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THE PRINCIPLE OF RELATIVITY

or how Relativity has hidden the charge field

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by Miles Mathis

I have written 34 papers on Relativity in the past 12 years, so you would think I would have covered everything by now. But the truth is I am just now getting to bottom of it. 20th century physics has been such a magnificent mess, it is not easy to unwind. Just when you think you have one spill cleaned up, you find another big spill hiding under the couch.

Two things allowed me to discover what I am about to tell you. One, I had already begun to touch on the problem of the increase of the electron's energy with velocity in other papers, especially my papers on the Compton Effect and Compton Scattering. There I showed that the electron's energy increase at velocity cannot be caused only by time transforms. The electron is gaining energy from the charge field as it accelerates, which means it is gaining spin energy. At a certain point, it will even stack on another spin entirely. I showed how this conflicted with the energy transform due to Relativity. The electron has to be gaining energy from wavelenth increase, that is, and this is ignored in giving all the increase to Relativity. Although I have mentioned that in passing, I haven't devoted a paper to it, or really said what it means for Relativity or for charge.

The second—and pivotal—thing that caused me to write this paper is buying an original copy of *The Principle of Relativity*, from 1920, translated by Saha & Bose. This book is extremely rare, and I was quite fortunate to be sent a copy. I had assumed that it was pretty much equivalent to the later Dover edition of the same name, which I already had on the shelf. It is not. For one thing, it has a quite informative historical introduction by Mahalanobis, a famous Indian colleague of Saha and Bose, and this introduction places Einstein's transforms in a fuller context I had not considered. Several statements in this introduction jogged something in my head, leading to this paper.

The reason this has been so difficult to unwind is that there have been mistakes stacked on mistakes for two centuries now, and no one until now has been able to unstack them in the right order. What has made this all the more difficult to get to the bottom of is that Einstein was not altogether wrong. When I say that Relativity has hidden the charge field, I do not mean that Relativity is wrong or that it does not exist. At the lowest level of theory, Relativity is completely correct, since all it does is provide transforms that make sense of incoming data, based on the finite speed of light. And even the specific transforms of Einstein are often close to correct, since he pushed them to match data from the beginning, and since they have been pushed by decades of physicists after him. This has made it very difficult to see how the math was wrong. It has also made it very difficult to see what the theory was hiding.

In my Relativity papers to date, I have addressed mainly the first question. That is, I have worked mainly on correcting the equations, to make them internally consistent and still match data. I have said that this correction only makes them stronger; and while it does so, in doing so it may have had the unfortunate side effect of burying the problem I am about to relate even deeper. I assume my corrections will be accepted someday, and if they had been accepted without including what I am about to relate, it would have been another tragedy. So it is lucky that I have done a lot of work on the charge field in the past six or eight years. Few are, or have been, in the position to uncover what I am about to uncover, and if I had not done it it is possible no one else would.

Perhaps the most important piece of this puzzle is provided by my analysis of the Michelson-Morley experiments, an analysis I provided many years ago (about 2001, if I remember the timeline correctly). To see the mistakes in the transforms, I first had to unwind the M/M machines and the historical interpretations of the data. Being both physicist and artist, I feel I was well-qualified to penetrate the kinematic complexity, including the diagrams and vector analysis. What I discovered is that the M/M experiment has been misinterpreted from the beginning. While it was expected to show a fringe effect, in fact it was never set up properly to do so. A closer analysis shows that, even given all the theory and assumptions of the time, it could show nothing but a null set. Since there was no operational separation between the machine and the observer or collector of data, there could be no fringe effect. Physicists have drawn themselves diagrams to explain how the fringe effect would occur, but those diagrams are faulty. They betray serious misunderstandings of co-ordinate systems and of gathering data from machines.

Because the physicist collecting the data was traveling along with the interferometer, he could not possibly collect data that showed any fringe effect. The diagrams published then and now assume the physicist collecting data is stationary, while the interferometer is moving, but this was not operationally the case. Since the interferometer has no motion relative to the physicist, no fringe effect should be expected. In textbooks, the fringe effect is described as a consequence of the relative motion of the interferometer and the ether, but that analysis has ignored the relationship of the observer. Ignoring that relationship was a grave error, and it broke the first rules of Relativity itself.

In a sense, this confirms Einstein, since it means that all light is measured locally. Michelson couldn't find a fringe effect because he couldn't create an experiment where light is measured from a distance. And yes, that does confirm Einstein, *in a way*. But it does not confirm there is no ether. It only confirms that an interferometer will fail to find an ether.

Let me say that in a slightly different way, to be sure it burrows well into your brain. Einstein confirmed Michelson, but not in the way we are taught. Einstein confirmed the null outcome, because

Einstein confirmed that light cannot be measured from an external co-ordinate system. When you measure light, it is *always* already in your system. You can build the most complex machine or device to keep the light at a distance, but when you look close at your operation, you find that you don't really see the light until it gets to you. This is what Einstein's constancy of c really means. It is not an ontological or epistemological fact, it is simply an operational fact. You *must* measure light as c because you can measure it only in your own co-ordinate system. That is what Relativity boils down to, not some esoteric ramblings about existence or being.

And this means that Relativity is neither confirmation or refutation of Michelson regarding an ether. Relativity bypasses the ether in its method, but that says nothing about the existence of the ether. As a mathematician, I can build a bridge over almost anything, but that does not mean that the water under my bridge no longer exists.

Mahalanobis confirms this in his introduction, where he says (p. xv),

Whether there is an ether or not, uniform velocity with respect to it can never be detected. This does not prove that there is no such thing as an ether but certainly does render the ether entirely superfluous.

The italics is in the original, amazingly enough. What he should have said is that uniform velocity relative to an ether can never be detected directly, by anything like an interferometer. And the reason it cannot be detected is that you cannot measure light from a distance. Anytime you try to measure the velocity of light, you will be measuring light that is already in your own co-ordinate system. You cannot measure light in someone else's co-ordinate system, by simple rules of logic.

This makes the second half of Mahalanobis' second sentence false. It may change part of our conception of the ether, but it does not render it entirely superfluous.

To understand that, we have to recognize that my analysis is very far from how Relativity or the M/M experiment have been interpreted in the 20th century. Both have been interpreted to mean that there is no ether in a mathematical sense, *and* that there is no ether in a physical sense. The first is true, the second is false. I have admitted in previous papers that there *need be* no ether in the mathematical sense. You can build equations that bypass the ether and that get the right number. And in collecting real data, there is no primary system of coordinates, one that would allow you to ignore time transforms. And there is no foaminess to space, either. Space is space. If we want to give characteristics to space, we have to give them to particles. But there *is* charge, and this charge is what pre-Einstein physicists were trying to connect to an ether. The ether of Young and Fresnel and Maxwell and so on is my charge field, so there *is* an ether in that sense.

What is more, this ether *can* be detected. Mahalanobis tells us all the ways it was detected in the 19th century. It has been detected anytime we detect charge, and it is now detected everytime we detect “dark matter.” It is neither undetectable nor unmeasurable. It is only unmeasurable directly, using interferometers and such. But current physicists have correctly “measured” it when they tell us that dark matter is 95% of total energy in the universe. That is an indirect measurement of the charge field and the ether, and it is nearly correct. So charge can be detected and measured.

What the historical introduction of Mahalanobis reminded me of is how convoluted the problem already was before Einstein came on to the scene. Mahalanobis mentions the experiments of Arago and Airy-Boscovitch as being evidence against the ether theory even before Fresnel and Stokes began theorizing it. Then, in 1851, Fizeau—in an experiment with light moving through water—proved not only the ether, but Fresnel's equation $k = 1 - 1/\mu^2$. Unfortunately, experiments at the same time using optical effects were still negative, including data from Maxwell, Hoek, and Mascart. Then came Michelson, and his experiments with an interferometer were, for some reason, given more weight than all the rest. Undoubtedly, one reason the interferometer was given such prominence was Lorentz' work on its outcome. He provided the *ad hoc* "contractions" that rectified the M/M outcome with the ether. So all his work gave weight to M/M. Another thing that solidified this trend was the perceived failure of several rounds of bad math and theory by Heaviside and Hertz at precisely this juncture:

> They postulated the actual meduim to be the seat of all electric polarisation and further emphasised the reciprocal relation subsisting between electricity and magnetism, thus making the field equations more symmetrical. On this view the whole of the polarised ether is carried away by the moving medium, and consequently the convection co-efficient naturally becomes unity in this theory, a value quite as discrepant as that obtained on the original Maxwellian assumption. [p. ix]

Awful math and theory, as I hope you now realize. Compare this to Minkowski's later faking of a field symmetry (with time), simply in order to make the math of General Relativity stylish. The E/M field equations don't need to be symmetrical, they need to be correct, and so Hertz and Heaviside have just manufactured this symmetry between magnetism and electricity to suit some preconception. Magnetism and electricity have no symmetry, since one is caused by spin and the other isn't. So the fact that Hertz-Heaviside theory doesn't match the convection co-efficient [the equation $k = 1 - 1/\mu^2$] is meaningless, and this failure should never have been interpreted as a strike against the ether theory. It should have been seen as a strike against Hertz and Heaviside only.

This has been the way things worked all along. Someone put up a ridiculously bad set of equations or theory, and the failure of that theory was interpreted as a strike against whatever was being discussed. In the same way, we later see the failure to find evidence for a Lorentz-Fitzgerald contraction being used as proof against the ether, when it should only be proof against Lorentz and Fitzgerald. Remember, I have shown the Michelson null outcome was caused by a bad experiment, not by the lack of an ether, so *of course* Lorentz' contractions were fudges. The interferometer is indication of nothing, and the non-appearance of the Lorentz contractions are indication of nothing. Neither null outcome indicates anything, because they were going to be null no matter the facts of the field. We are told that both are strong indications against the ether and for Einstein, but they aren't. They are strong indications against Lorentz, Hertz and Heaviside only.

This same analysis applies to all the experiments that failed to find or measure an ether. Either they were optical experiments that couldn't get away from their own light (as with Michelson), or they were simply misinterpreted, as with Airy. Airy is now known to be notoriously bad at visualizing problems, since I myself have made him notorious. See my analysis of his pre-isostasy "reasoning" on the Himalayas, which makes him look very foolish indeed. Beyond that, we should know his filling a telescope with water doesn't prove anything about the ether, since it conflicts with the experiment of Fizeau. The *result* of Fizeau's experiment is still accepted (though its initial interpretation is not), and we know this because it is now used as proof of Relativity. Einstein mentioned Fizeau in his own books. Both experiments concern water in tubes, so if one is null and the other isn't, one must be looking in the right place while the other is looking in the wrong place. What I mean is, Fizeau's experiment isn't now used to confirm an ether, but it is admitted to be positive regarding a transform. *It isn't null*. In interpreting Fizeau, Einstein simply assigns the transform $1 - 1/\mu^2$ to Relativity instead of to the old Fresnel convection co-efficient. Because Fizeau's experiment with water in tubes wasn't null, something must be wrong with Airy's experiment.

Before I move on, let me say that I believe this form of *The Principle of Relativity*—the book translated by Saha and Bose—has been buried on purpose. It has been replaced by a book of the same name on purpose. Why? To prevent the analysis I just did. The current masters don't want you reading Mahalanobis' introduction, because they don't want you to be reminded of Fresnel and the other 19^{th} century confirmations of the ether. They want your understanding of Relativity to start with Michelson. They have created a little closed history that has sold very well, and they don't want anyone thinking seriously about it anymore. Anyone who did, like me, might be a serious threat.

So what does this all mean? It means that the problems with Relativity are even more complicated than I have previously thought. I have confirmed Relativity, including the time, mass and energy transforms of General Relativity (with corrections, that is). At the same time, I have proved that the Michelson experiment was flawed. And I have proved that the charge field is made of real photons. To mainstream physicists, this will look like a scorecard for Einstein that goes "yes, no, no." They will ask me to make up my mind. Well, I am not changing anything I said before, I am just continuing to refine my answer. What it means is that we are going to have to place my new corrected Relativity on top of Fresnel's old ether, keeping them both. This will look contradictory to many, but it isn't. It is completely logical. It was the old theory that was contradictory. We have been sold an opposition between the ether and Relativity that doesn't exist. In fact, it is quite easy to build transforms right on top of an ether, and I have been showing how to do that for years. That is what a unified field is all about. If you add Relativity to a unified field, you have to add Relativity on top of charge, since charge is half the unified field. My existing unified field equations—which I developed several years ago—are charge/gravity equations plus time separations. That is Relativity on top of charge. It is neither difficult nor contradictory. Time separations are an outcome of the speed of c, and (in the first analysis) they have nothing to do with charge except that. They would be necessary with or without charge.

I have not only developed unified field equations that include Relativity, I have shown they match current data. They give us everything that current equations do and more, since they explain data the current fields can't explain. They are simpler at the same time that they are more inclusive. So stacking Relativity on top of the charge field is not just an idea. It is a set of equations that work.

This means that we keep the transforms of Relativity, with a few corrections. But we have to take a closer look at where we are using the transforms, and why. Currently, we use the mass or energy transforms to explain all energy increases in accelerators. That is a mistake. Depending on the experimental set-up, Relativity will be causing only a part of the measured energy increase, and in some cases none of it.

Let me see if I can explain this in the simplest possible manner. Since Relativity is a math of co-ordinate system transforms, it implies that all differences in measurement or energy are due to differences in co-ordinate systems. If I measure an electron to be gaining energy, for instance, I measure it that way because it is accelerating relative to me. Its gain in energy is due to *relative motion* alone. Now, if we run the transform backwards, it tells us what the electron is doing locally. It tells us how the electron would be measuring itself, in other words. Just try it. If you run the transform backwards, you get the rest energy of the electron. In current theory, that is interpreted to mean that everything is at rest relative to itself. While I am not questioning that everything is at rest relative to itself, I am questioning all the rest of this. Because if we give the electron a velocity of c/4, say, what does that mean? It must mean that the electron is going four times slower than light. I will be told that if the electron measured light, it would still measure c, and I agree with that. But that doesn't change the fact that the electron is going four times slower than light.

To see what I am getting at, let us quit comparing velocities. Einstein did that and it created nothing but confusion. Asking how the electron would measure c isn't that useful as physics. I agree with Einstein's interpretation for the most part, but it doesn't really matter. What matters is that the electron does in fact have a velocity relative to light. We are given that it is going c/4, and for that to mean anything, the electron has to a velocity relative to light. We know that is true experimentally as well as theoretically, because we do in fact measure redshifts and blueshifts. If matter couldn't have a speed relative to light, we couldn't measure shifts. These shifts ARE shifts relative to light, by definition.

A way to see this without having electrons moving alongside photons, in some kind of race, is to imagine charge as Fresnel did. He imagined charge as being somehow static, as if the photons were just sitting there. He didn't use photons, but the idea is similar. The electron then moved relative to that static field of photons, in which case its speed was measured against zero instead of c. Although that isn't the case, the analogy can be used. Although each photon *is* going c, the charge field in many experiments acts like a field with zero velocity. This is because the velocity of the charge field relative to the motion of an electron, say, is determined by averaging the speeds of the all the photons. If the charge field is not directionalized, this velocity will sum to zero. In other words, since photons are moving equally from all directions and to all directions, the velocity sums to zero. The energy may or may not sum to zero, but the velocity does.

This means that the electron not only has a velocity relative to you or me, it has a velocity relative to the charge field. Since Relativity only provides transforms between observer and observed, it cannot measure this velocity relative to charge. This is even clearer when we remember that General Relativity is a gravity-only theory, one that doesn't (explicitly) include charge. That is why physicists have spent so much time trying to unify GR with QED. They realize they need charge in GR to really represent the full spectrum of known interactions. Even they are mystified at the success of GR in many situations. It shouldn't work as well as it does, even given current theory.

I have shown that GR works well despite its flaws because it is already unified, for the most part. It already includes charge without anyone knowing it. It is unified because it is built on Newton's field, and Newton's field was already unified as well. The Universal Gravitational Constant G contains charge, and this saves Einstein as it saved Newton before him.

But it does not save all the math. Sometimes it works and sometimes it doesn't. One of the places it fails most conspicuously is in the energy of the electron. Since Einstein's equations already include charge, his equations miraculously give us almost the right numbers in accelerator problems. That shouldn't happen, because accelerator problems are mainly charge problems and Einstein's equations are thought to be gravity only in the case of GR or motion only in the case of SR. Physicists long ago should have read this as an indication that GR included charge in some unknown way, but they have never had that light go on in their heads. Instead, they let the number success of the equations determine everything, and the fact that the transforms give them the right energy increase of the electron keeps them from asking any questions. Relativity is seen to be confirmed miraculously by accelerator experiments, and no one looks closer than that.

But although the *numbers* are mostly correct, the current *interpretation* cannot be correct, as I said above. It cannot be motion alone that is causing the energy increase. Even those who won't look twice at an ether know that charge exists, and if charge exists, then the electron must be moving relative to it. And if the electron is moving relative to charge—in any way or by any math or via any theory—it must be gaining energy from the charge field.

In my theory, this is made both clear and explicit, since I make everything mechanical. My charge is real photons with real radii and masses, so my photons actually bump the electron. These collisions can cause both an increase in linear velocity and an increase in spin velocity. What this means is that the electron is gaining energy *locally* as well as relatively. If you measured from the electron, you would *not* measure an unchanging mass or energy. An electron moving relative to the charge field is NOT keeping a constant rest mass, not even from its own perspective. It would be measuring its own spin to increase, for a start. If it could feel, it would feel more spun. The angular momentum is real, so an observer on the outer shell of the electron would measure a higher velocity.

This means that the energy transforms are false. Yes, they get nearly the right number, but they imply by their form that the electron is always in its original state locally, when it isn't. At velocity, its mass isn't its rest mass and its local energy isn't its rest energy. I show this incontestably in my mass and energy transform papers. There I reprove the fundamental equations of Relativity, confirming the existence and even the basic form of the equations. But I show that the electron is not unaffected locally. Both the local and the relative numbers of the particle change at the same time, though not in the same amount. This is because the electron is not just changing its energy due to relative motion. It is changing its energy due to charge interaction. **The faster the electron goes, the more charge it collides with.**

This should have already been known, and in fact is known. Particle physicists are hiding a lot of information from you, and a big piece of information is that electrons and protons change not only their energies in accelerators, they also change their wavelength and frequency. Since changes in wavelength mean changes in energy, by the equation E=h*υ*, the whole change in energy of the electron, say, cannot be due to Relativity. But since it is far easier just to use a transform—rather than to try to figure out how much of the energy increase is due to Relativity and how much is due to spin—they gloss over that.

And that is how Relativity hides the charge field. They tell you that the Relativity transform is caused by the electron's motion relative to you, the observer. In an accelerator, the electron is taken to be going v relative to the physicists on the ground. True, but that leaves the charge field out of it. What the physicists *should* want to know is the velocity of the electron relative to the local charge field, and the velocity of the charge field relative to them. If they knew that, then they would be able to unwind the real mechanics of the field and of the interactions. As it is, they haven't got a clue.

That they haven't got a clue is proved by the fact that they use transforms that tell them that the electron and other particles have no velocity locally. As I said, if you run the transforms backwards, you find the local parameters of the electron. Since they put in a rest mass when they run the equations forwards, when we run the equations backwards we get a rest mass. But you can't have rest mass except when the electron is at rest. And it isn't at rest locally anymore than it is at rest relative to the physicist. Yes, it is at rest relative to itself, but that isn't what “locally” means, not even in Relativity. The bottom line is, the electron at speed is not what it was at rest, and that is true on either end. It is true from the point of view of the physicist measuring the electron, and it is true from the point of view of the electron itself. The electron is undergoing local changes, *which we then use transforms to understand from our own position*. That is what Relativity is.

We would use transforms to calculate relative energy changes *even if* the electron was in no field at all. Even without a charge field (or a vacuum energy field, or any other field), we would need transforms to understand the electron. This is because the SR transforms that are used in accelerators were derived by Einstein in no field, with motion only. They are motion transforms, not field transforms. But the electron isn't moving in no field. Whether or not mainstream particle physicists like my charge field or not, they have to admit the electron is in a field in the accelerator. It is an induced field. That is what is accelerating it, remember? By my theory, the physicists are accelerating the charge field, which drives the electron. But they ignore that when they use SR transforms, because the SR transforms don't include the field. They include relative motion only. The charge field is hidden by the SR transforms.

To correct this mistake, we have to study more closely the way the electron is accelerated by the photons, and my corrections to the Compton equations will help us do that. We have to recognize that the electron is gaining energy not only from relative motion, but also and more importantly from the field and from spins induced by that field. Once we do that, we will understand that a lot of the "mass gain" of the electron and other particles isn't really mass. It is spin energy. Currently we use an energy equation to solve down to a mass, but that is naïve. As with everything else, the electron's energy is a compound of rest mass, kinetic energy due to linear motion, and kinetic energy due to spin. We have to unwind the variables, and as we do, we will learn a lot about both the electron and the charge field.