

Abstract Submitted  
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**Photoionization cross section and time-delay of atoms confined in C<sub>240</sub> versus C<sub>60</sub>.**<sup>1</sup> MAIA MAGRAKVELIDZE, University of Mary Washington, HIMADRI CHAKRABORTY, Northwest Missouri State University — We investigate the effects of confinement and electron correlation on the photoemissions of noble gas atoms sequestered endohedrally in C<sub>240</sub> and compared with the corresponding results of C<sub>60</sub> confinement. The time-dependent local density approximation (TDLDA) method [1] with Leeuwen and Baerends (LB94) exchange-correlation functional is employed in the calculation. The core of 240 C<sup>4+</sup> ions is jelliumized to ignore the carbon *K*-shell structures. We compute subshell cross sections and angle-integrated Wigner-Smith (WS) time-delays [2] for atomic-type as well as atom-fullerene hybrid-type levels. We examine the size effects of the molecular cage on the plasmonically enhanced [3] strength of the atomic ionization. Furthermore, the behavior of photoemission WS time delays in attoseconds, induced by this enhancement as well as by the confinement-modified atomic Cooper minima [4], as a function of fullerene size and electronic structure, is scrutinized in detailed. [1] Choi *et al.*, PRA **95**, 023404 (2017) [2] Dixit *et al.*, PRL **111**, 203003 (2013) [3] Madjet *et al.*, PRL **99**, 243003 (2007) [4] Magrakvelidze *et al.*, PRA **91**, 053407 (2015).

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