

Abstract Submitted
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Confinement and cavity effects in time-domain photoionization and recombination of Kr@C60¹ MAIA MAGRAKVELIDZE, Northwest Missouri State University, GOPAL DIXIT, MBI, Berlin, Germany, MOHAMED MADJET, QEERI, Doha, Qatar, HIMADRI CHAKRABORTY, Northwest Missouri State University — Photoionization (PI) and radiative recombination (RR) of the endofullerene molecule, Kr@C60, are studied in a framework of time-dependent local density approximation (TDLDA) augmented by the Leeuwen and Baerends exchange-correlation functional [1]. Phases of the dipole matrix elements corresponding to transitions to (PI) and from (RR) the continuum, involving atomic-type, fullerene-type and atom-fullerene hybrid levels of the molecule, are considered. Associated Wigner-Smith time-delays are extracted. Effects of the confinement on the phase and time-delay at Kr Cooper minima, and that of the C60 cavity at C60 cross section minima have been examined. Further, intercoumbic decay (ICD) and hybrid Auger-ICD [2] resonances, direct results of the confinement, are found to considerably enrich the time-domain response of the molecule.

[1] G. Dixit, H.S. Chakraborty, and M.E. Madjet, Phys. Rev. Lett.111, 203003(2013).

[2] M.H. Javani, J.B. Wise, R. De, M.E. Madjet, S.T. Manson, and H.S. Chakraborty, arXiv:1312.2144 [physics.atm-clus].

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