

Plots in Figure 1 depict the one-electron radial density distribution for pairs of adjacent atoms (ions) within the He-isoelectronic series in its ground-state. On the contrary, the one-particle radial density distribution of the  $\text{Li}^{(+1)}$  does not extend to the Light blue zone, as shown in Figure 1 (a). The Light blue zone is part of the one-particle radial density distribution of the He atom. The higher the peak's value, the denser the electronic cloud will be:  $[D(r)]_{\text{He}} < [D(r)]_{\text{Li}^{(+1)}} < [D(r)]_{\text{Be}^{(+2)}} < [D(r)]_{\text{B}^{(+3)}} < [D(r)]_{\text{C}^{(+4)}} < [D(r)]_{\text{N}^{(+5)}} < [D(r)]_{\text{O}^{(+6)}}$ . Plots Figure 2 and 3 represent three and two dimensions, respectively. The contour plot is produced by slicing the three-dimensional plots of the  $D(r_1, r_2)$  into definite slices. The observation that the red region of the  $\text{Li}^{(+1)}$  ion covers the region from  $D(r_1, r_2)_{\text{max}}$  down to  $D(r_1, r_2) = 1.80$  and the red region of the  $\text{N}^{(+5)}$  ion extends from  $D(r_1, r_2)_{\text{max}}$  down to  $D(r_1, r_2) = 11$  confirms this phenomena. However, the shrinkage in the orbital size will be compensated by producing a denser electron cloud near the nucleus. The first characteristic is the inability of the electron density to extend the nucleus. This is a direct consequence of the properties of any well-defined wavefunction in quantum mechanics. Therefore, the contour plot is a projection of the three-dimensional plots onto a two-dimensional plane defined by  $r_1$  and  $r_2$ . Another way, at high atomic numbers, the nucleus draws the electron cloud inward and toward itself.  $r_2$ . see Figures 4 and 5