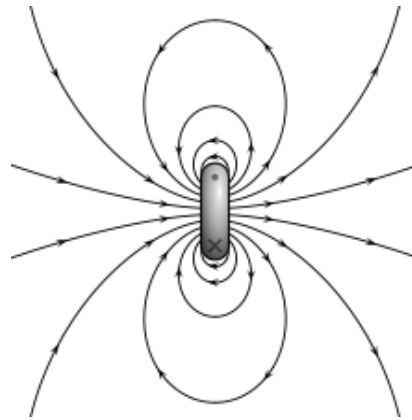


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THE MAGNETIC MOMENTS of Proton, Neutron and Electron



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First published March 31, 2013

To start this paper, we will look closely at the definition of “magnetic moment.” Many or most people learn magnetism—if at all—as E/M field equations. Magnetism is therefore just a part of Maxwell's field equations or other equations. But it has long been understood that magnetism is connected to angular momentum. This is the way Wikipedia puts it:

The magnetic moment has a close connection with angular momentum called the gyromagnetic effect. This effect is expressed on a macroscopic scale in the Einstein-de Haas effect, or "rotation by magnetization," and its inverse, the Barnett effect, or "magnetization by rotation." In particular, when a magnetic moment is subject to a torque in a magnetic field that tends to align it with the applied magnetic field, the moment precesses (rotates about the axis of the applied field). This is a consequence of the angular momentum associated with the moment.

I give Wikipedia a lot of grief, but in this case they are correct. However, I will point out that the mainstream has never followed through on this connection at the quantum level. Since magnetism is fundamentally connected to angular momentum, it should be explained at the theoretical level as an outcome of real spin. The real spin of what? The mainstream can't say, because they were forbidden from pursuing real mechanical qualities at the quantum level by the Copenhagen interpretation, as far back as 1926. Bohr and Heisenberg told everyone that they had to stick to math, avoiding any visualizations, diagramming, or poolball mechanics. And everyone obeyed. Feynman was still being a strict taskmaster for the Masters as late as 1988, and living physicists still seem to fear his whip two decades after he went underground.

I also draw your attention to this:

Viewing a magnetic dipole as a rotating charged sphere brings out the close connection between magnetic moment and angular momentum. Both the magnetic moment and the angular momentum increase with the rate of rotation of the sphere. The ratio of the two is called the gyromagnetic ratio, usually denoted by the symbol γ .

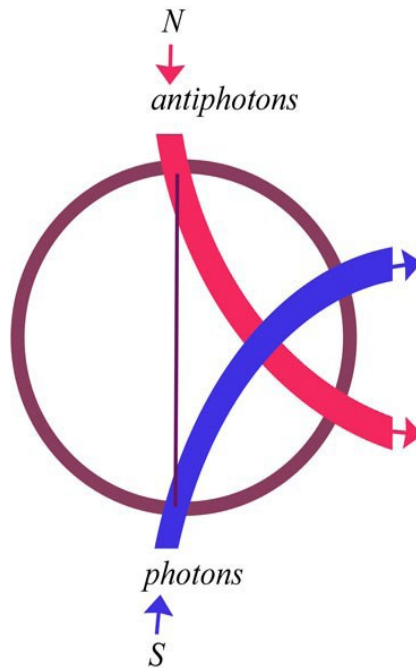
Remember, I have defined magnetism at the quantum level as a direct and real outcome of real spins on real photons. Since these photons are little spheres, we have a match. Why didn't the standard model do that decades ago? Because they got bogged down with their fancy maths. They can't give the photon real spins, not only because they would be waking Bohr from the grave, but because it would conflict with their adored gauge math. They have created a whole maze of matrices and gauges, and sense and logic just ruin everything there. Given the current mathematical systems, they can't have any mechanics.

For this reason, if you learn about magnetism or the magnetic moment, you will be much more likely to be taught that the magnetic moment is simply a vector pointing from the south pole to the north. Or, if you are taught about the magnetic moment of an electron or proton, you will be taught that the moment is "intrinsic." What does that mean? It means the moment isn't treated as real. They can't figure out how to do that, so they dodge into "a quantum mechanical treatment," which is mathematical or heuristic only. It contains no mechanics to get in the way.

In my theory, however, nothing is intrinsic. Everything is real. We explain magnetic moments by real spins on real spheres. To show that, let us start by comparing the given magnetic moments of neutron and proton. According to the mainstream, the proton has a magnetic moment μ of 14.106. The neutron has a μ of -9.662. Can they tell you why the proton has a value about 1.5 times that of the neutron? Of course not. Without any mechanics, questions like that cannot be answered, so they don't ask them.

But I can tell you, and I can tell you very quickly and simply, without a lot of math. [In previous papers](#) I have shown that both particles are composed of four stacked spins. Given those four spins and a linear motion, we have 2^5 or 32 possible combinations. Sixteen of those combinations give us neutrons, sixteen give us protons. The main difference between proton and neutron is that the combinations in the proton allow charge to channel through the spins and be emitted equatorially. The spin combinations of the neutron don't. The charge of the neutron gets blocked by the spins and has to turn around and find its way out one of the poles it came in on. The only other thing we have to know beyond that is that the particles are in a charge field. All around both particles we have a charge field made up of photons and antiphotons. In the vicinity of the Earth, this ambient charge field has about twice as many photons as antiphotons. This imbalance is caused by the Sun, which is spinning left but not also right. It is the Sun that channels the charge into the local field, and it tends to flip or respin many antiphotons into photons. So, the local field here on the Earth is about 2/3rd photon or left-spinning. With only these two facts, we can explain the magnetic moment of the two baryons.

Just as with the Earth and Sun, the proton recycles charge by this basic scheme:



But the neutron can't recycle charge that way. The charge is blocked by opposing spins, and the colored arrows basically reverse. The charge goes back out the poles. With the neutron, it goes out the opposite pole it came in, and with the anti-neutron, it goes out the same pole it came in.

So let's compare the neutron's emission to the proton's, as a matter of spin. Not as a matter of density or total charge, but as a matter of spin only. We want to compare how the two particles will emit the spinning photons back into the ambient field, and how the ambient field will react to that. We could follow the red and blue lines of the proton, noticing that charge is emitted at 30N and S. We could then sum a bunch of angles to find a solution. However, the quickest way to get to the 1.5 number is average the red and blue lines into one. If the photon charge has a +30 angle, the antiphoton charge will have a -30 angle, and they will average at the equator. In this way we can skip how much charge and anticharge we have, because less anticharge won't have a smaller angle. The angles still average at the equator (in the first approximation—see below). We can also get around having to make up polar coordinates and doing a lot of math. We just have to compare the neutron's emission at the poles to the proton's emission at the equator. How do we do that? Here is the shortcut: the equator is 90 degrees from the pole. That is half a turn. You will say, no, that is a quarter of a turn. But in our field, it is half a turn, since the difference between the photon and antiphoton is not 360 degrees, it is 180 degrees. Opposite is 180, so half-opposite is 90. Therefore, we can already see that the difference between proton and neutron is half the field spin. So we already know that if the neutron is 1, the proton is either .5 or 1.5.

How can we tell the difference? Well, we know that in the vicinity of matter, it is the protons that set the charge field direction. If the above diagram is a proton, then the charge field will be summing in the x,y plane. It can't be in the z plane (up, down), because if it were, the proton would have to be emitting z. To do that, it would have to align its equator to z. Since I have drawn the equator in x, y, that is where the charge has to be moving. In other words, in this diagram, charge either has to be moving left to right or right to left, as a total field. It can't be moving up or down as a sum. This means the proton is aligned to the main charge motion. Which means the proton must be *augmenting* the total

spin of the ambient field. Actually we could just check the definition of proton for that. They call it a pro-ton, not an anti-ton. The proton is not just + in the field definition from luck. The proton is plus in the field because he sets the field. His emission sets the field, so it can only augment it.

By the same token, the neutron is perpendicular to the main field set by the proton emission. Therefore the neutron can never have an absolute spin value over the proton. Therefore, simply as a matter of logic and field definitions, the proton must have the higher value. Which means that if the neutron is given a value of 1, the proton must be 1.5, not .5.

We can now fine-tune that solution a bit. We know from the numbers above that the ratio of proton to neutron is not 1.5 but 1.46. We can start to explain that as well. We just bring back in the ratio of photons to antiphotons, which was 2 to 1, remember. Since we have more charge being emitted in the north than we have anticharge in the south, we weight our average a bit. The average will not be right at the equator. The average will be 10 degrees north. That would seem to lower our number to 1.4, but we have to remember we are calculating how charge strength will affect spin. So we have to let our summed charge emit from the sphere and see how it will interact with the ambient field of charge. Although the summed fields are both now emitting from 10N, as a matter of real fields they are crossing. See how the red and blue lines cross in the diagram above? What that means for the real fields is that near the equator the photon and antiphoton fields are crossing. When we do these calculations near the equator, we have to take that into account. Physically, it means the two fields are competing to impart spins on the ambient field. Mathematically, it means that only half our angle differential makes it to the ambient field. So our angle is 5 degrees north, not 10. This gives us half our initial effect, and it gives us the number 1.45 instead of 1.5.

We can even fine-tune that a bit further, by noticing that the proton must be spinning faster than the neutron. The proton is a tiny bit smaller and less massive—due to the fact that it doesn't hold charge as long—so it can recycle a bit more charge every second than the neutron. This increases the magnetic moment slightly. The proton is about .14% lighter, and the difference between 1.45 and 1.46 is .69%. So our correction looks about 5 times too small. But since mass changes by the diameter as spin changes by the circumference, we have to multiply our mass differential by four to find a spin differential. Which means our final correction is only 20% too small. We have found 1.458 instead of 1.46. Still, not a bad day's work.



You will ask why the proton has 100% more charge than the neutron, if it has only 46% more magnetism. Because charge isn't a function of the summed spin. Charge is a function of the summed *energy* of the photons. This energy is a vector. The neutron is always emitting at a right angle to the proton, so if the charge field is defined in terms of proton emission, the neutron's charge energy will seem to be zero. It will appear to be neutral. Actually, we know the neutron isn't charge neutral in all situations, since in some esoteric experiments the neutron begins acting like a charged particle. If we separate the neutrons out, keeping them away from protons, then the protons no longer define our charge field. In that case, the neutrons will no longer be forced to align themselves 90 degrees to the proton and the charge field. They can then align their poles with the charge field, and in that case they start acting like charged particles. They are able to channel charge.

You will say, "I still don't understand. I see why the proton would have more magnetism than the neutron, but I don't see why the neutron would have *any*. Why isn't the neutron's magnetic moment zero?"

That's a good question, one the mainstream can't answer with simple mechanics. To answer it, we have to give the external or ambient field a summed vector. Not a spin vector, but an energy vector as I did above. The photons have to be moving in some direction. Each photon can be moving in any direction, but the field as a whole has to have some total direction. Since we have protons in the field, the total charge field must be moving in the x,y plane here. The protons' equators are in the x,y plane, as I have diagrammed it above, so the local charge field photons must be summing on some vector in that plane. That is the way the protons are emitting their charge. They cannot be summing along z here, or along the poles. Given that fact, we see why the neutron's charge is neutral while his magnetism is not. When the neutron recycles his photons back out into the field, they will be at 90 degrees to the field. As a matter of linear motion, we can't sum that motion into the x,y plane, because it simply isn't in the x,y plane as it leaves the neutron. Yes, the photons add to the charge density, and subsequent collisions can put them back in the x,y plane. But right at the boundary of the neutron, the vectors simply don't add in.

But if we look at the neutron's emitted photons as a matter of spin rather than linear motion, they can add in immediately. The right hand rule applies between the electrical field and magnetic field, but not necessarily between two magnetic fields. For instance, if we have a collision between an emitted photon and an ambient photon above the pole of the neutron, those spins can stack or cancel. That was not true of linear motion, but it is true of spin motion. This is why the neutron has a magnetic moment that is not zero.

We can apply the same analysis to the electron. The electron is given a μ of -9285. Can the mainstream tell you why that number is what it is? No. But I can. If we divide that by the μ of the proton, we get 658. The radius differential between proton and electron is 1820. So if we scale to size, the electron's number is 2.76 times smaller than we would expect.

But first let us look at something odd. According to the magnetic pole definition, the proton should have a greater magnetic moment than the smaller electron, simply due to the pole separation.

$$m = p\ell$$

Why doesn't it? The smaller electron has a greater moment because the electron is closer to the size of the photon. Since the photon is the defining particle of magnetism, not the electron, this is not beside the point.

Although the electron recycles less charge than the proton—which would seem to give it a smaller pole strength p as well as a smaller pole separation ℓ —the magnetic moment is greater because it is linked to angular momentum, which is linked to curvature. The easiest way to visualize this is to study the angles again. When we were comparing the proton to the neutron, we looked at the angle from equator to pole. The magnetic moment turned out to be measuring a difference from pole to equator, not pole to pole. This is because with charge recycling, the photons are going in the poles and being emitted near the equator, or at 30N or S. It was that increase in angular momentum that was causing the differential. Well, if we do the same thing in comparing proton to electron, we find the electron has

more curvature from pole to equator. Smaller spheres automatically have more curvature at their surfaces. The smaller the particle, the tighter the curve.

Since curvature changes as the inverse square of the radius, to find the magnetic moment of the electron, we start by multiplying by r^2 . That indicates the curvature difference. Then we divide by r , which indicates the amount of charge field the electron is actually recycling. Since the electron is smaller, it will be meeting a smaller cross section of the field. If we combine those two terms, we just end up multiplying by the r differential.

$$14.1(1820)^2/1820 = 14.1(1820)$$

But we are still missing something, because those numbers don't give us the current magnetic moment for the electron. We are still off by that 2.76. One of the things we are missing is spin speed. Does the electron have the same spin speed as the proton? The standard model keeps all these qualities as "intrinsic", so it can't tell you. But I can. The spin speeds aren't the same, and the spin isn't $\frac{1}{2}$. The spin is a real number, and just as the electron has more curvature, it also has more spin speed. Since [my quantum spin equations](#) show that the electron's total energy is 9 times $(8 + 1)$ its rest energy, and since its rest energy is represented by its radius in these equations, we can just multiply the radius differential by 9 to represent the inclusion of spin here. We include it with the curvature term in the numerator, since that term is representing the energy differentials between the particles. We do not include it with the 1820 in the denominator, since that 1820 is scaling the charge field, not the particle energy. Like this:

$$14.1(1820 \times 9)^2/1820$$

We seem to be getting further away from a solution rather than closer, but we have some work left to do. We are still missing the fact that the electron is existing in the proton's charge field. It is the proton that sets the field, not the electron. Although the electron has a higher magnetic moment due to its small curvature, it has a lower charge emission. Current theory thinks the electron and proton have the same charge, but they don't. The electron *exists* in the same charge field as the proton, but it doesn't *create* the same charge field as the proton. It is matter that determines the charge field strength, matter is made up of nuclei, and the charge of nuclei are determined mainly by the *protons*. Although electrons were very important in the 20th century, it will be protons that take center stage in the 21st. I will make sure of that.

For this reason, we have to look at the charge density variation between proton and electron. The charge field around the electron has $1/1820 = .000549$ times the amount of mass in $1/\sqrt[3]{1820} = .082$ times the volume. Which gives us a density of .0067. But even that doesn't quite get it, because we haven't represented the electron as spherical. If we use my new equations for pi in kinematic situations [$pi=4$], we find that the sphere has 1.5 times less volume than the equivalent cube. So if we are comparing how the sphere *emits into* the cube (or how a curved particle emits into a rectilinear field), we have to divide by 1.5 or multiply by .6667.

$$14.106(1820 \times 9)^2(.0067)(.6667)/1820 = 9285$$

That is the full math for the electron/proton magnetic moment differential. The mainstream adds the minus sign after the fact, so I won't bother explaining that. You can insert it by hand if you like, but it is just a vector indicator. Since I was just doing value math, not vector math, it wasn't included.