

Abstract Submitted  
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**Attosecond study of confinement in photoionization of xenon caged in  $C_{60}$** <sup>1</sup> MAIA MAGRAKVELIDZE, Northwest Missouri State University, GOPAL DIXIT, MBI, Berlin, Germany, MOHAMED MADJET, QEERI, Doha, Qatar, HIMADRI CHAKRABORTY, Northwest Missouri State University — Effects of atom-fullerene orbital hybridization and  $C_{60}$  cavity on the attosecond time delay of the photoionization of Xe in the Xe@ $C_{60}$  endohedral molecule are investigated using time dependent local density approximation (TDLDA) [1] augmented by the Leeuwen and Baerends exchange-correlation functional. TDLDA Wigner-Smith delay is found to modify via three distinct mechanisms: (i) Screening (or anti-screening) of the atomic valence emission due to the plasmonic motions of  $C_{60}$  charge cloud [2]; (ii) dynamical interactions [3] between Xe Cooper minima and  $C_{60}$  cavity minima [4]; and (iii) confinement oscillations in the photoionization of inner 4d shell of Xe from the resonant formation of standing waves inside the cavity. The effects may be experimentally accessible by the so called RABITT metrology.

- [1] Madjet et al., PRA 81, 013202 (2010);
- [2] Madjet et al., PRL 99, 243003 (2007);
- [3] Dixit et al., PRL 111, 203003 (2013);
- [4] Magrakvelidze et al., arXiv:1409.2910 [physics.atm-clus].

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