

Re: New Cubic Atomic Model explains electron energy levels and bonding

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franklinhu_at_yahoo.com

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Y.Porat wrote:

i would like to see the exct folowing structure evidence:

>

> 2 8 16 32 18 4

> *or wahtever is the alleged exact figures*

Porat, let's see if I can provide the experimental evidence that you are asking for. Now, I'm no fan of electron shell theory. Like you, I had doubts about how the shell theory was supported experimentally. However, the groupings of electrons by energy level can be read off directly from the ionization data. Now this doesn't mean that the electrons are in the shells described by electron shell theory. It just means that the force holding the electrons to the atom fall into specific repeating energy patterns. I had to change my cubic atomic model to accomodate these patterns.

Now, to get to the specifics of proving that the electron shells have been confirmed, I have studied the ionization data for Krypton. This data comes from www.webelements.com. See:

<http://www.webelements.com/webelements/elements/text/Kr/ionz.html>

The accepted electron configuration comes from:

<http://www.webelements.com/webelements/elements/text/Kr/econ.html>

This is a 2.8.18.8 shell configuration. Each of the levels is further subdivided into s shells which contain 2 electrons, p shells which contain 6 electrons, d shells which contain 10 electrons. This is fully described in standard notation as:

[1s2] [2s2 2p6] [3s2 3p6 3d10] [4s2 4p6]

In this terminology:

The first number represents the energy level

The second letter represents the shell

The third number indicates the number of electrons in the shell.

The outermost electrons are towards the right, so one would expect that the outside of Krypton has an energy level of 4 and the outermost group of electrons would fall into a group of 6 and then 2 electrons with about the same relative energy level.

Now, if you carefully examine the ionization chart, you can read this shell pattern directly from the chart. Starting from the left of the chart, you can see the energy levels for the first 6 electrons gradually rising. You would expect that as you ionize electrons, it takes more energy to ionize subsequent electrons since the force created by the protons remains constant. But we see that the difference for the ionization energy is about equal for the first 6 electrons. Then we see a somewhat subtle but definite jump in the energy required for the 7th electron. This forms a group of 2 electrons for the 7th and 8th electron. Then we see a very large jump going to the 9th electron. We then see a group of 10 electrons. If you are keeping track, this precisely corresponds to the predicted electron shell levels of 6 (4p6), 2 (4s2), and 10 (3d10).

The chart of the ionization energy differences at:

<http://www.geocities.com/franklinhu/atmpics2.html>

accentuates the differences in the energy level and makes it pretty clear that the electron shell energy levels are obeyed.

Once again, I am no fan of electron shell theory, but this data forced me to completely redo my cubic atomic model to explain this data. I believe that this was a step in the right direction since it produced a more regular geometric pattern than in my previous model.

I think it is significant that I was able to find a pattern that matched since it is not at all obvious that any pattern would work. If I couldn't find any pattern to match the ionization data, that would have been a serious problem. But since I did find a suitable pattern, the cubic model passes this critical test.

I hope that this is enough proof that you can see with your own eyes, that at least the groupings of the electron shell theory are well supported. This doesn't go up to lead and the data beyond Krypton is pretty spotty, but krypton is a fairly large atom and I didn't see any indications that the shell groupings wouldn't hold out further out in the elements.

sci.physics: Re: New Cubic Atomic Model explains electron energy levels and bonding

Your model indicates that Iron (which is smaller than Krypton) already exhibits the rectangular structure. I do not see how this structure could exhibit the observed ionization pattern.

This should not be confused with matching up 'spectra' which are the wavelengths of light given off by an ionized atom. According to the other posts, spectra do not indicate the number and type of electrons in each shell, but the actual ionization energy does.

As a public service, I have posted the material I received from Porat on my web site at:

<http://www.geocities.com/franklinhu/Y.Porat-model2.pdf>