

Abstract Submitted
for the DAMOP06 Meeting of
The American Physical Society

Two-electron photoionization of endohedral atoms MIRON AMUSIA, Racah Institute of Physics, The Hebrew University, Jerusalem 91904, Israel; A. F. Ioffe Physical-Technical Institute, St. Petersburg, 194021, Russia, EVGENY LIVERTS, VICTOR MANDELZWEIG, Racah Institute of Physics, The Hebrew University, Jerusalem 91904, Israel, PHYSHUJI TEAM — Using $He@C_{60}$ as an example, we demonstrate that static potential of the fullerene core essentially alters the differential in one-electron energy cross section of the two-electron ionization $d\sigma^{++}(\omega, \varepsilon)/d\varepsilon$. We found that at high photon energy prominent oscillations appear in it due to reflection of the second, slow electron wave on the C_{60} shell, which dies out at relatively high ε values, of about $2\div 3$ two-electron ionization potentials. The results were presented for ratios $R_{C_{60}}(\omega, \varepsilon) \equiv d\sigma^{++}(\omega, \varepsilon)/d\sigma^{a++}(\omega, \varepsilon)$, where $d\sigma^{a++}(\omega, \varepsilon)/d\varepsilon$ is the two-electron differential photoionization cross-section. We have calculated also the ratio $R_{i,ful} = \sigma_i^{++}(\omega)/\sigma_i^{a++}(\omega)$, that accounts reflection of both photoelectrons by the C_{60} shell. We have calculated also the value of two-electron photoionization cross section $\sigma^{++}(\omega)$ and found that this value is close to that of an isolated He atom.

Miron Amusia
Racah Institute of Physics, The Hebrew University,
Jerusalem 91904, Israel; A. F. Ioffe Physical-Technical Institute,
St. Petersburg, 194021, Russia

Date submitted: 24 Jan 2006

Electronic form version 1.4