

Abstract Submitted
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Breakdown of the Strong-Field Approximation for Transverse Electron Momentum Distributions in Strong-Field Ionization ROBERT SANG¹, J.E. CALVERT, S. GOODALL, X. WANG, H. XU, A.J. PALMER, Australian Attosecond Science Facility, Centre for Quantum Dynamics, Griffith University, I.A. IVANOV, Centre for Relativistic Laser Science, Institute for Basic Science and Research School of Physical Sciences, The Australian National University, A.S. KHEIFETS, Research School of Physical Sciences, The Australian National University, D. KIELPINSKI, I.V. LITVINIYUK, Australian Attosecond Science Facility, Centre for Quantum Dynamics, Griffith University — We investigated the transverse electron momentum distributions for the strong field ionization of atoms by laser pulses with varying ellipticity. We investigated two ionization regimes; tunnelling and over the barrier ionization regimes. The over the barrier regime was accessed by using neon atoms in excited atomic metastable states and is the first such strong-field experiment to use such an atomic species. We will show that the transverse momentum distributions evolve in qualitatively different ways when the ellipticity of the driving laser pulses is varied.

¹email: R.Sang@griffith.edu.au

Robert Sang
Australian Attosecond Science Facility,
Centre for Quantum Dynamics, Griffith University

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