Abstract Submitted
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Elastic cross sections for Mn, Ni, Cu, Zn, Ag and Cd atoms by low energy electrons[1] A.Z. MSEZANE, Z. FELFLI, Clark Atlanta University, D. SOKOLOVSKI, Queen's University of Belfast — There is a great need for a fundamental understanding of the mechanism of the near-threshold electron attachment to the atoms Mn, Ni, Cu, Zn, Ag and Cd, particularly the identification and characterization of the attendant resonance structures in the electron elastic total cross sections (TCSs). The crucial electron-electron correlations and core-polarization interactions, vital to the existence and stability of most negative ions, render understanding the structure and the dynamics of low-energy electron elastic collisions resulting in the formation of negative ions as resonances, quite challenging for conventional theoretical methods. Here we have investigated using the successful complex angular momentum (CAM) method [1,2] the TCSs for Mn, Ni, Cu, Zn, Ag and Cd in the energy range $0 \leq E \leq 1$ eV to identify and delineate the resonance structures and minima. The imaginary part of the CAM is used to distinguish between the stable bound states of the negative ions (long-lived resonances) and the shape resonances (short-lived resonances). TCSs, Ramsauer-Townsend minima, shape resonances and BEs are presented.

[1] D. Sokolovski *et al*, Phys. Rev. A **76**, 012705 (2007).
[2] Felfli *et al*, Phys. Rev. A **81**, 042707 (2010)

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