang Zheng-Bing); Ma, XB (Ma Xiao-Bai); Jin, ZM (Jin Zuan-Ming); Ma, GH (Ma Guo-Hong); Yang, JB (Yang Jin-Bo)
来源出版物: ACTA PHYSICA SINICA 卷: 61 期: 9 文献号: 097401 出版年: MAY 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: 28
摘要: High frequency coherent acoustic-phonons are excited in Fe/Si film by using femtosecond pump-probe technique. The dynamics of coherent acoustic-phonons can be fitted well to a classical damped harmonic function. The frequency and the dephasing time of the observed acoustic-phonons are 0.25 THz and 12 ps, respectively, which are independent of pumping photo-energy and fluence. Moreover, the amplitude of the coherent acoustic-phonons is linearly proportional to the fluence. The critical parameter (12 tau(e-ph)/T) is calculated to be about 0.6, which indicates that the electron pressure might play a significant role in driving coherent acoustic phonons. The thickness and the mass density of the film are required to determine the out-of-plane elastic constant C-perpendicular to similar to 283 GPa of the Fe/Si film.
入藏号: WOS:000304514200060
语种: Chinese
文献类型: Article
作者关键词: coherent acoustic phonon; femtosecond pump-probe technique; Fe/Si film; elastic constants
KeyWords Plus: PICOSECOND LIGHT-PULSES; X-RAY-DIFFRACTION; PHASE-TRANSITION; GENERATION; OSCILLATIONS; SOLIDS; GAAS
地址: [Zhang Zheng-Bing; Jin Zuan-Ming; Ma Guo-Hong] Shanghai Univ, Dept Phys, Shanghai 200444, Peoples R China
[Ma Xiao-Bai; Yang Jin-Bo] Peking Univ, State Key Lab Artificial Microstruct & Mesoscop P, Beijing 100871, Peoples R China
通讯作者地址: Zhang, ZB (通讯作者),Shanghai Univ, Dept Phys, Shanghai 200444, Peoples R China
电子邮件地址: ghma@staff.shu.edu.cn
出版商: CHINESE PHYSICAL SOC
出版商地址: P O BOX 603, BEIJING 100080, PEOPLES R CHINA
Web of Science 分类: Physics, Multidisciplinary
学科类别: Physics
IDS 号: 948PD
ISSN: 1000-3290
29 字符的来源出版物名称缩写: ACTA PHYS SIN-CH ED
ISO 来源出版物缩写: Acta Phys. Sin.
来源出版物页码计数: 5