Re: Video of cubic atomic model explains all

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- *From*: franklinhu@xxxxxxxxx
- *Date*: Mon, 15 Sep 2008 11:08:43 −0700 (PDT)

On Sep 15, 6:12 am, PD <TheDraperFam...@xxxxxxxxx> wrote:

> On Sep 15, 12:51 am, frankli...@xxxxxxxxx wrote:
>
> > Classically, if an electron were in orbit around a proton, it should radiate energy and fall into the proton. So, why can't it? Is the proton and the electron going to explode or something? I see nothing wrong with the idea that the electron falls directly on the proton and they get attached like two magnets.
>
> Rutherford experiment disproved it more than a century ago. Your model is a variant of the "plum pudding" model of the atom, at least in terms of scattering experiments. Rutherford showed that any of a broad class of theories of this type are strictly ruled out.

There you go ... casually dismissing a possibly very important atomic model due to an archaic and crude experiment performed over a 100 years ago.

You say that my model is a variant of the 'plum pudding' model and it is not. First, the plum pudding model wasn't much of a model to begin with. It had no fixed structure and distributed the electrons generally anywhere within a spherical volume. This was nothing more than an atomic model 'strawman' and it wasn't difficult to disprove this extremely crude model with the Rutherford experiment.

On the other hand, the cubic model proposes a very rigid and orderly structure which is bound together in a way which is consistent with out understanding of the electrostatic force. Now I suppose you could group together any theory which doesn't compress the nucleus into the center of the atom as a 'plum pudding' model, but you would be extremely wrong. This is exactly what you are doing by out of hand dismissing the model.

To see why this could work, you do have to make some common sense

assumptions. The Rutherford model assumed that electrons and protons could be modeled as mathematical points with no surface and no volume. The only way reflection could happen was by electrostatic repulsion. OK, you could assume that, but does that make any sense? We are talking about particles that exist in the real world and not a mathematical world. How can something have no surface and no volume, but yet be something?

So the commons sense assumption is that electrons and protons do have some surface and some volume. That isn't so hard to believe (but I know you find that impossible to believe, but keep following me here). The nature of the surface might still be electrostatic, but it defines a minimum distance that particles can be placed together. The critical difference is that an electron and proton cannot be arbitraily close together as a no volume/no surface particle model would suggest. If you ask what is this thing that keeps them apart, I would point you to my explanation of the electrostatic force as a high frequency phased EM wave and that the forces can only act at a minimum of one or two wavelengths and this defines the minimum distance.

So now, we have something that looks more like classic billiard balls. I know, you don't think particles don't act like billiard balls, but keep following me here. In the end, you will end up with a world which can be described like little billiard balls, meets all experimental challenges and is understandable by normal people and most importantly, is much, much, much simpler than what we have to deal with now. Don't you want a simple theory? Keep on following me ....

Like billiard balls, alpha particles (helium nuclei) follow newtonian mechanics for collisions. So if we have 2 alpha particles, if they collide head on with the same velocity, they will bounce back from each other. So there is some other mechanism beside brute force electrostatic repulsion which can account for scattering. Now if you imagine that an alpha particle hits a thick wall of solid alpha particles, the much heavier mass of the wall causes the alpha particle to reflect back like a tennis ball against a wall. So here is another way for an alpha particle to reflect. It isn't due to the massive electrostatic charge amassed by the wall, but rather, it is due to the mass of the wall being much greater than the mass of the incoming alpha particle. None of this is taken into account in the Rutherford model or the plum pudding model. So now can you see that there is a difference bewteeen what I have proposed and the crude plum pudding strawman?

The atoms formed by the cubic atomic model are effectively alpha particle walls. I have made calculations to show that you can get reflection data from the cubic model which is very similar to the Rutherford model. Since the data matches, you cannot rule out the cubic model on the basis of the Rutherford experiment. Both can produce the observed experimental results. The Rutherford experiment can easily rule out some crude models like the plum pudding one, and

is consistent with the Ruttheford atom, but it cannot rule out a model like the cubic atomic model. I had posted these calculations before on sci.physics, but I will repost them here. This can also be found on my web site:

http://www.geocities.com/franklinhu/rutherford.html

Why Rutherford was Wrong

We all know that the size of the nucleus compared to the total size of
the atom is small. It appears the main reason for believing this is the result of the Rutherford scattering experiments which postulated that the nucleus is a small point object containing all the positive charge of the nucleus. The data appear to match the experimental results quite well, so we assume Rutherford's postulate was correct, eventhough, this is still a very indirect measure of the size of the nucleus. It is still like firing bullets into a dark room to figure out what is inside of the room. In this post, I will show that there can be alternative explanations for the scattering results and that the nucleus doesn't necessarily have to be a tiny speck within the atom.

I have proposed a new model of the atom which postulates that atoms are simply formed out of alternating sequences of electrons and protons. The protons and electrons are arranged in a very particular geometric sequence. You could think of this model as 2 sheets of alpha
particles (helium atoms) intersecting forming an X in the shape of an octahedral. I call this the cubic atomic model. The details of this theory can be found at:

http://ourworld.compuserve.com/homepages/frankhu/buildatm.htm

This theory has been discussed at some length in the newsgroup:
http://groups.google.com/groups?q=g:thl1577218448d&dq=&hl=en&lr=&ie=U...

A consequence of this theory is that the electrons are not orbiting the nucleus. They are bound into the nucleus of the atom. Since there are no orbiting electrons, the size of the atom should be dependent only on the size of the nucleus, since there aren't any electrons to make the atom larger than the nucleus. This would mean that the nucleus would be much, much larger than is commonly thought. In fact, the nucleus should be about the same size as the measured diameter of the atom. This is in apparent disagreement with the famous Rutherford scattering experiment which showed that the nucleus is a tiny positively charged speck in the center of the atom. However, I have

done some rough calculations using the cubic model to show that the same Rutherford scattering results could be reproduced by a much larger atom nucleus which follows the cubic theory. The basic premise is that the cubic atomic model forms atoms which have very thin edges.
You can imagine this by taking 2 pieces of paper and have them intersect. If you were to shoot bullets through these sheets, the bullets would only have to pass through the thin sheets and would be undeflected. If you examine the photographs of larger atoms like Krypton on my website, you can see how the atoms form an X octahedral shape (like raw diamond crystal). The cubic theory postulates that the
alpha particles are able to pass through the thin arms of the atom with virtually no deflection since the arms are not thicker than an alpha particle. The only place where the alpha particles can reflect with high angles is if it hits and tries to pass through a very thick part of the atom. This would be like trying to hit the edges of the intersecting sheets. The chance of this happening is fairly remote. I have done calculations to determine how frequently you would expect to
see these reflective collisions and I have compared them with the original Rutherford scattering experiment results and I can show that the predicted percentage for the alpha particles at particular angles for the cubic model roughly match the experimental results.

I began my calculations by collecting the statistics on the size of the gold atom according to the cubic model. It is 14 units high and the arms are 10 units wide from side to side. I approximate this as a sphere with a radius of 7. This has a spherical surface of 615. Since the cubic atom is symmetrical, the unique orientations are only contained in 1 quadrant of the sphere or 1/8 of the surface. This corresponds to a 90 degree turn through each of the x,y,z axis. This means the area of investigation is only 76. The size of the atomic unit representing the area of the top of the atom's core is a 2 X 2 square with an area of 4. This means there are 76/4 = 19 unique orientations can roughly fit into this quadrant with no overlap. There
are basically only 2 orientations which would result in high angle reflections. These are the head−on (alpha tries to pass through core) and edge−on (alpha tries to pass through arm edge). For a head on orientation, I calculated a 4% chance of hitting the core directly, 32% chance the arms get hit and 64% chance of a complete miss. For the
edge on orientation, I calculated a 20% of hitting an arm and 80% chance of a miss or pass through. I plugged these into the 19 possible
slots with 11 orientations being edge on, 1 orientation being head on and the remaining 7 as being orientations where the alpha basically passes through. The angles of deflection are based purely on a classical elastic collision with the atom. Because the atom is effectively a neutral matrix of joined helium atoms, the effect of

the
columb forces deflecting the alpha are negligible.

The calculations show the percentage chance for:

A complete miss or pass through 86.3% Would expect angle < 5 degrees
An arm gets hit 13.1% Would expect any angle 0 − 180
A direct hit of the core .21% Would expect angle 90 − 180

This compares to the experimental data which shows:

Deflections less than 5 degrees 79.2%
Deflections 5 − 22 20.4%
Deflections greater than 22 .35%

The details of this calculation can be found on an excel spreadsheet:

http://ourworld.compuserve.com/homepages/frankhu/ruther.xls

The predictions from the cube model and the actual experimental results are not exactly the same by any means, however, they are in the same rough ballpark. The main point you should observe is that the
cubic model is able to predict a scattering pattern whereby the vast majority of the alpha particles pass right through (86%), while a tiny
fraction (.21%) gets deflected through high angles. This scattering pattern does not necessarily have to be created by the atom postulated
by Rutherford as a tiny compact nucleus containing all the positive charge. You can basically get the same result from the cubic atomic model. A better calculation using a computer model to consider random orientation and random alpha may produce results more comparable (or not) with the actual experimental data and would provide a more detailed range of angles to expect when an arm is struck. Unfortunately, I do not have the resources to commit to such a calculation.

There would be other experiments to confirm or deny the cubic model with Rutherford scattering. Perhaps some of these have already been

done. I would like to see the Rutherford scattering experiments repeated but instead of using gold foil, use a form of crystallized gold (octahedral crystal) where we are reasonably sure that the gold atoms are all aligned in the same direction, and see how the high angle scattering depends on the orientation of the crystal. Based on the cubic model, I would predict that the crystal would present very little scattering in most directions, since the alpha particles are able to pass through the thin parts of the atom, but when the crystal is oriented so it hits the very edge of the atom and tries to pass through the core or arms, it will bounce back strongly. I would predict that we would see lots of scattering at 90 degree crystal orientations, which would not be explainable by the Rutherford formula. The Rutherford formula would predict the same scattering pattern/amounts no matter what the orientation.

Another possible experiment would be to use low speed alpha particles.
At some point, if the speed of the alpha particles were slow enough, it wouldn't be able to penetrate the atoms thin arms and you would see
almost all of the alphas being deflected at high angles. Rutherford would predict that all of the alphas would penetrate no matter how slow the alphas were going since there isn't much for the aphas to run
into and an electron isn't likely to deflect an alpha very much.

If anybody knows the results of these experiments, please post them to
help confirm or deny the plausability of the cubic atomic model. In conclusion, the results of the Rutherford scattering experiments do not conclusively prove the notion of the nucleus being a tiny speck in
the atom with surrounding electron clouds. Thus far, arguments against
Rutherford have lacked an alternative solid model to base calculations
on. The cubic atomic theory provides this solid model which you can run calculations on to show that it can return results similar to the experimental results of the Rutherford scattering experiment.
(end of article)

So in conclusion, I hope that I have shown you that the Rutherford data does NOT exclude the cubic atomic model so that you can get that big BLOCK out of your head so that you can explore this concept further than just dismissing it out of hand. I know you like calculations and I have performed some very complex calculations to get this result. It also predicts special properties that only the cubic atomic model will have and are experimentally verifiable and I know you like that as well. The cubic atomic model is not a variant of

the plum pudding model (which could hardly be called a model at all).

If this turns out to be right, the first person to prove it will get
the Nobel prize and it would open up a whole new avenue of scientific
exploration ... anybody out there want a Nobel prize???

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