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Koester-Kronig decay in endohedral atoms MIRON YA AMUSIA, Ioffe Physico-Technical Institute, 194021 St. Petersburg, Russia, LARISSA V. CHERNYSHEVA, Ioffe Physico-Technical Institute, St. Petersburg, Russia — Fullerene shell can in principle prominently affect the shape of the electron energy distribution in the Koester–Kronig decay of an atom A, caged inside the C60 shell, i.e. of an endohedral A@C60. For isolated atoms, the probability of decay and emitted electron spectrum depend strongly on details of the wave function of the vacancy and the emitted electron. It was demonstrated quite a while ago that taking into account electron correlations in the frame of Random Phase Approximation with Exchange alters considerably the Koester-Kronig decay probability. We have considered the decay of vacancy in 2s subshell in Ar@C60 - $2s^{-1}$. The main channels of this decay are $2s^{-1}$ – $2p^{-1}3s^{-1}(3p^{-1})$ep (es,d). We estimated the modification of the interelectron interaction due to fullerene shell presence and found it inessential. We found that due to its reflection by the static potential of the fullerenes shell the outgoing electron spectrum is modified by up to thirty percent. This effect may increase in other atoms due to variation of the outgoing electron energy. The probability of the transition $2s^{-1}$ – $2p^{-1}$ via emission of the fullerenes shell electrons proofed to be negligible. Of some importance is the shake-off of fullerene shell electrons that accompany the atomic vacancy decay.

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