

Abstract Submitted
for the DAMOP12 Meeting of
The American Physical Society

Potential Barrier Features of Three-Photon Ionization Processes in Atoms¹ LIANG-WEN PI, ANTHONY STARACE, University of Nebraska-Lincoln — We report here model potential results on the frequency dependence of three-photon generalized ionization cross sections from closed subshells of rare gas and other atoms. We find dramatic, resonance-like effects in three-photon ionization processes, which can be explained by potential barriers in the effective radial potential experienced by a photoexcited electron. In the case of Ar and Xe, our calculations show that such potential barriers may affect not only the final state of the electron, but also the intermediate-state electron wave packet at energies in the vicinity of the barrier. Such effects have been demonstrated numerically as a function of frequency in two-photon ionization processes [1]. Here we show that these effects are quite general by considering the multiphoton cross sections for ionization of Ar and Xe within a single-active-electron, central-potential model.

[1] L.W. Pi and A.F. Starace, Phys. Rev. A **82**, 053414 (2010).

¹This work is supported in part by DOE, Office of Science, Division of Chemical Sciences, Geosciences, and Biosciences, under Grant No. DE-FG03-96ER14646.

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Date submitted: 24 Jan 2012

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