

Origins 8

It's only a matter of time...

I want to remove the "anthropic" notion that new time lines are invented by choices we make. My theory is that these time lines were all there ever since space-time emerged from the Big Bang. In other words, new time lines don't get made because of the choices we make, rather, the choices we make get made because of the time line we are in (How's that for a reversal of cause and effect!) I consider this much more "natural" since, after all, the choices we make are a function of our environment (hint, hint: TIME LINE.) This happens because all pasts, presents and futures exist simultaneously in another temporal dimension and thus the future is already written in each timeline. The branches that are to be created in the future have already been created! In other words, the timeline remains unchanged, and what was supposed to happen in it happens. The multitude of timelines gives us the false impression of determinism and cause and effect (sort of like the false determinism of the double slit experiment, as the multitude of possibilities gives us the illusion of having a hand in the outcome as they collapse into one at the point of measurement), as explained in Origin 6 and 7. This is further explained by the effects of precognition and clairvoyance, which shows the brain exists in multiple emergent dimensions, as defined by quantum gravity and also explained in earlier Origins. We have quantum foam structures in our brains complete with wormhole tunneling that function like all wormholes do in making both space and time nonlocal. The ripple effect would be exactly that effect which would change our position in the second temporal dimension as we journey through time (so the ripple travels sideways as well as left right.) As a matter of fact, since my theory contains three dimensions of time, it's quite possible a ripple in time is just like one in space, as it propagates across three temporal dimensions where the different time lines are nested. This rippling is what causes one to change position with respect to the time line they are in when they go forwards or backwards in time, and thus end up in an entirely new one (thus avoiding paradoxes and loops.) Because the ripple effect just changes the position of the time lines relative to each other, it does not alter the past or change the future. Only the inner contents of said time line can do that. And since going back in time makes one switch position relative to the time line they were in, instead of the past being altered, the person just enters a new time line. I also had a pretty scary thought-- what is to prevent someone from being sent to a time line in which humanity doesn't even exist? What if the Cretaceous Mass Extinction never happened in some of the time lines? I would think that in the other temporal dimensions these timelines would be much more distant from our present time line (sort of like a quantum probability chart of what is likely to happen-- it can be interpreted that all those events/timelines are real, it's just that the ones on the periphery are far outnumbered by the more "likely" solutions in the middle) so perhaps the ripples don't perturb them, but the idea of being sent to a non-humanity

timeline is a sobering thought. And the same for a future one. What if you went to a point in earth's history after it was destroyed by an asteroid or something? It would be pretty lonely being on a rock with a population of one. And not a very long existence unless you quickly jumped out of there. Maybe there is some way of knowing in advance (that is, before you go there) what is going on in a certain time line and if you can choose which time line to navigate to. Im thinking that if you could send a video camera there attached to a time probe and be able to get a communications link set up you should be able to tell if its safe to go there-- it would probably require the hyperspatial quantum computational link I wrote about. All of this applies to space-jumps through wormholes also (where is that bubble?) As far as being able to preselect which timeline to navigate to, although this might violate the Uncertainty Principle, I can see a way around that if the Principle has some chinks in its armor as it's starting to appear it has. Namely the fact that a partial quantum wave collapse can be brought back to its original state, which tells me that it might be possible to determine an object's exact location and momentum at the same time without altering its state using quantum computing. If this is the case, given a high enough level of technology, we should be able to specify exactly which timeline to go to (think determining the momentum and location of particles of time or chronons) with a minimum of rippling. However, I still dont believe determinism is possible, since the branches "created" on the time line were always there (at least in that cycle of the universe) and thus by altering the past you only embark on a new branch of time. The original branch you left from remains unchanged as well as any subsequent branches you enter. The roads have always been there, we are just along for the ride. Causality and the speed of light "limit" make you think the illusion of determinism is real, but wormhole tunnels show that it really isnt. You might be able to get back to your original time line, but only if you were fated to do so. Anyway, borrowing some ideas from the quantum, lets say that the big bang emerged from a quantum particle; we can also see how all these time lines also emerged from that same source and perhaps the symmetry breakage that separated all the time lines in the second temporal dimension was caused by inflation. Space-time's faster than light movement during the inflationary epoch could certainly be a cause for space-time to tear into multiple time lines, as expansion speed exceeds causality. The creation of mass as the universe cooled would cause the inflationary epoch to end and for normal expansion to begin-- which would accelerate again as it gained volume and surface area, which opened it up to a more rapid accumulation of ZPE (in the form of dark energy.) Conversely, while time lines separate, it would also cause our universe's first interior wormholes to form as well as quantum entanglement across vast distances, as the rapid expansion was too quick to separate causally connected regions of space; and these bridges would not only span regions of space that became otherwise unconnected after expansion, but different time lines also. One of the great remnants left over from inflation are cosmic strings, which have been found close to quasars; a

great example of tears in space, that could also be reflected in the separation of time lines and one of the many sources of gravity leaking into our universe from an adjacent one (along with black holes of various sizes that have universes inside them that also leak gravity through wormhole connections to us.) Furthermore, if the universe is cyclic, perhaps the intense gravitational forces that will come back into play as the universe is collapsing will actually cause all the time lines to collapse back in on themselves and re big bang together in a process I call reverse inflation or "deflation." (Think quantum wave collapse!) Since there doesn't seem to be enough gravity to cause the universe to collapse (right now), perhaps it's this reunification of time lines (reunification of forces, of dimensions, of time lines) that will give us the added force of gravity of all the time lines that we need to bring about the next cycle. For, although an adjacent universe's expansion gets our universe's collapse going as it leaks gravitation to us (which results in accelerated expansion for them-- the same way that the antiverse and mirror antiverse feedback with our universe and the mirrorverse in our own quadverse), the convergence of different time lines is what's needed to really accelerate collapse and cause the intense build up of gravity to bring about deflation and the next big bang. I think this is far more logical than the idea of an open ended universe that collapsed once before but won't again. As a matter of fact, some sort of partial timeline collapse probably occurs inside black holes as you near the singularity. And in Kerr Black Holes, the twisted nature of space-time probably results in a new kind of time that emerges from the converging timelines; this new time represents emergent time lines of a baby universe born from the converging time lines of the parent universe. Unless and until the wormhole connection is severed, there will always be a connection between the two, as dark energy and dark matter is transferred between them to balance out the cosmic scales. At each big bang, time resets to zero and re-emerges from the time scale of the parent universe. IF there is any length of time that the cosmic egg remains in stasis before it bangs, it is on the clock of the parent universe, regardless of how many bangs it has experienced. If the connection gets severed in the distant future, it will function on the time line of whatever new universe it hooks up to and remain in the same convergent-emergent relationship with it throughout its cycles. Similar connections exist within the local quadverse also, and these connections are repeated throughout the omniverse. When timelines collapse there are NO options left as fate has dealt an inexorable course as space and time combine (this is why it's called a singularity)-- until the new space and timelines emerge, of course (whether from a new big bang or inside a baby universe that resides within a black hole.) Of course, there would have to be some way to separate the lanes and the best way to do it is with a second time dimension that runs "side ways" Time travel has already been demonstrated at the molecular and subatomic level (in reactions, time can really go either way-- there really is no such thing as time anyway, it's just an increase in entropy.) It would require much more energy than we are currently capable of harnessing to make time travel possible

at our level, but it probably naturally occurs around black holes which form closed timelike curves. The way we *might* get it to work is to manipulate space time on the level of quantum foam, and then teleport people through the foam by first converting us to energy and then back to matter on the other side. We would have to be converted to energy first in order to permeate the foam (which exists on a nano level)-- so basically, we would have to become part of the quantum effect and be rematerialized back on the other side. Granted, it would be much less of an energy expenditure than creating a wormhole. Actually, if we're going to start this endeavor from the ground up (which I agree with)-- at the quantum level, time is equally likely to go forward as it is backward. This has been done many times-- even up to the molecular level (along with quantum teleportation and tunneling-- the spatial analog of time travel, as both space and time are nonlocal at the quantum level because they aren't fundamental-- hyperspace and imaginary time are, along with gravity.) The arrow of time is an illusion anyway; what we're really talking about is entropy and given enough energy expenditure, you can reverse entropy over small distances (much more likely at the quantum level, where entropy can go either way regardless-- which is also what happened at the big bang and what continues to happen when new universes get made, whether they be outside in the omniverse or perhaps one day inside large particle colliders as convergent and divergent space- time pairs set up in 2D on their holographic boundaries and expand outwards into multiple dimensions as a result of the effects of gravity and time.) If you subscribe to MWI, there are a multitude of possible timelines and when you go back in time you don't change the future, you merely enter a different time line. If there is more than one dimension of time (which many GUTs theorize to help explain what happened before the Big Bang), then it's much easier to see time as a river that branches off into parallel streams (think of a graph, with each dimension of time on an axis and rather than time being one line, it being a series of parallel lines that repeatedly branch). In addition, the closed timelike curves I was referring to earlier also let you go backwards in time.... however, not further back than when the event horizon first formed. This might also be the limit for going back to the past with an artificial time machine (if one is possible): you might be able to go back, but not to any time period before the machine was in existence (you'd need some sort of "receiving" mechanism to exit from.) Or you could just make an alliance with a highly intelligent alien species who developed time travel much earlier than we do and they could send you further back if not a naturally occurring wormhole (whose orientation would need to be programmed to get you to your required destination.) One of the reasons why "traveling back in time" is likely limited to the time period when such technology actually exists.... you would need some sort of time travel receiving mechanism..... unless you're talking about wormholes or some such naturally occurring phenomenon, which would be limited to the existence of that phenomenon. But if hyperspatial communications are possible by then, it's also possible that he could communicate with someone in the future.... but he would need

something a lot more advanced than a cellphone. There's been a blueprint for this kind of communication developed using quantum computing, but obviously that isn't possible on a cellphone. The difference being that on the quantum level, because of tunneling, space is nonlocal and that's why you have what Einstein used to refer to as "spooky action at a distance." This would actually help us in creating pocket sized quantum computers that span whole galaxies (or even universes) and alternate time lines, with the benefit of the nonlocality of space and time-- and this would help us in not only communications across timelines, but actually act like pocket time and space machines and help us dial in and "jump" to anywhere or anywhen. As far as traveling to the future-- that's a lot easier (relatively speaking lol)-- you don't even need a time machine. All you need is to establish a time dilation field, by either accelerating to near the speed of light or with an intense gravitation field like a small black hole. To accelerate to near c you need to convert mass to energy (and then back again) and you need a particle collider like the LHC to generate black holes. Micro sized versions of these might be available within the next few generations (personal particle colliders to power cars, homes and space and time travel?) I bet we will be able to generate stable time dilation fields within the next 50 years. As a matter of fact, there is no "law" that states time behaves the same way everywhere. One of the recent theories I've seen that seeks to refute the accelerated expansion of the universe states that time is running down-- and that the perceived accelerated expansion is just an artifact of the assumption that time is the same everywhere. When I read that part about our current reality being subplanck on the scale of the big bang.... my immediate thought was that OUR subplanck scale could just as easily contain microuniverses with their own realities. If our consciousness is truly multidimensional, there is no reason we couldn't explore these realms one day, as part of us probably exists in them already (subconsciously anyway.) Just like we are still on the subplanck scale of whatever parent universe we are nested inside and so forth in an infinite yet closed loop that leads us back to where we started from (sort of like the whole timeline thing!) And very much like the cyclic universe idea. Someone asked me the other day about the feasibility of time travel through quantum foam, and my response was that we would have to find a way to convert the human body to energy and then back again somehow.... because we ourselves would need to experience quantum effects and that's the only way to do it. We would need to be converted into energy, be quantumly teleported through those quantum vortices and back in time (at that scale, reverse time is just as likely as forward time) and then converted back again to our normal selves. This process is the main challenge-- we have to somehow preserve our identity through the conversions. It might be easier to do it without involving the body-- that is teleporting of conscious energy into another body (possibly our clone in the new time line-- while the original conscious energy of that body experiences "missing time" while we occupy it) and then back again. That way we find a way around all the conversions lol. Changes to the past in time line A would only affect

the future of time line A. What I am saying is that trying to go to one's past-- the mere act of it-- causes a "sideways" shift in time that puts one into a different time line. Think of time as having at least two dimensions and look at it as one looks at objects in a cartesian coordinate system. The mere act of measuring a particle in this system causes it to shift to a new position, in accordance with the Uncertainty Principle. My thinking is the mere act of attempting to go backwards or forwards in time causes a sideways shift so that one's "position" relative to the timeline they were in changes (because of the ripple effect I mentioned earlier. Being able to control the Uncertainty Principle in the way I mentioned earlier might allow us to stay close to our native timelines-- to keep things relatively similar to our base reality-- as well as even be able to navigate to exactly which timeline we want to go to and be able to send a time probe out there in advance to see what its like there.) Thus the act of moving in time causes a change in the second temporal dimension so that one doesnt stay in the same time line. I call it a parallel timeverse. (However, theyre all part of the same universe, its just causality that makes them appear to be "outside"-- something we can change with wormholes-- which circumvent both light speed and create time travel.) A time machine would need to be built with either wormhole technology (very advanced, requires lots of energy) or we would need a time dilation field built around particle collider generated mini black holes or acceleration close to the speed of light (converting our matter to energy and back again.) Superconductive materials would probably be required in either case. The wormhole (whether its natural or built) offers the advantage of also allowing hyperluminal travel. A natural wormhole offers the further advantage of allowing us to go further back in time (if the idea that you can only go back as far as when the wormhole was first created is correct-- which could be the entire age of this cycle of the universe-- it would just require adjusting to tell it where and when we want to go.) Instead of converting our matter to energy and then back again, it might just be a better idea to project our conscious energy back and forth in time (since its traveling at the speed of light, it would obviously be easy to go forward, but back is also possible with wormhole technology) and send our consciousness into another body or maybe even let it remain noncorporeal ("ghosts" lol or astral projection through time while in a dream state) so it can witness history if not change it (maybe it can cause physical change also if the energy can be made to do work.) The multiple time line scenario gets a big boost if we do have more than one dimension of time. Consider the other dimension to be the "distance" between the two (or more) time lines. A time machine or wormhole would have to be able to navigate this other "sideways" dimension of time. As a matter of fact, with three temporal dimensions, as my theory suggests, we can use pair production to generate a positive and a negative temporal dimension from a neutral time dimension called imaginary time. Just like with my complementary space dimensions emerging from hyperspace using color theory (like how QED explains quarks-- love the fractality in space, time, matter and energy.) The antiverse to our own universe would experience

the temporal dimension opposite to ours and thus would be collapsing while we were expanding (due to both negative time and complementary space) and would big bang when we were at maximum expansion and vice versa and our cycles would feed back off of each other (explained in Origin 6 and 7.) From our perspective, it would seem to be going backwards in time and all matter there would seem to exceed the speed of light (except light itself, which we both have in common at the luxon wall.) Of course, to them, we would seem to be doing that, and they would seem "normal" by their own perspective. This would preserve CPT Symmetry throughout the quadverse as our universe and the mirrorverse are in sync, as are the antiverse and the antimirrorverse. The new NASA mission about to begin to try and detect signs of the antiverse in CMBR data would go a long ways towards helping prove the existence of the quadverse. The implication of CPT symmetry is that a "mirror-image" of our universe — with all objects having their positions reflected by an imaginary plane (corresponding to a parity inversion), all momenta reversed (corresponding to a time inversion) and with all matter replaced by antimatter (corresponding to a charge inversion)— would evolve under exactly our physical laws. The CPT transformation turns our universe into its "mirror image" and vice versa. CPT symmetry is recognized to be a fundamental property of physical laws. In 2002 Oscar Greenberg proved that CPT violation implies the breaking of Lorentz symmetry. This implies that any study of CPT violation includes also Lorentz violation. Several experimental searches of such violations have been performed during the last few years and recently there has been some strong evidence for a violation of charge symmetry in that antineutrinos seem to have a different mass than neutrinos. CPT symmetry can be restored with the quadverse, as mirror neutrinos would balance out the violations. The universe is basically a CTC (closed time loop) inside a black hole, but the time loop isnt entirely closed-- as each repeat is different from previous and subsequent ones (open fractal), and the universe's CTC is nested within its mobius strip as part of the quadverse (which has a total of 4 CTC in that special 2x2 arrangement along with each mobius strip.) As a matter of fact, the time loop of each universe can also be viewed as a mobius strip (or actually multiple mobius strips as part of the quadverse-- which makes it likely that any time machine or wormhole would need to tap into the complementary time dimensions of the antiverse and the antimirrorverse-- likely the latter one so we can avoid being mutually annihilated-- to access the other dimension of time, as well the basic wormhole and bulk dimensions of imaginary time and hyperspace, the basic dimensions of the omniverse-- the latter keeping our position intact, via gravity anchorage, so that movement of celestial bodies is immaterial or can be calculated for during space and time travel and especially since they appear to possess negative time and hyperluminal speed from our perspective, as long as we were in a space-time bubble from our own universe, we could journey through them and even use them to reach distant parts of our own universe, as well as using them for time travel and exploration. IF we just want to go to the future, we can merely use the luxon

wall, for travel to the past, the antimirrorverse, for a combo of the above, hyperspace and imaginary time.) Movement only requires a single dimension of space and one of time, but the illusion of 3D comes from the fact that in the macroscopic world, we see an averaging out of different unidirections of movement at the quantum level (see details on the holographic principle and how the boundary of each universe mirrors what's on its inside in Origin 6 and 7, as well as earlier versions.) As a matter of fact, the 2x2 structure of the quadverse, coupled by the 2x2 dimensional alignment (combine depth with time, since the universe is holographically 2D on the outside-- where our time doesn't exist, as it gives way to the original, neutral temporal dimension of imaginary time-- as the holometer experiment might prove soon enough), and the 2x2 complementary dimensions of the antiverse and antimirrorverse as well as the 2x2 duality of space-time and matter-energy coupled with the 2x2 matrix of the four forces (electro-weak and gravity-strong, which seem to be related), and it seems like the whole omniverse exists in a 2x2 matrix. The recent discovery of a fourth brand of neutrino (which would mean a fourth lepton also), and perhaps a new couplet of quarks (which might help in the creation of mirror bosons) would also bolster the seemingly prevalent 2x2 dualities. As a matter of fact, I would offer the idea that in if indeed there is a mass discrepancy between matter and antimatter, it will appear in reverse in the antiverse and the antimirrorverse, just like time and space are, to make them think their universe is more likely to occur. Because, according to their own makeup they would be just as correct in their assumption as we are in ours. This is just another example of the falsehood of determinism and the observer determining the outcome-- which brings us full circle to where we started from (yet another fractal property!) I would offer up the idea that if the omniverse is indeed fractal then we should be able to journey into other realities because of the mere fact that we all have certain properties in common that lead to the fractality. Of course, we would still need to create some sort of space-time bubble in order to insulate ourselves as we travel across the wormholes that bridge the holographic boundaries. This might be less of an issue if we find a way to project conscious energy directly there-- sort of like the time travel issue we discussed earlier. It can also be argued that because let's say consciousness does exist in higher dimensions, then perhaps we ourselves ALREADY exist outside of the reality we think binds us. The fact is, what we think of reality is limited by our senses

http://www.dailygalaxy.com/my_weblog/2010/11/new-neutrino-discovery-may-explain-why-universe-is-not-made-of-antimatter.html New Neutrino Discovery May Explain Why Universe is Not Dominated Antimatter "The result seems to violate the 'charge-parity symmetry' of the universe, which asserts that the laws of physics apply in the same ways to particles and their counterpart antiparticles. Violations of this symmetry have been seen in some rare decays, but not with neutrinos." Byron Roe, professor emeritus, Physics, University of Michigan The results of a high-profile Fermilab physics experiment involving a University of Michigan professor appear to confirm strange 20-

year-old findings that poke holes in the standard model, suggesting the existence of a new elementary particle: a fourth flavor of neutrino. The new results go further to describe a violation of a fundamental symmetry of the universe asserting that particles of antimatter behave in the same way as their matter counterparts. Neutrinos are neutral elementary particles born in the radioactive decay of other particles. The known "flavors" of neutrinos are the neutral counterparts of electrons and their heavier cousins, muons and taus. Regardless of a neutrino's original flavor, the particles constantly flip from one type to another in a phenomenon called "neutrino flavor oscillation." An electron neutrino might become a muon neutrino, and then later become an electron neutrino again. Scientists previously believed three flavors of neutrino exist, but in this Mini Booster Neutrino Experiment, dubbed MiniBooNE, researchers detected more oscillations than would be possible if there were only three flavors. "These results imply that there are either new particles or forces we had not previously imagined," said Roe. "The simplest explanation involves adding new neutrino-like particles, or sterile neutrinos, which do not have the normal weak interactions." The three known types of neutrino interact with matter primarily through the weak nuclear force, which makes them difficult to detect. It is hypothesized that this fourth flavor would not interact through the weak force, making it even harder to find. The existence of sterile neutrinos could help explain the composition of the universe, said William Louis, a scientist at Los Alamos National Laboratory who was a doctoral student of Roe's at U-M and is involved in the MiniBooNE experiment. "Physicists and astronomers are looking for sterile neutrinos because they could explain some or even all of the dark matter of the universe," Louis said. "Sterile neutrinos could also possibly help explain the matter asymmetry of the universe, or why the universe is primarily composed of matter, rather than antimatter." The MiniBooNE experiment, a collaboration among some 60 researchers at several institutions, was conducted at Fermilab to check the results of the Liquid Scintillator Neutrino Detector (LSND) experiment at Los Alamos National Laboratory, which started in 1990. The LSND was the first to detect more neutrino oscillations than the standard model predicted. MiniBooNE's initial results several years ago, based on data from a neutrino beam (as opposed to an antineutrino beam), did not support the LSND results. The LSND experiment was conducted using an antineutrino beam, though, so that was the next step for MiniBooNE. These new results are based on the first three years of data from an antineutrino beam, and they tell a different story than the earlier results. MiniBooNE's antineutrino beam data does support the LSND findings. And the fact that the MiniBooNE experiments produced different results for antineutrinos than for neutrinos especially astounds physicists. "The fact that we see this effect in antineutrinos and not in neutrinos makes it even more strange," Roe said. "This result means even more serious additions to our standard model would be necessary than had been thought from the first LSND result." While these results are statistically significant and do support the LSND findings, the researchers caution that

they need results over longer periods of time, or additional experiments before physicists can rule out the predictions of the standard model.

http://www.dailygalaxy.com/my_weblog/2010/10/nasa-to-launch-search-for-parallel-anti-matter- universes-

[.html?utm_source=feedburner&utm_medium=email&utm_campaign=Feed](http://www.dailygalaxy.com/my_weblog/2010/10/nasa-to-launch-search-for-parallel-anti-matter- universes-.html?utm_source=feedburner&utm_medium=email&utm_campaign=Feed)

[%3A+TheDailyGalaxyNewsFromPlanetEarthBeyond+%28The+Daily+Galaxy](http://www.dailygalaxy.com/my_weblog/2010/10/nasa-to-launch-search-for-parallel-anti-matter- universes-%3A+TheDailyGalaxyNewsFromPlanetEarthBeyond+%28The+Daily+Galaxy)

[%3A+News+from+Planet+Earth+%26+Beyond%29](http://www.dailygalaxy.com/my_weblog/2010/10/nasa-to-launch-search-for-parallel-anti-matter- universes-%3A+News+from+Planet+Earth+%26+Beyond%29) NASA to Launch Search for Parallel

Universes When NASA launches "AMS-02" on Feb 27, 2011 at 4:04 PM Eastern. Sam

Ting Principal Investigator for the Alpha Magnetic Spectrometer-2 experiment hopes

that it will provide data that proves the existence of parallel universes that are

composed of anti-matter -discoveries could prove verify theories and answer basic

questions regarding how the universe formed. According to Ting, the experiment is

already accruing data as it awaits its February 2011 launch date. Scheduled to fly

aboard the final flight of the space shuttle Endeavour, STS-134, AMS-02 will search

through cosmic rays for exotic particles, antimatter and dark matter. The experiment will

be mounted to the outside of the International Space Station (ISS) and will require no

spacewalks to attach. While Ting has certain things that he hopes to discover, he

believes that the most exciting questions are those that scientists don't even know to

ask yet. The particles that the 7.5 ton experiment is currently registering have had some

of their qualities removed by the abrasive nature of Earth's atmosphere. This problem

will be solved after Feb. 26 when the AMS-02 is delivered to its new home on the space

station's S3 truss assembly. From its high vantage point it is hoped that the experiment

will open new windows into particle physics and cause a revolution in our understanding

of the universe. Ting hopes that AMS-02 will provide data that proves the existence of

parallel universes that are composed of anti-matter. It is also hoped that the experiment

will also discover particles that contain magnetic and electric particles that are exactly

the opposite of ordinary particles -discoveries could verify theories and answer basic

questions regarding how the universe formed such as that of Burt Ovrut, professor of

theoretical high energy physics at the University of Pennsylvania and pioneer of the use

of M-theory to explain the Big bang without the presence of a singularity Ovrut and

colleagues imagine two branes, universes like ours, separated by a tiny gap as tiny as

10⁻³² meters. There would be no communication between the two universes except for

our parallel sister universe's gravitational pull, which could cross the tiny gap. Ovrut's

theory could explain the effect of dark matter where areas of the universe are heavier

than they should be given everything that's present. With Ovrut's theory, the nagging

problems surrounding the Big Bang (beginning from what, and caused how?) are

replaced by an eternal cosmic cycle where dark energy is no longer a mysterious

unknown quantity, but rather the very extra gravitational force that drives the universe to

universe (brane-brane) interaction. Up until AMS-02, mankind's understanding of

cosmic rays has been limited to measuring light gathered in telescopes such as the

Hubble Space Telescope (HST). This experiment will be the first time that charged particles can be studied in the cold vacuum of space – away from the distorting influence of Earth’s turbulent atmosphere. The AMS-02 P.I. is also hoping to find out what dark matter is made of. This material is believed to be the “glue” that holds the universe together. mankind’s understanding of cosmic rays has been limited to measuring light gathered in telescopes such as the Hubble Space Telescope (HST). This experiment will be the first time that charged particles can be studied in the cold vacuum of space – away from the distorting influence of Earth’s opaque atmosphere.

Holometer experiment to test if the universe is a hologram October 28th, 2010 in Physics / General Physics holometerA conceptual design of Fermilab's holometer.

Image credit: symmetry magazine (PhysOrg.com) -- Many ideas in theoretical physics involve extra dimensions, but the possibility that the universe has only two dimensions could also have surprising implications. The idea is that space on the ultra-small Planck scale is two-dimensional, and the third dimension is inextricably linked with time. If this is the case, then our three-dimensional universe is nothing more than a hologram of a two-dimensional universe. This idea of the holographic universe is not new, but physicists at Fermilab are now designing an experiment to test the idea. Fermilab particle astrophysicist Craig Hogan and others are building a holographic interferometer, or “holometer,” in an attempt to detect the noise inherent in spacetime, which would reveal the ultimate maximum frequency limit imposed by nature. As Hogan explains in a recent issue of Fermilab's symmetry magazine, the holometer will be “the most sensitive measurement ever made of spacetime itself.” Hogan and others have already built a one-meter-long prototype of the instrument. They have just begun building the entire 40-meter-long holometer and plan to start collecting data next year. The holometer consists of two completely separate interferometers positioned on top of one other. In each interferometer, a light beam is split into two different parts that travel in different directions. After bouncing off a mirror, the light beams are brought back together where the difference in their phases is measured. Even the smallest vibration will interfere with the light's frequency during its travels and cause the two light beams to be out of sync. While interferometers have been used for more than 100 years, the key to the holometer is achieving extreme precision at high frequencies. The scientists say that the holometer will be seven orders of magnitude more precise than any atomic clock in existence over very short time intervals. By having two interferometers, the researchers can compare them to confirm measurements. In addition, the scientists are making sure that any vibration that is detected isn't coming from the holometer itself. They will arrange sensors outside the holometer to detect normal vibrations, and then cancel these vibrations by shaking the mirrors at the same frequency. After taking these precautions, any detected high-frequency noise could be the jitter of spacetime itself, or “holographic noise.” The noise is expected to have a frequency of a million cycles per second, which is a thousand times higher than what the human ear can hear, noted

Fermilab experimental physicist Aaron Chou. If the experiment does find this holographic noise, it would be the first glimpse beyond our three-dimensional illusion and into the universe's true two-dimensional nature at the Planck scale. More information: via: symmetry magazine "Holometer experiment to test if the universe is a hologram." October 28th, 2010. <http://www.physorg.com/news/2010-10-holometer-universe-hologram.html>