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Title:Partitioning of the linear photon momentum in multiphoton ionization
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Abstract:The balance of the linear photon momentum in multiphoton ionization is studied experimentally. In the experiment argon and neon atoms are singly ionized by circularly polarized laser pulses with a wavelength of 800 and 1400 A˚ nm in the intensity range of 1014-1015W/cm2. The photoelectrons are measured using velocity map imaging. We find that the photoelectrons carry linear momentum corresponding to the photons absorbed above the field free ionization threshold. Our finding has implications for concurrent models of the generation of terahertz radiation in filaments. © 2011 American Physical Society.