

A most elegant philosophy about the Theory Of Everything

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Abstract:

Given a simple set of assumptions, this paper gives an elegant explanation how ElectroMagnetism, the Strong Nuclear Force, the Weak Nuclear Force, Gravity, Inertia, Matter and Time all could “emerge” from a single “fundamental” force.

Introduction:

What we know about things like evolution and the universe is that often things are based on an algorithm of randomly generating virtually endless combinations of basic building blocks. For example how atoms evolved into intelligent life like our own. It would seem logical to assume that on the lowest level, reality is also based on such an algorithm.

However: Current physics theories seem to be getting more and more complex.

I believe this complexity is an indication things are developing in the wrong direction. If reality is based on a basic underlying mechanism things need to be simplified.

After thinking about this for a long time, eventually I felt there are two problems causing the complexity of current theories:

- 1: The definition of time as a fundamental concept.
- 2: The high number of extra dimensions required.

I can understand that for a theoretical model it makes sense mathematically to define time as a fundamental concept or a fourth dimension or to calculate with many extra dimensions.

If however reality is different, I feel that might very well cause the problems we now see when trying to unify the various theories in to a single Theory of Everything.

In any case, when I started to see time as non-fundamental, many things eventually started to make a lot more sense to me and I was able to come up with an elegant philosophy about the Theory Of Everything in 3 dimensions only.

To summarize the introduction: I am assuming time is not fundamental and the universe has only 3 dimensions.

The 4 “fundamental” forces:

At the moment there is a general consensus that there are 4 fundamental forces that are to be explained or unified in a Theory Of Everything: ElectroMagnetism, the Strong Nuclear Force, the Weak Nuclear Force and Gravity.

The Strong and Weak nuclear forces are required in the standard model of particle physics and everybody seems to agree on that. In any case, these forces did not seem to be good candidates for me to start looking at first.

ElectroMagnetism seems to be the best “known” force, although there also seems a lot still unknown about ElectroMagnetism.

I am assuming in this paper that ElectroMagnetism is essentially a chain of electric and magnetic effects where one effect causes the other. So, any given electric effect (ee) causes a magnetic effect (me), causing an electric effect (-ee) causing a magnetic effect (-me) causing an electric effect (ee), etc.

And then there is Gravity. This is an incomprehensible phenomenon at this stage.

Gravity does however seem to have many similarities with Inertia and I believe I have found a very elegant possible explanation for what could cause Inertia and from that the rest followed almost naturally.

Inertia:

Let’s assume that a body of mass in an otherwise completely empty (etherless) universe exhibits Inertia.

So, if we apply a force to it, the body of mass accelerates according to the known laws of physics and if we stop applying a force the acceleration stops and the body of mass stays at a constant velocity.

How can we explain this Inertia? What is “resisting” the applied force to a body of mass in an otherwise completely empty universe where nothing is holding the body of mass in place?

Since we assume the universe is empty, this resistance (Inertia) must be some property of matter itself. A result or consequence of the stuff matter is made of. But then what is this stuff?

We know that both Matter and ElectroMagnetism are equivalent to energy. Could this mean that Matter and ElectroMagnetism are also equivalent?!

Could it be this obvious? Could it be that the “stuff”, the basic building block, matter is made of is some kind of localized, externally ElectroMagnetic (EM) neutral, EM phenomenon?

After thinking about this it started to make a lot of sense to me if we assume that the basic principle of ElectroMagnetism is as described earlier: ee, me, -ee, -me, ee, etc. and then let the time between the EM effects approach zero.

In that case any given EM effect could be cancelled out externally by an anti-effect. In other words: if the anti-effect arrives “soon” enough no EM effect is able to propagate outward as-is and it seems

logical that a localized, more or less stable, externally EM neutral, vortex (for lack of a better word) of EM effects could be the result.

If matter is indeed some kind of EM phenomenon this must be at frequencies higher than the highest observed frequency of EM radiation (gamma radiation ?) because matter does not radiate. But still it is an EM phenomenon. If this is the case then I postdict that particles can be created from high frequency/energy radiation.

If matter is such an EM phenomenon it is obviously not ElectroMagnetism as we know it at the moment. It is something else.

I believe it is a different aggregation state of ElectroMagnetism.

Jumping to conclusions I can see at this point the following possible aggregation states of ElectroMagnetism:

- "Plasma" state: EM near field
- "Gaseous" state: currently known EM spectrum
- "Liquid" state: matter
- "Solid" state: black hole

I postulate now that matter or particles are: more or less stable, externally EM neutral, EM vortices at a high frequency which I will call:

MagnetoElectric (ME) vortices.

Note that MagnetoElectric (ME) and ElectroMagnetic (EM) are identical concepts in principal. It is just a matter of where you start counting. For the purpose of this paper I just needed a different term for ElectroMagnetic.

With these assumptions Inertia becomes easy to understand. All I need to assume for that is that the electric and magnetic effects in the ME vortices each have their own "location" and in order to accelerate such a vortex, any given EM effect caused by another EM effect needs to be "forced" to a location other than where it naturally would occur. And also we must assume that once this has been done the ME vortex is permanently changed in such a way that this movement is retained in all following EM effects until another force is applied.

The problem now "only" is: how to model such ME vortex configurations? How big are the chains or loops of EM effects? Is it a loop of 4, 8, 12 or more EM effects? Maybe these loops can exist in any multiples of 4 and multiple loops (counter "rotating" or randomly "rotating"?) can exist simultaneously in a single ME vortex?

Maybe it is possible to simulate this with software? This may require however (much?) more insight in what exactly ElectroMagnetism is. At the same time I expect that an attempt to model these vortices will help in providing more insight in understanding ElectroMagnetism. I expect that "configurations" of all observed particles could be determined and properties of particles explained with simulation. Properties like stability, (chemical) reactivity and radioactivity for example. Also I would expect that new particles can be predicted.

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Another thing that seems obvious is that such a ME vortex will have a maximum speed because there is a maximum distance between any two following internal EM effects. It seems logical that forcing such a ME vortex “near” this maximum speed will create some kind of exponential increase in Inertia. This is probably some kind of warping of the vortex that cannot “squeeze” further at some point. This squeezing could cause length contraction or time dilation?

Also: explaining the Wave-Particle duality concept, in particular the observed interference phenomena of photons and other particles seems to become easier or logical because a ME vortex (particle) would be in essence a standing ElectroMagnetic wave.

Also: explaining the disappearance of interference patterns when observing photons or particles seems to become easier or logical because detecting a ME vortex (particle) can only be done by some form of EM/ME induction causing a kind of dampening feedback to the detected ME vortex.

Also: I believe a ME vortex could be viewed or modelled as a kind of a vibrating string or strings. Or the other way around: It may be possible to make a breakthrough in string theory if the strings are considered to be ME vortices, which in essence are standing ElectroMagnetic waves.

Strong and weak nuclear forces:

If matter is a ME Vortex I would expect or seem obvious that the Weak Nuclear Force becomes unnecessary because things like radioactive decay and spontaneous fission can be explained by ME vortex instabilities.

I also believe the Strong Nuclear Force is no longer required if matter is a ME Vortex.

If matter or particles are ME vortices there will be many different energy levels and configurations of these ME vortices. In other words, there will be many different particles at certain energy levels that are more or less stable. Given enough force and/or energy such ME vortices can be split or merged with another such ME vortices or EM radiation resulting in one or more other ME vortices and/or EM radiation (i.e. energy).

For example: If we take the ME vortex called Helium nucleus. Current understanding is that because a Helium nucleus can be split up into 2 protons and 2 neutrons a Helium nucleus is also made up from those 2 protons and 2 neutrons.

However, it does not seem logical to me to assume that a Helium nucleus ME vortex is made up of 2 protons and 2 neutrons where the protons need to be kept together with some force. The fact that a Helium nucleus can be split in 2 protons and 2 neutrons only means to me that the energy level of a helium nucleus is (roughly?) the same as the combined energy level of 2 protons and 2 neutrons.

In other words: I see no reason to assume that in this example the ME vortex configuration called proton is present as-is “inside” a ME vortex configuration called Helium nucleus based only on the appearance of a proton when smashing a Helium nucleus.

Instead it makes more sense to me if I consider the Helium nucleus to be a single ME vortex of a certain (overall) configuration with a total energy level equal to that of 2 protons and 2 neutrons and certain (overall) properties like in this example a charge of +2. At the same time it would not surprise
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me though if the Helium ME vortex is made up of four sub vortex configurations where each sub configuration has many similarities with either the proton or neutron ME vortex. But in essence the Helium vortex must be viewed as a single vortex (configuration) and not four different ones held together with some force.

A similar effect may also happen, but to a lesser extent (or maybe not at all ?), between Electrons and nuclei. There seems to be enough proof that electrons exist (almost) as-is “inside” atoms and molecules.

As an everyday life analogy to ME vortices we can use drops of a liquid with a certain surface tension. Depending on the surface tension these drops can bounce against each other without merging. If they bounce fast enough they merge and if they bounce too fast they break up again in different size drops after that.

Of course a particle does not have a surface but an outer zone with increasing “tension”. In order to split or merge ME vortices a certain energy threshold needs to be exceeded to break this tension. Depending on the configuration and energy levels of the resulting ME vortices, there can be (large amounts of) energy released or absorbed if the energy levels of those resulting ME vortices is (much) different than the original ME vortices.

To conclude this section: I predict that in particle colliders a large amount of different particles will be found. The reason for this is that (as explained above) I believe those “sub” particles are not to be viewed as fragments of smashed particles but as newly created particles from energy fragments of smashed particles. In that case any possible “sub” particle that can be created from lower energy levels will be created in a distribution based on probability or stability of those possible “sub” particles at those lower energy levels.

In light of recent developments, this is also the way I view the Higgs Boson for example.

Gravity:

The only remaining “fundamental” force still to be explained now is Gravity.

If we assume that matter or a particle is a ME vortex then it seems logical to assume the only thing that could affect a particle must be some kind of EM/ME field.

If Gravity is some kind of EM/ME field then at least the elegance criterion would be met and ElectroMagnetism would be identified as the single Force from which all other forces emerge.

What we know, or seems safe to assume, about Gravity:

- The effect of Gravity is the same as the effect of Inertia during acceleration
- A Gravity field is like accelerating space.
- Gravity, or a Gravity field, does not radiate energy.
- Gravity influences particles at such a fundamental level that the particles accelerate.
- Gravity works both ways between two particles: Each particle has a gravity field influencing the other particle.

But then what kind of EM/ME field could this Gravity field be?

Given the assumption that matter is a ME vortex and that the time between the EM effects of the ME vortex is not completely zero then it seems logical to assume there may be some not (yet?) detectable EM field at an incredible high frequency/low wavelength that does propagate outward after all?

An interesting question about gravity that may be testable is: does Gravity effect particles directly or is Gravity a result of a kind of entanglement of the Gravity fields themselves?

Let's assume there are two particles created simultaneously at a distance of x light seconds and also assume their gravity fields emanate outwards at the speed of light.

If gravity effects those particles directly then gravity starts working after x seconds going from 0 to max in an instant.

If gravity does not affect those particles directly it would take $x/2$ seconds when the gravity fields "meet" in the middle for gravity to start taking effect. Gradually (linearly?) increasing (in quanta?) from 0 to max from $x/2$ seconds to x seconds?

Further thought and experiments are needed here. For example: Is the Gravity field yet another aggregation state of ElectroMagnetism? Or is the Gravity field itself part of the particle that emanates it? In other words: is the gravity field itself matter and if so does the gravity field itself have (or cause) mass, Inertia or recursive Gravity?

I have been stuck at this point for several years now and unable to come up with a more satisfactory explanation or description of gravity. I feel that I am very close and have hoped to "solve" this before publishing this paper. But it seems that is one bridge to far at the moment.

Time, Time dilation and speed of light:

Assuming time is not fundamental then what is time?

I believe time as we have defined it at the moment is only perceived time. I believe this perceived time is a function of the frequency of the EM effects in ME vortices. If the frequency of these EM effects rises then any matter interactions (radiation, fission, fusion, chemistry, etc.) are quicker and time is perceived to go quicker and vice versa.

If this is the case then the observed time dilation effects are caused by a frequency decrease of the internal EM effects of ME vortexes. I expect that such a frequency decrease can only be the result of ME vortex warping due to acceleration and/or gravity fields.

There seems to be consensus and evidence that high speed also causes time dilation. But speed is relative, so for high speed to cause time dilation I believe there must be some kind of reference frame where the speed is relative to. The only reference frame I can think of is: a gravity field. If that is the case then the higher the gravity field strength, the higher the time dilation effect at any given speed and the lower the gravity field strength the lower the time dilation effect.

This then raises another question: what if indeed there is less time dilation in a low gravity field and time dilation is as I assume in this paper caused by a lower EM frequency in an ME Vortex?
In that case I would also expect that it makes sense or explains that the speed of light depends on gravity field strength.

Conclusion:

I believe I have given a very elegant explanation how Inertia, the Strong Nuclear Force, the Weak Nuclear Force, Gravity, Matter and Time all could “emerge” from ElectroMagnetism.

Making ElectroMagnetism the only “fundamental” force.

All this is based on a simple set of assumptions that I have listed below which seem very reasonable to me. The pieces of the puzzle seem to fit so beautiful with these assumptions that I cannot imagine how this cannot have at least some merit.

If there is merit to this paper and in fact ElectroMagnetism and matter are equivalent then it seems like an explanation for things like dark matter may have been staring (shining) us in the face?

But that, and my ideas about a more fundamental underlying force for ElectroMagnetism, will be in a second paper I plan on writing.

Assumptions made:

Time is not fundamental.

The Universe has only 3 dimensions.

ElectroMagnetism is essentially an chain of electric and magnetic effects where one effect causes the other. Any given electric effect (ee) causes a magnetic effect (me), causing an electric effect (-ee) causing a magnetic effect (-me) causing an electric effect (ee), etc.

Inertia is a property of matter alone. So not dependent of anything else like ether or such concepts.

Gravity is an EM/ME field of some sort.

Abbreviations:

ee: Electric effect
EM: ElectroMagnetic
ME: MagnetoElectric
me: Magnetic effect