Confinement-correlation impact upon electron elastic scattering off endohedral atoms: the $e + \mathrm{Ne@C_{60}}$ **case**[1] VALERIY DOLMATOV, Univ of North Alabama, MIRON AMUSIA, Hebrew University, Israel & Ioffe Physical Technical-Institute, St.Petersburg, Russia, LARISSA CHERNYSHEVA, Ioffe Physical Technical-Institute, St.Petersburg, Russia — A recent work [1] has provided the initial insight into electron elastic scattering off endohedral atoms $A@C_{60}$. There, the atom A and C_{60} cage were regraded as non-polarizable targets. A question of how lifting the rigid-A-rigid-C_{60} constrain can affect $e + A@C_{60}$ scattering has remained open. The present study provides a partial insight into the problem. It accounts for polarization of the atom by incoming electrons in the presence of rigid C_{60}. This is an interesting in itself topic of study from the point of view of basic science. The Dyson theory for the self-energy part of the Green function $\Sigma_e(\epsilon)$ of an electron moving in the field of A confined inside of rigid C_{60} is employed in the study. The function $\Sigma_e(\epsilon)$ is regarded in the framework of the RPAE theory. The $e + Ne@C_{60}$ elastic scattering is chosen as a case study. The s, p, d, f, g, and h phase shifts and partial (and total) electron elastic-scattering cross sections are calculated with and without accounting for $\Sigma_e(\epsilon)$. Calculated results provide the first insight into the confinement-correlation impact upon $e + A@C_{60}$ elastic scattering.

[1] V. K. Dolmatov, M. B. Cooper, and M. E. Hunter, J. Phys. B **47**, 115002, 2014.

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