Fitting it all together...

n = number of orbital types...

$n=1$ $\ell = 0$ $1s$

$n=2$ $\ell = 0$ $2s$

$\ell = 1$ $2p_x$ $2p_y$ $2p_z$

n^2 = # orbitals

$n=3$ $\ell = 0$ $3s$

$\ell = 1$ $3p_x$ $3p_y$ $3p_z$

$\ell = 2$ $3d_{xy}$ $3d_{xz}$ $3d_{yz}$ $3d_{x^2-y^2}$ $3d_{z^2}$

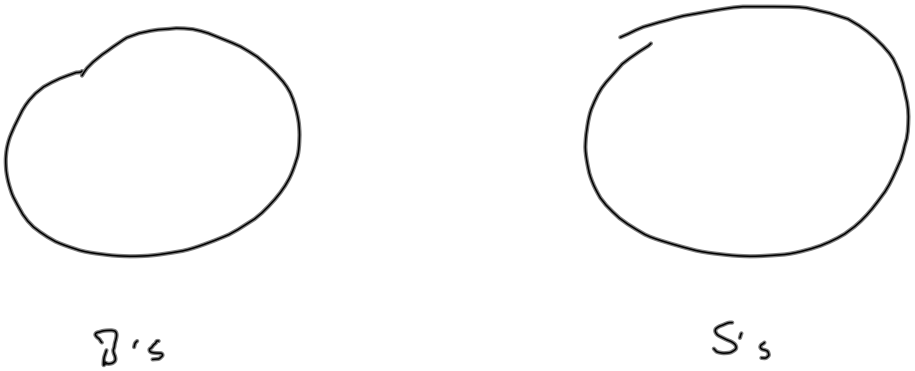
All of these are around the same nucleus...

so what makes them different?

solves quantum leaping!

NRG

Oct 14-9:51 AM

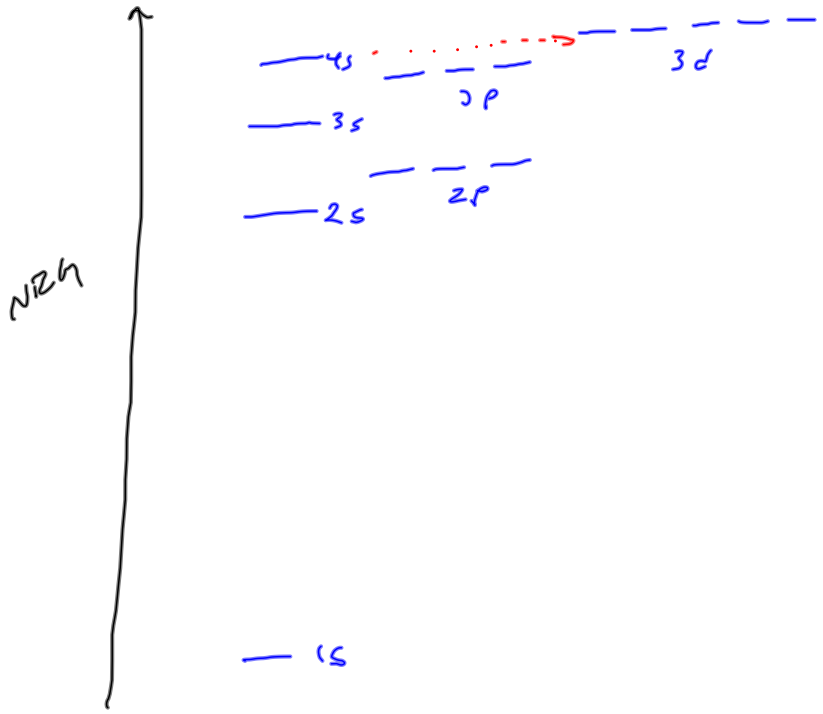


3's

5's

Oct 20-9:03 AM

Another one-dimensional graph...this time NRG



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The same graph...drawn well

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Pauli Exclusion Principle - no two electrons in the same atom can have the same 4 quantum numbers

only 2 electrons per orbital and they must have opposite spin

Spin (m_s) $\pm \frac{1}{2}$

e- act like magnets

- opp mag attract

balance elec. repul.

Oct 20-9:14 AM