Orbital mechanics and Electrons

Orbital mechanics involves in part the study of how two bodies in orbit affect each other and more importantly what happens when they collide. Electrons orbit the nucleus and thus are subject to the same behavior, more importantly since the like charges of two Electrons repel each other and the closer they come the greater that effect.

We know from Plank's constant that there is a minimum distance that two electrons wish to maintain between themselves and that they maintain themselves in electron shells, but the issue is why and what are the rules.

We know by observation that the first shell contains two electrons and the second eight electrons. Why two electrons in the first shell, because in that shell the two electrons are on opposite sides of the nucleus and so can not “see” each other, thus they are not subject to Plank’s constant (and thus there can only be two electrons in that shell since any more would be visible to one or the other existing electrons). No matter how they start out, due to orbital mechanics, they will push each other into this stable configuration.

For those worried about uncertainty principles, the orbit itself precesses with the introduction of additional energy or the influence of intruding electrons but the balance will be reestablished. Note that this gives rise to higher order shells, an electron intruding on a lower order shell is kicked back into a higher order or orbit.

We thus come to the second shell of eight electrons. Why eight, this is the number of vertices in a cube. The electrons will establish a “cube” that is Planck’s constant on a side. The electrons will orbit and spin as a unit, reestablishing equilibrium when ever disturbed

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Gravity and inertia

It is time to reexamine Galileo and his experiment at the Leaning Tower of Pisa.

We have been told that acceleration due to gravity is constant without respect to the mass of an object, a pebble accelerates at the same rate as a canon ball.

On the face of it this is counter intuitive, gravity is mass attracting mass, thus the more mass should result in a higher acceleration.

This is in fact correct but you must then consider the other force related to mass and that is inertia. More massive objects would be accelerated more but their higher inertia retards that leading all objects to accelerate at an equal rate.

Sunspots

The Sun is a factory, converting raw Hydrogen (H1) which is not fusible, into Deuterium (H2) and Tritium (H3) which are. This requires several steps, the first of which is slamming an electron into a Proton with sufficient force to create a Neutron and then slamming that Neutron into a Proton with sufficient force to create Deuterium. The important takeaway here is that the energy (E) is different for each of these processes and thus they happen at different depths in the Solar atmosphere due to the increasing temperature and pressure which results in the energy required to form either Neutrons or Deuterium or Tritium.

This results in a zone of depth where below ½ E (two particles collide head on) and 2 E (where particles moving away from each other collide).

Understanding this zone effect is critical when understanding sunspots. Above the depth of ½ E (temperature/pressure for fusion) fusible elements do not fuse, and below 2E any fusible elements will have fused and any fusible element remaining in the zone will eventually fuse. Thus normally there is no fusion on the Sun going on, the light and heat we receive is due to gravity collapse and previous fusion events. This is borne out by previous studies that show way to few Neutrinos being produced.

So a sunspot starts by two fusible elements wandering below this ½ E boundary and are fused. This immediately puts a whole lot of energy into the nearby environment instantly fusing other fusible elements that were previously above the ½ E boundary. This processes continuse spreading outward and upward fusing any elements whose new environment exceeds there fusion temperature/pressure. This process would continue across the surface of the Sun except for another phenomenon, the energy projected downward eventually reaches downward to the liquid layer which is the true surface of the Sun. This energy bubble causes a depression an shockwave in that denser layer, reflecting the energy back up. Since the shockwave traves faster than the nuclear explosion you eventually get to the point where the depression reflects back enough energy to accelerate the atmosphere above it upwards, cooling it and stopping the reaction. This jet of cooling gas eventually breeches the Photosphere and a sunspot is formed. To understand why it remains is to look at another property effusion, the huge electro mechanical pulse that is created and the fact of mass moving quickly upward creates a magnetic anomaly which maintains the sunspot.

Black holes and super novas

One very important thing to remember about any stellar body is that at the center of this body there is no gravity and thus any pressure is near zero. This has two implications, the first is that

gravity and thus pressure is highest at the surface, specifically at the boundary of compressibility and not so. The implication of this is that every stellar body can only fuse particles up to the gravity compression limits of it's mass. For the Sun to fuse higher level elements it would have to have increased mass.

This has a profound implication on black holes, in order that the velocity of escape to be above that of the speed of light it’s mass must be enough to bend light back on itself. Now we can easily calculate this by calculating what mass would yield that escape velocity and prove it by measuring the amount of curvature to light caused by our own sun.

This, when combined with the the fact that matter is not compressible beyond a certain point (read neutron star) and the possibility of planet sized or even Sun sized black holes disappears.

The second aspect of the gravity at the center of a stellar body is zero for a star is that the interior of that body is rich in unfused particles. When a star gains mass through it’s attraction of particles in it’s environment it may pass a threshold where previously unfusible elements will suddenly start to fuse. The resulting explosion will immediately cause enough pressure and temperature to fuse even more heavier atoms, leading to a nova.

A super novas on the other hand is caused by the collision of two stellar masses. The resulting collision compression of the unfused elements at the core of that stellar body instantly fuses the entire interior of the star resulting in a super nova.

All of this leads to one conclusion, to have black holes photons must either have mass or charge or both to be affected by a black hole’s gravity. Supporting this conclusion is the behavior of devices such as photovotaic cells and image sensors, both of which rely of electrons being knocked out of orbit. This also explains why photons are deflected and concentrated so easily, they are not generated by electrons reradiating them but rather reflecting off

The dry ice problem

Physics has a dry ice (solidified CO_2) problem. Even though chemically inert, when cooled sufficiently CO_2 becomes a solid. The question is then why one molecule of CO_2 would be attracted and stay connected to another molecule of CO_2.

Although Physics may postulate gravitation, the simple explanation may be that the Electrons of one molecule are attracted to the Protons of the other and vice versa.

This effect is well known to chemists but seems to be lost on physicists.

Now consider that although the individual effect of any attraction is miniscule the aggregate attraction may be very large. Quantity can have its own quality. For those skeptical of this explanation of gravity consider lightening. A very very small percentage of the electrons in those clouds have a huge macro effect. For those of you disbelieveing this consider the fact that

lightening hit the bumper of my father’s 1950s car vaporizing a 2 inch circle of steel in that bumber.

So then how exactly does gravity differ from electrostatic attraction? And if so how much attraction do we ascribe to each?

Radio and Photons

Photons are interesting in that they are born from electrons, the product of the release of energy when transitioning from a higher excitation state to a lower one. We know that photons have a number of properties the first of which is that they can not escape a black hole. Since gravity affects Photons, Photons must either have a mass or a charge. Since the electron that birthed the photon does not appear to be diminished nor is it probable that was was created we must assume that Photons have a charge albeit a very small one.

This aligns well with other observations. Photons slow when going through a “transparent” medium. It would appear that either the mass of the medium or the positive charge in the nucleus drags on the Photon. Similarly Photons are reflected from surfaces in much higher quantity than can be explained by absorption and reradiation. It appears as if Photons are reflected off of the material, specifically as two charges of the same type would. This is especially evident in the coherent reflection as from a mirror.

While on this topic we must consider how a photon manifests frequency. If a photon actually has a wavelength then different lengths, an infrared photon should be longer than an ultraviolet one which should be measurable. Likewise we know that highrt frequency photons have higher energy. This leads to a conclusion that the frequency exhibited by a photon is not directly a wave length but rather the frquency at which they are vibrating. This can be infered by how they are created since the electrons from which they are born are orbiting the nucleus and thus would impart motion as vibration in the photon. This also explains polarization as photons vibrating in the wrong direction would be absorbed or blocked.

We have been taught that there is an electromagnetic spectrum which extends from radio frequencies up through light and Gamma Rays.

This implies that photons are responsible for your AM or FM radio signals. This concept would appear to be false. Although both photons and radio signals are waves that have a frequency they are very separate phenomena.

Radio waves are created by moving electrons back and forth at a certain frequency. This back and forth motion induces corresponding back and forth movement in the electrons of the antenna of the receiver, which selects the frequency to respond to and amplify that frequency. Although one could make the case that the electron movement generates photons as it does generating magnetism, the generating of such photons within the receiver would corrupt the receiving circuitry. Additionally radio waves do not affect photovoltaic cells again mitigating against photons being involved with radio waves.

Now for those of you who say “what about microwaves?” you must understand that microwaves are generated through a transition device such as a microwave diode or magnetron, which generate the photons directly.

Relativity conflicts with the standard model

I have always had issues with the heavier quarks, there appears to be no natural reason for them to exist. This is especially true of top and bottom quarks which require collisions at .9997% of the speed of light to be generated.

My question is the theory of relativity states that as an object approaches the speed of light its apparent mass increases and rate of time decreases to an outside observer.

My question is whether the collision detectors at CERN qualify as an outside observer and whether top and bottom quarks are actually relativistic constructs as opposed to separate particles.

Now if top and bottom quarks are separate particles from up and down, where do we see them in the real world? Are there different types of Protons based on the

type of quarks involved? Can top and bottom quarks interact with up and down quarks and if so why were they not discovered earlier?

Although it might be hard to prove that top and bottom quarks exist in the real world, it would appear that they are more massive in which case those of you with a linear accelerator can check if some Protons are more affected by gravity then others or check if more collisions in total are logged when top quarks are formed as opposed to power levels when they are not.

In all cases remember that bottom quarks were discovered before top quarks, likely because they have greater mass, and that top quarks were only discovered when we had accelerators that worked close to the speed of light.

Quarks I

You ask yourself “Why do electrons orbit the nucleus?”, the answer may be very simple.

In order to establish an orbit we must have two things, a force attracting the object and a force causing it to move away. Both of these forces exist in the nucleus but in order to understand them we must first look at the structure of the nucleus.

We have been told that the nucleus is made up of Protons and Neutrons on a macro level but at a subatomic level that is incorrect. Protons and Neutrons are each made up of three quarks, a Proton of two positive quarks and one negative quark and a Neutron of two negative quarks and one positive quark (this is a gross simplification but bear with me).

So we have an answer to our first question, electrons orbit the nucleus because they are attracted to the positive charges but repeled by the negative charges.

We also have the reason nuclei stay together the negative charges attract the positive charges and vice versa.

Now this leads to understanding two things, the first is why fusion takes so much energy. Two atoms repel each other (remembering Planck's constant, negative charges hate each other and want to remain apart) until they are pushed close enough so that individual quarks can "see" each other where upon they attract.

The second is that in the nucleus Protons an Neutrons do not exist but rather the quarks establish a crystal like lattice of interlocking fields (remembering that electromagnetic forces extend in all directions).

We will discuss fusion more in Quark II.

Quarks II

As you may have guessed I have a problem with the "standard model" of atomic structure in physics mostly because it is contrary to observable facts or explains them in near religious dogma. My comment on that is "beautiful theories and elegant mathematics are not necessarily a reflection of reality".

In Quarks I, I explained in very simplistic terms thar are compatible with the standard model about electrons and their relationship to the nucleus. Let us go into more but controversial detail. Protons are composed of two up quarks and one down quark, each up quark having a +2/3 charge and the down quark with a -1/3 charge for a net charge of +1. A Neutron has one up quark and two down quarks for a net charge of 0. On the surface very simple but it ignores the reality that charges radiate in all directions, physics is not paint, you can not mix charges and have them blend.

So let us examine other scenarios. First we most examine the Neutron. A Neutron is formed when an electron slams into a Proton with sufficient energy. Now Neutrons, on their own will decay back into a Proton and an Electron. In math this is defined as an identity relationship.

In the standard model we are asked to believe that that electron magically converts a +2/3 up quark into a -1/3 down quark with no major release of energy thus pretty much violating conservation of mass and energy. Their justification of this is that when we smash a Proton we never see a free electron, but think if the electron were bound to the up quark it would travel with it. More importantly the decay of the Neutron can be easily explained. You need only to look at Plank's constant to understand that electrons really do not want to be close to each

other. Since quarks like atoms vibrate one can easily see that after a time one electron will force the ejection of the other electron.

We find more proof that the Electrons are bonded to the up quarks by the fact that much of the energy from fusion is in Gamma Rays. Now we know Photons are created by electrons shedding excess energy and releasing photons. We therefore must conclude that there are electrons in the center of the nucleus.

A complementary issue is that each Proton bonds to a Neutron stabilizing the Neutron (although I came to this conclusion by myself, Lincoln Labs also determined this). Let us examine the likely structure of the pair bond. In order for the various electrons not to be able to “see” each other the central electron would be surrounded by the six up quarks, above, below, left, right, front and back. The other two electrons would be on opposite sides of this structure, each surrounded by three up quarks and thus stable and not “seeing” the other two electrons. This is a repeating structure and thus other Proton Neutron pairs can bind together. In some cases additional Neutrons can bind to glue the structure together.

What now see is that the nucleus does not contain discrete Protons or Neutrons but rather is a single crystalline structure of interlocking up quarks and electrons.

This explains why fusion generates energy and why that energy plateaus when fusing higher order atoms. Since all upquarks are attracted to all of the electrons and vice versa, the nucleus compresses releasing energy as the electrons are forced closer to each other.

Observations

In this series of articles we have shown that there is a unified field theory, electro motive force, the attraction of positive charges to negative charges and the repelling of two like charges explain the construction and interactions within an atom. Additionally the attraction of a large number of atoms to large numbers of other atoms explains gravity.

What is left to be determined is the actual composition of an up quark. We know an up quark contains a positive charge yet when it comes in contact with an electron there is no mutual destruction. We know that most of the mass in the universe is tied up in up quarks. We know that up quarks repel each other yet they repel each other much less than they are attracted to negative charges. We know that electrons have a unit charge of -1 but up quarks only have a unit charge of +2/3, which is totally contrary to how the rest of the universe works.

The above leads to the following conjecture, the up quark is a positive charge surrounded by a structure which gives it mass ans insulates it from the negative charge and the positive charges of other up quarks (reducing the net repelling effect to 4/9).