

Abstract Submitted
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Review of the progress in model theoretical studies of $e + A@C_{60}$ electron scattering¹ V. DOLMATOV, Univ of North Alabama, M. AMUSIA, Hebrew University, Israel & Ioffe Physical Technical-Institute, St.Petersburg, Russia, L. CHERNYSHEVA, Ioffe Physical Technical-Institute, St.Petersburg, Russia — A series of recent semi-empirical theoretical studies of electron scattering off endohedral atoms $A@C_{60}$ [1-4] have identified interesting measurements as well as more rigorous calculations of $e + A@C_{60}$ scattering to perform. This report provides the interested researchers with a review of the most significant findings of works [1-4] on $e + A@C_{60}$ scattering. First, we demonstrate features of $e + A@C_{60}$ elastic scattering of slow electrons [1, 2] and low-frequency bremsstrahlung [1] when both the atom A and the cage C_{60} are “frozen” [1, 2]. Then [3], we “unfrozen” the atom A but keep the C_{60} cage “frozen” and demonstrate novel effects of dynamical polarization of the atom A under the “frozen” C_{60} confinement on $e + A@C_{60}$ scattering. Finally, we demonstrate the combined effect of both the dynamical polarization of the encapsulated atom and the static polarization of C_{60} on the scattering process [4]. [1] V. K. Dolmatov et.al., PRA **91**, 062703, 2015. [2] M. Ya. Amusia and L. V. Chernysheva, JETP Lett. **100**, 503 (2015). [3] V. K. Dolmatov, M. Ya. Amusia, and L. V. Chernysheva, PRA **92**, 042709 (2015). [4] M. Ya. Amusia and L. V. Chernysheva, arXiv:1512.00211, 2015.

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