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The role of plasma oscillations of C60 collectivized electrons in photoionization of 5s subshell of Xe atom in Xe@C60 MIRON AMUSIA, Racah Institute of Physics, The Hebrew University, Jerusalem 91904, Israel; Ioffe Physical-Technical Institute, St.-Petersburg 194021, Russia, ARKADIY BALTENKOV, Arifov Institute of Electronics, Tashkent 700125, Uzbekistan — It is demonstrated that the plasma oscillations of collectivized electrons of the fullerene C60, affects dramatically the photoionization cross section of the 5s-subshell of the endohedral Xe. The calculations were performed within the framework of a simple "orange skin" model that makes it possible, in spite of its simplicity, to describe the modification of photoionization cross section of encapsulated atom due to the photoelectron's waves reflection by the C60 shell. It is shown that the virtual excitations of collectivized electrons in fullerenes shell become decisively important when the photon frequency is close to the frequencies of plasma oscillations of the C60. These calculations illustrate the role of the intershell interactions in the fullerene-like molecules, qualitatively similar but even stronger than in the isolated atoms.

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