18
标题: Synchronizing TerahertzWave Generation with Attosecond Bursts
作者: Zhang, DW (Zhang, Dongwen); Lu, ZH (Lu, Zhihui); Meng, C (Meng, Chao); Du, XY (Du, Xiyu); Zhou, ZY (Zhou, Zhaoyan); Zhao, ZX (Zhao, Zengxiu); Yuan, JM (Yuan, Jianmin)
来源出版物: PHYSICAL REVIEW LETTERS 卷: 109 期: 24 文献号: 243002 DOI: 10.1103/PhysRevLett.109.243002 出版年: DEC 10 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: 37
摘要: We perform a joint measurement of terahertz waves and high-harmonics generated from argon atoms driven by a fundamental laser pulse and its second harmonic. By correlating their dependence on the phase delay between the two pulses, we determine the generation of THz waves in tens of attoseconds precision. Compared with simulations and models, we find that the laser-assisted soft collision of the electron wave packet with the atomic core plays a key role. It is demonstrated that the rescattering process, being indispensable in high-harmonic generation processes, dominates THz wave generation as well in a more elaborate way. The new finding might be helpful for the full characterization of the rescattering dynamics.
入藏号: WOS:000312068300010
语种: English
文献类型: Article
KeyWords Plus: HIGH-HARMONIC-GENERATION; ABOVE-THRESHOLD IONIZATION; LASER FIELDS; PULSES; EMISSION; AIR; PHOTOIONIZATION; GASES; PHASE
地址: [Zhang, Dongwen; Lu, Zhihui; Meng, Chao; Du, Xiyu; Zhou, Zhaoyan; Zhao, Zengxiu; Yuan, Jianmin] Natl Univ Def Technol, Dept Phys, Changsha 410073, Hunan, Peoples R China
通讯作者地址: Zhang, DW (通讯作者),Natl Univ Def Technol, Dept Phys, Changsha 410073, Hunan, Peoples R China.
电子邮件地址: zhao.zengxiu@gmail.com; jmyuan@nudt.edu.cn
出版商: AMER PHYSICAL SOC
出版商地址: ONE PHYSICS ELLIPSE, COLLEGE PK, MD 20740-3844 USA
Web of Science 类别: Physics, Multidisciplinary
研究方向: Physics
IDS 号: 050QE
ISSN: 0031-9007
29 字符的来源出版物名称缩写: PHYS REV LETT
ISO 来源出版物缩写: Phys. Rev. Lett.
来源出版物页码计数: 5