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**Photoionization of the subvalent subshells of noble gas Endohedrals: interference of three resonances** M. YA. AMUSIA, Racah Institute of Physics, the Hebrew University, Jerusalem, Israel and Ioffe Physical-Technical Institute, St.-Petersburg, Russia, A.S. BALTENKOV, Arifov Institute of Electronics, Tashkent, Uzbekistan, L.V. CHERNYSHEVA, Ioffe Physical-Technical Institute, St.-Petersburg, Russia — We demonstrate strong interference patterns in the photoionization cross-section of the subvalent subshells of noble gas (NG) endohedral atoms NG@F. This interference is a result of common action of three factors: the effect of neighboring atomic subshells, reflection of photoelectron waves by the fullerene F shell and resonance modification of the incoming photon beam by the complex effect under the action of the F electrons. We have considered the outer $ns$-subshells for Ne, Ar, Kr and Xe noble gas atoms. The polarization of the fullerene shell is expressed via the F total photoabsorption cross section. The photoelectron reflection from the static F potential is taken into account in the frame of the so-called bubble potential that is a spherical $\delta$-type potential. As a result the NG@F photoionization cross section is presented as a product of the NG subvalent cross section and two calculated factors that account for polarization of the F electron shell and reflection of photoelectrons by the fullerene static potential.

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