

Abstract Submitted
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Simple method for determining binding energies of fullerene and complex atomic negative ions.¹ ZINEB FELFLI, ALFRED MSEZANE, Clark Atlanta University — A robust potential which embeds fully the vital core polarization interaction has been used in the Regge pole method to explore low-energy electron scattering from C₆₀, Eu and Nb through the total cross sections (TCSs) calculations. From the characteristic dramatically sharp resonances in the TCSs manifesting negative ion formation in these systems, we extracted the binding energies for the C₆₀, Eu and Nb anions; they are found to be in outstanding agreement with the measured electron affinities of C₆₀[1], Eu[2, 3] and Nb[4]. Common among these considered systems, including the standard atomic Au is the formation of their ground state negative ions at the second Ramsauer-Townsend (R-T) minima of their TCSs. Indeed, this is a signature of all the fullerenes and complex atoms considered thus far. Shape resonances, R-T minima and binding energies of the resultant anions are presented. [1] D. -L. Huang *et al.* *J. Chem. Phys.* **140**, 224315 (2014) [2] S. -B. Cheng and A.W. Castleman, Jr., *Sci. Rep.* **5**, 12414 (2015) [3] V. T. Davis and J. S. Thompson, *J. Phys. B* **37**, 1961 (2004) [4] Z. Luo *et al.* *Phys. Rev. A* **93**, 020501(R) (2016)

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