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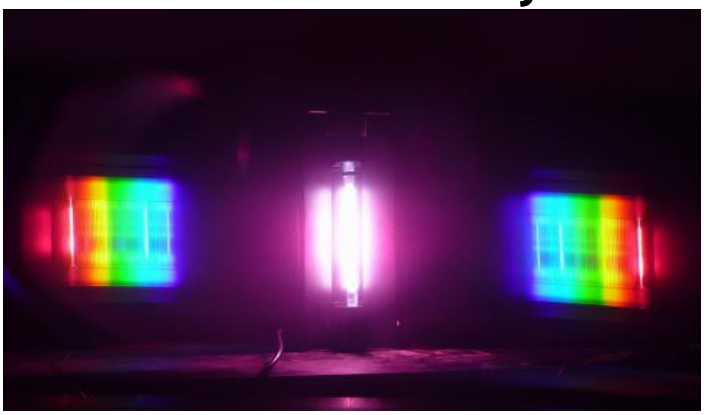
Gas Discharge Lamps
a better theory



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This paper is one of the fruits of my third conference, which happened a couple of weeks ago. Two seemingly unrelated questions came up, neither of which I had worked on before. Rather than forbid such questions or drive around them, I encourage them in class. What I normally do is let the discussion continue while part of my mind brainstorms on the given questions. Then, when I have an idea, I spill it and let the class discuss it. This happened in my first conference as well, where I was asked about evanescent waves. A researcher who had done some lab work in this field explained to me the problem very broadly, and although I hadn't worked on it before, I was able to use my charge field to come up with an answer almost immediately. I then dove more deeply into the problem after conference, publishing a paper on it within the week.

This time the main question concerned how Noble Gasses—which were normally unreactive—could be such good candidates for lightbulbs—such as Helium discharge lamps and Neon signs. The other question, which was at first not connected to this question, was how and why the conductivity of Elements could vary so greatly. I was reminded that different Elements—or even the same Element in different circumstances—could vary its conductivity by many orders of magnitude. If my nuclear diagrams were true, then the variance might seem to be linear, not exponential like we see.

Regarding the second question, it didn't seem to me that my diagrams implied a linear variance in conductivity, but I could see I needed a fuller answer than that. Since I hadn't written a paper on the question, I didn't have a prepared answer. So I just told the questioner I would work on it overnight and get back to him. I didn't have to do that, because later that same day I realized the answer to the first question was also the answer to the second question. In explaining how Noble Gasses became lightbulbs I could also explain why conductivity varied so much.

The current explanation of gas discharge lamps uses electron orbitals, so we know it can't be right. They should have known that a century ago, and I assume some or most physicists who actually worked on the problem *did* know it. If Noble Gasses respond so readily to "electrical discharge", they should also respond readily to other Elements. Remember, the mainstream explanation for both this current problem and for reactivity is the same: electron orbital interaction. Molecular bonds are explained by orbital linkages of some sort (ionic or covalent bonds), and this light discharge is also being explained by electron orbital manipulation. We are told free electrons collide with gas molecules, bumping an orbital electron into a more energetic state temporarily. When it falls back down, it releases a photon, and this is the light we see.

However, given current theory, we have many problems, since we are being told that Noble Gasses—which have little propensity for reacting with other Elements—nevertheless have a high propensity for interacting with the much smaller electron. That should have always been curious, since when reacting with other Elements, the Noble Gas would have been reacting with *other electrons*. It would have been reacting with the other electrons of that other Element. So, again, why is the Noble Gas suddenly so reactive with electrons, when it wasn't before? It is a fantastic question, and should have doomed electron orbital theory and the theory of gas discharge lamps long ago.

But even without that problem, we know the electron orbital theory is garbage. See my paper on molecular bonding, which proves all electron orbital theories flout their own field and particle definitions on a daily basis. The theorists have electrons moving *both* to plus potentials and minus potentials, depending on what they need at the moment. They always did, all the way back to the beginning, and they have pretty much conceded that point now in solid state physics, where they have created mythical "electron holes" to move to the minus potentials.

Those who have read my many papers critiquing mainstream theory and who have studied my nuclear diagrams know that field potentials and current are not caused by the motion of electrons. They are caused by charge channeling through the nucleus. That's right: the nucleus channels real charge photons through its architecture of protons and neutrons, creating streams of charge.

This answers another begged question of the mainstream. Go back a page and see where the mainstream claims the electron emits a photon. How does it do that and conserve energy? It must have absorbed that photon from the field earlier, right, to make the jump up to a higher energy? Well, if that is so, then absorbing that photon must have been the cause of the jump up, not the collision with the electron. The electron collision isn't needed, is it? A photon already has both energy and momentum, so no collision with an electron is needed. And if that is so, then why not make that photon the field particle of charge, and of all these interactions? Remember, that is (roughly) what I have done. Why does the mainstream goes to such incredible lengths to dodge that logical conclusion?

Well, since they don't have charge channeling by the nucleus, they can't explain where these real photons are coming from. They seem to have a big conservation of energy problem, and they dodge it in precisely this place. They dodge it by drawing your attention away from that photon and keeping it on the electron always. You never ask where that photon came from. If you did, you would eventually figure out it is coming from the charge field. In fact, the photons ARE the charge field.

Conveniently, you also don't ask if the mass of the electron is changing in these orbital jumps. If the electron were really absorbing and emitting photons like this, it should be changing its mass equivalence by a substantial amount. They have no evidence it does this and lots of evidence it doesn't, which is just one more way we know this entire mainstream theory is garbage.

I will be told the photon has no mass, and it is true that is how the mainstream dodges this question. But notice I didn't say "mass," I said "mass equivalence." Photons have high energies, and it is this energy the photon should be adding and subtracting to the orbiting electron—either in absorption or emission. Using Einstein's famous equation, that energy must have a *mass equivalence*. An electron emitting a photon at c should lose all the energy that photon now has, and that amount of energy would equal a pretty substantial amount of mass. But we don't see that.

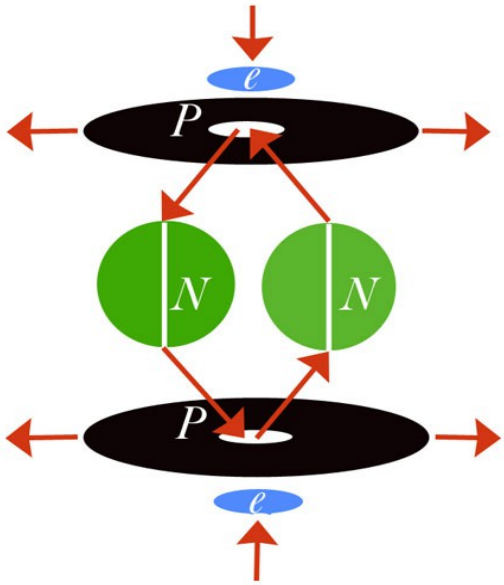
Another reason they have to hide and misdirect is that if they admitted the photon was the field particle of E/M rather than the electron, the standard model would immediately collapse. Most of the theory and equations of the past 80 years would be out the window, and the heavily promoted physicists of the past decades—many of whom are still living—would be exposed as tyrants or hoaxers. Most of the Nobel Prizes and other top prizes would have to be returned or melted down for scrap. So while we hear a lot about truth, honesty, and openness, we can expect to continue to witness very little of it from mainstream physics.

The truth is, *nothing absorbs photons*. They aren't absorbed, they are channeled. Yes, the electron recycles the charge field just like the proton and nucleus, but in a much smaller amount. In this way, the photon does pass through the body of the electron, but since it passes through at c, nothing that could be called absorption takes place.

Anyway, let's move on. I have covered all that in previous papers. If the mainstream theory of gas lamps is wrong, what is the right answer? I could immediately see that the applied current was rearranging the nucleus in some way, but my first efforts in conference at rearrangement were far too radical. We have seen in previous papers that by bringing larger nuclei very near smaller ones, we could rearrange the outer baryons, creating new charge paths. So I began my answer at the whiteboard by trying to rearrange the Neon nucleus to make it more conductive. However, I soon ran up against two very good points from my conference audience. One, since no larger nucleus was coming near this noble nucleus to break it, I no longer had that mechanism available. The current itself didn't seem nearly strong enough to do this itself, especially considering that the initial energies in these lamps wasn't that great. Two, historically we had seen the same thing happen to Helium, and Helium couldn't be rearranged in the way I was trying to rearrange Neon. Being just a single alpha, Helium couldn't be broken that way. If the nucleus were being re-arranged by the charge field, the re-arrangement must be a more subtle one.

I am very thankful to those who pushed me on this, because it forced me to see a far more probable answer to the question—one that required a more elegant tweaking of the nucleus. The questions were so good they made me see the right answer almost immediately, and I rushed to the board to diagram it.

The reason I could see the better answer so fast is that I have already drawn the Helium nucleus in detail. I first drew it several years ago in my first attempt to explain charge channeling. Although that first diagram was rough, it did the job it needed to do. A couple of years later I improved that diagram immensely by showing the fuller role of neutrons in the architecture. This is from my paper on Deuterium:



I will just copy what I said there:

That is the He sandwich I was talking about, but here I have drawn all the main charge vectors. From them, you can see that the neutrons *must* bond in He4 side-to-side. The left neutron is then channeling the anticharge of the upper 2H, but since the bottom 2H is upside-down to the top one, it doesn't *feel* that charge as anticharge. It is looking at the anticharge from the other direction, so it sees it as charge. Which of course means our two neutrons are reversed. One is upside-down to the other. In some way, it is now an anti-neutron.

Interestingly, the mainstream knows this, in a way. In this situation, it also admits the neutrons are anti-parallel. However, since according to mainstream theory all spins are intrinsic (not real), the standard model can't use mechanics or diagrams to explain any of this.

The important thing there is that the neutrons are anti-parallel. One is channeling the main charge stream and the other is channeling the anticharge. Yes, we have both here on Earth, which I first showed in my paper on beta decay and quarks. The ambient field here on Earth is mixed, with about 2/3 photons and 1/3 antiphotons. One set is just spinning the opposite way of the other, and neither is mysterious or esoteric in any way. Well, we can use this to explain the current problem. If we first create a vacuum or semi-vacuum, we have removed much of the ambient charge field density. They know this, in a way, but what they don't know is that in this case, the important thing is that we have removed much of the anti-charge. Since we will have far fewer antiphotons in an evacuated chamber, one of the neutrons in the alpha will be doing almost no channeling. It will become mostly de-charged. Now, if we then put a current through the gas, we will be forcing all charge in one direction. This will weaken the anti-stream even more, giving us a very uni-directional charge stream through our material and therefore through our nucleus. What is more, the gas will align to this charge stream. Each Helium nucleus will point its south pole toward the incoming charge stream, to facilitate its channeling. That is what conduction is, as we have seen again and again in my papers.

Since it is the charge stream that was holding the neutrons in their positions, one of the neutrons will become nearly useless in the new architecture. Since all the charge is going the opposite way to its channel, it will have nothing to do. Even more, the charge channel on the other neutron will become

overloaded. There will be more charge to channel than the single neutron can channel. Therefore, the unused neutron will flip to match its channel to the given channel. In doing this, the conductivity of the alpha will increase greatly. In fact, under optimal conditions, we would expect to see an increase from 2/3 – 1/3 = .33 to 2, which is an increase of 6x in a single alpha.

This number works well, since to push light from infrared to visible would take an energy increase of between 2 to 50 times, depending on the original energy and the final color.

And, since larger Noble Gasses or larger Elements would be composed of many alphas, we would expect a flip in each alpha, giving us yet another multiple. Since Neon is five alphas, we might (at first) expect an increase in conductivity of 30 times.

But even that would be underestimating the possible increase. Since each alpha acts as a charge driver, the increase is actually a power increase. We don't have 6 x 5 here, do we? Since these alphas act like engines or boosters in sequence, we have 6 x 6 x 6 x 6 x 6. That's an increase of 6^5, which is 7,776. If you then align these nuclei, you get *another* power increase, which depends on the number of atoms present.

Since we are dealing with a gas, it also depends on the density of the gas, since the nuclei are not aligning pole to pole, *edge to edge*. There is considerable distance between atoms. The current will suffer dissipation between nuclei. But even taking that into account, we would expect another low power increase due to alignment of atoms. In other words, even if dissipation only gave us an increase on each atom of something like 1.00000000001, the many atoms in alignment would still give us a power increase, provided there were more zeroes in the exponent than between the 1's in our number.

This is why we see larger Noble Gasses above Helium boosting the charge field *above* the visible, into the ultraviolet. The charge is being spun up too much by the multiple alphas, and has to be spun back down by the fluorescent coating—as is known.

That explains the power increase and the increase in conduction in the Noble Gas, but it still doesn't explain the light show. Well, visible photons can be created in any number of ways, so losing the explanation based on orbitals shouldn't concern us at all. From my previous papers, you know that visible photons can be created either by a spin up or a spin down. In other words, you can spin up infrared photons into visible photons, or you can spin down more energetic photons into visible photons. You can even spin- strip electrons down into photons, although we normally see more energetic photons like gamma rays or X-rays created this way. So it is likely we are seeing a spin up rather than a spin down here. We probably don't have enough energy available to be spin-stripping electrons down to visible photons, since according to my quantum spin equation that would take the loss of at least two spins. What we most likely have is smaller infrared charge photons being spun up into the visible range. I would expect this is happening at the charge boundary caused by the vacuum tube. Remember, we have an evacuated or partially evacuated space created in these lamps, which means we have created a boundary between the ambient charge field and the internal charge field. No, we can't create a charge vacuum, but we can certainly create very different charge densities, and that is what is happening here.

Most charge is being channeled in the direction of the current, but because this is a gas with a fairly low current, many random charge paths will remain. In other words, not all photons will follow the current or the main line of electrical discharge. Some percentage will still randomly fill the container. And since any boundary is porous to photons, some percentage will *pass* the boundary. As they pass

the boundary from sparse charge to denser charge, they immediately suffer more collisions. These collisions can cause either spin ups or spin downs, yes, but you do not see the spin downs. A charge photon is most often in the infrared, and if you spin down an infrared it remains invisible. But the ones spun up will become visible photons. These are the photons we see.

This also explains why these lamps work best when you *don't* have a very strong current. Too much potential from end to end would push all charge to the far end of the tube, creating light only there. What you want is enough through charge to align the gas, causing the neutrons to turn, but not so much that you lose all random charge. You need the random charge to create the even lighting. More on this below.

We are told the color of the light is determined by the emission spectrum of the atoms in the gas, as well as by the pressure of the gas and other variables. And while that explanation is roughly correct, it isn't completely correct. The color of the gas *is* determined in part by the energy of the internal charge streams, which are determined by the paths through the nuclei, so we could call that an emission spectrum. But since the mainstream means by emission spectrum something completely different, we can't say they got it right. What they mean by emission spectrum is the energy of that photon supposedly emitted by the electron when it falls back to its ground state in the orbital. Since that isn't happening, the color can't be a function of it. Instead, the color is determined by the energy of the internal charge stream, as channeled by the given nuclei. But since that charge remains in the infrared no matter its density, it can't show color until we have some further interaction. In other words, visible light is never caused directly by the nucleus (or at least not in cases like this). We have to have spin-ups beyond the nuclear boundary, and this would either happen as I have proposed above or it would happen when exiting charge interacts with a free electron, being spun up by that hit.

Let's pause on that, and circle it. We actually have two new possible answers to this, and both of them are far better than the mainstream answer. If photons aren't being spun up at the boundary, they may be spun up when they collide with free electrons. This second answer would actually mirror the mainstream answer more closely, as you see. They propose a collision with an *orbiting* electron, and the *emission* of a photon. I propose a collision with a *free* electron, and the *spinning up* of a photon. So you see the parallels. But, as you have seen above and as you will see again below, my theory makes much more sense. It creates far fewer contradictions, begs fewer questions, and stays consistent with its field definitions. And, as we have seen in many previous papers, it gives us a much cleaner and simpler field math. My spin theory and spin equations gives us a way to mechanically assign all the wavefunctions, as just one example.

So which new theory is preferable? At this time, it is hard to say. This is my first go at this problem, and I need time to tweak it further. My feeling is that the boundary may not be energetic enough to cause the spin ups we see. I have shown in previous papers on subjects like magnetic reconnection that photon-photon collisions probably *can* cause spin ups directly, without the need for ions. But in those problems, we were dealing with much denser and more energetic charge fields. Here, we may need the electrons not only to divert the photons, but to augment their outer spins.

With that in mind, let us look at this ionization. Remember, the mainstream uses ionization to explain this phenomenon as well, and once again they are close to correct. We do have ionization present and free electrons, but neither causes the effect. Both are just further effects. As the charge current runs through the aligned nuclei, the electrons on both poles are blown out. So in this sense, the ionization isn't a cause, it is an effect. But it is true that the free electrons can now help create secondary effects. Since they are quite large compared to the photons, they are harder to channel. Some will be bounced

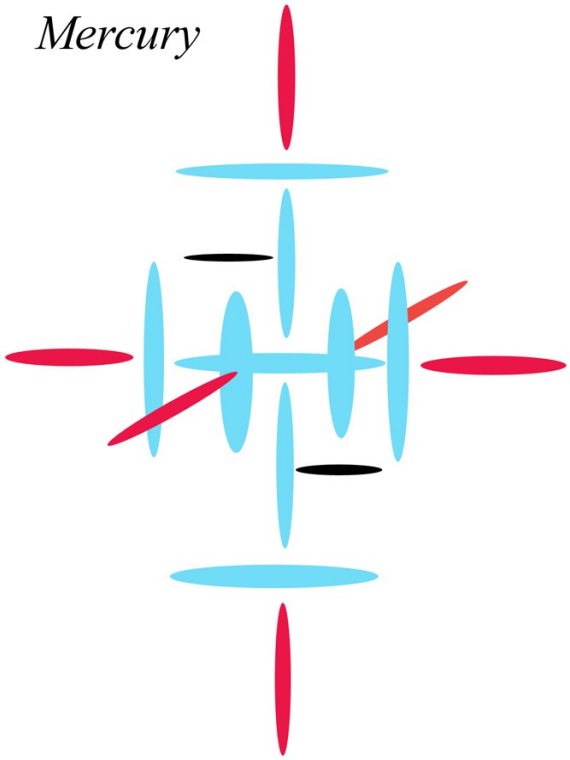
out of the channel, creating more randomization in the gas, which adds to evenness of the light being emitted. But most electrons will try to stay in the pole-to-pole channels, since that is where the photons are driving them. Problem is, they can't travel through nuclei like photons can. They are too big (in most cases). So they tend to rattle around in the space between nuclei. The ones that are rattling around like that create havoc in that current, knocking many photons sideways and out of the stream—once again adding to the randomization and helping the evenness of the light.

This is why adding sodium or halogens helps the light production: these elements are very polar. In other words, they have protons plugged in the poles, but not the carousel level. So they channel strongly pole to pole. This helps because, remember, the Noble Gasses don't have any protons on the poles. Any through conduction they have has to be induced by the applied current. So group IA and VIIA help the conduction. They also help by adding their electrons on the poles, which are then ionized. This extra ionization creates more collisions in the current between nuclei, sending more photons sideways which can then help the evenness of the light.

This also applies to beta producers added to the mix in some lamps. This just increases the free electrons, which increases the evenness of the light. But again, the electrons are there mainly to bounce charge photons out sideways. Without them, too many photons would be sent straight through to the far end of the tube.

All this tends to disprove the mainstream mechanism, of course. If the light were caused by photons emitted by electrons in orbitals, then all these ionized electrons would be redundant. If the light were caused as they say, why insert beta producers? Why would ionization be so important? They tell you that we need these free electrons to bounce the orbiting electrons up, but they know that isn't true. Even in mainstream theory, electrons can be bumped up by charge alone. In both the classical and quantum theories, charge is field energy that can be used directly by charged particles. So there is no need for an electron in an orbital to be bumped up by a passing electron. According to mainstream theory, discharge lamps should work with no ionization at all. They should work without a single free electron in the gas.

So why does Mercury also create this discharge effect?



The explanation for Mercury is slightly different, and the first thing to notice here is the temperature. At room temperature, Mercury is a liquid, of course. But given an evacuated surface, it doesn't take much to vaporize Mercury into the free space, creating a weak gas—as Jean-Felix Picard discovered in 1675 when he jiggled a Mercury barometer in the dark. Any current through that gas can then create the same effect we saw above, and of course the Earth herself provides a weak charge stream up. We saw this charge stream pushing water through the xylem in a previous paper, and it is strong enough to create current through this Mercury barometer as well. Mercury, like water, shows a lot of structure. This structure is just a response to the charge field. It shows this response even as a gas, turning easily to match its channel to the available stream.*

Why? Well, the answer with Mercury is not exactly the same as the answer with the Noble Gasses, although the answer is similar. Both turn easily because they are balanced in the six directions. The Noble Gasses are balanced in the charge field because they are initially almost uncharged. They are channeling weakly both pole to pole and equatorially, so nothing much is stopping them from turning. This isn't true with Mercury, since Mercury channels strongly both ways. But as you can see from the diagram, Mercury is balanced incredibly well in the six directions. Those red disks represent four protons, and we have one in each of the six major fourth-level positions. So if we then apply a current to gaseous Mercury, one strong enough to trump the ambient field, Mercury will then be free to turn. Due to its balance, it will be freer to turn than most other Elements. It will be easier to create the effect we are discussing for this reason.

You will say, "Well, using this mechanism, almost any gas should create a lightbulb." And, as we have discovered, almost any gas *does*, given the right combination of current, pressure, and so on. Oxygen, Nitrogen, Carbon Dioxide, and even water vapor can be used to create a discharge lamp. Again, it is because all these gasses are very polar. Like the others, they channel pole to pole in an applied current, and are easy to turn to create alignment. I have diagrammed all these nuclei and molecules, and you

can see this for yourself by reading those earlier papers. Just take the last links.

*Once the Mercury nucleus is turned, it is doubtful we even need the neutrons to turn, since Mercury conducts very well without that. Although Mercury isn't much of a conductor in normal circumstances (since it has no differential top to bottom—see my previous paper on Mercury), it can be induced to conduct with an applied current. It is just as well Mercury doesn't require a neutron turn, since it would be difficult to re-align this way. Not being a Noble Gas—and being so large—Mercury's charge structure would not easily yield to manipulation.