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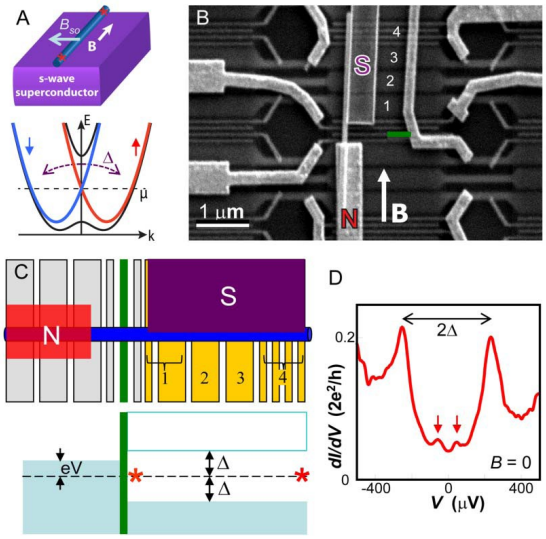
The Majorana Fermion



by Miles Mathis

In April of 2012, a team at Delft University claimed to discover evidence of Majorana fermions. I will show that they could not have discovered Majorana fermions, since there are no Majorana fermions. There can't be, because there are no fermions. The current categories are made up from math, and have no physical reality.

Even Wikipedia admits that the definition of fermion is squishy:

Fermions are usually associated with matter, whereas bosons are generally force carrier particles; although in the current state of particle physics the distinction between the two concepts is unclear.

A fermion is one of two categories of quanta, the other category being the boson. The photon is the only confirmed particle that is a boson. The gluon and W and Z particles are also called bosons, but the gluon is strictly hypothetical, and the W and Z particles have not been confirmed to be bosons. We have some indication these very large particles exist, but very much less indication what they are. So we will leave them to one side for now.

This means that almost all particles are fermions, according to current theory. Fermions are supposed to have half-integer spins. What does that mean? Well, it originally comes from experiments in the 1920's like the Stern-Gerlach experiment, which I pull apart in another paper. Physicists at that time made some bad assumptions regarding the E/M field, and especially the dipole characteristics of the field and particles in the field. Because they were either very poor visualizers of physical problems, or because they *refused* to try to visualize the problem (following the advice of Bohr and Heisenberg and the Copenhagen interpretation), they got it wrong. They thought they needed a spin quantum below 1 when they didn't. So they gave the electron a spin of ½. Other particles then acted like the electron

regarding spin in their equations, so they also gave these particles spin ½.

Even worse, these old guys couldn't get their equations to make sense with real spins. The real spins gave them results that were clearly illogical (the spin speed would be above c, for a start). So rather than fix the equations, they decided instead to hide the spins. They told us the spins weren't real and therefore didn't need to be logical. Since they were virtual spins, they didn't have to obey speed limits.

I have fixed the equations for them, with just a few simple steps, and have made the spins real without breaking the limit at c. This also makes the spins quantized at 1, instead of ½. This means that the entire basis for fermions has been overthrown. It no longer exists.

Beyond that, I have unified the photon with the other quanta, showing how to stack spins. My quantum spin equations unify the photon, which means we no longer have fermions or bosons. This particle unification and my spin equations also show us how to build the W and Z with spin stacking, so those particles have also been unified. They aren't bosons, they aren't mediating the weak force, and they don't come from the vacuum.

Furthermore, we are told that fermions obey exclusion rules, and can't occupy the same quantum state as another fermion. I have no problem with that, except that it implies that the photon *can* occupy the same quantum state as another photon. All I can say to that is, "If two photons can occupy the same quantum state, then the quantum equation for photons is incomplete." We shouldn't be surprised that the quantum state equation for photons is incomplete, since our theory of photons is so incomplete. I have shown that the mainstream doesn't have enough math for the photon, and that the math they do have is garbled and often wrong. The photon is still buried under complementarity and the HUP and the Copenhagen interpretation and a thousand other heavy theoretical and mathematical blankets. It is also buried in the gauge math, forced to fit manufactured matrix symmetries.

I have pulled the photon out from under this pile, brushed it off and cleaned it up. And in my new clarified equations, the photon is no longer mysterious. It is no longer massless, it has a radius, has real spins, and we can calculate its energy straight from its spin radius. Instead of occupying gauge equations, it occupies the field equations directly, via Newton's equation, Einstein's equations, Coulomb's equation, and the revamped Lagrangian/Hamiltonian (revamped as my unified field equation). I have also rewritten the Schrodinger equation, showing that the photon is the cause of the wavefunction. This means that the photon's new quantum equation has enough information so that two photons *cannot* occupy the same quantum state. This is because a quantum state in my equations is equivalent to a specific place and time, and no two particles can occupy the same place at the same time—by the definition of particle and of occupy. This should have been obvious before I came along, and to many people (outside of physics) it was.

With all this in mind, we must read the data from Delft in a very different manner than the current physicists are reading it. Although the photon is already accepted to be its own anti-particle, the Delft data is not being read as photons because these physicists think they need fermions here. Why? Because they are finding "mid-gap states at zero bias voltage." They say, "We are not aware of any mechanism that could explain our observations, besides the conjecture of a Majorana." Curious, since my charge photon fits their data like a hand in a glove.

To see this, we can look at another quote from the paper:

Despite their zero charge and energy, Majoranas can be detected in electrical measurements.

So can photons. As I just reminded my readers in a recent paper, the photon is not unaffected by these fields either. See the Faraday effect, the Zeeman effect, the Voigt effect, the Cotton-Mouton effect, the QMR effect, and the MOKE effect, as a start, all of which are admitted to affect and concern photons. These physicists at Delft even admit they have created a Zeeman field*, so it is strange to see them dodging photons so egregiously. They don't even bother to include a paragraph on why they ruled out the photon.

They do briefly dismiss the Kondo effect, Andreev bound states, as well as weak anti-localization and reflectionless tunneling. But these are all poorly defined theoretical interactions, derived from the same bad equations and theories we looked at above. Sliding away from them is meaningless, since they were so slippery to start with. Why won't these physicists look at the photon?

The reason here is the same reason the charge field has been lost for two centuries. Physicists have never admitted that the charge field was real, or bothered to give it any real characteristics. It is virtual to this day. Which means that whenever anomolous effects like this effect at Delft arise, the physicists have to give the effect to something other than charge photons. They don't have real charge photons like I do, so they can't possibly assign any effect to them.

If you read the paper closely, you see that the only particle they have before the Majorana is the electron. They think the E/M field is caused by the electron. Yes, charge exists in the paper and in the heads of mainstream physicists, but not as anything real. It exists only as an undefined field or potential, or as undefined math. We see this with the Majorana equation as well, which is written in terms of spinors and charge conjugates.

$$i\partial\!\!\!/\psi_c + m\psi = 0 \qquad (2)$$

Charge itself is completely undefined and hidden. It is nothing more than a ghost in the equations. What I mean is, the spinor Ψ comes from the Dirac equation, where that variable was assigned to the wavefunction of the electron. *Not* the wavefunction of the charge field or the charge photon. So here the electron itself is hiding the charge field.

I have shown that this problem goes back to Bohr, and his conflation of the photon momentum with that of the electron in his initial derivations. Schrödinger then borrowed that mistake from him, and Dirac got it from Schrödinger. Majorana then got it from Dirac. The poison is still working today.

The wavefunction was assigned to the electron when it should have been assigned to the photon. In this way the charge field was buried from the beginning, and has been hidden under the wavefunction ever since. This is why the photon is still just seen as some sort of interloper in QM, when it is actually the defining particle of the field and of all the equations.

But in my unified field, the charge photon is the real particle that causes charge. Charge is not caused by the electron. Charge is only recycled, felt, and passed on by the electron. The electron is like a charge field signal more than anything else. It is large enough for us to monitor, so it is like a charge beacon in the field, telling us the charge strength at that location. But it is charge photons that cause everything. I have now rewritten the quantum field equations in terms of the charge photon, correcting this longstanding error.

What these physicists in Delft are seeing is simple and direct evidence of the charge photon. Given a

real photon, there is absolutely no need for a Majorana fermion, since a Majorana fermion just restates most of the known properties of the photon. The Majorana is proposed only because these physicists don't *want* a photon here. Why? One, it wouldn't be as sexy as a Majorana fermion. You can make the journals and papers with a Majorana fermion, where you can't with a boring old photon. Two, a photon appearing here like this is actually dangerous to the standard model, since it contradicts a lot of their math and theories. It is the same reason they shunt you off into special effects and dense math and theory with the Zeeman effect, the Faraday effect, and all the others I mentioned above. If they just admit that it is a real photon, with no other magic, they are in a bind. They are in a bind because the standard model can't explain where these photons are coming from. The standard model needs photons being produced in certain limited ways, and obeying the gauge matrices. Since charge photons are already everywhere, pre-existing any and all interactions, they don't obey these rules. Since charge photons have real mass and radius and spin, they don't obey these manufactured rules. But most of all, the mainstream cannot admit charge as a real field of real particles, because that would destroy not only a great portion of QM and QED, it would also destroy the field equations in celestial mechanics. If the charge field exists as a real field, it exists not only at the quantum level but at all levels. Since the old boys couldn't figure out how to include charge in the old field equations, they have been hiding charge for decades and centuries. They have hidden it in the Lagrangian and Hamiltonian, calling it potential; they have hidden it in Laplace's pushes; they have hidden it in perturbation theory and chaos theory; they have hidden it in complex math and in quaternions and the curved field. They have swept it under every available bush and squirreled it down every available hole.

Charge is buried so deep they don't even recognize it when it is 95% of their data, as with dark matter. I have shown that dark matter is just the charge field again, but charge is so well hidden in current theory, the mainstream has never even considered that possibility.

In fact, they will tell me this particle in Delft can't be a photon because it doesn't fit the old math and theory. But I have proved that the old math and theory are wrong. The old math and theory were based on certain assumptions about the photon and the charge field that have turned out to be false. We now have reams of data and hundreds of experiments showing the old assumptions were wrong. Rather than admit that, mainstream physicists have buried this inconvenient data and gone on as before. They are in love with their old equations and aren't prepared to give them up for any data. We see that again here in this paper from Delft, where they are trying desperately to fit new data to old math and theory that should have been discarded long ago. We can see even in this short paper how muddled the math and theory are, and how the physicists are trying to bury the mechanics under piles of undefined fields and operators. As just the first example, we may ask them to define these *B*-fields that determine so much of the paper. That is a field of what? The magnetic field is caused by what? Beyond the body of the electron, what transmits the field? Without real charge photons with real spins, the magnetic field is just an empty postulate. It is lines on a blackboard. Uncaused potentials are not physics. The wavefunction has to be carried across free space somehow, and renaming it a spinor does not tell us how this is done.

They always noodle away from questions like this by claiming that such questions are metaphysical. Feynman answered people like me by browbeating us as philosophers. But it is not that I am being metaphysical, it is that Feynman and his followers are being *non*-physical. I am being physical, becausing I am demanding that physics be physical. Charge is a force, and a force cannot be transmitted by math or lines on a blackboard. It also cannot be transmitted by the authority of authoritarian physicists. According to the definition of force, force cannot be transmitted by a field or particle of no mass. The charge field *must* have a mass or mass equivalence, and it must have that mass equivalence at all times, or break conservation of energy in the most flagrant and global manner.

Some have tried to tell me that waves carry the charge across free space, but that is also illogical. A wave is not a thing in itself: it is either a pattern in a field or it is a characteristic of a particle. A vibrating or spinning particle can *create* a wave, but that wave then has to be carried by a field. Either that or the spinning or vibrating particles must bump. There is no third choice. Well, we know the electromagnetic field is not a field wave, since Einstein proved that himself. Michelson's disproof of the ether—set in stone by Einstein—didn't just kill the old-style ether at the macrolevel; it also killed it at the quantum level. Light doesn't travel via an ether, which means the wave of light is not a field wave.

Given that, waves cannot travel across free space. Yes, particles have waves, and I have shown that real spins cause these waves, but they aren't field waves. Therefore they can only travel via field *collisions*. For this reason alone, electrons cannot mediate charge or magnetism. They are too big, move too slowly, and have densities that are far too low. Only charge photons can explain the data we see.

This answers the current question, because this existing charge field is present as the definer of the *B*-field at all times. The strength of *B* is a direct measurement of the charge photons present, and of their summed spin. Therefore, the zero-bias points measured at Delft are simply another measurement of these charge field photons. The zero or low voltage states are simply caused by real spins offsetting, and the position of these states is caused by the interactions of the materials used.

For this reason, the experiment is not proof of a Majorana fermion. Ironically, it is (more) proof that the charge photon is neither neutral nor its own anti-particle. We have clear evidence here of the *anti*-photon, since without it we would not be able to achieve spin cancellations and therefore ZBP's (zero-bias peaks). ZBP's are caused mechanically by photons meeting an equal number of anti-photons and cancelling spins. This does not mean the photons are annihilated, it simply means they are stripped of outer spins. They can then rebuild. But where the photons and antiphotons are spin-stripped, the magnetic field will go to zero. Varying the current across this gap won't matter, because even "when magnetic fields and gate voltages are changed over considerable ranges," this wouldn't be expected to change the points of cancellation. The points of cancellation are like interference points in the field, and they wouldn't be expected to move or to gain energy with an increase of voltage across them. The points will move only if the gates are widened or if the tunnel barrier is moved.

This analysis is confirmed by the fact that the direction of *B* is down the line from N to S [see diagram under title, particularly part C]. Because the magnetic field is in that line, and since magnetism is caused by real spin on the photons, we would expect peaks and troughs along that line as well—as we are seeing in part D. We are seeing the spin interference pattern caused by the green tunnel barrier between N and S, and by the width of the gates. This tunnel barrier works almost like the slits in a Young device, except that here we are more obviously dealing with spins than wavelengths. The pattern in D can then be read as a sort of signature wavelength of the charge field in the nanowire, except that it is drawn across the wire instead of along it.

The authors confirm this analysis themselves when they say this:

As shown in figs. S9 and S11 of (*20*) we do have to tune gate 1 and the tunnel barrier to the right regime in order to observe the ZBP.

A "tuning" of the field is an implicit admission that we have field resonances here. They cannot be

electron resonances, since the electron is too large to create field patterns like this, especially across the wire. The data would either be gapped due to the spaces between electrons, or we would require an extraordinary electron density, where electrons were existing almost edge to edge. It isn't electron densities that are causing our field resonances, it is charge photon densities and charge photon spins. The patterns set up are patterns in the photon field.

This is confirmed again by the end trial of an N-NW-N geometry which gets rid of the superconductor. This equalizes the field on both sides of the tunnel barrier. The authors found that in this case the peak doesn't stick to zero bias in the same way. But this is only because they no longer have their resonances caused by the gates *and* the barrier. If the resonances are only caused by the gates, they are freer to vary.

For this reason, it looks to me like the authors are pushing the data to make it seem that Majoranas are necessary at the red asterisks. Even if we accept all their assumptions, the Majoranas are indicated only by neutral charge positions, and not by anything else. Since the proposed Majorana is not in the tunnel barrier, the spectroscopy cannot be "seeing" the Majorana directly, or even indirectly. Nothing in this experiment could be called a true measurement of the Majorana, and I would call that very convenient. What is more convenient is that the Majorana mass is never discussed, here or anywhere else. The clearest way to decide this is to assign or predict a mass, then see if we have any evidence of a particle there of that size and mass. But that was the old physics. Notice that new physics has only recently reached a point of slop where they don't feel compelled to talk of mass or size *at all*. They can now propose particles without bothering to to propose a mass or even a mass estimate. This is even worse than the W and Z, which were at least assigned ballpark masses. It is even worse than the Higgs, which (once) was predicted in a range of masses. Now they just predict particles based on gauge symmetries, and any blip in any data can be turned into proof of it.

Since we have no indication of any sort of fermion in those positions of any size or mass, we are diverted away from mass the entire time and towards the mystical Majorana **quasiparticle**—which is even more of a mathematical ghost than the Majorana particle. But this quasiparticle, like all others, is simply the sad attempt to fudge the math and theory. Any hole in math or theory can be filled with a quasiparticle, and now it usually is. But wouldn't it be better to fix the math so it didn't have these holes?

It is the buried charge field that requires all these hole fillers, from the electron quasiparticle to the phonon to the Majorana quasiparticle. Because physics refuses to give the charge field a real presense, it must continue to invent mythical particles. I suggest this experiment be re-analyzed in the light of a corrected theory, one that is both mechanical and explicit. When it is, all the quasiparticles, including this Majorana fermion, will evaporate.

*page 1, paragraph 2