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Electron elastic scattering off endo-fullerenes¹

VALERIY DOLMATOV, University of North Alabama

The given presentation highlights the physically transparent, relatively simple, and yet reasonably complete approximation to the problem of low-energy electron elastic scattering off endohedral fullerenes $A@C_N$ along with corresponding findings unraveled on its basis. It is believed that, as of today, the highlighted results provide the most complete information about features of $e + A@C_N$ elastic scattering brought about by the fullerene-cage-related, correlation-related, and polarization-related impacts of the individual and coupled members of the $A@C_{60}$ target on the scattering process. Each of the impacts is shown to bring spectacular features into $e + A@C_{60}$ scattering. A remarkable inherent quality of the developed approximation is its ability to account for mutual coupling between electronic excited configurations of C_N with those of the encapsulated atom A without reference to complicated details of the electronic structure of C_N itself. Spectacular effects in the scattering process, primarily associated with polarization of $A@C_{60}$ by an incident electron, are thoughtfully detailed both quantitatively and qualitatively in a physically transparent manner for ease of understanding and convenience of the audience.

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