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Blackbody Radiation as an Attraction

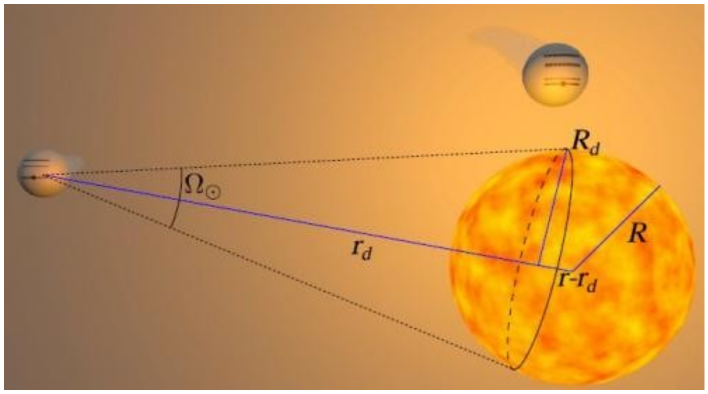

figure credit to M. Sonnleitner, et al.

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According to a new article at PhysOrg.com [Lisa Zyga, July 25, 2013], three physicists in Innsbruck have recently published a paper at *PRL* showing an attractive force from blackbody radiation. This attractive force acts even on neutral atoms and molecules, and it persists up to a few thousand degrees K. At lower temperatures, it is stronger than gravity.

To explain this anomaly, the physicists connect the phenomenon to the Stark Effect, whereby the ground state of the atom or molecule is shifted to a lower energy level. These lower energy-level particles are then drawn to regions of higher radiation intensity.

So far, that is the only theory we get on how the attraction is created. As you see, it is no more than a description of the motions, and has no mechanics or field theory. How is the particle shifted to a lower energy level, and by what? Once there, why should a lower energy level imply attraction to photonic radiation?

We expect that mainstream physics will come up with some "quantum mechanical" push to explain this with more math, but since quantum mechanics has so thoroughly divorced itself from the photon, we know they will not be able to explain it with simple field theory. As we saw in my last paper on Hadronization, the standard model forbids photon-photon interaction, and I will show that is the only way to explain these new experiments sensibly.

Given the diagram from the paper which I have shown below title, you might expect Sonnleitner et al. to have done the calculations already. But their paper at PRL is only 4 pages long, and in it we only get calculations for the attraction, working back from data. We get no field theory or mechanics.

My readers will understand immediately that this is a magnetic effect, or more precisely a submagnetic effect, since it is determined by the spins on the photons. I have shown that all magnetism is a result of photon spin. But here, we have neutral particles responding strongly to a magnetic effect, which is why it is so difficult for the mainstream to explain mechanically. Notice that they are keeping their distance from magnetism in the explanation, although if the effect is an attraction and is not gravitational, it couldn't be anything but magnetic.

So how is the attraction in the field created mechanically? First we need to explain the lower energy of the particles in the field. Clearly that is caused by a spin cancellation. Spin has energy, and if you cancel a part of it, your total field energy will drop. It will drop in a quantized way, at the spin boundary of each spinning particle. Therefore each particle will be sent to a lower-energy "ground state."

But how can we get spin cancellations from neutral particles? We can do so because even neutral particles are spinning. More importantly, their emitted charge fields are spinning, as a matter of the individual photons. To understand this, you should have read my papers on the nucleus, and on the cause of charge channeling. All quantum particles, even the neutral ones, are spinning. They are also channeling charge. Some channel more and some channel less, but they all channel. So like the photons themselves, all particles are submagnetic, in a sense. They are channeling charge and they are spinning, so they are capable of showing magnetic effects *under the right circumstances*. However, in most common circumstances, what we call neutral particles are not creating a directionalized or coherent charge field, so the field of those particles will not sum to any overall spin or energy. Specifically, if an atom is emitting charge in all directions with the same strength, its summed spin will appear to be near zero. When we measure the spin of that atom, we are really measuring the spin of all its emitted photons. We are measuring the summed spin of its charge field, not the real axial spin of the particle, you see. For this reason, only particles that emit a coherent charge field will appear to us to be magnetic, since that is what we call magnetism. Magnetism isn't the spin of the particle itself, it is the summed spin of the charge field. It is the summed spin of the channeled and emitted photons.

Iron, for instance, is often very magnetic, and that is because Iron is emitting a very polar charge field. If we then align the poles of Iron atoms, we get magnetism. Other atoms have a much less coherent charge field, so even if you align them you will get a weak magnetic field. The spins don't align.

So, in the experiments in Innsbruck, we can confidently predict that their created blackbody and their chosen field of neutral particles are both fairly coherent. This will turn out to be an accident of the experiment, and it will later be shown to vary. What do I mean? I mean that their results indicate that their created blackbody is emitting a coherent field of photons. A blackbody *could be* emitting about the same number of photons and antiphotons, in which case this experiment would show different results. We would get less attraction in that case. So it is likely that they chose to heat up their blackbody with coherent radiation (as from a laser for instance), and this caused their blackbody to emit coherent radiation. When that coherent radiation impacted their neutral particles, it caused spin interactions which were all of the same sort, moving the ground states lower. This then caused a relatively strong attraction.

But using a different set-up, they could cause their blackbody to emit equal numbers of photons and antiphotons, which would create much less attraction (or, depending on the coherence of their neutral particles, none). They could even cause their blackbody to emit only antiphotons, in which case they could create a repulsion.

Even if you have understood all I have said above, and understand the spin mechanics, you may still not understand how the attraction is created. Canceling spins will obviously lower the energy of each particle, and thereby of the field, but that by itself would not create an attraction. It would only negate any repulsion. How is the attraction created?

To understand it, you have to understand the ambient field prior to the experiment and prior to the measured attraction. Say you start with a blackbody that hasn't yet absorbed any input energy. And you have your neutral particles nearby. You then have no attraction or repulsion, and that is because the unified field between the blackbody and the particles is balanced. Gravity and charge offset exactly (or are too weak to register) and so you have no motion. But even then, your field is not empty. Charge exists everywhere at all times, even at 0^o K. It may be relatively sparse, it may have low spin, and it may sum to zero spin, but it is still there. What we call a vacuum is an ion or molecule vacuum, not a photon vacuum. We cannot create a photon vacuum.

What this means is that particles are always being held apart by charge, even at 0^o K. Photons are always between them, and collisions are always happening. If that weren't true, then at 0^o K everything would fall into a dense ball. Every super low temperature experiment would threaten us with a black hole.

Now let us energize our blackbody and see how that changes the field. If the energy of our blackbody is spin coherent, and if our ambient charge field also has some coherence, then the increased spin coming out of the blackbody must either raise or lower the energy of that ambient field. If the photons coming out of the blackbody are spinning opposite to the photons in the ambient field, we will get spin cancellations. If we get spin cancellations, then the total energy of the ambient field will go down. The charge photons holding the neutral particles away from the blackbody won't have as much repulsive energy as they had before, and so the particles will come nearer.

So once again, we don't have a real attraction, we have only an apparent attraction. What we really have is *less repulsion*. In physics, attraction must always be explained as loss of repulsion. In my unified field, attraction is always explained as loss of repulsion. In the field and in the math and in the data, we will see attractions. But in the fundamental mechanics, we never will. As Jonathan Swift tried to tell Newton, attractions are not mechanical.

Given all that, why would this apparent attraction become a repulsion at several thousand K? The reason has to do with the fact that the charge energy is both electrical and magnetic. So far we have explained the differentials by spins only, but we have to remember that charge also has linear energy, which we would call sub-electrical. It depends on the linear motion of the photons, or upon c. It also depends on the charge density, since although you can't take any one photon above c, you can add more photons to the local field. Adding heat is adding more photons to the field. Heat is charge density. What we see at the turning point in this experiment is that the electrical effect is trumping the magnetic effect. At a given charge density, the repulsion from sub-electrical collisions is so strong that even the maximum spin cancellations cannot counteract it. This sub-electrical effect cannot distinguish between photons and antiphotons, since the antiphoton is defined by its spin, not its linear energy. The antiphoton is a submagnetic beast, not a sub-electrical beast. Therefore, at some charge density, the entire potential of the antiphoton field will be overridden.

You will say, “That isn't logical. If we keep adding heat, we keeping adding charge, in which case we should be able to keep adding spin coherence. Magnetism should always follow electricity, in that regard.” That is a good point, since it requires me to give you a bit more mechanics, to round this answer out. It turns out that high temperatures not only give us an increased charge density, they also give us a more random field. Remember, in raising the temperature of our blackbody, what we are actually doing is recycling more charge through the atoms in the substance of the blackbody. So we have to first increase the charge density of the input energy, whatever that is. As we increase the density of that input energy, it becomes harder and harder to keep it coherent. Even if we can keep our high-energy laser coherent, for instance, as this input field hits our blackbody, it will interact with it in a less orderly fashion as we increase the temperature. All those photons may or may not go where they are supposed to go, or where they were going at lower temperatures, and some may act to flip atoms or molecules over in the blackbody. As the charge travels to the blackbody, it may also pick up free ions, sending them with high energy into the blackbody. That can also flip atoms in the blackbody. If that happens, the field loses coherence. If it loses spin coherence, the magnetic effect goes down. In a case like this, high temperature augments the sub-electrical effect while it diminishes the sub-magnetic effect. And so the repulsion trumps the attraction.

As you have seen once again, explaining all questions of this sort mechanically requires real spin on a real photon. It cannot be solved mechanically with virtual photons or any of the other cheats of so-called quantum mechanics. Since I have proved that quantization and the wave function should have been assigned to the photon as far back as the 1920's, I am fully qualified to solve these newer problems with an interactive photon field. Since I have solved the problems of superposition and entanglement with photon spins, I am fully qualified to solve these problems with a spinning photon. But as long as the standard model is stuck in its bosonic gauge math where the photon is nothing but a ghost particle, it can never hope to approach the correct field mechanics here.