Abstract Submitted
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Suppressed tunneling ionization of vanadium XI CHU, The University of Montana, GERRIT GROENENBOOM, Radboud University, NL — Using a time dependent density functional theory method, we reproduce the measured ionization suppression for vanadium in 1500 nm lasers of 1.4 to 2.8×10^{13} W/cm^2. Our calculation shows that for weaker laser intensities a method with more configurations is needed to properly describe the multiphoton, rather than tunneling, ionization of a transition metal atom. We find two effects that suppress the tunneling ionization. One of them is the isotropic component of the induced potential, which increases the binding energy of the electron. The other is the dipole component that elevates the potential barrier of tunneling ionization.

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