# Evolution of the Spin Magnetic Moments and Atomic Valence of Vanadium in $VCu_x^+$, $VAg_x^+$, and $VAu_x^+$ Clusters (x = 3 - 14)

## –Supporting Information–

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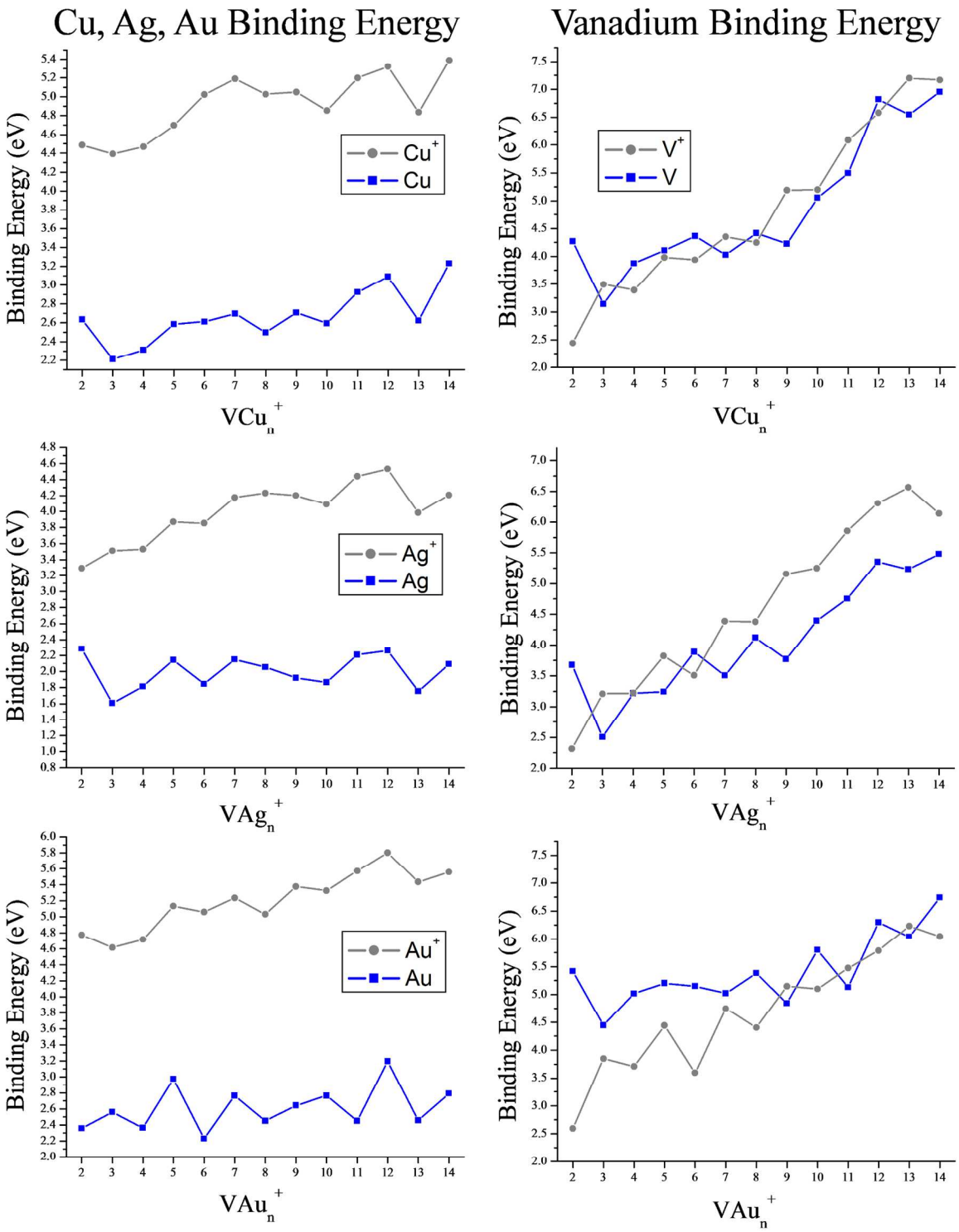


**Figure S1** Copper, silver, gold, and vanadium binding energies of $VCu_n^+$, $VAg_n^+$, and $VAu_n^+$ (n = 2 – 14).

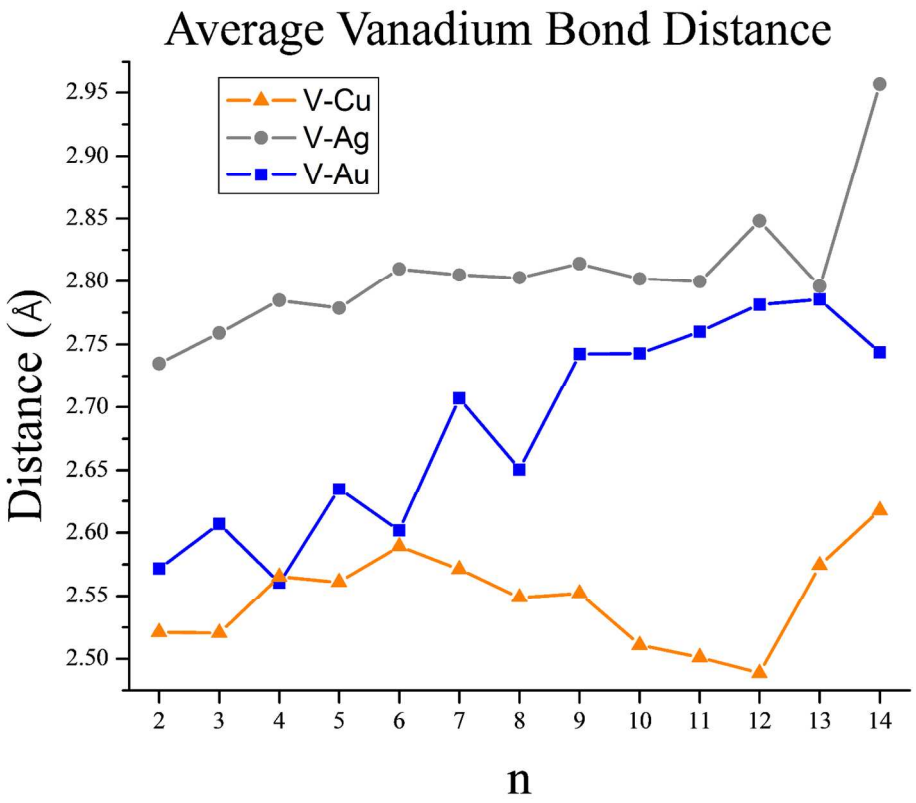


**Figure S2**. The average bond distance between the vanadium atom and the surrounding copper, silver, and gold atoms are plotted. While $VCu_n^+$ and $VAg_n^+$ have relatively steady trends, there is an even-odd effect in gold between n = 2 – 8.

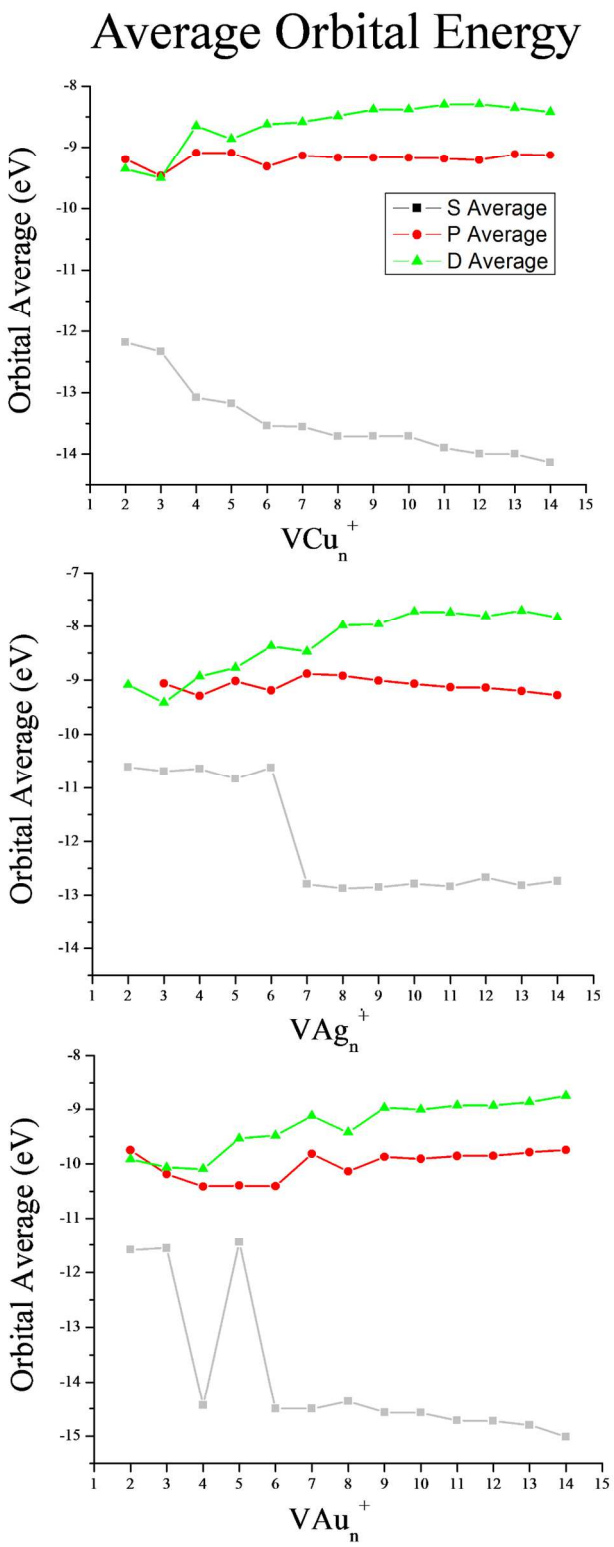


**Figure S3**. Average Orbital Energy of the S, P, and 3d/D orbitals of $VX_{2\text{-}14}^{+}$ (X= Cu, Ag, and Au).

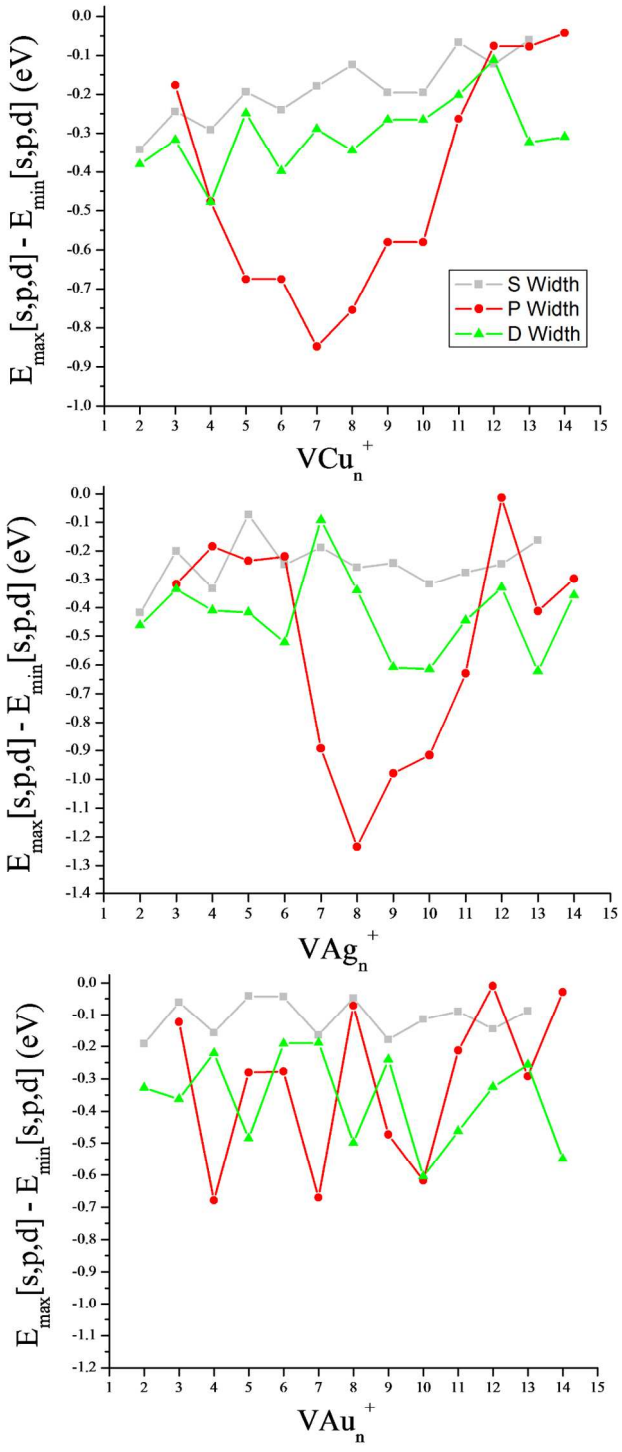


**Figure S4**. Delocalized orbital width of $VX_{2\text{-}14}^+$ (X= Cu, Ag, and Au). These values were obtained by subtracting the highest energy value associated with the S, P, and 3d/D orbital by the lowest energy value of that same orbital.