

Abstract Submitted
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Fragmentation dynamics of Ar_2^+ dimers in intense laser fields¹ M. MAGRAKVELIDZE, Department of Physics, Kansas State University, J. WU, R. DÖRNER, Institut für Kernphysik, Goethe Universität, U. THUMM, Department of Physics, Kansas State University — We studied the fragmentation dynamics of the Ar_2 dimers in 790 nm pump and 1400 nm probe pulses with intensities of 10^{14} W/cm² by analyzing kinetic energy release (KER) spectra as a function of the pump probe delay. The KER spectra are measured by detecting Ar-ion fragments in a COLTRIMS [1] setup and are compared with model calculations based on the numerical propagations of the time-dependent Schrödinger equation [2]. The measured spectra are best reproduced by two-state calculations that include the adiabatic electronic states $\text{I}(1/2)_u$ and $\text{II}(1/2)_g$ of Ar_2^+ , dipole coupled in the pump- and probe-laser electric fields.

[1] J. Wu, A. Vredenberg, B. Ulrich, L. Ph. H. Schmidt, M. Meckel, S. Voss, H. Sann, H. Kim, T. Jahnke, and R. Dörner, PRA **83**, 061403(R) (2011)

[2] M. Magrakvelidze, F. He, Th. Niederhausen, I. V. Litvinyuk, and U. Thumm, PRA **79**, 033410 (2009).

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Maia Magrakvelidze
Department of Physics, Kansas State University

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