

## What is Wrong with Theoretical Physics?

By

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### 1. Introduction

When reviewing Physics textbooks from the 1950s, and comparing what was known then to what is advanced theoretically today, it is obvious that the early theoretical Physicists were somewhat wrong in their analyses decades ago in many concepts. The most serious errors made at that time were the Big Bang model of the Universe, supported by Einstein's Special and General Relativity. That model said that the Universe began at a singularity about 13 Billion years ago, and is growing in all directions by having space expand uniformly between the galaxies. By looking at the current data on the galaxy distribution in the Universe, this model is clearly in error. The galaxies are arranged symmetrically about an Absolute origin point in spherical rings, see <http://home.earthlink.net/~rarydin/periodicity.htm> . The density of mass decreases as  $1\text{-over-}r\text{-squared}$  from this origin, meaning that most of the mass is close to the center. Although it appears that the outer galaxies are moving away faster from us than the inner ones, obeying Hubble's Law, we really don't know what the far galaxies are doing now because we only saw what they were doing billions of years ago. But it is clear that the movement is spherical and not a uniform expansion in all directions. The age of the Universe may be as much as ten times the currently accepted value, and the far galaxies may have slowed down getting ready to collapse back to the origin!

The current theoreticians have now gone so far astray that they have made virtually no progress in the past several decades! As lamented by Lee Smolin in his 2006 monolog, The TROUBLE with PHYSICS. There are five major areas where progress has completely stalled! The five main remaining problems are:

- 1) Combine General Relativity and Quantum Theory into a single theory called Quantum Gravity;
- 2) Resolve the problems in the foundation of Quantum Mechanics by making sense of the theory;
- 3) Determine whether or not the various particles and forces can be unified in a theory that explains all as manifestations of a single, fundamental entity;
- 4) Explain how the multitudinous values in the Standard Model of particle physics are chosen in nature;
- 5) Explain Dark Matter and Dark Energy in Cosmology.

My contention is that all of these problems exist because all of these theories are false and unsupported by experimental data! The most egregious errors are in points 4) and 5). The Standard Model is clearly wrong because it does not explain how the nucleus of an atom works, or how the electrons around the nucleus work. The nucleus is better explained by the Charles Lucas model where the neutrons and protons are in static equilibrium, and are arranged in ordered shells. The atom is better explained by Lucas when the electrons are also assumed to be in static positions of force balance, because then the complex shapes of molecules like proteins can be explained by completing those balances spatially. And the relationship of all the myriad of particles from neutrinos up to the heaviest made, plus perhaps ether at the zero-th level, can be related to a single Lucas theory of construction and inter-relationship using  $\pm 1/3e$  fibers. We should be using these new concepts.

So what has gone wrong? If an Engineer had failed to make progress in making a project work, he would have been fired long ago. Why then do we tolerate such failure by theoretical physicists? As long as we keep paying them, when they do not have success in providing answers, we can never expect valid solutions to these problems! Unfortunately, as long as these people teach courses and continue to publish papers for their “peers”, they are in no danger of losing their jobs.

Maybe we should hire Engineers to solve these problems, since they do not need to honor what has been done in the past, but are dedicated to finding solutions by questioning the precepts used by Physicists, and then come up with new concepts that solve the problems. Engineers are fired if they fail, so they are motivated to find answers that work!

## 2. New Ideas

Perhaps one failed concept is Wave-Particle Duality, where sometimes the particle acts like a particle and sometimes it acts like a wave. We know what a particle is, and we know that it cannot go faster than the speed of light  $c$ . But what is a wave? Waves are seen in water and heard in air, but they spread and their speed is much less than  $c$ .

But what is a radio wave? It is information passed through space at  $c$ , but is it really a wave? We know from gamma ray spectroscopy that photons move individually at  $c$  in a straight line, and they carry both energy and momentum, but maybe they are not waves at all! They seem to just be short packets of energy that carry momentum. Perhaps we are mischaracterizing what comes off of a transmitting antenna, and what is detected at a receiving antenna. Maybe we have billions of photons of different energies leaving the transmitting antenna, mostly in the radial direction, and perhaps a small fraction of these hit a similarly oriented receiving antenna and are absorbed there to produce some electrons, which are collected and amplified to produce a received signal. Of course the process is complicated by modulating a low frequency signal on a high frequency carrier, and then demodulating the carrier out to reconstruct the low frequency part. But the net effect is a received signal that can be heard or watched. We generally use what is called a quarter-wave antenna at the transmitting frequency, oriented in the same direction to maximize what is transmitted and received, but sometimes we use a full-wave antenna to increase the efficiency.

Perhaps that is how radios actually work. It is completely different from the way we have been taught using radio waves! It is an idea a Theoretical Physicist would not consider, but an Engineer would try.

## 3. Subject to Interpretation

In answer to the question, do theoretical physicists really understand what is going on, the answer seems to be, it is all subject to interpretation! Maybe a lot of this interpretation was and is wrong.

I took 2 semesters of graduate Physics for Engineers from Robley Evans at MIT using his 1955 textbook, The Atomic Nucleus. I took my undergraduate physics using Henry Semat's 1939-55 textbook, Introduction to Atomic and Nuclear Physics. I also have a 1958-59 textbook by French called Principles of Modern Physics. I reviewed the latter two to find out some of what they really thought they knew in those days long ago, and I summarize some of the points below:

1)  $E = mc^2$ . This expression was attributed to Einstein from his 1905 SR paper, but it was suggested from experiment more than a decade earlier by at least 10 other scientists. It is undoubtedly true experimentally, because it is the basis of the entire Table of Isotopes, which is now 4 ½ inches thick and covers consistent interactions and energy differences for over 3000 isotopes. Who cares who derived it or how it was derived theoretically? Do we have to accept the theoretical baggage that accompanies this derivation if it is obvious from the data?

2)  $m = m_0 / (1 - v^2/c^2)^{1/2}$ . This expression is undoubtedly true experimentally, because with all the modern particle accelerators we have never been able to make any particle go faster than  $c$ . The functional form has been verified from fitting experiments. Apparently, this was also attributed to the Einstein SR paper. But if the functional form can be obtained by fitting the data, it does not need a theoretical derivation along with all of Einstein's excess baggage!

3) Questions about point 2). Does mass really increase beyond the gravitational mass  $m_0$ , or does the extra energy just somehow attach itself to the particle like a shock wave? If the density remained constant, the particle size would become enormous. Far galaxies seem to be going away at an appreciable fraction of  $c$ , but does that mean they are heavier or bigger? We seem to measure the same atomic transitions there as here on Earth, with only a consistent Doppler red shift. We do not have a consistent answer yet.

In addition, point 2) has been attributed in the textbook to account for length contraction, according to Einstein. Has this been proved experimentally? That and time dilation are the sources of lots of contradictions that come out of SR, as explained by Francisco Müller in his 2005 monograph, The Origins of Einstein's Relativity Theory. Do we have to accept all the baggage of SR because points 1) and 2) are valid?

We also have an argument that GR is unproven and invalid. The late Robert Heaston, in his monograph, Reconstruction of the Derivation of the Einstein Field Equations of General Relativity, Proceedings of the 14<sup>th</sup> Natural Philosophy Alliance International Conference, May 21 - 25, 2007, at University of Connecticut, showed all the steps in Einstein's 1915 paper on General Relativity, and found an inconsistency that invalidates the final solution. In addition, Anatoli Vankov and I have shown that Einstein's 1915 Mercury derivation was invalid because he left out part of the integral, <https://www.youtube.com/watch?v=tL-57qqL6Q>, and when the problem is solved numerically it leads to weird orbits rather than a simple advance in angle. The experimental data on Mercury is up and down because of the variable interference by the other planets, and is almost impossible to analyze for such a small relative discrepancy.

4) The nucleus has been measured at about  $10E-12$  cm, and the electron by Classical formula is about  $10E-13$  cm. If the densities were comparable, the electron would be about 1/20 as big as a proton. Has the electron size ever been measured?

5) The theory of the atom came from Bohr, based on the orbiting of the planets in the Solar System. They seemed to use a similar idea in the nucleus too! The various optical line series were attributed to different elliptical orbits, and it had to be assumed that those quantized orbits did not radiate energy although it was known that accelerated electrons do radiate, as the source of X-rays. Has anyone questioned how a big atom would function with all those orbits interfering with each other, since we do know the orbits in the Solar System, with only 9 planets, interfere strongly with one another. See <https://www.youtube.com/watch?v=rv5GjCkI-bk>. NASA has to solve the simultaneous equations numerically, because an analytic solution is impossible.

The Charles Lucas model of electrons in static positions of force balance in an atom removes all that interference, and allows molecules like proteins to form geometrically in weird but reproducible shapes. The Lucas nucleus model of static nucleons under force balance in shells, allows the magic numbers to be explained and new ones to be found that correspond to experimental data on relative stability. Apparently, the old theory attributed known magic numbers to quantum spin coupling, but they did not know that there were more such numbers to change the sequence and thus modify the analysis.

6) Wave/Particle Duality. Waves were attributed to oscillating EM fields. At first, they did not know what light was, but it did go in a straight line at  $c$ . It was called corpuscular, and later Einstein

called them photons. But there also was Newton's objection that light spread spherically, and if it was a wave, how wide was it? A small packet of energy, not in wave form, makes the most sense. That packet moves as a unit and has the property of momentum, even though it is not a particle because it does move at  $c$ . The question is how do these packets produce diffraction patterns and move at a slower speed inside glass without being waves? Again, it is a matter of interpretation. Can the ensemble of photons produce such patterns by superposition, and how?

Light has been compared to sound waves in the textbooks, but these are waves in matter, as are water waves, and they do spread. The question becomes, can waves exist if matter is not involved? I contend that radio is not made of waves, but of lots of individual photons travelling in the same direction and superimposed to give the effect of a wave.

The other question is about particle waves. Do you need waves to get a pattern by superposition? Do you need Wave Mechanics to explain alpha decay, and explain how an alpha particle gets out of the Nuclear Potential Barrier, or can the static model of a nucleus explain it by vibration to a more likely physical state? I have shown that a simple vibration model is an analog to the Schrödinger equation of Wave Mechanics.

7) Ether. Einstein suggested that ether existed. Empty space, however defined, has the measured physical properties of a Characteristic Impedance of 377 Ohms, and a permittivity and permeability related to  $c$ . Hence, ether must exist and be constant in its density, because light and radio pass over light years of empty space without noticeable distortion. Some suggest that ether moves, but the measured galaxy distribution suggests that there is an Absolute coordinate system centered at its origin, supported by the CMB distribution, and the Dipole Anomaly due to Earth's offset, and that means ether is also static in that system.

With such an Absolute System, all of Einstein's SR becomes nonsense, and all can be explained by Doppler shifts from one galaxy to the other.

#### 4. Analysis of the M-M Experiment

The **Michelson–Morley experiment** was performed over the spring and summer of 1887 by [Albert A. Michelson](#) and [Edward W. Morley](#) at what is now [Case Western Reserve University](#) in [Cleveland, Ohio](#). It compared the [speed of light](#) in perpendicular directions, in an attempt to detect the [relative motion](#) of matter through the stationary [luminiferous ether](#). The result was negative, in that the expected difference between the speed of light in the direction of movement through the presumed ether, and the speed at right angles, was found not to exist.

The device he designed, later known as a [Michelson interferometer](#), sent [yellow](#) light from a [sodium](#) flame (for alignment), or [white](#) light (for the actual observations), through a [half-silvered mirror](#) that was used to split it into two beams traveling at right angles to one another. After leaving the splitter, the beams traveled out to the ends of long arms where they were reflected back into the middle by small mirrors. They then recombined on the far side of the splitter in an eyepiece, producing a pattern of constructive and destructive [interference](#) whose transverse displacement would depend on the relative time it takes light to transit the longitudinal vs. the transverse arms. If the Earth is traveling through an ether medium, a beam reflecting back and forth parallel to the flow of ether would take longer than a beam reflecting perpendicular to the ether because the time gained from traveling downwind is less than that lost traveling upwind.

Michelson–Morley type experiments have been repeated many times with steadily increasing sensitivity. More recent [optical resonator](#) experiments confirmed the absence of any ether wind at the  $10^{-17}$  level.

## 4.1 Assumptions

The primary assumption for M-M was that the light was a wave phenomenon, and that there would be a different Doppler shift in the two directions, no matter how they were oriented to the actual relative velocity through the ether. This should lead to an interference pattern. Since the result was null, they concluded that there was no ether. In other words, they tried to prove something using an assumption of how light worked, and did not obtain their expected result. Instead of examining the validity of their assumptions, they simply tried to improve accuracy until the desired result was obtained, and managed to fail to do so.

## 4.2 New Interpretation

My contention is that light is not a wave, but rather is a superposition of a large number of photons going in the same general direction by collimation. Sodium light has a smaller variation in photon energies than white light, and that is how we can distinguish between them and split them into different spectra.

What happens when light hits a piece of glass? I contend that it is absorbed by the atoms there and then re-emitted in a different direction, and this happens continuously while in the glass. There is a time delay for this process, so the net effect is that it takes longer for the light to traverse the glass than it would to go the same distance in air. This apparent slowing down below  $c$  is what we call the index of refraction. If we shape the glass into a prism, the difference in path lengths is what leads to a focus or spreading and gives lens action!

What happens in a mirror? The same thing happens, namely absorption and re-emission. But now there is a strong change in direction. The net effect is different.

Does this explain the M-M experiment? As a matter of fact, it does! The light from the beam pulse is Doppler shifted as it goes to the first mirror. When it arrives, that shift is removed because the two are moving in the same direction at the same speed. When the light then reflects perpendicularly, it takes on a different Doppler shift due to the new direction, but when it hits the next mirror, that shift is negated too. The net effect is that all such shifts cancel, and there is no net difference no matter how the light chooses its path. That is why the police radar gives the same result when the car is going North or West. All the extraneous movement of the Earth cancels! The M-M experiment analyzed as a wave predicts the wrong result! Analysis as individual photons gives the correct result. So the early physicists got this one wrong too!

## 5) Conclusions

The primary conclusion from the arguments presented above is that Mainstream Physicists have been wrong about concepts of how the Universe works for more than a century. Instead of re-examining their assumptions, they have doubled down, and pushed these ideas further afield! Now they have almost admitted that they are at an impasse, but will keep going as long as their jobs and funding are safe.

On the other hand, a few dissidents with some Engineering experience solving real problems, have begun to question some of the fundamental assumptions used by the Physicists. By trying out new ideas and concepts, that remove some of the ridiculous assumptions such as expanding space and variable time, they have made progress in explaining some of the outstanding questions, such as: 1) What does a nucleus look like and how does it work?; What does an atom look like, and how does it work?; What is the structural inter-relationship between all the known particles?; How is the Universe structured and how does it move?; and How do we explain radio?

Finally, there seems to be some progress in resolving these issues!