Abstract Submitted
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Resonances in Near-Threshold Electron Elastic Scattering Cross Sections for Au and Pt: Identification of Electron Affinities.[1] Z. FELFLI, A.Z. MSEZANE, Clark Atlanta University, D. SOKOLOVSKI, The Queen's University of Belfast, UK — The near-threshold electron attachment in Au and Pt atoms is investigated as Regge resonances using our recent Regge-pole methodology [1] together with a Thomas-Fermi potential which incorporates the crucial core-polarization interaction. The resultant stable negative ion states are found to have the discernable characteristic of very small imaginary parts of the Regge poles, which translates into long-lived resonances. The near-threshold electron elastic total cross sections for both Au and Pt are characterized by multiple resonances from which we extract the electron affinity (EA) values through the scrutiny of the imaginary part of the relevant complex angular momentum. For Au^- and Pt^- the extracted binding energies of 2.262 eV and 2.163 eV, respectively, are in excellent agreement with the most recently measured EA values for Au [2] and Pt [3]. Ramsauer-Townsend minima, shape resonances and the Wigner threshold behavior are identified in both Au^- and Pt^- ions.

[1] D. Sokolovski *et al*, Phys. Rev. A **76**, 012705 (2007)
[2] H. Hotop and W. C. Lineberger, J. Chem. Ref. Data **14**, 731 (1985)
[3] R. C. Bilodeau *et al*, Phys. Rev. A **61**, 012505 (1999)

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