Abstract Submitted
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Effects of the interior static polarization in photoionization of "regular" (A@C_{60}) and "giant" (A@C_{240}) endohedral atoms: A comparative study[1] TAKEHIRO AKIYAMA[2], VALERIY DOLMATOV, University of North Alabama — Recently, photoionization of an atom A confined inside the C_{60} fullerene (A@C_{60}) has come under a novel theoretical scrutiny by accounting for static relaxation of the system in response to ionization of the atom A, termed the interior static polarization effect [1]. In the present work, we explore how the impact might get altered with increasing size of the fullerene cage. "Regular" C_{60} and "giant" C_{240} cages with the Ne atom sitting at the center of a cage, i.e., Ne@C_{60} and Ne@C_{240}, are chosen for the study. Both carbon cages are regarded as conducting spheres. They are simulated by the corresponding potentials of given inner radii, depths, and thickness [2]. The impact's significance is found to be about the same in both systems. It strongly alters the photoionization of the encaged atom near threshold as well as changes phases of associated confinement resonances. However, the photoionization spectrum of the encaged atom differs much stronger from that of the free atom with increasing size of the cage. [1] V. K. Dolmatov and S. T. Manson, Phys. Rev. A (in print). [2] V. K. Dolmatov, Adv. Quant. Chem., **58**, 13 (2009).

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