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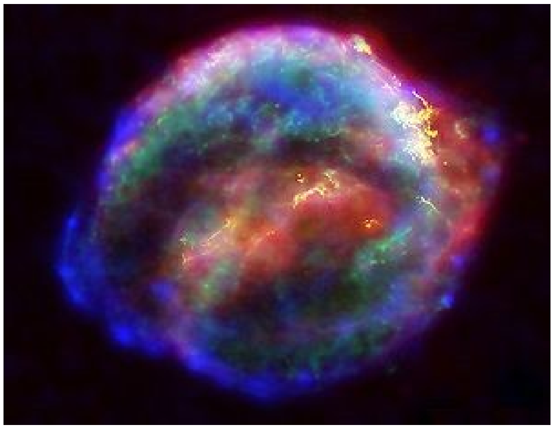
ACCELERATING EXPANSION?



by Miles Mathis

The 2011 Nobel Prize in physics (and 2006 Shaw Prize) went to Perlmutter, Schmidt and Reiss for their work in 1998 "proving" accelerating expansion of the universe, by studying near and far supernovae. But did they prove it? I will show that they did not.

Before I do that, I will point out that I am not alone in thinking this. These prizes have created a lot of tension in physics and astronomy, since many mainstream scientists in many fields doubt the given interpretation of this data. In other words, they don't doubt the data, they doubt the math and models used to interpret the data.

I have seen a lot of good arguments against the accelerating expansion interpretation, but I will present my own here. Even the prize announcement online at *Scientific American* has two pretty good responses to this interpretation in the comments section. But the cause of the error in interpretation is actually easy to isolate, and it requires no highly technical arguments or a lot of math.

The problem concerns the cosmological constant. In order to make the claim that the more distant supernovae are "too far away," there has to be a standing prediction for what the right distance should be, given expansion only (but no acceleration of expansion). To state the problem in simple terms, these physicists had a standing number x for where the distant supernovae *should* be found, given their brightnesses. But the physicists discovered instead that the supernovae were at a distance of x + 25%.

In order to make that original prediction of x, these physicists have to use the standing field equations. The field equations are of course the field equations of Einstein, updated slightly with newer estimates of the cosmological constant and so on. Einstein originally proposed a cosmological constant to balance gravity, but when it was discovered by Hubble that the universe appeared to be expanding, the CC had to be made larger, to *overbalance* gravity and cause the expansion. Einstein didn't like this and worked for decades to correct the field equations so that they didn't need *any* constants. He didn't succeed in developing this unified field, and so physicists just kept the overbalancing CC, tweaking it when new data came in.

Problem is, the field equations are still wrong. We can see this just from the new data. The current equations can't actually contain the new data, although we are told they can. Let me show you what I mean. In the past, new data has been included by tweaking the CC. If we found a little greater expansion, we just increased the size of the CC. We have had to make a lot of little tweaks like this, because a lot of things have changed in the past 90 years or so since Einstein finalized general relativity. For example, just this decade the distance equations were changed by 15%. That's right: a few years ago all the major magazines reported that our distance measurements to far-off objects were wrong by at least 15%. That required tweaks to everything, including the CC.

But this new data cannot be included with such a tweak. Just think about it: we have found these distant supernovae 25% too far away, say, so we need to raise the CC by 25% (I am simplifying the math to make my point). But if we do that, the CC won't match the nearer supernovae. What we need is a *variable* CC, one that gets bigger as we go farther away. But the theory of general relativity cannot contain that idea. Any field theory is based on some implied mechanics that involves forces or accelerations or at least curves. Forces and accelerations require causes. That is, something must be *causing* these more distant supernovae to be gaining velocity. A variable CC must require a complete overhaul of field theory, but they never tell you that.

And, since the Nobel-Prize-winning data doesn't match the current value for the CC, the current value for the CC must be wrong, no? But didn't these physicists just use the current value to predict the distance of the supernovae? The data proves their prediction was wrong, which proves previous field equations were wrong. If the field equations were wrong, then this new data tells us we need much more than a tweak or a variation to the CC. It tells us we need a complete overhaul.

To say it another way, "How do they know the problem is in the CC? All the data tells them is that the field equations were wrong. The data does not tell them where the mistake is in the field equations." All logic tells us that if an equation is wrong over and over, the problem is probably *not* with the constants. The problem is probably with the field variables like mass or time or distance, and their relationships to one another. Einstein understood this the first time the CC failed. He understood that you don't fix equations by coming up with new constants every year. Anyone can see that is cheating.

We see this again if we simply take a link from one *Scientific American* page to another. At the bottom of this webpage announcing the 2011 Nobel Prize, we find an "articles you might also like" section, which includes a link to the title "Supernovae Back Einstein's Blunder." This 2005 article by David Biello tells us of the ongoing research of a worldwide "Supernova Legacy Survey." Just five years after the work of Perlmutter et al. we again have a big study of supernovae (of the same type Ia). But this time the results are just the opposite.

> "Our observation is at odds with a number of theoretical ideas about the nature of dark energy that predict that it should change as the universe expands and, as far as we can see, it doesn't," says team member Ray Carlberg of the University of Toronto.

This survey, which just ended in 2008, finds that "the cosmological constant is unvarying through space and time." Curious. If the CC is unvarying through space and time, how is an accelerating expansion produced? Can't be dark matter, because they have already pinned dark matter to the cosmological constant. "Dark energy is like the cosmological constant, unvarying throughout space and time." This survey had a larger data set than the 1998 data sets, with over 400 type la supernovae confirmed, and yet this experiment was apparently completely ignored by the Nobel committee. Why?

Perhaps it is because the new surveyors aren't getting in the way. For some reason they have accepted their own findings about the CC and dark matter without linking this to the accelerating expansion claim. The top dogs in the field have decided they need the Nobel Prize to go in this direction this year, so they have instructed everyone to go along with it. Since physics is very well controlled, they do. But they can't have it both ways. They can't have a CC that is both variable and constant.

This is where it gets really messy. If you push on this problem, you are sent to the Friedmann equations, an old reworking of the field equations from 1922 that has co-existed with other forms of GR all along. These equations have what is called a cosmic scale factor, or CSF.

In formal terms, this means that the cosmic scale factor *a*(*t*) has a positive second derivative,[1] so that the velocity at which a distant galaxy is receding from us should be continually increasing with time.

Good lord! A cosmic scale factor in addition to the CC? And do they bother to assign this CSF or the positive second derivative to anything? Of course not. In the new physics you can jerry-rig your equations any way you like to match data, and no one will make a peep. But the logical question is, "Since we now have two constants or 'factors' (notice how they call it a factor instead of a constant, to misdirect the audience), what is the reason for keeping them separate? Why not combine the CC and the CSF, giving the new CC a second derivative?" The answer to that is clear: they want to keep the old CC because it matches *some* of their data. They match some data to the old CC, and some data to the CC+CSF. A bold cheat!

If you can make it past all this equation finessing and hemming and hawing, the logical conclusion is that the two interpretations of the two new data sets contradict one another. If we combine all the hanging constants and factors in the field equations, one interpretation says they should be constant. The other says they should be variable. That's right: the Supernova Legacy Survey is a big pile of data *contradicting* our Nobel Prize winners, which is why many astronomers are on edge. The two interpretations can't be reconciled without a big dose of new theory, theory we do not have. To say it another way: you simply aren't allowed to keep piling new constants and factors on top of field equations to match them to data, unless you assign these factors and constants to something. What we have isn't physics, it is just heuristics. It is fudging. I *know* it is fudging because I have rewritten the field equations so that they don't require *any* constants or factors. I have made the corrections to the field *inside* the old variables.

Yes, my readers know that *both* current interpretations of these new data sets are wrong, because I have shown the actual errors in the field equations. Just for a start, I have shown an error of 4%* in the field equations in the field of the Sun, and this error is contained in the gravity part of the field. That is, it has nothing to do with the charge part of the unified field, but refers only to Einstein's gravity equations and the time differentials. It was caused by Einstein writing the field equations with mass transforms when he needed force transforms. He needed to transform mass, time, and distance simultaneously, to match the force equation. In other words, his field is a field of accelerations or forces, but he wrote the field equations as mass fields. That gets close, but it isn't correct.

But since I have unified the gravity field and the charge field, that 4% correction is just a part of the story. I have shown that the charge field exists at the macro-level, and that it was always inside Newton's gravity equation (hidden in G), inside Coulomb's equation (hidden in k), and inside the

Lagrangian (hidden in both V and T). Charge is also inside the CC. Charge *is* the cosmological constant. I also showed many years ago that charge and solo gravity vary in different ways at different sizes. We already know that, since we know that charge is greater at the quantum level and solo gravity is greater at the macro level. But the mainstream hasn't seen that this means that the unified field must have a degree of freedom not accounted for in any of the current field equations. **Charge and gravity vary relative to one another in the unified field.** This is what explains the new *variable* CC. I have shown the mechanics under the new field.

But that is only the beginning. Obviously, if the field equations were that compromised at the foundational level, almost everything has to be redone. If we throw out a century's worth of assumptions, we also have to throw out all the conclusions based on those assumptions. One of the first assumptions we have to study is that redshifts imply motion away. That assumption was based on the idea that the cosmic field was gravity only, and that it did not contain large amounts of charge or anything else. Since my reworking of the field equations, and my unification, we now know that the field contains great amounts of charge. This charge is what we are now calling dark matter, and it turns out that 95% of the universe is composed of charge. This charge is much more powerful in the vicinity of "baryonic" matter, through which it is recycled, but even regions of space previously thought to be empty of matter contain charge. I have also shown that charge has drag, just like other matter. It is composed of real photons, and these real photons have real drag. This is what answers the galactic angular momentum problem: charge drag.

At any rate, it turns out that charge drag is the cause of these Hubble redshifts as well. The redshifts are pointing at charge, not at velocities away.

So does this mean there is more charge farther away? Why do we find an increase with distance? We don't find an absolute increase in charge, we find a decrease in gravity *relative to* charge; and this creates a *relative* increase in charge with distance, in the unified field.

My critic will say, "I thought you said gravity got bigger at larger scales?" As a force between objects, it gets bigger with larger objects, yes. And this is because at larger scales the charge field becomes less dense. The solo gravity increases with radius, the charge density decreases with radius (because the photon stays the same size), therefore gravity increases relative to charge. But when we apply the field equations to the problem of distant supernovae, we aren't measuring forces between objects. We are simply measuring data coming from large distances *through* the unified field. Look at it this way: if we treat GR as a curve in the field, greater distances in the universe will imply less curvature. Gravity decreases by the inverse square, so at infinity the curve becomes a straight line. That's what I mean when I say that gravity decreases with distance relative to charge.

"But shouldn't charge decrease with distance, too? Haven't you said it falls of by the inverse quad?" Again, yes, but that is a different problem. When you calculate charge between two objects, the emitted charge field of one (spherical) object falls off by the inverse quad. But that is not what we are measuring here. We aren't measuring the field as a force between two objects. We are measuring data moving a great distance through the unified field. To be specific, we aren't measuring the charge field or gravity field of the supernova. We aren't letting the charge field of the supernova dissipate across the half the universe, and then trying to measure its field strength from here. We are collecting photons of visible or near-visible light from the object that comes into our telescopes, and seeing how it is shifted. We aren't measuring charge or gravity, we are measuring a data shift on photons. We are measuring the effect of the unified field on photons. As the second team showed, the charge effect is about the same everywhere. It will be greater in galaxies than outside them, but since there is much more space outside galaxies than in them, the charge number will always average out to about the same. The second team doesn't call this field charge, they call it the CC or dark matter, but I have shown they are all the same thing. So it is gravity that creates the second derivative of the CSF. It is gravity that causes the appearance of an accelerating expansion.

Yes, the field equations have come full circle. In the beginning, Einstein interpreted his new field equations to mean that the universe should be shrinking. He added a constant to make sure his field didn't shrink. But his old equations, as written, never implied a shrinking universe. His reading was upside down, like most readings of the 20th century. Because his field equations implied less curvature at greater distances, they implied less attraction at greater distances. Less attraction means that more distant objects can more easily get away, which they do with ever higher velocities. His problem was the opposite of what he thought it was.

That is what we are seeing now, with the CSF. As it is now, we have a CC and/or dark matter, but still aren't able to match the calculated expansion. We need a CSF on top of them. Why? Because the CSF in this current problem of supernovae is basically Einstein's original gravity field, and neither the CC nor dark matter has been able to slow it down.

You will say, “What? Isn't that backwards?” No. Bear with me and I will explain. The CSF and the original field equations are measuring different things, and they apply to different things. As I showed above, the original field equations were written to apply to forces or accelerations between objects; that is the problem they were meant to solve. But the CSF applies to the shape of the field itself. Separate problems, and separate representations of the problems in the field equations. In other words, by adding the CSF to old field equations, we are basically conflating two different sets of field equations, one that applies to the field itself or data in the field, the other that applies to forces between objects in the field. Because physicists haven't seen that they must separate the two problems, they have not seen that they have created a mishmash of equations and constants and factors.

This can also be seen by looking at the Friedmann equations versus the Einstein equations. Einstein's equations, or what is now called GR, were meant to be applied to objects in the field. Friedmann's equations were meant to be applied to the field itself. But many physicists no longer make this distinction. Einstein's and Friedmann's equations have been mashed together, with constants stacked, to try to match data in any way possible. And since neither Friedmann's equations nor Einstein's equations were correct to begin with, we now have a magnificent mess.

To put it another way, the constants and factors in the newest field equations are applying to different things than the tensors in the field, and so they cannot really affect them. *In this supernova problem*, you could ditch all the other parts of the field equations and just solve with the CSF. The other parts of the field equations are meant to calculate forces or accelerations between objects in the field, but we aren't calculating that here, as I said. So the bulk of the field equations are useless or misapplied. What we want to know is how the field changes at greater distances, and the CSF standing alone already tells us that. It *has* to tell us that, since GR can't tell us that by itself.

As you see, you have to apply any equations in the right way. The same field equations have to be applied to different questions in different ways. You can't just flip a switch, run the equations the same way every time, and expect to get sensible answers. This applies to my field equations as much as Einstein's. If your question concerns the forces or accelerations between objects in the field, then you run the equations one way. If your question concerns how the field changes at greater distances, you run the equations in another way. In fact, the effects seem to reverse, as we have seen. If you run the equations seeking forces between objects, then the gravity field appears to cause a shrinking universe. This is what confused Einstein. The forces were *in* on his objects, and so he thought the tendency of his universe must also be *in*. Not true, as I have shown. Because his forces were "more in" at closer distances, larger distances must appear to be "more out." Einstein's very first solution implied accelerating expansion, but no one has ever seen that.

The CSF just adds back in that original accelerating expansion, after the current equations have failed to solve or even address the question.

But if that is so, then why am I telling you the redshifts are caused by drag? Because the gravity I have been talking about is only part of the unified field equation. I didn't say Einstein's original equations were correct. I said that his original equations matched the CSF, if applied to the supernova problem. Gravity, by itself, gives us this accelerating expansion when applied to the field as whole. But gravity *doesn't* exist by itself. It exists with charge, and charge resists gravity in *all* equations and *all* applications of those equations. When we apply the field equations to calculate forces or accelerations between objects, the charge field has an opposite vector to gravity, balancing the field. And when we apply the field equations to calculate variations in the field as a whole, as in the supernova problem, charge and gravity balance once again, although in a slightly different way. This time gravity appears to cause accelerations out rather than in. Or, to say it another way, it appears to balance nearby objects, but is not capable of balancing far away objects. They appear to escape. In this case, charge supplies the drag that keeps them from escaping.

In other words, gravity decreases at greater distances, and this creates a curve in the math, a curve that *would* allow greater accelerations at greater distances *if* gravity were the only field involved. But gravity is not the only field involved.

That is a mechanical way of looking at it, but most physicists are now buried in the math. So I will state it in a different way, one they will be more likely to understand. The accelerated expansion is just a relic in the math, caused by the fact that the current field equations don't explicitly express the charge field. Because there are no variables or operators for charge in the current equations, there doesn't appear to be anything balancing gravity. The expressed acceleration is then taken to be a real quality of the measured object, rather than simply an expression of gravity. We assume that distant objects really are accelerating away. They aren't, because the real field is a unified field, not a gravity only field.

I will be told, "No, we are finding this accelerated expansion in the data, not in the math!" No you aren't. You are finding accelerating redshifts in the data, and I have already shown that is caused by charge. You are then applying this acceleration to the accelerating expansion that was always in the field equations. I have just shown that the accelerating expansion was already contained in Einstein's first solution, way before the Friedmann equations and the CSF. But in no case was this accelerating expansion ever real, since it was always balanced by charge. Einstein and Friedmann simply didn't understand how or where to express charge in the field equations. No one since then has seen it either. I have shown that charge was in Newton's G and in the Lagrangian (in both V and T). So it was in Einstein's equations from the beginning, but never fully or explicitly expressed.

*skip ahead to part 3b when you get to that long paper on Mercury