

What matters as you go across the chart...

Number of protons increases (np↑)
Nucleus becomes more positive (nmp)
pulls harder on electrons (phoe)

What doesn't matter as you go across the chart...

Number of electrons increases...
SHOULD increase repulsion, but...
different spins and different orbitals minimize repulsion

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What matters as you go down the chart

Energy levels get bigger (elgb)
electrons are further from the nucleus (effn)
attraction weaker (aw)

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What doesn't matter as you go down the chart

protons ↑

Should be more attraction but....

"inner" e⁻ (lower val. level)

shield nucleus.... reduce att. force

Li: 3 protons - 2 inner e⁻ = +1 effective nuclear charge

Na: 11 protons - 10 inner e⁻ = +1

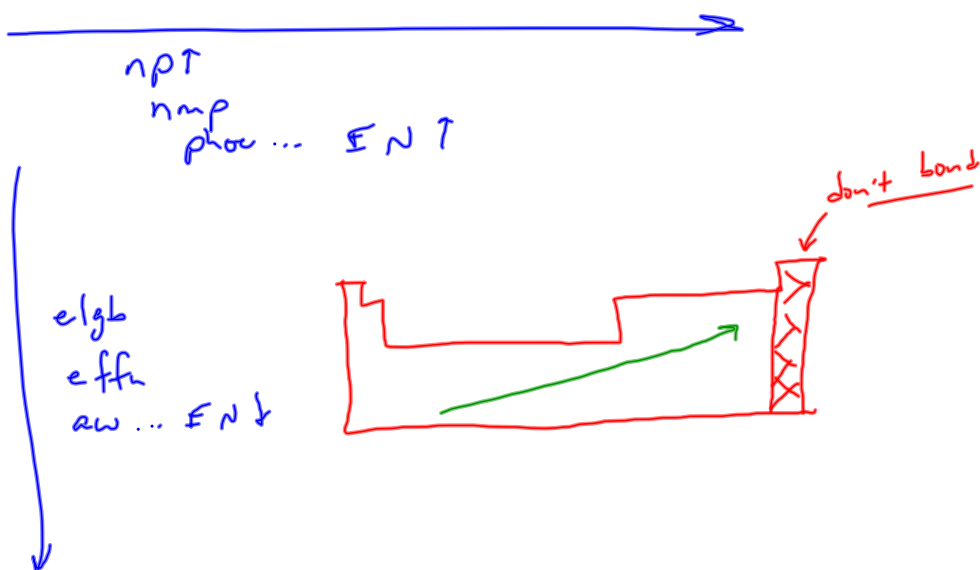
Be: 4 protons - 2 inner e⁻ = +2

Mg: 12 protons - 10 inner e⁻ = +2

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The Trends

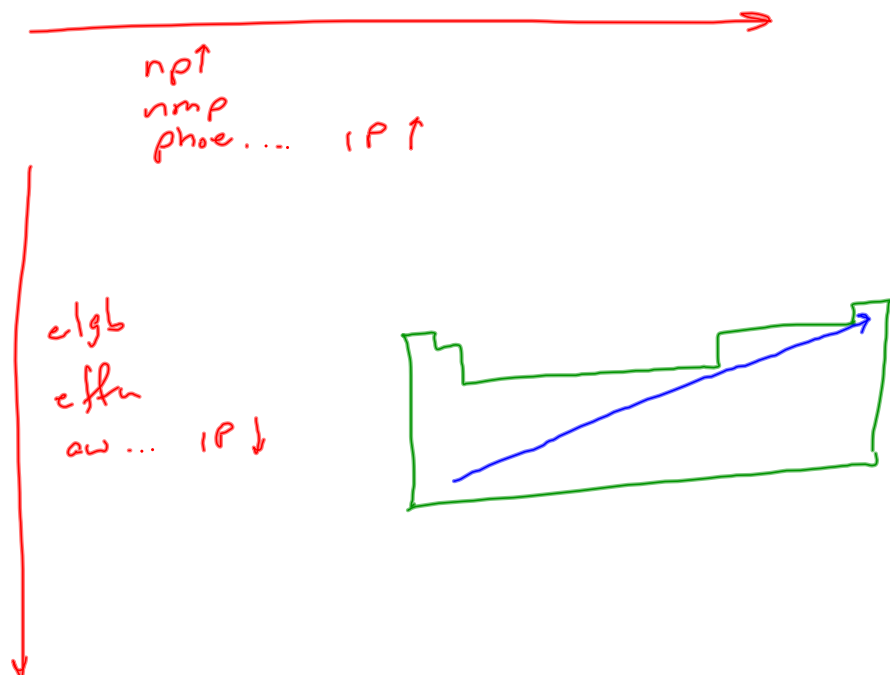
Electronegativity



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The Trends

Ionization Potential

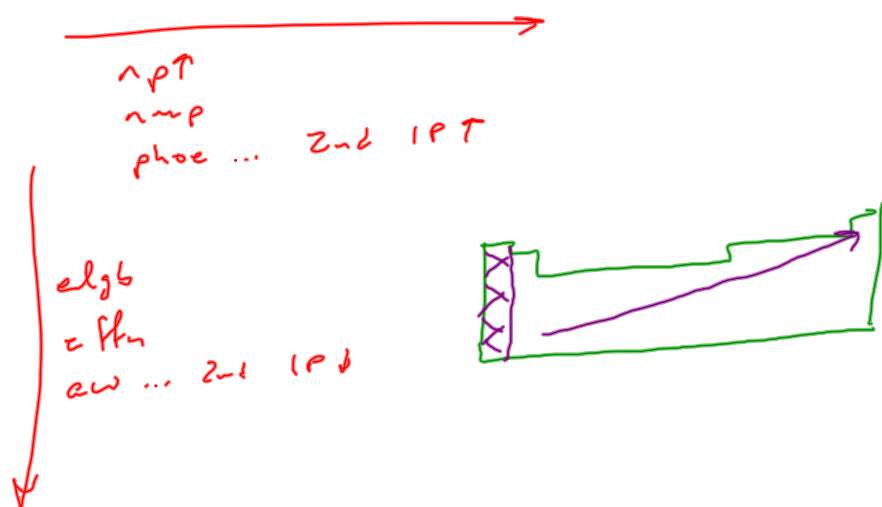


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The Trends

2nd Ionization Potential

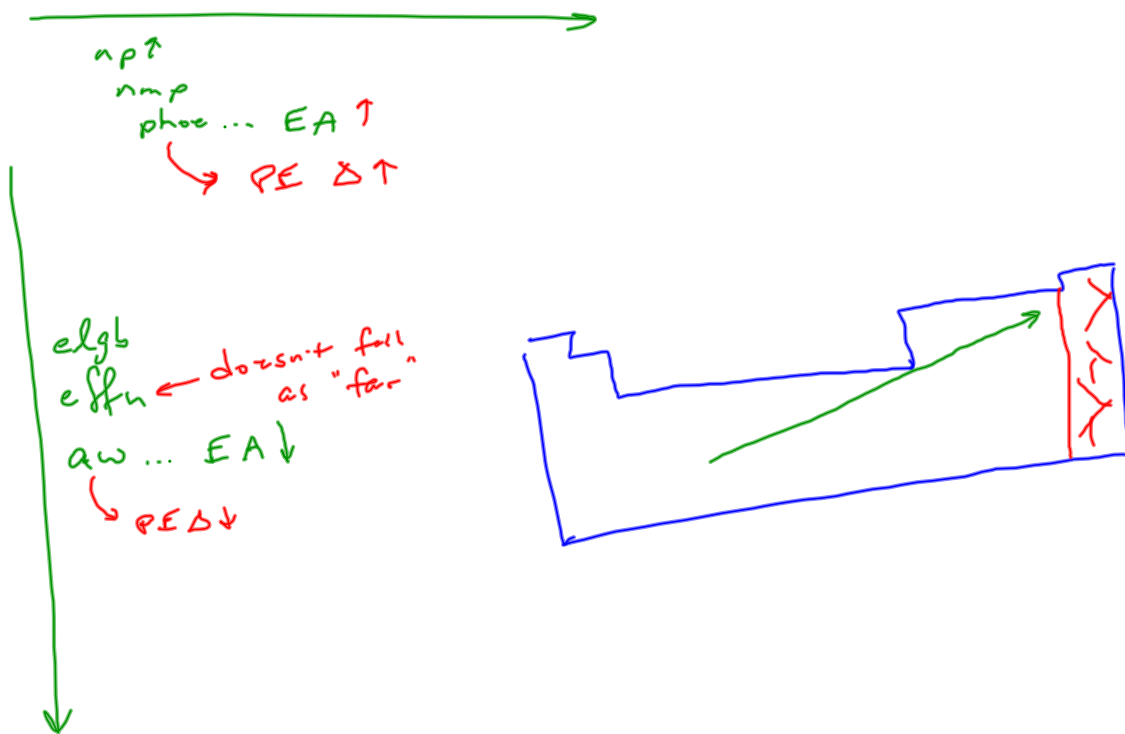
↳ value needed to remove 2nd e⁻



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The Trends

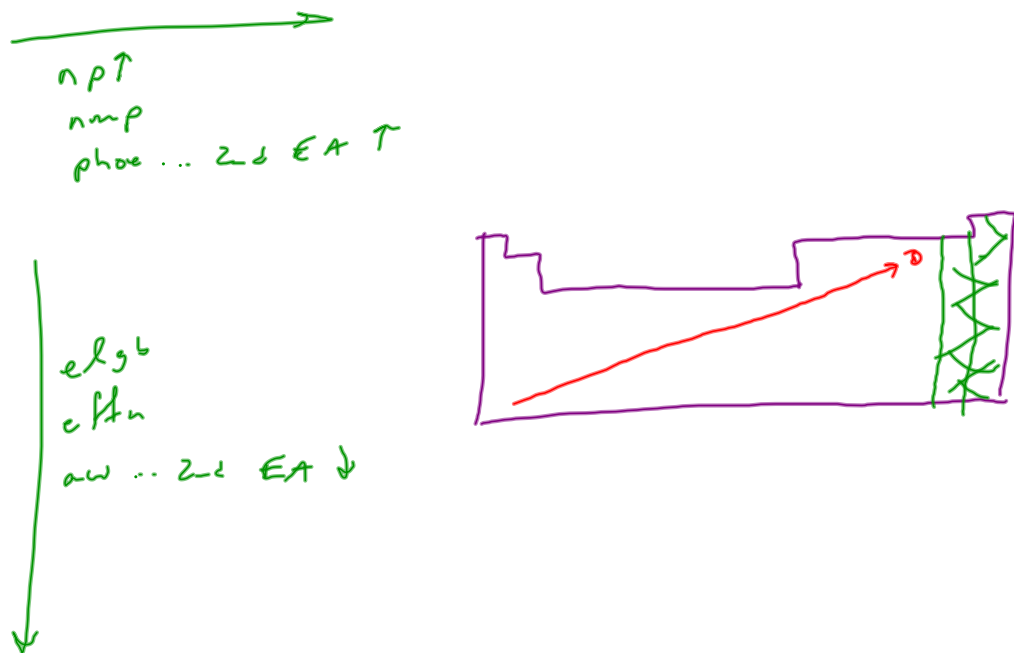
Electron Affinity



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The Trends

2nd Electron Affinity



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The Trends

Atomic Radius



np
comp
phoe ... $AE R \downarrow$ (pulling e^- in tighter)



elgb
 $AE R \uparrow$



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The Trends

Ionic Radius

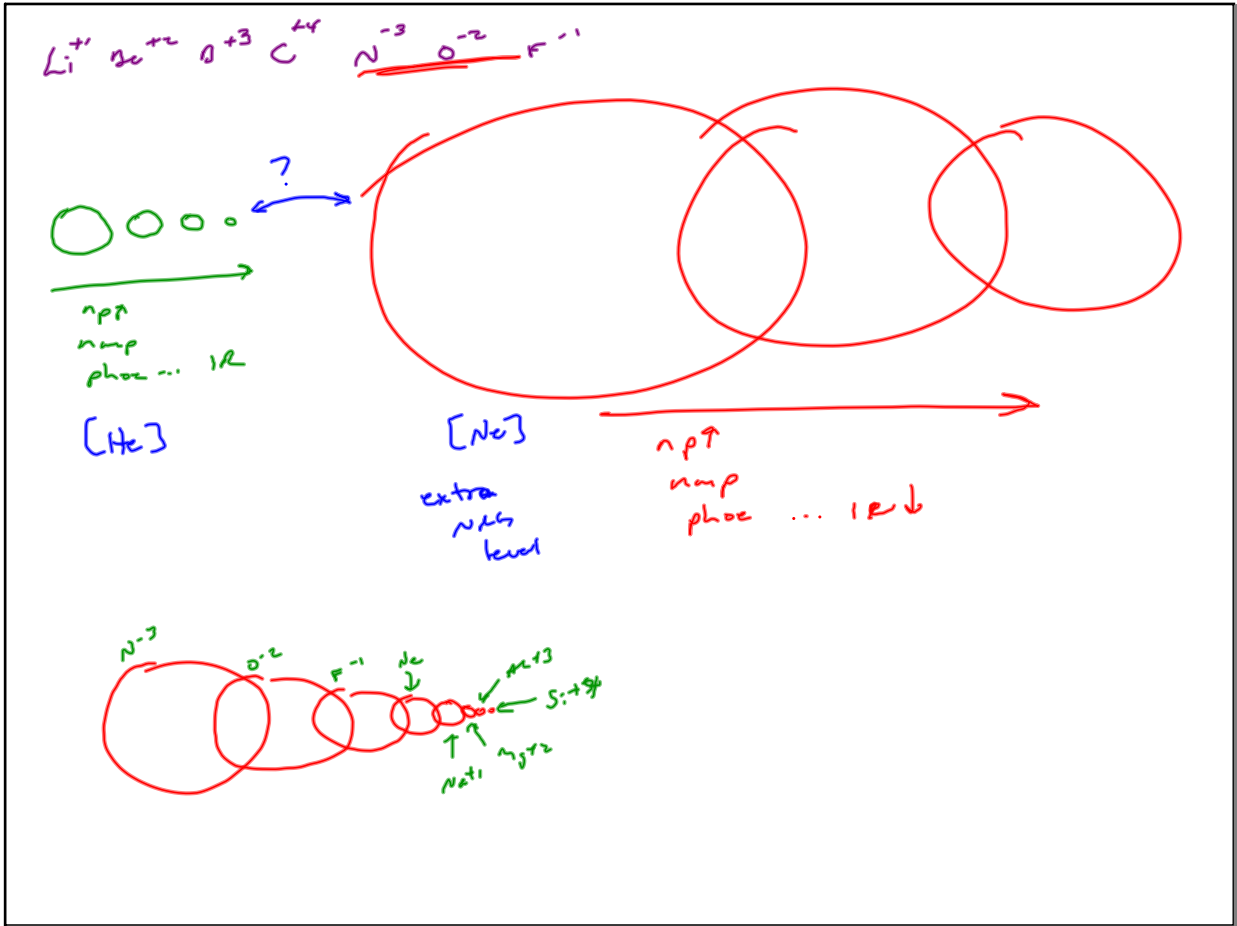


elgb
 $r \uparrow$

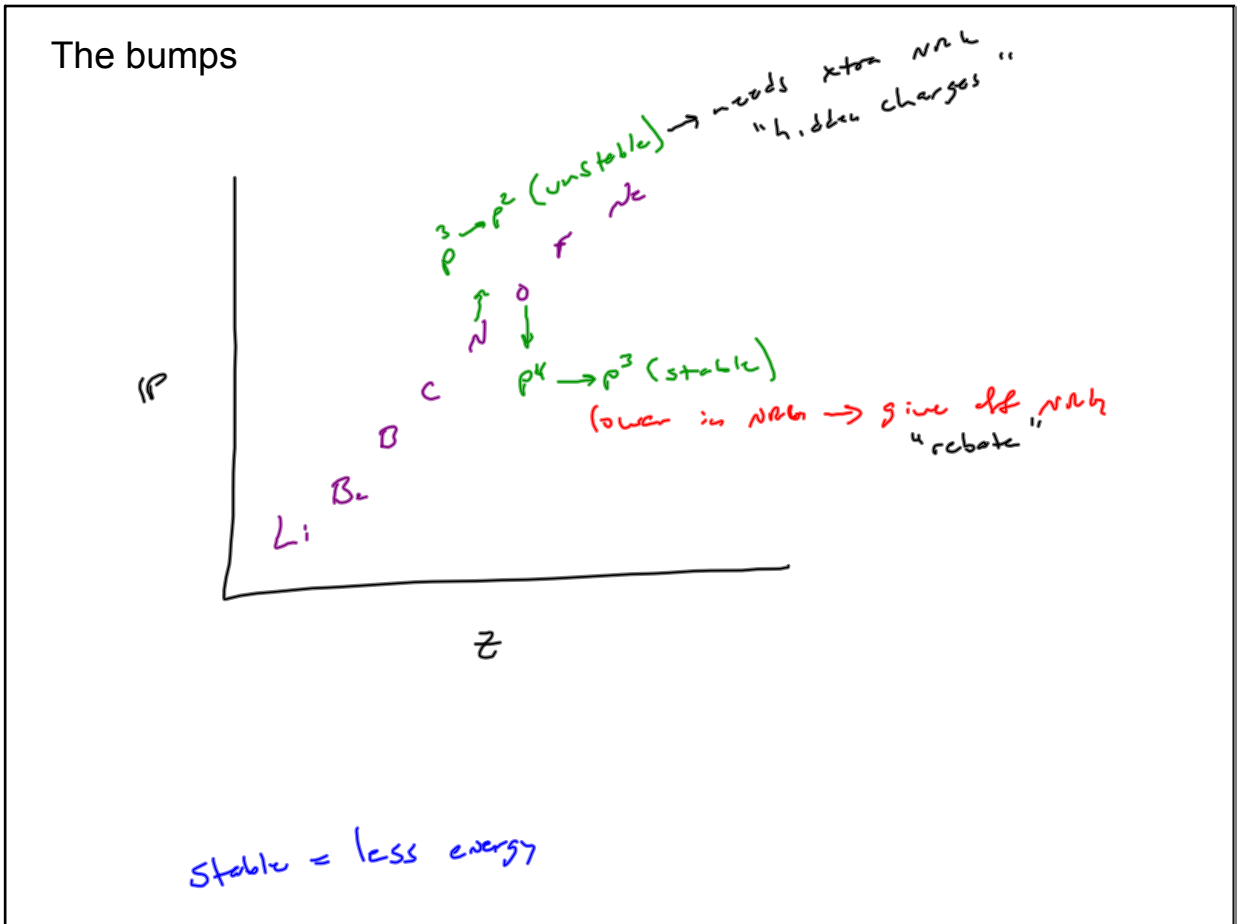


issuel

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