

Abstract Submitted  
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**Observation of dynamic Stark resonances in strong-field excitation** R.T. SANG, D CHETTY, R.G. GLOVER<sup>1</sup>, Centre for Quantum Dynamics, Griffith University, Brisbane, Queensland 4111, Australia , B.A. DEHARAK, Physics Department, Illinois Wesleyan University, Bloomington, IL 61702-2900 , X.M. TONG, Centre for Computational Sciences, University of Tsukuba, H. XU, Centre for Quantum Dynamics, Griffith University, K. BARTSCHAT, Department of Physics and Astronomy, Drake University, N. DOUGUET, Department of Physics, Kennesaw State University, A.N. LUITEN, P.S. LIGHT, Institute for Photonics and Advanced Sensing, The University of Adelaide, I.V. LITVINYUK, Centre for Quantum Dynamics, Griffith University — We investigated AC Stark-shifted resonances in Ar with ultrashort near-infrared light of two different durations (30 fs and 6 fs). With the 30 fs pulses, we clearly observed a periodic enhancement of the excitation yield in the intensity regions where the absorption of 13 and 14 photons occurs. When few-cycle 6 fs pulses are used, these enhancements become ambiguous due to the bandwidth of the pulse. We have a good agreement compared to simulations of the process using the TDSE and demonstrate evidence that the enhancements are due to AC Stark-shift resonances efficiently populating the 5g and 6h states.

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