

Abstract Submitted  
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**Correlation effects on plasmonic photoelectrons in C<sub>60</sub> and C<sub>240</sub>.**<sup>1</sup> MAIA MAGRAKVELIDZE, Cabrini University, HIMADRI CHAKRABORTY, Northwest Missouri State University — We investigate the effect of electron correlations in the C<sub>60</sub> and C<sub>240</sub> molecules stimulated by light. The Kohn-Sham equations of the valence electron clouds of the molecules are solved to obtain the ground state structures in the density functional theory [1]. Considering the dipole response of the systems to the incoming photon, the energy dependent induced electron-densities are then computed from the many body susceptibility in a linear response frame. This yielded the complex radial induced potentials which, at plasmon energies, probed the collective response of the molecules. This response suppresses the photon's dipole field, while inducing a strong attractive force, over the giant resonance region [2]. The effect of this force is revealed in the binding-well shapes of the imaginary parts of the induced potentials. Because of this transient attraction, the temporal delay of the photoelectron emission can be observably affected [3]. [1] J. Choi et al., Phys. Rev. A, 95, 023404 (2017) [2] I. V. Hertel et al., Phys. Rev. Lett, 68, 784 (1992) [3] T. J. Barillot et al., Phys Rev. A, 91, 033413 (2015).

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Maia Magrakvelidze  
Cabrini University

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