Abstract Submitted
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Fragmentation dynamics of noble gas dimers in two-color intense laser fields[1] M. MAGRAKVELIDZE, Physics Department, Kansas State University, J. WU, Physics Department, East China Normal University, R. DOERNER, Institut fuer Kernphysik, Universitaet Frankfurt, U. THUMM, Physics Department, Kansas State University — We studied the dissociation dynamics of noble gas dimer ions in two-color infrared intense laser fields by analyzing their fragment-kinetic-energy-release spectra as a function of the pump-probe delay. Our calculations predict a striking "delay gap" in the kinetic-energy-spectra for all noble gas dimers that was so far only measured for the Ar_2 dimer [1]. We identify this phenomenon as a frustrated dissociation mechanism. This mechanism requests different pump- and probe-pulse wavelengths and involves the pump pulse to both, singly ionize the neutral dimers and dipole-couple adiabatic states in the dimer ion.

[1] J. Wu, M. Magrakvelidze, A. Vredenborg, L. Ph. H. Schmidt, T. Jahnke, A. Czasch, R. Dörner, and U. Thumm, Phys. Rev. Lett. **110**, 033004 (2013).

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