

Origin II

The Quest for Proof
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http://physics.esotec.org/Unification_of_Physics-1.pdf

<http://www.esotec.org/physics/index.html>

The Planck length is related to Planck energy by the uncertainty principle. At this scale, the concepts of size and distance break down, as quantum indeterminacy becomes virtually absolute. This makes the Planck scale a fascinating realm for speculation by theoretical physicists from various schools of thought. Is the Planck scale domain a seething mass of virtual black holes? Is it a fabric of unimaginably fine loops or a spin foam network? Is it interpenetrated by innumerable Calabi-Yau manifolds,[1] which connect our 3-dimensional universe with a higher dimensional space? Perhaps our 3-D universe is 'sitting' on a 'brane'[2] which separates it from a 2, 5, or 10-dimensional universe and this accounts for the apparent 'weakness' of gravity in ours. These approaches, among several others, are being considered to gain insight into Planck scale dynamics. This would allow physicists to create a unified description of all the fundamental forces.

Sub-Planck physics Sub-Planck refers to conjectural physics beyond or smaller than the Planck scale. The Elegant Universe[1] by Brian Greene discusses briefly the strange world of the sub-Planck and how it "creates" the quantum universe by its averages. In his later work, The Fabric of the Cosmos, Greene states that "the familiar notion of space and time do not extend into the sub-Planckian realm, which suggests that space and time as we currently understand them may be mere approximations to more fundamental concepts that still await our discovery."

My questions:

Do other universes exist on our subplanck scale and is our universe on the subplanck scale of a larger "hyperverses?" I implied this possibility when I indicated that our universe might just be a subatomic particle in a larger universe. What if our universe is nothing more than a subatomic particle inside a larger universe and our universe is less than planck length inside the larger universe-- and there are sub universes which are smaller than planck length inside our own universe.... this would explain why laws of physics break down at these sizes-- the laws of the other universes take over.

That's why I was so excited when I found the paper about to be published about the physicist from IU conducting research in this area and that the idea of a universe inside a blackhole nested inside a larger universe might be our best hope of a unification of gravity, relativity and quantum mechanics.

I like this idea-- it makes it seem reality is circular-- who knows, maybe distance and size are so meaningless that when you zoom in far enough you get back to the universe you originally started from

I really like the idea of a circular reality where, after going through a bunch of universes you'd eventually get back to where you started because it avoids the problem of infinitely large or infinitely small scales, and a circular reality seems to fit well with the idea of a cyclic universe. Although, to be more accurate, I would say that the omniverse has a weblike structure, in that all of the universes are interconnected, with Layer 1 parallel timeverses branching off to the side, while Layer 2 multiverses are "spokes" in the web, each with their own satellite timeverses. These spokes, and the interconnected weblike structure of the omniverse in general harks back to ZPE, which is also arranged thusly, and perhaps the omniverse's outline is based on that framework, and thus borrows its shape from the geometric arrangement of ZPE in the bulk.

And so begins Origin II-- The Quest for Proof. It looks like research is picking up the pace, as LHC is now operational (for the time being) and the aforementioned IU physicist has published his paper a mere two weeks after I published the "original" Origin. It can be found here:
<http://www.physorg.com/news189792839.html>

Our universe at home within a larger universe? So suggests wormhole research

Enlarge
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Enlarge

Einstein-Rosen bridges like the one visualized above have never been observed in nature, but they provide theoretical physicists and cosmologists with solutions in general relativity by combining models of black holes and white holes.

(PhysOrg.com) -- Could our universe be located within the interior of a wormhole which itself is part of a black hole that lies within a much larger universe?

In studying the radial motion through the event horizon (a black hole's boundary) of two different types of black holes -- Schwarzschild and Einstein-Rosen, both of

which are mathematically legitimate solutions of general relativity -- Poplawski admits that only experiment or observation can reveal the motion of a particle falling into an actual black hole. But he also notes that since observers can only see the outside of the black hole, the interior cannot be observed unless an observer enters or resides within.

"This condition would be satisfied if our universe were the interior of a black hole existing in a bigger universe," he said. "Because Einstein's general theory of relativity does not choose a time orientation, if a black hole can form from the gravitational collapse of matter through an event horizon in the future then the reverse process is also possible. Such a process would describe an exploding white hole: matter emerging from an event horizon in the past, like the expanding universe."

A white hole is connected to a black hole by an Einstein-Rosen bridge (wormhole) and is hypothetically the time reversal of a black hole. Poplawski's paper suggests that all astrophysical black holes, not just Schwarzschild and Einstein-Rosen black holes, may have Einstein-Rosen bridges, each with a new universe inside that formed simultaneously with the black hole.

"From that it follows that our universe could have itself formed from inside a black hole existing inside another universe," he said.

By continuing to study the gravitational collapse of a sphere of dust in isotropic coordinates, and by applying the current research to other types of black holes, views where the universe is born from the interior of an Einstein-Rosen black hole could avoid problems seen by scientists with the Big Bang theory and the black hole information loss problem which claims all information about matter is lost as it goes over the event horizon (in turn defying the laws of quantum physics).

This model in isotropic coordinates of the universe as a black hole could explain the origin of cosmic inflation, Poplawski theorizes.

Its wonderful to see ideas dovetail like this towards a common destination, as this is exactly where my thought experiment is leading to also. The Ekryptotic Model also jives with this, and creates new universes through brane collision (like with M-theory.) That the ancients came suspiciously close to this model of the omniverse makes me wonder if our brains aren't the only tool we need to solve the universe and unification riddle! As a matter of fact, I can extend this further, and theorize that the omniverse that our universe resides within, had a unitary origin-- that is, it originated in one dimension, one force, one plane of existence-- and from wherein emerged everything else, our three spatial dimensions plus time plus the four forces and even the higher dimensions theorized by M-theory, not to mention the parallel timeverses and other multiverses in the omniverse

also. This is where Imaginary Time comes in. That's the "time before time" or the time outside of space-time, which existed before the last big bang. I'm playing around with the idea that there's an "Imaginary Space" also (which sci-fi writers call "hyperspace") which exists outside of our space-time and is the "sea" (in other words, in the bulk) that separates the universes and from which our 3 spatial dimensions emerged, just like time emerged from "Imaginary Time." Well, the way this would work is, the same way "cutting" through hyperspace would get you between two distant nonconnected points in space, "cutting" through imaginary time (maybe we should just call it hypertime) would get you between two distant nonconnected points in time. And thus, in a single shot, we can have both "effective" faster than light travel ("effective" because it doesn't really mean you're going faster than light, but merely taking a shortcut), as well as time travel. This is what happens when particles or photons exhibit quantum entanglement, superposition, teleportation, etc and violate locality, and this is also what happens in closed timelike curves. All the spatial dimensions originated from that one hyperspatial dimension and that all the temporal dimensions emerged from that imaginary time dimension. In other words, those two dimensions are the "quarks" of all the dimensions we see today, as well as the additional dimensions of M-theory. Basically, it means that on a really small scale (called subplanck) space-time ceases to exist and imaginary space/ imaginary time take over-- thus permitting this kind of strange behavior on the quantum level. This is where I left things off in Origin, and as research continues in this area, and I refine my theories, I will continue with my work. Hopefully the LHC or its successor will get us to the subplanckian scale and -- who knows-- we might even construct our first black holes (baby universes?) and be able to examine the seeds of a new reality ourselves firsthand!

In Origin, I never got around to talking about Loop Quantum Gravity, as it's a theory that competes with String Theory. I find it quite intriguing however, that LQG also allows for a universe to have existed before the big bang, and removes the big bang singularity (as well as black hole singularities) by calling for black hole densities to actually go down as their core diameter decreases to under 10 Planck lengths. How does it do this? Well, in LQG (like in string theory) space-time is made up of discrete units (unlike Relativity, in which space-time is a continuum), and this quantized version of space-time (the discrete units are of the Planck length) are arranged in spin networks. By removing singularities, it goes where Relativity and Quantum Mechanics can't go by themselves and even attempts to describe what lies beyond the edge of space-time (in other words, inside the "singularities.") None of our physics at the present time (not even LQG or string theory) can account for what occurs on the subplanck scale-- thus, some heretofore unknown physics is probably involved there-- which would likely unify everything-- one dimension, one force, one fabric to describe the whole omniverse! Likely, the outline of the omniverse is written on the face of ZPE at that level and-- we can dream-- maybe the history of all the universes that lie within; not only the superstructure of the superclusters and supervoids, but of

each individual galaxy, star, planet, even forms of life! Like a fossilized record, but not only containing the past and present, but perhaps the future also who knows, maybe people with premonitions can read ZPE data subconsciously-- after all, our brains are part of the structure of the universe and would likely be able to accomplish that task on a deeper level.) In that sense, it might have great predictive value to show us exactly where our universe (and maybe even our species) is going-- whether its a cyclic universe, as I suspect, or something else. Virtual particles would be on the border between space-time and hyperspace-time and thus would wink into and out of existence as they travel from one disconnected point in space-time to another (or to another universe entirely) through microblackhole-wormhole bridges (which might actually be other universes with different dimensions than ours) embedded within the quantum foam. Now, how much information we can read out of the ZPE depends upon the constraints of the Heisenberg Uncertainty Principle; we might only be able to read a broad overview of the history of the omniverse, or we might need new physics to probe beyond the level of the Heisenberg Uncertainty Principle. Another intriguing fact is that, with the idea that our universe formed inside a black hole, the holographic principle comes into play. And it dovetails with the idea that the history of our universe can be described on a flat surface, the same way the holographic principle is applied to conventional black holes (which are, in all likelihood, the "outside" of other universes in their own right.)

Anyway, as I stated earlier, LQG allows for a pre-big bang universe, and the best way to picture this is to imagine a balloon collapsing. This would be the universe prior to ours. As it collapses to a single point, the opposite sides of the balloon would go through each other, and the universe would expand once again, but this time its sides would be reversed. If LQG is correct, the strength of gravity should massively increase on nanoscopic scales (because gravity is less diluted at this scale with only one or two dimensions to deal with)-- this is something that is testable within our current level of technology and we will likely know whether LQG is correct once the LHC is fully operational. This would be the inflationary period of our own universe. Coupled with the cyclic model, which allows for dark energy to occupy the universe completely at its maximum extent, this takes care of the entropy problem (as dark energy is nothing more than ZPE that has infiltrated our universe from the bulk to balance out both sides.) This would create a double helix like structure for our universe (like DNA/RNA)-- showing, once again, how the universe mimics itself on various levels. Research is ongoing about what the prior universe might have been like, and some suggest that its larger structures were very similar to our own (because during each big bang, when the universe is the size of a particle, quantum effects take over, and the universe which results, is just like a huge particle, with its structures, the results of quantum processes-- including entanglement, superposition, teleportation, etc.-- and these might also be the reason why we have "bridges" (black hole - worm hole pairs) between different universes-- as these are the larger scale version of bridges that exist at the quantum level and cause all the

bizarre effects of nonlocality! Its interesting that the quality of superposition (two particles at exactly the same location at the same time) and entanglement (basically one particle at two or more different locations at the same time), which seem like opposite properties, can both be explained by the theories of higher dimensions-- for while it seems like the same location-- there needs to be an extra dimension (hyperspace or the original spatial dimension and/or imaginary time, the original temporal dimension of the omniverse), which is not being included. Its like looking from above and seeing a bird fly over a house; it looks as if the bird is superimposed on top of the house, but that's only because we havent made an allowance for the third spatial dimension of depth. In the case of entanglement, tunneling and teleportation, two objects may seem completely unconnected in the conventional dimensions, but these are just shadows of their higher forms, which could be linked in the extra dimensions. Which fulfills Plato's vision from over two millenia ago! And these linkages are facilitated by the presence of black hole - wormhole bridges of various sizes, from the nanoscopic all the way through the supermassive. The existence of gravity requires the presence of additional dimensions to not only explain its source, but also the reason why its effects become diluted inside universes (which are basically just islands of different dimensions floating in the original dimensions of the bulk: the truest fulfillment of Immanuel Kant's vision of island universes two hundred years later!) and also why gravity's effects grow much stronger on the nanoscopic scale, even though there is less mass overall-- because, on the nanoscopic scale, the conventional dimensions disappear and we are back to the original dimensions of the bulk: hyperspace and imaginary time (which facilitates microscopic black hole - wormhole formation and is the fundamental state of the omniverse.) This is where we get the 11 dimensions from; the 3+1 dimensions of our own universe and its parallel timeverses as well as any other outside multiverses that have the same dimensions, forces and physical laws and constants but with a different amount of mass-energy (and thus a different length of oscillation) and different structures resulting from big bang quantum fluctuations (call that layer 1b), the 3+1 complementary dimensions of Layer 2 multiverses with their own laws of physics and constants (think complementary colors or quarks, with dark energy substituting for gluons, and likewise, increasing in strength as it expands-- until eventually, the rubber band "snaps" and it comes back, like the gluons and the strong nuclear force which confines quarks inside subatomic particles-- maybe the larger scale version of that is what guarantees an oscillating universe), plus the fundamental original space and time dimensions of the bulk (hyperspace and imaginary time) and the gravity dimension. I put forth the idea that there are also four complementary forces to the four forces in our universe (note that complementary doesnt mean "anti") and that these universes with complementary dimensions or a mix of complementary and "normal" dimensions will also have complementary forces or a mix, codependent on each other, as well as complementary force carriers (except for EM and gravity, which are always the same.) And each universe's identical but opposite antiverse (mirrorverse) will have all complementary dimensions and

forces, be composed predominantly of antimatter and the total mass-energy of the universe/antiverse pair will always be roughly equal (roughly because this is also dependent on virtual particle interactions with the outside omniverse and the ZPE interaction with the bulk.) In these antiverses, to an observer from its counterpart, everything (including time) would appear to be going backwards and photons would appear to be the slowest particles, as everything else was apparently exceeding the speed of light-- although none of this would actually be the case. The only thing they would have in common would be light and its properties and its speed, which would also form their boundary. The funny thing is, someone from an antiverse observing its counterpart, would see exactly the same reversals! Dimensions and their complementary counterparts emerging from their fundamental versions in the bulk makes sense intuitively-- it preserves the dimensional "balance" (new conservation law?) the same way pair production does. Same goes with forces and their complementary counterparts. Dimensions from each 3+1 group can mix in another multiverse, but two complementary dimensions (or forces) cant exist in the same universe (which will lead to ways of classifying multiverses based on their physical laws and constants which come from the combination of dimensions and complementary dimensions and resultant forces and complementary forces they have, as well as total mass-energy content, the same way we do for stars and galaxies), much the same way matter and antimatter cant coexist (for example, we can have length, width, complementary depth and complementary time but we cant have length, width, complementary width and time or length, width, time and complementary time in the same universe-- dimensions [or forces] and their complementaries in the same universe would cancel each other out; that universe would be unstable and collapse in on itself as soon as it was formed [and all its energy would be released and add to the ZPE of the bulk and omniverse as a whole-- the clumping of the ZPE from the action of gravity, forming virtual particles in the bulk, which leads to the creation of more bubble universes and multiverses in the same way stars and planets are formed [and virtual particles in our and other universes might merely be nested universes, as they bounce from hyperverses to hyperverses {resulting from extremely high energy GRBs and cosmic rays, not only in the hyperverses, but within the nested universes also, right on down the line, until they finally reach their ground state and become stable in the bulk-- something we might be doing also; as the paper above noted, being in a nested universe would unify quantum mechanics and relativity}); the action of gravity on ZPE to create virtual particles is what created the extra dimensions, forces and the island universes in the first place, so they would just be returning back to their original source-- perhaps resulting in GRBs in adjacent multiverses to create more bridges and nested universes or even a local increase in the CMB {the history of created nested universes and multiverses being written in the CMB and the history of ground state universes and multiverses being written in the ZPE of the bulk would be fundamental aspects of the holographic principle-- as we have seen in some parts of the universe!} because, as the dimensions and forces canceled each other out, undiluted gravity would take over [this might even result

in "dead end" bridges-- that is, black hole wormhole pairs that end in the bulk {because the bulk overall has more energy than any universe within because of all the dimensions and forces being unified there, thus the creation and cycling of a universe and its bridges actually follow the entropy law as they balance the virtual particle and ZPE content of the omniverse, all the while creating more universes!} instead of inter or intrauniverse in adjacent universes-- travellers beware!]- but we NEED multiple dimensions and forces to dilute gravity and keep it in check! Black hole - wormhole bridges between adjacent multiverses with one or more complementary dimensions and forces between them might even facilitate the formation of multiple bridges between them and might cause excessive GRBs inside both and thus make life nonexistent or nearly so-- along with producing more nested universes! Something to ponder when you consider which universes might be likely to have life within. Antimatter is probably more prevalent in universes of complementary dimensions and forces also.) The intensity of gravity is tempered somewhat by the fact that the relationship between density, mass and volume breaks down at that level, as LQG and string theory have predicted and explained (the convergence of both on the same solution is heartening when considering the likelihood of this solution being correct.) So, whether black hole worm hole bridges are bundles of strings or loops (the more massive ones being more densely packed), the overall solution is the same. Earlier, and in Origin, I had discussed how subPlanck to Planck sized black hole - wormhole bridges might be embedded in the quantum foam (the virtual particle/energy/ZPE landscape of the omniverse.) This is facilitated by the Uncertainty Principle, which indicates that as we probe smaller and smaller distances and times, the peaks and valleys in the quantum foam landscape grow steeper and deeper and the virtual particles become more and more energized and thus the ZPE grows in proportion within each universe on successively smaller scales. What then happens is that, just as some have predicted that the LHC will produce black holes, they are produced "naturally" all across space-time on the microscopic scale, embedded in the quantum foam, as it is bombarded by extremely high energy cosmic rays and gamma ray bursts (this is the reason why gravity increases on the nanoscopic scale-- the higher amounts of energy on the smaller scales and the formation of black hole wormhole bridges and this would also explain the presence of dark matter, which sculpts the large scale structure of our universe in collusion with dark energy and ZPE.) Except that there are many many more of them than the LHC could ever produce as the intensity of these collisions is many orders of magnitude greater and far beyond our current level of technology (and for some time to come.) But this does give us the blueprint for creating our own traversable black hole wormhole bridges with resultant "effective" FTL travel ("effective" because it wouldnt really be going faster than light in as much as going outside space-time in a warp bubble) and time travel one day. And the smaller the space-time scale, the more massive the bridges are on both sides (and the more particles and energy they shuttle back and forth, thus leading to that steeper and deeper quantum foam), but also the more quickly they evaporate to more than make up for their increased mass and

energy transport-- until space-time itself breaks down and the linkages are established between universes and between seemingly unconnected points in the same universe and into the bulk! Cause and effect become the same thing! The extremely energetic photons colliding with virtual particles along their route result in hyperspatial bridges (that is, black hole - wormhole pairs) between different points in our universe and other universes also. This thus provides the vehicle for more virtual particles and energy being shuttled back and forth intra and inter universe while maintaining Conservation Laws while creating more nested universes, more cosmic rays and GRB, more bridges and more nested universes. Yet another feedback loop! The dead end bridges mentioned earlier might be how some of these nested universes end up in the bulk and is also what maintains the ZPE balance between each universe and the bulk (and the ZPE is the fuel to create more universes.) The more massive virtual particles that become universes will have a much shorter lifespan (mimicking the lifespan of massive stars), because they will implode under the force of their own gravitation, but will become fodder for the next generation of universes as their energy gets released into the bulk and the rest of the omniverse, resulting in more ZPE, GRBs, cosmic rays, hyperspatial links, nested universes and etc. Thus we establish a feedback loop of highly energetic photons hitting particles creating bridges causing more particles to wink in and out which results in more interactions with more energized photons leading to even more black hole - wormhole pairs. Yet another circular feature of the omniverse! The mere creation of these bridges causes the destruction of space-time on the subplanck level (or the inability of it to exist in the first place), as the quantum foam becomes littered with nanoscopic black hole - wormhole pairs distorting space beyond all recognition because of the density of the bridges at that level and multiple closed timelike curves within close proximity of each other surrounding each bridge doing the same with time. As a matter of fact, what we perceive as space-time is merely the sum of all the interactions that occur at that level (and the black holes and worm holes cancel each other out on the macroscopic level hence we don't feel the extreme gravity of the nanoscopic level, or not nearly so, as we still have dark matter to deal with, which might represent the imbalance between black holes and wormholes-- thus the steepness and deepness of the quantum foam evens out at larger scales and makes space-time appear smooth and continuous in accordance with Relativity-- keep in mind, quantum foam exists below the scale of the "quantized" structure of space-time on the planck level, so this is what would exist "between" the quanta of space-time on the subplanck scale), so it can be said more accurately that it's our perceptions that are distorted and that space-time and cause-effect don't actually exist, thus allowing for FTL space travel and time travel! This is exactly why all those nonlocal properties actually occur at the quantum level where space-time isn't smooth or continuous and why we need so much more energy to do it on our macroscopic level! The alignment of the black hole - wormhole pairs depends on which "side" the energetic photons collided with; that is, if it was in our universe, then the black hole side will be on our side and the worm hole on the other side and vice versa. In the case of

intrauniverse bridges, they simply link two different parts of the same universe and the black hole side will again be wherever the collision occurred. In the case of the bulk, its wherever an adjacent universe/multiverse collapsed and/or big banged. What determines where the wormhole will open up is the angle and intensity of the collision (lowest intensity dead end bridges leading to the bulk, the final destination of a stable and mature universe, next intensity interuniverse, higher intensity layer 1 timeverse, highest intensity layer 2 multiverse.) Thus universes which have an inordinate number of GRB and cosmic radiation of high intensities will have a higher number of microscopic black holes and will be stripped of their matter more quickly and gain dark energy more quickly thus bouncing back more quickly and yet produce more nested universes within a given amount of time, while universes that are less active have longer oscillatory periods (akin to more and less active galaxies-- yet another way that the omniverse repeats on different scales.) The black hole - wormhole bridges only exist for a finite period of time before they slowly evaporate and release energy, but they fulfill their mission of shuttling particles and energy throughout the omniverse and keeping the balance intact and leading to more bridge and universe formation. Not only that, but they also facilitate the balance of ZPE between the bulk and the universes, leading to increasing amounts of dark energy in proportion to the size of the universe and expansion. Which means that the presence of ZPE in the quantum foam in a given universe leads to even more ZPE-- like a chain reaction! Which eventually leads to the expansion of the universe coming to a halt (as all the matter gets used up; the universe reaches balance both with the bulk and within itself and all the black holes evaporate and the universe actually becomes smooth and continuous with no connections to external multiverses or the bulk and the parallel timeverses all collapse into the same universe-- similar to the collapse of the wave function-- and only dark energy remains) and the universe comes back to point size empty-- only to big bang and separate into satellite timeverses and re-establish connections with other multiverses and the bulk again as GRB and cosmic radiation interact with matter all over again and create more nested universes (something we might be doing ourselves one day)! This is the ultimate of all feedback loops-- the oscillating omniverse! In the far far future, as the expansion nears its peak, the quantum foam landscape will start to become less and less steep as the amount of dark energy increases in the universe and space-time actually becomes smoother as larger scale black hole wormhole pairs take over the transport of virtual particles and ZPE with time. Until, eventually, those too will evaporate. Its a good thing, for otherwise we would be doomed to a universe that got ripped apart-- granted it would be far far in the future! How the next oscillation proceeds depends upon the quantum fluctuations that happen upon that universe just prior to and during the next big bang-- which might be triggered by something as simple as a virtual particle interaction with an adjoining universe or a brane on brane collision. We might even be seeing signs of big bangs in other universes through the action of extremely high intensity gamma ray bursts (GRBs) and cosmic rays which, while producing more hyperspatial links between and through

universes, can also be a sign of the creation of a new universe itself!

Does this mean that the older universe was an exact duplicate? No. The larger scale structures, such as superclusters and voids were likely similar, but the galaxies, star clusters, planets, etc born from them were probably different, as there is an inherent randomness involved with quantum processes which would have larger scale results as the universe evolved. As I work on this paper, I'm also writing another essay; this one concerns the origin of consciousness. The connections between consciousness, higher dimensions, and quantum mechanics has always fascinated me (some of the latest theories of quantum consciousness invoke the idea that the deeper parts of consciousness come from the original dimension, in the bulk, which is why confirmed cases of ESP might be analogous to quantum entanglement, superposition or teleportation, since the quantum field acting through the original dimension leads to nonlocality-- where classical space-time ceases to exist on the subPlanck level-- which harks back to the philosophy of the timelessness of the "soul"-- and Carl Jung's collective consciousness, which might be outlined by ZPE along with entanglement)-- because here you have not only the insight of modern physics, but also that of ancient philosophy. It's as if the human mind already understood this on some basic instinctual level, because we are a part of it, and we just need the mathematics of it to be ironed out and be at a level of technology where we can actually come up with the proof to back up our theories. In this way, we must pay tribute to Plato who, without anything resembling the kind of technology or math we have today, came up with the idea of higher planes of reality and how our senses could only perceive of a shadow of what existence really is ("The Allegory of the Cave")-- he even predicted how resistant that people would be at first to accept this idea, until they were confronted with irrefutable proof.