

Abstract Submitted
for the DAMOP17 Meeting of
The American Physical Society

Resonances in low-energy electron elastic scattering from Fullerenes C₆₀ through C₉₂¹ ZINEB FELFLI, ALFRED MSEZANE, Clark Atlanta University — The electron affinity (EA) provides a stringent test of theory when the calculated and measured EAs are compared. A strong motivation for the fundamental investigations of low-energy electron elastic scattering from the selected fullerenes C₆₀, C₇₀, C₇₄, C₈₀, C₈₂, C₈₄ and C₉₂ is the availability of high quality measured EAs [1, 2]. The Regge pole calculated electron elastic total cross sections for these fullerenes are found to be characterized generally by Ramsauer–Townsend (R-T) minima, shape resonances and dramatically sharp resonances manifesting stable negative ion formation. The extracted binding energies for the resultant anions agree excellently with the measured EAs of the fullerenes listed above, giving great credence to the Regge pole method and confirming that fullerenes behave like “big atoms” [3]. Common among all these fullerenes is the appearance of their ground state negative ions at their second R-T minima, similarly to the atomic Au case. 1. D.-L. Huang *et al*, J. Chem. Phys. **140**, 224315 (2014) 2. O. V. Boltalina *et al*, Rapid Commun. Mass Spectrom. **7**, 1009 (1993) 3. M. Ya Amusia, Chem. Phys. **414**, 168 (2013)

¹This work was supported by U.S. DOE, Basic Energy Sciences, Office of Energy Research

Zineb Felfli
Clark Atlanta University

Date submitted: 24 Jan 2017

Electronic form version 1.4