

Proposal of Measuring Electron Displacement Induced by a Short Laser Pulse

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频标楼 (M楼) 十楼1017会议室

About the speaker:



彭良友教授是国家自然科学基金杰出青年基金获得者、首届长江学者奖励计划青年学者。彭良友教授曾留学英国与美国，现为北京大学物理学院现代光学所教授。主要研究领域为强激光与物质相互作用的理论研究，对原子、分子超快过程的表征和控制，以及计算物理等方面。在国际知名期刊发表文章近80篇，含**Physics Reports**邀请长篇综述一篇，**Phys.Rev.Lett.**9篇。

Abstract:

In the laser-matter interaction, most previous studies have focused on the change of the electron momentum induced by the external fields. Here, we theoretically investigate the electron displacement induced by an ultrashort pulse, whose precise waveform is hard to be determined experimentally. We propose and numerically demonstrate a scheme to accurately measure the electron displacement using a ruler formed by the interfering spirals in the photoelectron momentum distribution generated by two oppositely circularly polarized pulses. The scheme is robust against the focusing volume effects and the jitter of the carrier envelope phase of the two circular pulses. The ability to measure the electron displacement by an arbitrary pulse may pave a way to a quantitative control of the charge migration in matter on the scale of angstrom.

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